EURAPS

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ABSTRACT BOOK

SESSION 1
RESEARCH

EURAPS

Title : Treatment of Non-Healing Complex Wounds in Autoimmune Disorders via Bone Marrow Aspirate Concentrate and Acellular Dermal Matrix

Introduction:
Development in immunology has marked an era in medicine over the last five decades. While mechanisms of autoimmune diseases interest the immunologists, systemic symptoms enter to occupational areas of other disciplines such as plastic and reconstructive surgery. Behcet's Disease (BD), Systemic Lupus Erythematosus (SLE) and Polyarteritis Nodosa (PAN) are some of the best examples to autoimmune disorders that have skin manifestations. Theories behind the pathogenesis of these diseases currently suggest autoimmune etiologies, but not clearly. The aim of the present study was to assess the efficiency of bone marrow aspirate concentrate (BMAC) combined acellular dermal matrix (ADM) on non-healing complex wounds in autoimmune disorders where conventional therapies have failed.

Materials and Methods:
14 patients (10 men, 4 women) with autoimmune disease and chronic wounds in the lower extremities were included in the study. The ages of the patients ranged from 26 to 64 (Mean: 46.6). 6 patients had PAN, 4 patients had BD, and 4 patients had SLE. The patients had previously undergone debridement and skin graft applications in an external center. 60 cc of bone marrow was harvested and processed to obtain BMAC. BMAC was injected into the wound base. ADM was fixed on the wound. The remaining BMAC was adsorbed into the ADM. 0.2-mm thick STSG was meshed and adapted on the ADM.

Results:
Mean follow-up time was 1.8 years (1-3 years). No seroma or hematoma formation was observed in the subsequent follow-ups. On the 14th postoperative day, graft adaptation was observed. The wounds healed totally and no recurrence occurred during the two-year follow up.

Conclusions:
BMAC therapy combined with ADM has an active role on non-healing complex wounds by a mechanism that can not be fully explained. If this mechanism is solved, there will be more effective methods for wound therapy.

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Title : Alpha1-Antitrypsin treatment and hyperglycemia-related impaired wound healing

Introduction:
Diabetes mellitus is a group of diseases characterized by persistent hyperglycemia. Under these conditions, wound healing is impaired. Indeed, diabetic plastic surgery candidates are advised to undergo prolonged strict glucose control, running the risk of hypoglycemic episodes alongside stroke and heart attacks. Wounds of patients with poorly controlled hyperglycemia are characterized by chronic inflammation, epithelial and endothelial cell injury, and a pathologic angiogenic process. Alpha1-antitrypsin (AAT) is a circulating acute phase glycoprotein that redirects inflammatory signals toward inflammatory resolution, epithelial gap repair, mature blood vessel formation and expedited wound healing. In hyperglycemic individuals, circulating AAT is glycated and inactive. Clinical-grade human AAT has a strong safety record, making it a potential candidate for treating wounds in people with poorly controlled hyperglycemia.

Materials and Methods:
Serum samples from diabetic patients were introduced in-vitro to an epithelial scratch assay with or without added non-glycated clinical-grade AAT, followed by gap closure rate measurements. In-vivo, STZ-induced hyperglycemia was inflicted in wild-type mice; 1 week into hyperglycemia, a 5-mm dorsal skin incision was performed. Wounds were treated with topical AAT (50 𝝻g per wound) at incision and every three days later as wound closure rates were determined. Histology and gene expression profiles were performed at selected time points.

Results:
In-vitro re-epithelialization was impaired in the presence of sera from hyperglycemic patients; sera mixed with clinical-grade AAT, however, exhibited a twofold cell density within 12 hours. In-vivo wound closure rates were low in hyperglycemic mice, unless treated with local AAT; at day 8 from wounding, 50% wounds completed closure compared to zero in the STZ group.

Conclusions:
Collectively, non-glycated clinical-grade AAT appears to surpass some limitations inherent to diabetic sera. More studies should be undertaken to further explore the prospect of AAT supplementation for diabetic wound healing.

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Title : Fish derived acellular dermal matrix and wound healing: a preliminary experience

Introduction:
Derived from Atlantic cod's skin, this dermal acellular matrix is rich in omega 3 polyunsaturated fatty acids, a feature which, added to the maintenance of the three-dimensional structure obtained through a peculiar and "soft" process, seems to make it very similar, in the re-epithelialization phase, to human skin. Furthermore, the presence of omega 3 has recently been associated with an analgesic effect with a consequent improvement in the patient's quality of life. It can be used in the treatment of acute and chronic wounds of different etiology in order to obtain a complete re-epithelialization or to prepare the bed of the lesion to receive, for example, a dermoepidermal graft, this matrix can be applied several times, presenting a variable resorption period between 7 and 14 days.

Materials and Methods:
After regular informed consent, 7 patients, aged between 20 and 80 years, underwent application of the acellular dermal matrix of fish origin in our operating theaters. The patients were affected by: chronic post-traumatic ulcers, diabetic chronic ulcers postooncological excision acute trauma with degloving of from glancing of the left thigh, pressure ulcers. All patients underwent hydro-surgical debridement. Weekly postoperative checks and pain assessment by VAS were performed

Results:
All treated patients reported an improvement in pain symptoms with a reduction of the VAS scale to 2 (average VAS Preop 9) already 7 days after treatment. In two cases the matrix was renewed after 7 days by resorption; all patients at 14 days obtained a valid bed of the lesion which allowed to perform final closure.

Conclusions:
In our experience, the acellular dermal matrix of fish origin has been a useful tool both in order to obtain a valid lesion base and to control painful symptoms, both in the case of acute and chronic lesions. However, further studies need to be performed.

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Title : Assessing the validity of the fibronectin adhesion assay to isolate nasal chondroprogenitor cells for 3D bioprinting facial cartilages

Introduction:
The discovery of chondroprogenitor cells holds promise to transform cartilage tissue engineering. The extraction process is based on preferential adhesion to fibronectin based on the expression of CD49e: a perceived chondroprogenitor stem cell marker present on <1% of cartilage cells. This study sought to determine whether this simple assay was sufficiently reliable to extract chondroprogenitor cells for use in 3D bioprinting facial cartilage.

Materials and Methods:
Nasoseptal cartilage samples from 20 patients (10 male, 10 female) were digested to liberate cartilage-derived cells (CDCs) from extracellular matrix. Total cell number was counted using Trypan Blue exclusion and added to fibronectin coated plates for 20 minutes, to determine the proportion of fibronectin-adherent (FAC) and non-adherent cells (NFACs). All populations underwent flow cytometry to detect mesenchymal stem cell markers and were cultured in osteogenic, chondrogenic and adipogenic media to determine trilineage differentiation potential. Cell adherence and growth kinetic of the different populations were compared using iCELLigence growth assays. Chondrogenic gene expression was assessed using RT-qPCR for Type 2 collagen, aggrecan and SOX9 genes.

Results:
52.6% of cells were fibronectin adherent in males and 57.7% in females, yet on flow cytometrical analysis, only 0.19% of cells expressed CD49e. Moreover, all cells (CDC, FAC and NFACs) demonstrated an affinity for trilineage differentiation by first passage and the expression of stem cell markers increased significantly from digest to first passage (CD29, 44, 49e, 73 and 90, $p<0.0001$). No significant differences were seen in adhesion or growth rates. Collagen and aggrecan gene expression was higher in FACs than CDCs (2-fold higher, $p=0.008$ and 0.012 respectively).

Conclusions:
The fibronectin adhesion assay does not appear to reliably isolate a chondroprogenitor cell population from nasoseptal cartilage, and these cells confer no advantageous properties for tissue engineering facial cartilage. Refinement of cell selection is warranted for future cartilage tissue engineering efforts prior to clinical translation.

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Title : Rapidly processed autologous spray-on cell therapy to improve the epithelialization of severe burns

Introduction:
Largely meshed (1:4–1:9) autologous split-thickness skin grafts (STSGs) are the standard of care for closure of extensive, deep burn injuries. Sprayed, autologous cells can be used to promote epithelialization of mesh interstices or graft donor sites. Recent EU directives classify them as advanced therapy medicinal products (ATMPs). This has resulted in the only commercial cell kit to be withdrawn from EU market. Here we describe the scalable method to produce this product under GMP conditions.

Materials and Methods:
A 5x2-4cm sheet of STSG is harvested in a burn grafting operation. The sheet is sent to the GMP laboratory for immediate processing. The sheet is mechanically cut into smaller pieces and trypsinized to detach the cells and then suspended in saline at a concentration of 2x106 cells/cm3. This product is then delivered back to the operation theatre and sprayed back on top/or under a largely meshed autograft or, onto the graft donor sites.

Results:
The method has yielded 1–5x106 cells/cm2 from harvested, autologous skin. A 5x4 cm STGS can thus provide 20–100x106 cells, over 90% of them being keratinocytes and the viability being 96%. According to the literature, the cell density on the burn treatment site is can be planned to be 45.000–80.000/cm2, covering 440-2.200 cm2 or 2.5-12% of the body's surface area. Our previous studies have shown that skin graft donor site wounds treated with cells demonstrated improved epithelialization by direct morphological comparison and machine learning analysis of the transcriptomes.

Conclusions:
We have shown that rapid and scalable ATMP-classified processing of skin cells is feasible, and application of the skin cells effectively promotes healing and epithelization of donor site wounds. We have preliminary experience on more than 20 patients, but clinical results will be evaluated in an upcoming prospective series of 20 patients.

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Title : Perforator flaps around the nose, anatomy surgical techniques and clinical applications

Introduction:
Cutaneous defects on the nose remain a challenging situation in reconstructive surgery.
The ideal reconstruction should be performed in a meticulous approach according to aesthetic subunits,providing the best coverage in terms of texture, thickness and color match.
The authors describe the vascular anatomy of the perforators of the facial artery around the nose and developed surgical techniques for the reconstruction of the glabellar, dorsum,supratip,alar and alo-naso-triangle subunits.

Materials and Methods:
3 fresh cadaver heads were injected and microdissected for perforators mapping and description

From july 2018 to july 2022 96 patients underwent surgery for cutaneous defects of the nose secondary to cutaneous malignancies excision.
Frozen sections were obtained for each case during the course of surgery.

27 were operated using perforator flaps.

16 patients were operated for defects of the dorsum and supratip using infratrochlear artery perforator flap
8 patients were operated for alar defects and 3 patients were operated for alonasotriangle defects using para alar perforator flaps.

Surgeries were all performed under local anesthesia with additional sedation if needed on an outpatient basis.

Results:
Anatomy and location of the perforators is outlined.
Surgical technique is described in a step by step fashion for each subunit and follow up results are displayed.

No flap losses were observed at the exception of one alar flap due to sepsis.

Conclusions:
As an alternative to randomized or musculocutaneous flaps,
perforator flaps represent a good and reliable method for nose reconstruction being more pliable and easier to transpose, although perfect anatomical knowledge and careful atraumatic surgical technique are mandatory.

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Title : Posterior circumflex humeral artery perforator flap (pchap): cadaveric study and case series

Introduction:
Reconstruction of soft tissue defects of the acromioclavicular region represents a relatively uncommon but challenging event. Many muscular, fasciocutaneous and perforator flaps have been described, including the Posterior Circumflex Humeral Artery perforator (PCHAP) flap based on the direct cutaneous perforator of the PCHA. This study aims to describe a variant of the PCHAP flap, based on a constant musculocutaneous perforator, by means of a cadaveric study and a case series.

Materials and Methods:
A cadaveric study was conducted using 11 upper limbs. The perforator vessels originating from the PCHA were dissected and the musculocutaneous ones were identified and measured in their length and distance from the deltoid tuberosity. Besides, we retrospectively analyzed the posterior shoulder reconstruction conducted among two plastic surgery department (San Gerardo Hospital, Monza and Hospital Papa Giovanni XXIII, Bergamo) using the musculocutaneous perforators of the PCHA..

Results:
The cadaver dissection showed the presence of a constant musculocutaneous perforator arising from the PCHA. The mean pedicle length is 6.10 ± 1.18 cm, the musculocutaneous perforator pierces the fascia at a mean distance of 10.4± 2.06 cm from the deltoid tuberosity. In all the cadaver dissected, the perforator of interest divided into two terminal branches, anterior and posterior, nourishing the skin paddle.In our case series the mean age of the patients was 66.7 y.o., the mean size of the defect was 46 cm2, the mean operating time was 79.3 min, the mean length of hospital stay was 2.7 days and the complication rate was 28.6%.

Conclusions:
According to this preliminar data the PCHAP flap based on the musculocutaneous perforator seems to be a reliable alternative in posterior shoulder region reconstruction.

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Title : Releasing the Brachial Plexus Roots from their Ligamentovascular Restraints: A Cadaveric Study with Report of Three Clinical Cases

Introduction:
The peripheral nerves are restrained by surrounding fascia, ligament, membrane or vasculature render them vulnerable towards tractional forces. These forces translate into tension in the injury site in peripheral nerve repair or grafting, impeding regeneration.
Factors in achieving satisfactory outcomes in nerve repairs are keeping away from injury zone, debridement of nerve ends, and avoiding tension throughout ranges of motion of the joints the nerve crosses. Mobilization of nerve ends should be done to ensure this. Distal nerves have ligamentovascular restraints which are easier to address. However, brachial plexus has more complex and non-linearly organized restraints.
The aim of this study is establishing relations of the brachial plexus and releasing them to gain them maximum mobility without damaging the axonal integrity or vascularization.

Materials and Methods:
Three cadavers/six sides were dissected, nerve roots were exposed and released in a stepwise fashion. After (1) dissecting the nerves from fasciae of the scalenus anterior and branches of the deep cervical vasculature and clavipectoral fascia, (2) rami dorsalis were cut, and (3) release the foraminal ligaments and periosteum from epineurium was carried out. Mobility of the roots was measured and recorded.
In three patients, two trauma, and another with a slow growing soft tissue tumor, this approach was used.

Results:
Most total gain was in coronal plane (9.24+/-3.5mm), followed by sagittal (4.66+/-2.08mm), and axial (4.50+/-1.58mm). The third maneuver gave significantly greater mobility than initial movements in all directions ($p<0.001$). Clinically significant amount of proximal nerve mobility could be achieved in cadaveric and clinical setting.
Complications included moderate amount of pain which eventually subsided. No bleeding necessitating blood transfusions, or postoperative hematoma was encountered.

Conclusions:
Abundant nerve root mobility can be achieved without damaging any critical structures around the brachial plexus nerve roots.

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Title : Lipofilling and the development of de novo breast cancer; a population-based case control study of 1,152 healthy patients over 20 years

Introduction:
Numerous scientific studies examining the co-location of ADSCs within fat grafts into the breast microenvironment highlight the potential increased risk of de novo breast cancer development. Current clinical studies are often limited to single centres with short follow-up, thus preventing conclusive assurances regarding long-term technique safety. This study aims to address the shortfall in clinical dataset and duration of follow up.

Materials and Methods:
Utilising data from the Patient Episode Database for Wales (PEDW) over a 20-year period (1998-2018), a population-based case-control study was designed. Healthy patients, with no history of breast cancer undergoing elective lipofilling to breast were identified and compared with general population controls (5:1 ratio). De novo breast cancer diagnosis was obtained through the Welsh Cancer Intelligence and Surveillance Unit (WCISU) with incidence calculated per person years at risk (PYAR). The association of lipofilling and the incidence of breast cancer were assessed using binary logistic regression.

Results:
Between 1998-2018, 174 patients underwent a lipofilling procedure for cosmetic reasons. These were matched to 978 controls. Within the lipofilling cohort, 6 patients developed breast cancer (7 per 1,000 PYAR) compared with 24 patients in the control group (4.7 per 1,000 PYAR). No association was identified between lipofilling, and the development of breast cancer as evaluated using binary logistic regression (OR 1.55 95% CI 0.61-3.9 p=0.36).

Conclusions:
Despite numerous laboratory-based studies elucidating a potentially increased risk of developing breast cancer following breast lipofilling procedures, our significant population-based study has demonstrated there is no association between lipofilling and the development of breast cancer.

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Title : Evaluation of saturation-guided protocols on the Remote Ischemic Conditioning effect

Introduction:
Although a safe and reliable reconstructive tool, surgical flaps are still reported with complication rates with flap loss as high as 25 percent and partial flap loss rates up to 36 percent due to perfusion insufficiencies. With the desire to improve microcirculation in a reliable, noninvasive and effective way remote ischemic conditioning has been applied. The aim of this study was to compare the effect of remote ischemic conditioning of time and saturation-guided protocols.

Materials and Methods:
Twenty-four healthy subjects underwent four different protocols of remote ischemic conditioning applied to the upper extremity with a one week pause between protocols. Blood flow, tissue oxygen saturation and relative hemoglobin content were measured by means of laser Doppler and spectroscopy (O2C device) at conditioning site on the hand and at the contralateral antero-lateral thigh. The relative increase compared to baseline measurements was assessed and effects of protocols compared by rmANOVA.

Results:
Blood flow, oxygenation and relative hemoglobin count increased significantly ($p < 0.001$) after desaturation to 10% with concomitant muscular effort by fist clenching (Protocol 4) compared to baseline and to the three other protocols (Protocol 1 – time-guided, Protocol 2 – desaturation to 10%, Protocol 3 desaturation to 30%). A significant 50% reduction in time to execute Protocol 4 compared to time-dependent Protocol 1 ($p < 0.001$) was noted.

Conclusions:
Remote ischemic conditioning is a powerful tool to improve skin microcirculation. The addition of muscular excertion reaching a deoxygenation of 10% showed to be faster and more efficient than conventional time-guided protocols. Further research is warranted to translate into flap tissue and to further understand mechanisms of transmission.

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SESSION 2
MICROSURGERY

EURAPS

Title : Free fibula flap (FFF) after traumatic defects of the long bones. Outcomes from a retrospective European multi centre study

Introduction:
Although the versatility of free fibula flap to reconstruct long bone defects has been widely explored, literature only yields articles limited to small case series, with no homogenously reported outcomes.
This study represents the largest multicentre data collection on the use of free fibula flap for orthoplastic reconstruction after trauma, with critically analysed outcomes.

Materials and Methods:
A retrospective analysis of prospectively collected data from 6 European University hospitals was performed between 2009 and 2021. Only microsurgical free fibula flap (FFF) reconstruction after traumatic injury of upper or lower limb (Gustillo 3a-3b fractures) were included. Reconstructions were divided in acute setting (A-F, as first line treatment), or as a late reconstruction after post-traumatic non-union (L-F). Bone healing capacities and complications were analysed.

Results:
Out of 62 patients, 27 patients (44%) received FFF limb reconstruction after acute traumatic injury (A-F) and 35 (56%) were treated after failure of previous surgeries and consequent bone non-union (L-F). We registered one total flap was loss (1.5%), while 6 patients (9.5%) reported soft tissue complications such as wound dehiscence and skin paddle necrosis, treated by VAC therapy and split-thickness skin graft.
Persistent non-unions despite free fibula reconstructions affected in total 15 out of 62 patients (24%) and were more frequent in the L-F reconstructions. All non-unions were treated by debridement and re-fixation under compression, raising the bone consolidation rate to 9o% at the end of follow-up, with no cases of osteomyelitis or limb loss.

Conclusions:
Late fibula reconstructions showed a higher number of previous surgeries before definitive reconstruction and higher complication rates in terms of bone consolidation. In traumatic bone defects over 6 cm, the threshold to perform a FFF should be lowered, as an earlier treatment would avoid repetitive suboptimal procedures and a reconstruction on previously treated bone, more prone to infections and non-unions.

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Title : Limb Salvage in Wagner Grade-4 Diabetic Foot Ulcer by Using Superficial Circumflex Iliac Artery Perforator Free Flap

Introduction:
The limb-salvage in diabetic patients with wagner grade-4 foot ulcers are challenging due to late complications of diabetes such as microangiopathy, wound healing problems and insufficient local soft-tissue for reconstruction. The aim of this study is to present reconstruction result of wagner grade-4 diabetic foot ulcer with SCIP free flap.

Materials and Methods:
18 patients who underwent reconstruction for wagner grade-4 diabetic foot ulcer with SCIP free flaps were retrospectively reviewed. Demographic characteristics of patients, medical history, comorbidities, vascular and bony condition of the affected extremity, characteristics of defects and flap, duration of surgery and post-surgical complications were researched. After serial debridement and wound care, reconstruction was performed with SCIP free flaps including 2 skin islands in 5 patients and one skin island in 13 patients.
The pain, disability and activity limitation of foot, and flap cosmetics were evaluated by using foot functional index (FFI) and 5-point Likert satisfaction scales.

Results:
13 of the patients were male, 5 were female. The mean age was 59.8±8.9 years. Before reconstruction, endovascular and surgical revascularization, and fingers amputations were performed in 3, 1 and 3 patients, respectively. There tissue defects were located in the finger in 6 patients, sole of 9 patients, ankle and dorsal foot in 3 patients. The mean size of skin islands ranged from 7.5 to 60 cm2. The venous insufficiencies in two flaps without flap failure. Mean surgical duration was 219.4±50.2 minutes. The flaps were well adapted to the recipient areas with high patient satisfaction (4.6±1.3). The foot functional index scores improved significantly after surgery (pre-op =9.1±0.4; 12th month =1.9±0.3, $p<.05$).

Conclusions:
Free SCIP flap is one of the cornerstone flap options for foot ulcer in diabetic patients with thin and pliable structure, chimeric design, minimal donor-site morbidity and well-concealed scars.

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Title : Is the SCIP flap the workhorse flap of the future? An analysis of a prospectively followed cohort of consecutive cases in a tertiary European centre.

Introduction:
Originally developed in Asia, the SCIP flap is increasingly being praised worldwide as a reliable and thin soft tissue flap with an excellent donor site and is seen as a potential workhorse flap of the future, despite limited reported experience in Europe. The SCIP flap was introduced in our centre in 2018 and all cases were prospectively recorded. The aim of this study is to analyse these consecutive cases with a view mainly to the reliability and complication profile of this reconstructive method.

Materials and Methods:
All reconstructions with a free SCIP flap since May 2018 were prospectively included. Pre-, peri- and postoperative data were collected for all patients with special focus on outcomes, complications, and patient comorbidities.

Results:
Between May 2018 and August 2022, 57 free microsurgical SCIP flap reconstructions were performed. The majority of defects requiring coverage were in the head and neck region (67%) followed by the lower extremity (21%). Accordingly, the aetiology was oncological in 37 (65%) and traumatic in 11 (19%) patients. A total of 7 (12%) osteocutaneous SCIP flaps were used. At least one relevant comorbidity was present in 39 patients (68%) and 49% of patients were active smokers. The flaps were successful in 95% of cases, with a total of 3 flap losses, 2 of which were head and neck reconstructions. Surgical revisions were required in 9 patients (16%), mainly due to infections in the recipient area.

Conclusions:
In our experience, the SCIP flap is a reliable reconstruction method of soft tissue and also small bone defects with very good success rates despite a high comorbidity burden of the studied cohort. Based on these observations, we believe the SCIP flap has the potential to become a workhorse flap in the future and is our new first option in most reconstructive scenarios.

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Title : Performing free flaps under loco-regional anesthesia: a short case series.

Introduction:
General anesthesia combined with loco-regional anesthesia is widely preferred for free flap transfer. However, elderly patients with multiple morbidities may be considered at high-risk for prolonged surgery under general anesthesia.

Case Report:
Four patients, affected by locally advanced non-melanoma skin cancer, with contraindications to general anesthesia, at our Institution, between 2021 and 2022, underwent wide excision and immediate reconstruction with free flap transfer under loco-regional anesthesia, in spontaneous breathing, without ventilatory support.
One latissimus dorsi (LD) muscle flap was harvested with spinal anesthesia with the aid of erector spinae plane (ESP) and serratus anterior plane (SAP) blocks, while one vastus lateralis muscle flap and one superficial circumflex iliac perforator (SCIP) flap were harvested under neuraxial block. These flaps were respectively transferred to the parieto-occipital, fronto-temporal and temporo-auricular regions; the superficial temporal vessels were used as recipient vessels. A combination of supratrochlear, supraorbital, auriculotemporal, occipital nerves and cervical plexus block was used to manage the recipient-site.
In the last patient, an axillary brachial plexus block allowed to harvest a lateral arm flap and to transfer it to the dorsum of the ipsilateral hand with anastomoses to the dorsal branch of the radial artery and to the cephalic vein.
Patients' mean age was 82.8 years old. Mean operative time was 4h47'. No patient needed transfer to intensive care unit. No partial or total flap loss was observed. Mean time to discharge after surgery was 4.5 days. The mean follow-up was 8 months.

Conclusions:
Free flap transfer under loco-regional anesthesia is technically feasible; however, since neuromuscular-blocking agents cannot be used, flaps based on perforators with intramuscular course should be avoided. Adherence to the surgical planning is crucial, as well as collaboration and communication between surgeons and anesthesiologists. Further studies on larger cohorts of patients are needed to establish the safety of this approach.

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Title : The classification of the conjoined latissimus dorsi – groin flap and the indications for the four types of the flaps (note: article accepted for publication on PRS)

Introduction:
The conjoined latissimus dorsi – groin flap is a versatile flap which can not only serve as osteocutaneous flap to provide large soft tissue and bone for reconstruction of extensive defects but also offer functional muscle transfer and lymph nodes transfer for prevention of lymphedema following wide excision of tumors or major trauma. We classified the conjoined LD-groin flap into four types and proposed the indications for the application of the conjoined flaps based on the defect characteristics.

Materials and Methods:
From 1996 to 2020, 16 patients who underwent reconstruction with conjoined LD-groin flap were reviewed retrospectively.
The flaps were classified into four types depending on the vascularity of thoraco-dorsal vessels and superficial circumflex iliac vessels: (a) type I: pedicled flap of LD flap with groin flap as free flap, (b) type II: pedicled groin flap with LD flap as free flap, (c) type III: both LD and groin flaps were pedicled flaps, (d) type IV: both LD and groin flaps were free flaps. (Figure 1)
The main indications for the conjoined LD-groin flap are the need for extensive and long soft tissue coverage, the necessity of reconstructing bone defects, restoring lymphatic system, and providing functional muscle transfer with one single flap.

Results:
Of the 16 patients, the flap survival rate was 100%. Surgical revision with exploration of the venous pedicle was needed for one case with venous congestion. Skin graft loss and wound dehiscence were found in one case. We describe in detail several cases.

Conclusions:
The conjoined latissimus dorsi – groin flap is a versatile, long flap, up to 80 cm long, used for reconstruction of big defects and which offers bone transfer, functional muscle transfer, and also serves as lymph node transfer flaps for prevention of lymphedema following wide excision of tumors or major trauma.

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Title : Predicting the risk for vascular compromise and complications in free flap transfer: a prospective observational study – preliminary results

Introduction:
Microvascular free tissue transfers often represent the best, yet not the only solution to restore form and function in complex reconstructive cases. Even though great efforts have been made in refining the microsurgical techniques and reducing technical errors, postoperative complications are still high. Therefore, a better understanding of the risk factors associated with vascular compromise (defined as return to theater for anastomotic revision or flap failure) is crucial in aiding surgeons to tailor their decision-making process.

Materials and Methods:
Based on a retrospective study reviewing the last 565 free flaps performed in our institution, we have developed a predictability index for vascular compromise, considering the indication for free flap transfer as well as various comorbidities. Subdividing patients into 3 groups: low-, moderate- and high-risk, increasing index group was associated with a heightened likelihood of flap failure ($p=0.001$). Patients with a moderate-risk index had 9.3 times higher chances of suffering flap failure when compared to the low-risk group, while a high-risk index had 18.6 higher odds. The goal of this study is to validate this predictability index in a prospective observational design.

Results:
A total of 108 patients undergoing free flap transfer were included in the first year of this ongoing study. Preliminary results confirm an increased risk for vascular compromise in the high-risk (20%) and moderate-risk group (7 %) in comparison to the low-risk group (2.2%). Furthermore, all postoperative surgical complications were recorded and divided into minor (conservative treatment) and major (resulting in return to operating theater). All body regions and indications were included, therefore evaluating the discriminatory power of the index across the entire spectrum of microsurgical reconstructions.

Conclusions:
If proven successfully, this predictability index could help provide patients with improved counselling before consenting to such complex procedures and identify cases where alternative reconstructive options may be more prudent.

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Title : Delayed Perforator Flaps for Reconstruction of Extensive Defects of the Posterior Trunk

Introduction:
The delay phenomenon describes the neovascularization of tissue after ischemic preconditioning. When employed, the delay phenomenon promotes flap survival and increases the length-to-breadth ratio in conventional flaps. While well-planned perforator flaps cover defects tensionless, success rate is unpredictable in extensive defects closed due to the unknown vascularity of perforasomes. We aim to increase the size of perforator flaps by utilizing the delay phenomenon for broad defects of posterior trunks.

Materials and Methods:
Between 2019 and 2020, ten patients (six female, four male) underwent posterior trunk reconstruction with delayed perforator flaps. Etiology, defect size, flap size, and types, postoperative complications, and long-term results were identified retrospectively. The etiology of defects was meningomyelocele, soft tissue sarcoma, and pressure ulcers in three, three, and four patients, respectively. The defects were covered with delayed lumbar, intercostal, and thoracodorsal perforator flaps.

Surgical technique
The flaps were planned unilateral or bilaterally. Perforators were located using handheld doppler preoperatively. In the first session, delaying incisions and pedicule dissection were performed. The delaying incision was primarily sutured. The perforator flaps were elevated one week later and defects were closed.

Results:
The mean defect size was 375 cm2. The mean flap size was 420 (202- 625 cm2). The donor site was closed primarily for seven patients. The split-thickness skin graft was needed in two patients. In one patient, the donor site was closed with secondary healing. There were no flap losses. In immediate postoperative hematoma was seen in two patients respectively. After two weeks, seroma and donor-side dehiscence were in two and one patient, respectively.

Conclusions:
The delay phenomenon can be utilized in perforator flaps as in random pattern local flaps. The perforasome areas can be extended with delaying incision. In addition, broad defects of the posterior trunk can be safely covered with delayed perforator flaps.

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Title : Osseous free flaps in maxillo-mandibular reconstruction: a single-center evolution towards insourced virtual surgical planning and home-made CAD-CAM in 157 cases.

Introduction:
Virtual surgical planning (VSP) and computer aided design (CAD) and manufacturing (CAM) of surgical guides and jigs turned craftmanship into precision and enables the surgeon to complement the donor bone osteotomies with the bony resection of the jaw. In recent years, immediate dental rehabilitation became an integral part of VSP. However, outsourced CAD-CAM is expensive and has an associated logistic time delay. We have developed an insourced facility for 'in-house' VSP and accelerated 'home-made' 3D printing of models, jigs and guides.

Materials and Methods:
We have performed a retrospective analysis of a consecutive 157 cases (2007-2020) before and after the implementation of insourced CAD-CAM. In 75 cases (2015-2020) we have used insourced VSP and CAD-CAM for the reconstruction of maxillo-mandibular defects with fibula, iliac crest and scapular angle flaps. Relevant parameters influencing the reconstructive outcome were determined. We have compared these data with 82 previous reconstructions from the pre-CAD-CAM-era (2007-2014). Mann-Whitney U tests and Fisher's exact tests were used to compare continuous and binary variables between both groups.

Results:
Total flap failure measured around 7% in both CAD-CAM & non-CAD-CAM groups. Skin island failure accounted for 12% in both groups.
The main indications for reconstruction were spinocellular carcinoma and osteoradionecrosis in both groups.
The 3-year survival rates were 65.9% (non CAD-CAM) & 68.1% (CAD-CAM).
Total operative time for osteocutaneous fibula reconstructions between both groups averaged 641 minutes in non CAD-CAM (n=53) vs. 554 minutes in CAD-CAM cases (n=44) (p=0.004).
The maxillofacial reconstructive surgical procedures offered optimal compliance to the initially planned CAD-CAM.

Conclusions:
In this study, we have shown that in-house VSP and CAD-CAM have evolved into valuable strategies in maxillo-mandibular reconstruction that shorten total operative time, promote precision and allow for occlusion-based planning with quality of life, aesthetic outcome and minimizing donor site morbidity as essential parts of the reconstruction even in high level oral cancers.

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Title : Scapula vs Fibula Free Flaps in Osseous H&N Reconstructions - A Head-to-Head Comparison of Surgical and Patient Quality of life Outcomes

Introduction:
The scapula free flap has increasingly gained popularity in osseus H&N reconstruction. The aim of this study was to compare surgical and patient outcomes between the scapula and fibula osseous reconstructive modalities.

Materials and Methods:
All free scapula and free fibula flaps performed between 2016 and 2022 from two microsurgical centers in Sweden, Uppsala University Hospital and Skane University Hospital, were collected. Peri-operative clinical data was compared and patient outcome was evaluated with FACE-Q H&N Cancer for both groups. Donor site morbidity was evaluated with the DASH questionnaire (disabilities of the arm, shoulder and hand) for the scapula group and the SEFAS questionnaire (Self-reported foot and ankle score) for the fibula group.

Results:
A total of 144 free flaps (62 free scapula flaps and 82 free fibula flaps) were included for analysis. The fibula free flap was found to have been more commonly used for mandibular reconstructions, whereas the scapula free flap had been readily used for both mandibular and maxillary reconstructions. Recent years had also seen an increase in the indications for the scapula free flap, with greater options for chimeric designs. The scapula free flap was found superior in peri-operative and patient quality of life outcomes. Donor site morbidity following the scapula free flap harvest was found particularly superior when re-suturing the detached teres major muscle to the remaining scapula.

Conclusions:
The scapula free flap provides an excellent alternative to the fibula free flap in osseous H&N reconstruction and should be more readily considered for both mandibular and maxillary reconstructions.

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Title : Total and near-total tongue reconstruction with ALT-Vastus Lateralis chimeric flaps

Introduction:
Tongue is the most common site of oral cancer and has a crucial function in speaking and swallowing. In case of massive carcinomas requiring total or near-total glossectomy, restoration of lost functions is a highly demanding procedure.
We present our experience of total/subtotal tongue reconstruction with chimeric ALT/VL flaps and a pull-through approach.

Materials and Methods:
From March 2020 to June 2022, 15 patients (mean age 63.0 years) with T3 and T4 tongue and floor of mouth squamous cell carcinomas underwent total (n=5) or subtotal (n=10) glossectomy with a pull-through approach and subsequent reconstruction with innervated ALT/VL chimeric flaps. Tongue was reconstructed with an ultrathin, suprafascial, o musculo-cutaneous ALT depending on thigh thickness, while the VL flap was used for tongue/oral floor reconstruction, epiglottis or hyoid suspension and isolation of the oral cavity. In total reconstruction, the hypoglossal nerve was used for muscle reinnervation. Postoperative quality of life was assessed through validated questionnaires 6 months after surgery.

Results:
No mandibulotomy or lip splitting was needed. No total free flap failure occurred. Complication rate was 7% (one intraoperative failure of the skin component of the flap that required a switch to a vastus lateralis flap). Seven patients required postoperative PEG nutrition, always removed within 6 months from surgery. All patients underwent radiation therapy. Despite radiotherapy, volume and innervation of the neo-tongue were preserved and after speech and swallowing rehabilitation patients were able to maintain sufficient deglutition and speaking intelligibility. Overall quality of life was acceptable in all patients.

Conclusions:
In our experience, microsurgical innervated ALT/VL chimeric flaps through a pull-through technique represent a suitable option for tailored tongue reconstruction after total and near-total glossectomies, ensuring adequate bulk and versatility, good functional and aesthetic outcome and simultaneously providing a low donor site morbidity.

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Title : Enhanced recovery after microvascular reconstruction in head and neck cancer

Introduction:
Patients undergoing microvascular reconstruction after head and neck cancer typically suffer from several comorbidities and the procedures are often followed by complications and prolonged hospitalization. Consequently, the application of Enhanced Recovery After Surgery (ERAS) for head and neck cancer patients undergoing reconstruction with a free flap has attracted increasing attention in recent years. ERAS is a peri- and postoperative care concept that has repeatedly shown beneficial results for a wide variety of surgical procedures, including microvascular reconstruction. This study presents the results after introduction of our ERAS protocol for head and neck cancer reconstruction.

Materials and Methods:
We prospectively treated 30 consecutive patients according to our ERAS protocol in the period June 2019 to December 2020 and we compared with our historical results of patients treated with our Traditional Recovery After Surgery (TRAS) protocol. We based our ERAS protocol on the following core-elements of recovery: Improved patient information, Goal-directed fluid-therapy, minimally invasive surgery, opioid-sparing multimodal analgesia, early ambulation and pre-defined functional discharge criteria. Daily checklists were used to monitor the patient's progress during the post-operative period.

Results:
The groups were comparable regarding baseline characteristics. The ERAS group had significantly shorter length of stay (13.1 vs. 20.3 days, $p<0.001$), significantly shorter time to ambulation (3.0 days vs. 6.4 days, $p<0.001$), time to removal of nasogastric tube (13.3 days vs. 22.7 days, $p=0.05$) and fewer tracheostomies performed (10% vs. 90%, $p<0.001$). There was no difference in complications, flap survival or 30-days re-admissions between the two groups.

Conclusions:
The introduction of ERAS for head and neck cancer patients undergoing microvascular reconstruction reduced LOS by 35% without increasing perioperative complications. ERAS for head and neck cancer reconstruction seems safe and to result in improved recovery.

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Title : Flap reconstruction following surgical resection of sarcoma: a single-center experience in the setting of neoadjuvant and adjuvant therapy

Introduction:
Since the late seventies, the combination of surgical resection with radiotherapy has become the standard of care for high-grade soft-tissue sarcomas, while the advent of chemotherapy has markedly increased the cure rate of bone sarcomas. In consequence, flap reconstruction has become an integral part of sarcoma treatment. However, the true effect of neoadjuvant and adjuvant therapy on flap survival remains a topic of discussion. Thus, we aim to describe our experience with flap reconstruction after sarcoma resection.

Materials and Methods:
A retrospective, single-center chart review of all patients undergoing pedicled or free flap reconstruction after sarcoma resection from January 2014 until December 2018 was performed. Patient demographics, perioperative characteristics, complications, and outcomes were analyzed.

Results:
A total of 90 patients with diagnosis of sarcoma underwent surgical resection with subsequent flap reconstruction: 29% received free tissue transfers, with most sarcomas originating from the lower extremity (42%). The most commonly used flaps were musculocutaneous (43%). Complications were recorded in 37% of the patients, with lymphedema, infection, and wound dehiscence being the most frequent ones, and only a 4% flap failure rate. Although the use of pre- and/or intraoperative radiotherapy was significantly associated with a higher rate of late complications, such as lymphedema ($p=0.023$) and seroma ($p=0.04$), it did not have an impact on overall flap survival. Neoadjuvant chemotherapy was associated with a higher rate of early infection ($p=0.04$) and late dehiscence ($p<0.01$). There was no difference in complication rates when comparing free and pedicled flaps.

Conclusions:
The use of neoadjuvant therapy in the setting of flap reconstruction after sarcoma resection is associated with an overall higher complication rate, but it does not influence flap survival. While a more accurate preoperative patient counselling should be provided, its use should not be a limitation for flap reconstruction in this group of patients.

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SESSION 3

GENERAL PLASTIC SURGERY

EURAPS

Title : Sirolimus: friend or enemy of surgeons dealing with vascular anomalies ?

Introduction:
Sirolimus (Rapamycine) used in patients with kidney transplantation, is known to delay the healing process. This mammalian mTOR inhibitor has become the gold standard in the management of slow-flow vascular malformation, especially to reduce oozing and lymphatic leakage, coagulation anomalies and bleeding. When applying the same peroperative protocol (stopping sirolimus 10 days before and restoring it 1-3 month after) as in kidney transplantation, we encountered severe postoperative complications in our patients such as healing delay and lymphatic leakage that necessitated persistence of drainage and thus hospitalization for more than 2 weeks. As one of them showed an impressive healing improvement after peroperative administration of effective sirolimus dosage, we decided to continue sirolimus medication when operating our patients affected with vascular malformations.

Materials and Methods:
We retrospectively reviewed the records of 19 patients presenting with extensive slow-flow vascular anomalies that were operated under sirolimus medication.

Results:
We operated 3 lymphatic (LM), 10 venous (VM), and 6 combined vascular anomalies (VAs). Mean age was 26 years. Mean duration of hospitalization was 5 days (median : 4.5d). Drainage was removed on average after 5,8 days (varying from 1 to 11). No complications or healing delays were seen for 18 patients (95%). One patient presented partial skin graft loss (30%) after resection of an extensive VM of the lower extremity.

Conclusions:
This retrospective study showed that sirolimus should not be stopped before surgical resection of slow-flow vascular malformations. In contrast, especially when operating extensive lymphatic malformations, it reduces healing complications, by reducing postoperative leakage and thus infection, and duration of hospitalization. So sirolimus is the friend of the surgeon dealing with vascular malformations and should be considered as adjuvant treatment, especially when planning partial resection.

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Title : Topical tranexamic acid reduces postoperative hematomas in reduction mammaplasties

Introduction:
Postoperative bleeding requiring reoperation is an untoward event in breast surgery. Topical tranexamic acid (TXA) has been routinely used to reduce the risk of postoperative bleeding in some surgical fields, whereas it is not routinely used in breast surgery due to scarce information. We investigated whether the intraoperatively applied topical TXA is associated with reduced incidence of postoperative hematoma in reduction mammaplasty surgeries.

Materials and Methods:
This retrospective, single-center cohort study comprises 415 consecutive patients who underwent reduction mammaplasty between 2019–2021. The intraoperative use of prophylactic topically applied TXA (20 mg/ml) (Figure 1) was implemented as a part of the hospital protocol in November 2020, irrespective of the patient's pre- or intraoperative coagulation status. Two major study groups were identified according to whether the breast tissue was rinsed with TXA before wound closure or not. The primary endpoint is the event of postoperative hematoma requiring evacuation in the operation room. Secondary endpoints were the incidence of complications such as seroma, wound infections and other wound healing problems.

Results:
Topical TXA significantly reduced the number of postoperative hematomas requiring evacuation ($p=0.008$). In the non-TXA control group, 12 (5.8 %) hematomas were observed out of 208, in comparison with the topical TXA group where only one (0.6 %) hematoma occurred among the 168 patients. The decreasing tendency can also be seen in wound infections, seromas, and other minor wound healing problems in the topical TXA group (ns). No adverse events of topical TXA were detected.

Conclusions:
Our retrospective study shows a tenfold reduction in the incidence of postoperative hematomas in reduction mammaplasties after the introduction of topical TXA. This simple procedure may save patients from bleeding and reoperations, thereby produce a positive financial impact. Randomized controlled trials are warranted.

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Title : Comparative Analysis of Abdominoplasty and Concurrent Hernia Repair: An Assessment of Reconstructive and Aesthetic Outcomes

Introduction:
The risks and benefits of performing small fat-containing ventral or umbilical hernia repair (HR) during cosmetic abdominoplasty remains a reconstructive and aesthetic challenge for plastic surgeons. Patients seeking abdominoplasty commonly present with one or more umbilical or supraumbilical defects that further necessitate advanced techniques to reduce abdominal wall morbidity and achieve an improved abdominal contour. This study aimed to compare clinical outcomes in patients undergoing abdominoplasty with concurrent HR and abdominoplasty alone.

Materials and Methods:
A retrospective review of patients undergoing abdominoplasty with and without a concurrent HR by a single surgeon from 2015-2021 was performed. Patients were stratified by concurrent HR and compared. All hernia patients underwent primary fascial repair, without the use of mesh reinforcement. Demographics, surgical site occurrences (SSO), such as seroma and infection, hernia recurrence rate and cosmetic complications, including delayed healing and necrosis, were assessed. Risk adjusted modeling was utilized to compare HR with clinical outcomes.

Results:
One-hundred and eleven patients underwent abdominoplasty, 67 (60.4%) had concurrent HR. No significant difference in demographics was identified between groups including mean BMI (HR=27.5 kg/m2 and No HR= 26.7 kg/m2, P=0.79), and number of previous hernia repairs (P=0.31). After a mean follow-up of 1.4 years, hernia recurrence rate was 3% (n=2), which was exclusive to umbilical defects. After controlling for demographics, there was no difference in risk of SSO (OR 1.02 [0.31-3.36] P=0.978), cosmetic complications (OR 0.80 [0.14-4.57] P=0.805), readmissions (6.06% vs. 0%, P=0.336), reoperations (18.18% vs. 3.03%, P=0.299), or procedure length (-7.23 minutes [-29.40-14.93] P=0.522), compared to patients who underwent abdominoplasty alone.

Conclusions:
Abdominoplasty with concurrent HR can be performed safely and effectively, with no increase in cosmetic complications, adverse outcomes, or procedure length, with an acceptable hernia recurrence rate. The value of mesh-free HR with abdominoplasty is the ability to achieve an improved aesthetic outcome and mitigate long-term abdominal morbidity.

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Title : Soft tissue sarcomas and immediate vascularized reconstruction at the Stockholm Sarcoma Centre

Introduction:
Wound complications are common following resection of sarcomas. Immediate reconstruction has been proposed as a solution to reduce the occurrence of such complications. Previous research on the topic is however conflicting. This study investigated outcomes after sarcoma surgery and compares complication rates between patients who undergo immediate vascularized reconstruction compared to those who do not at the Stockholm Sarcoma Centre.

Materials and Methods:
This is an ongoing study where data will be collected for a 10 year period (2010-2020). We here present the findings from 3 years (2018-2020). Patient characteristics and clinical outcomes were collected from the Sarcoma Registry and through review of patient charts from patients who received primary surgery with curative intent at Karolinska University Hospital. The primary outcome measure was early (<30 days) wound complications. Secondary outcome measures included late complications (1 year) and health care consumption.

Results:
Some 200 patients were included. Of these, 32% had early wound complications and 12% had late wound complications. At 30 days postoperatively, 72% of wounds were healed and one year postoperatively 94% were healed. Of the 200 patients, 19 (9.5%) patients received immediate reconstruction with vascularised tissue. These patients had a significantly higher rate of any type of wound complications at 30 days compared to those who had not (68.4% vs 28.3%, $p<0.001$). At one year, the complication rates were 15.8% and 11.1% respectively. The reconstructed patients had more outpatient visits during the first postoperative year (84.4 vs 50.9) but this clinically relevant difference was not statistically significant.

Conclusions:
Sarcoma patients have very high rates of wound complications and consume considerable health care resources. Patient selection is likely a reason for the difference in complication rates between the two groups. In depth analysis will be undertaken on the entire patient material in order to better understand the underlying causes and contributing factors.

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Title : Effects of decompression of tibial nerve on blood flow and ulcer healing in patients with diabetic neuropathy

Introduction:
Hypothesis: decompression of the tibial nerve will improve sympathetic nerve function in the diabetic foot, as demonstrated by improved blood flow, and, secondarily, improve ulcer healing.

Materials and Methods:
Prospective study: including 12 patients with non-healing diabetic neuropathic ulcers, present for a mean of 13.7 (range 1 to 48) months. The onset of diabetes in this cohort: mean 64 (range 42-96) months. Inclusion Criteria: Good glycemic control and a positive Tinel sign at tarsal tunnel. Ulcer size: mean 11.7 (range 5.4 to 24) cm2. Pre-operatively, sensory symptoms were evaluated wIth Michigan Neuropathy Screening Instrument (MNSI) and blood flow was evaluated by Doppler ultrasonography of the posterior tibial artery at ankle. "Dellon Decompression" of the four medial ankle tunnels was performed. At follow-up, blood flow, MNSI, and ulcer diameter were observed.

Results:
The follow-up period was a mean of 8.4 (range 6-9) months. After decompression of the tibial nerve, neuropathy symptoms, evaluated by MNSI, were significantly reduced from mean score 12.5 to 7.7 post-operatively ($p<0.0001$), and blood flow, evaluated by Doppler ultrasonography in the posterior tibial artery, improved significantly from 1.52 to 2.46 cm3/sec ($p<0.0001$) in the operated leg and was without change in the non-operated, contralateral leg. At follow-up, the ulcers in 67% of patients were completely healed: there was a reduction in a size of the ulcer in the remaining patients. Post-operatively, there were no wound infections and no new ulcer formation.

Conclusions:
By decompressing the sympathetic fibers within the tibial nerve at the ankle, blood flow can be improved in patients with diabetic neuropathy and superimposed chronic nerve compression. Secondarily, “Dellon decompression” of the tibial nerve and its branches improved plantar wound healing in this patient population.

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Title : Minimizing Donor-Site Morbidity By Using Multi-Perforators Keystone Perforator Island Flaps Reconstruction

Introduction:
Every plastic surgeon strives to choose the better technique to reconstruct soft-tissue defects, minimising the wound healing problems, improving the aesthetic appearance and the functional outcome.
We will report the use of keystone perforator island flap in defects' reconstruction all over the body, and will point on the most important technical aspects of their harvesting and their main indications, advantages and possible complications.

Materials and Methods:
Starting with 2014, 78 cases were treated in our plastic surgery department, by using keystone flaps. Patients with single or multiple levels defects were included. The database included patient demographics, comorbidities, etiology, characteristics of the flap, surgical factors, hospitalization period, follow-up period, flap outcomes and complications.

Results:
Seventy-eight patients with an average age of 40.57 years underwent soft-tissue reconstruction. Trauma, tumors, and hidradenitis suppurativa were the major causes of the defects. The topography of defects was as follows: 15 cases lower limb, 6 cases upper limb, 12 cases face, 24 cases trunk, 13 cases axilla, and 8 cases inguinal. Ninety-eight keystone perforator island flap were performed. The average flap size was 82.41 cm2, ranged from 1.25 cm2 to 318 cm2. No flaps exhibited necrosis. We registered small dehiscence in only 3 cases, which solved by secondary intention. All donor sites healed without any adverse events, no sensory deficits and no muscle-skeletal disfunction. All patients were satisfied with the functional and aesthetic results.

Conclusions:
The donor-site associated morbidity can play a major role in quality-of-life following tissue defects reconstruction. These flaps provide a simple and effective method of wound closure by using tissues of similar texture, thickness and color. Preserving the main artery and the underlying muscle, this flap reduces the donor site morbidity and the operation time. The use of keystone perforator island flaps seems to be, whenever possible, one of the most suitable choice.

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Title : Effects of Negative Pressure Wound Therapy with instillation and dwell time (NPWTi-d) vs NPWT or Standard of Care in Orthoplastic Surgery: A Systematic Review and Meta-Analysis

Introduction:
Negative pressure wound therapy (NPWT) is a wound-dressing system that applies sub-atmospheric pressure on a woundsurface to promote healing. An evolution of this technology, NPWT with solution instillation and dwell time (NPWTi-d), is increasingly used to maximise woundclosure and reduce failure rates. However, there is still lack of evidence concerning its use in orthoplastic surgery. Therefore, the aim of this study is to compare NPWTi-d with NPWT and standard of care for woundmanagement in orthoplastic surgery.

Materials and Methods:
A comprehensive literature search using PubMed, Web of Science, and Cochrane databases up to 15 March 2022 was performed, including studies describing the outcomes of NPWTi-d for traumatic/orthopaedic injuries. A meta-analysis on the number of surgical debridements, as well as rate of complete wound closure and complications was carried out, while for other outcomes a descriptive statistic was applied. Risk of bias and quality of evidence were assessed using Downs& Black's Checklist for Measuring Quality.

Results:
Thirteen studies with a n=871 patients were included, in which NPWTi-d demonstrated significantly higher primary woundclosure and lower complication rates ($p<0.05$). No difference in numbers of surgical procedures required for final wound healing was observed. Moreover, 5/6 studies showed better results for NPWTi-d when the change of bioburden and bacterial count of the wound were analysed. A singular study investigating length of the hospital stay of patients treated with NPWTi-d revealed a reduction in the latter.

Conclusions:
The present meta-analysis proves that NPWTi-d is superior to NPTW or conventional dressings in orthoplastic woundcare management, in terms of complete wound closure rate and the reduced number of complications. Still, the limited quality of the studies analysed shows that future randomised studies are needed to confirm the benefits and to identify the most appropriate recommendations for using NPWTi-d in orthoplastic surgery, as well as to investigate the cost-effectiveness of this wound-dressing system.

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Title : Microfractured Adipose Tissue Graft for the advanced treatment of non healing cutaneous fistulas

Introduction:
Chronic cutaneous fistulas very often originate from surgical or traumatic wounds that do not repair properly and progressively undergo local fibrosis that creates a natural barrier to the repair process and represents the major cause of non-healing and chronicization. The microfractured autologous adipose graft allows to provide the tissues involved in the fibrotic process with a regenerative stimulus. In this context, MSCs are able to secrete cytokines with antibiotic, antifibrotic, angiogenic and analgesic effects. The micro-fragmentation technique guarantees a high regenerative effect, minimizing adipose tissue damage maintaining the structure of the adipose cluster and amplifyng by 6000 times the active surface that exposes the MSCs. The purpose of the paper is to describe our experience by an accurate description of the method we use to treat chronic fistulas.

Materials and Methods:
The study included 7 cases, who were treated for non-healing skin fistulas. The treatmentstarted with an accurate curettage of the fistulous passage wich was then filled with MFAT aspirated using 20 cc VacLock syringes, washed and filtrated through sharp progressive filters obtaining clusters of 0.3 mm in diameter. The fistulous orifices was finally closed with a non-resorbable stitch. Subsequently, a perifistolar MFAT infiltration was performed to obtain an a local extrinsic compression.

Results:
In 6 cases we obtained an immediate postoperative healing while in one case we obtained a total failure probably due to an incorrect indication.

Conclusions:
Adipose tissue is the ideal source for the recruitment of mesenchymal stem cells and the microfragmentation ensures functional structural and biological integrity of MFAT. Based on our personal experience, we can affirm that the treatment of non-healing cutaneous fistulas by MFAT transplantation allows in many cases an immediate repair or eventually an acceleration of the repair process provided that the surgical indication is correct.

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Title : The role of psychiatric comorbidities and suicide attempt in the outcome of intensive care burn unit patients

Introduction:
It has been shown that burn victims often suffer from psychiatric comorbidities (PC). Epidemiology, etiology, and outcome of burn injuries are poorly documented in patients with PC. The aim of this study was to analyze the outcome of intensive care burn patients with pre-existing or acute PC and to additionally evaluate the effect of attempted suicide.

Materials and Methods:
A retrospective analysis of a single-center burn unit cohort was carried out. All intensive care patients with burn injuries were included in the evaluation. An assessment was carried out regarding PC and the influence on therapeutic outcome, especially mortality. Particular attention was paid to patients who had attempted suicide.

Results:
1325 burn patients were included. 16.6% of all patients suffered from PC - 9.3% from neurotic, stress and somatoform disorders, 9.2% from mood disorders, 3.5% from schizophrenia, schizotypal and delusional disorders and 1.8% from behavioral and emotional disorders. Patients with PC had more severe burn injuries with significantly higher ABSI scores (5.9 vs. 5.3, $p<0.001$) and greater body surface area (TBSA) affection (15.9 vs. 12.5%, $p=0.002$). TBSA ≥30 and inhalation trauma were observed more frequently. Total and intensive care unit stays were significantly longer. Surgical interventions and mechanical ventilation were required significantly more often. Mortality rates were comparable (5.9 vs. 8.1, $p<0.001$). Suicidal patients were significantly more likely to expire in hospital (24.4%) and 75.6% had PC. Suicidality was not a prognostic factor for mortality in propensity-matched cohorts.

Conclusions:
The prevalence of PC in severely burned patients is high. Patients with PC experienced more severe burn injuries. Total and intensive care unit stays were significantly longer. Surgical interventions and mechanical ventilation were required significantly more often. This applied in particular to burn victims who had attempted suicide. Our results illustrate the importance of identifying this distinct patient collective that requires additional resources and psychiatric care.

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Title : Enzymatic debridement for the prevention of burn induced compartment syndrome: utility or futility?

Introduction:
Burn induced compartment syndrome (BICS) requires escharotomy to maintain tissue viability. Until now, surgical escharotomy was the main option for prevention and treatment of BICS. However, this carries a risk of damaging anatomical structures, bleeding and infection. Enzymatic debridement with NexoBrid® (EDNX) has emerged as an alternative for early, selective burn eschar removal.

Case Report:
This case series includes 4 patients where, due to clinical signs of BICS, EDNX was used <24h post burn.
Patient one had a 8.4% TBSA, third degree, circumferential burn on his right lower leg resulting in BICS. In addition to paresthesia, delayed capillary refill, cold temperature and blue color, pressure measurement revealed intra-compartment pressures of 60 mmHg (Figure 1a-b). Within the first hour after NexoBrid® application, refill, temperature and color normalized. Intra-compartment pressures dropped to 20 mmHg (Figure 1c-d).
Patient two had third degree, circumferential burns on the trunk and abdomen. BICS was diagnosed based on increasing intra-abdominal and ventilation pressures. Intra-abdominal pressure normalized by the end of the procedure.
Patient three had deep second degree circular burns on both wrists and the dorsum of the hands (Figure 2a-c). Increased swelling and delayed capillary refill urged the need for NexoBrid® treatment. Swelling decreased and refill normalized within the first hours of Nexobrid® application (Figure 2d-f).
Patient four had deep second and third degree, circumferential burns on both wrists and hands (Figure 3a-b). An increase in swelling with reduced capillary refill urged urgent EDNX. No additional surgical escharotomies were necessary, swelling of both wrists and hands was significantly reduced at the end of the procedure (Figure 3c-d).

Conclusions:
Surgical escharotomy was prevented in all cases of BICS.

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SESSION 4
HEAD & NECK

EURAPS

Title : An Analysis of Predictors of Risk of Plate Exposure in Fibula Flap for Mandibular Reconstruction in Head and Neck Cancers

Introduction:
Plate exposure following reconstruction of composite head and neck defects is a challenging complication to prevent as well as to treat. There have been a variety of causes attributed to this and innovative reconstructions described to prevent this, but there is no conclusive answer to this problem. In our study we have analyzed the risk factors leading to plate exposure in patients reconstructed with fibula free flap (FFF).

Materials and Methods:
A retrospective analysis of 292 patients who underwent FFF reconstruction was performed. A variety of clinical, surgical as well as post-operative factors were analyzed. The data was statistically analyzed with univariate and multivariate logistic regression and the 5-year probability of plate exposure free rate was plotted on Kaplan-Meier plot.

Results:
The overall plate exposure rate was 28.76 %. The univariate analysis showed Post op radiotherapy (OR 5.36; 95%CI2.22-12.95; p <0.001), Re-exploration (OR 2.61, 95%CI 1.03-6.56; p 0.04) post op chemotherapy (OR 2.50，95%CI 1.39-4.49 p 0.002), post op wound infection (OR 10.28 ，95%CI 5.12-20.66; p <0.001) were significant factors for causation of plate exposure. The multivariate logistic regression showed Post op radiotherapy (OR 3.83;95%CI 1.37-10.68; p-0.01) and post op wound infection (OR10.89; 95%CI 5.17-22.93; p <0.001) were independent risk factors for developing plate exposure.

Conclusions:
Our study has highlighted that Post op radiotherapy and Post op wound infection are independent risk factors for plate exposure whereas chimeric flaps have a protective effect in patients reconstructed with fibula free flap (FFF).

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Title : Are Novel “Alternative” Flaps as Effective as Traditional “Workhorse” Free Flaps in Microsurgical Head and Neck Reconstruction?

Introduction:
Traditional “workhorse” free flaps represent the gold standard in microsurgical head and neck reconstruction. Recently, several novel soft tissue flaps have emerged. We hypothesized that such “alternative” flaps are associated with equivalent success compared with “workhorse” flaps in head and neck reconstruction.

Materials and Methods:
A retrospective review was conducted of patients who underwent soft tissue flaps for head and neck reconstruction at a single institution (3/2016-6/2019). Lateral arm, profunda artery perforator, medial sural artery perforator, superficial circumflex iliac artery perforator, thoracodorsal artery perforator, and ulnar artery perforator flaps were categorized as alternative flaps. Workhorse flaps included anterolateral thigh, vastus lateralis, gracilis, rectus abdominis, radial forearm, and latissimus dorsi flaps.

Results:
Out of 1121 patients, 877 (78.2%) received workhorse flaps and 244 (21.8%) underwent reconstruction with alternative flaps. Patients who received workhorse flaps were more likely to be men (72.1% versus 55.3%, $p<0.001$), older (63 versus 60, $p = 0.004$), and to receive previous radiotherapy (47.4% versus 28.3%, $p<0.001$). Patients who received alternative flaps were more likely to have active cancer (88.1% versus 81.4%, $p=0.014$), a tracheostomy (59.4% versus 38.1%, $p<0.001$), and resection within the oral cavity (70.5% versus 34.3%, $p<0.001$). There was no difference in flap choice for patients who had previous free flap failure. Patients who underwent resection of the scalp, calvarium, external neck, and face, pharynx/larynx, and maxilla were less likely to receive an alternative flap. Operative times were statistically similar. Alternative flaps had a lower overall complication rate and a lower donor site seroma and hematoma rate.

Conclusions:
Alternative soft tissue flaps are versatile with success rates comparable to those of traditional workhorse flaps. Over time, we may see a paradigm shift with alternative flaps replacing workhorse flaps as the first-line choice for reconstruction allowing workhorse flaps to be reserved for higher complexity cases.

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Title : Scapular osseous free flap in head and neck reconstruction: An assessment of the postoperative function of the donor site

Introduction:
The scapular osseous free flap (SOFF) has become an important reconstructive option for complex head and neck defects. Postoperative donor site function is, however, an important consideration. The objective of this study was to prospectively investigate SOFF donor site morbidity and to relate the findings to hand dominance and neck dissection.

Materials and Methods:
Objective assessment included bilateral measurement of shoulder, elbow, and hand range of motion (ROM), hand strength, and distal nerve function in consecutive patients with head and neck cancer SOFF reconstruction at a tertiary referral center in Sweden between 2016 and 2019. The subjective function was assessed by the Disability of the Arm, Shoulder and Hand (DASH) questionnaire. Sixteen of 20 consecutive patients were evaluated (median follow-up 10 months [range 3–17]).

Results:
Significant side differences in shoulder range of motion (ROM) (flexion, abduction, external and internal rotation) were observed for patients where the SOFF had been harvested from the same side as their dominant hand (n = 9; Ps ≤ 0.04). For patients where the SOFF was harvested from the non-dominant hand side, no significant shoulder ROM side differences were observed (n = 7; Ps ≥ 0.08). There were significant side differences in shoulder ROM for patients who underwent neck dissections (n = 12; Ps ≤ 0.03), not for the other four patients. Patients reported low but varying DASH scores (median 2.5, range 0–57).

Conclusions:
Postoperative donor site morbidity seems to be quite acceptable after SOFF surgery. The results indicate possible benefits of choosing the non-dominant hand side for the SOFF and that a neck dissection affects postoperative shoulder outcome. Further studies are however needed.

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Event : 33rd Annual EURAPS Meeting, STOCKHOLM, Sweden, 25-27 May 2023

Title : The role of microvascular flap reconstruction in palliation for head and neck cancer. Is it making sense? Our centre's 15 years of experience

Introduction:
Salvage surgery is the best option for many patients with recurrent cancer of the upper aerodigestive tract (UADT) especially when original therapy included irradiation. The primary objective of this study was to fully assess the value of salvage surgical procedures in the treatment of local and regional recurrence and also to evaluate the role of surgery for symptom palliation in patients with advance head and neck malignancy.

Materials and Methods:
41 patients were examined at the head and neck combined oncology clinic and as they fulfilled the salvage survey criteria, it was decided for them to undergo further wide surgical resection and free flap reconstruction, after previous definitive treatment. The recurrent site was primarily the tongue and floor of mouth (FOM) in 18 cases. Resection included mandibulectomy and glossectomy in the majority of the cases (21) and total glossectomy in 18 cases. Reconstruction was performed with various types of free flaps, predominately radial forearm flap (RFF).

Results:
20 patients died during the first 2 years of follow up from local disease recurrence mainly. 21 patients are still alive and 3 patients are in less than a year follow up.

Conclusions:
Salvage surgery of T1, T2 recurrent tumors and microvascular reconstruction offers patients' improvement in quality of life and also quality of dying, while being in T3 and especially T4 tumors, alleviating symptoms such as bleeding, pain, dysphagia, non-healing ulcers, airway obstruction and pathological fractures.

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Title : Comparison of facial artery perforator propellar and advancement flaps in reconstruction of midface defects

Introduction:
Reconstruction of the midface defects is challanging due to various aesthetic subunits. Facial artery perforator (FAP) flaps are one of the cornerstone options for midface reconstruction because of similar tissue reconstruction on the same surgical field. The aim of this study is to compare propellar and advancement design of FAP flaps in midface reconstruction.

Materials and Methods:
Patients with midface defects reconstructed using FAP flaps without sacrificing the facial artery were included in the study. Demographic characteristics of patients, etiology, characteristics of defects and flap, duration of surgery and complications were evaluated. 37 defects were reconstructed by rotating the FAP flap over the perforator, and 18 patients were reconstructed by advancing flap on the perforator. At 12 months postoperatively, surgical scar and facial cosmetics were evaluated for final shape and symmetry by the patient and two observers using the patient and observer scar assessment scale and a 5-point Likert satisfaction scale, respectively.

Results:
39 of the patients were male, 16 were female. Early venous congestion was observed in five flaps in the propellar group and spontaneously resolved within 24 hours. No flap failure was observed.
In the advancement group, the mean advancement was 2.6 cm. In the propellar group, the mean flap rotation angle was 153 degrees, and the average donor site scar was 3.3 cm. The mean surgical time was significantly different between groups, 46.6±12.4 minutes in the advancement, 63.1±20.3 minutes in the propellar group.

All patients and observers were very satisfied with midface and scar appearance without significant differences ($p<0.05$). All flaps had perfect contour, color and texture match. The mean follow-up time was 18.6 months.

Conclusions:
Propellar design of FAP flaps allows the repair of defects outside the arterial axis located on medial canthal, nasal sidewall and infraorbital area, and larger defects.

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Title : GRACILIS MUSCLE FLAP AS A SUPERIOR ALTERNATIVE TO RADIAL FOREARM FLAP IN LARGE DEFECTS OF THE LOWER LIP

Introduction:
Lip cancers are the second most common malignancy of the head and neck region. There is no consensus on an ideal free microvascular tissue transfer option for the reconstruction of large lower lip defects. This study aims to compare the functional aspects of patients with complete and almost complete (>%80) defects due to lower lip cancer, who underwent reconstruction with free radial forearm and free gracilis flap.

Materials and Methods:
Sixteen patients who underwent free microvascular tissue transfer due to total or near-total lower lip defect between 2019-2021 were included in the study. Demographics and complications were recorded. Patients' symptoms, social functions, and sexuality were evaluated in the first postoperative year with the European Organization for Research and Treatment of Cancer Quality of Life Head and Neck-35 symptom scale. Mouth opening, oral competence, articulation-speech, drooling, and donor site defect was evaluated by physical examination. To evaluate neurotization, hot-cold sensitivity, two-point discrimination, balloon inflation test, and Semmes-Weinstein monofilament test was performed.

Results:
Reconstruction was performed with free radial forearm flap in eight patients and free gracilis flap in eight patients. Significantly better results were found in patients repaired with gracilis in the symptom scales of social nutrition, social contact, speech-articulation, and dry mouth ($p<0.05$). Significantly better results were obtained with the Semmes-Weinstein monofilament test and hot-cold sensitivity test in patients who were repaired with a gracilis flap ($p<0.05$). In the balloon inflation test, two-point discrimination test, and mouth opening there was no significant difference between the two groups ($p>0.05$).

Conclusions:
Free gracilis flap, due to its adaptation to the orbicularis oris muscle and active contraction, prevents drooling more effectively, resulting in higher social functions in patients who have undergone reconstruction.

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Title : Architectural Reconstruction Of The Face By Prefabricated "Like Tissue Grafts": A Surgeon's Guide To Origami

Introduction:
With current techniques adequate reconstruction of anatomical structures cannot be fully achieved of the jaws. However, functional and aesthetic reconstruction imitating the anatomy of the region can be more closely achieved with Anatomical Based Prefabricated Composite Grafts. We present our evolution in the design and execution of composite tissue reconstructions of the midface.

Materials and Methods:
We retrospectively reviewed our records for 22 Anatomical Based Prefabricated Composite Grafts [Maxilla (12), Mandible (6), Alveolus/Palate (4)]. The scapula and the iliac crest were used exclusively to restore the structural framework of the skull, the walls of oral and nasal cavities, the pneumatized compartments of the maxillary sinus, and the specialized structures of the gingiva-covered alveolar process with osseo-and perio-integrated dental implants.

Results:
From 22 cases, we have distilled principles supporting the technical execution of surgical steps of Anatomical Based Prefabricated Composite Grafts that more closely imitate maxilla and midface structures, the mandible and the alveolus/palate. Complications were few and will be presented within the evolution of our experience to improve execution and outcome.

Conclusions:
Through a series of clinical cases we present our sequence of creating a complex shaped 3D prefabricated flaps to restore the midface. We believe with our approach functional and aesthetic results can be achieved. As the architectural reconstruction of maxillofacial surgery by prefabricated "Like Tissue Grafts" imitates more closely the anatomy of the complex face, it offers an excellent basis for the incorporating today's digital platform using virtual planning and robotic surgery to achieve improved 3D restoration of complex tissue deficits.

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Title : A Good Alternative to Multi-Stage Procedures: One-Stage Autologous Microtia Reconstruction

Introduction:
Multi-stage autologous reconstruction is the most preferred technique in microtia reconstruction. However, negative factors such as prolonged treatment time, increased donor site morbidity, high treatment cost, recurrent surgeries in the same area, prolonged return to social life, and multiple costal cartilage usage are the difficulties of multi-stage techniques in clinical practice.
The aim of this study is to evaluate the aesthetic, psychosocial, sensory and morphometric results of one-stage autologous microtia reconstruction, which can be an alternative to multi-stage tecniques; by comparing two-stage techniques.

Materials and Methods:
Unilateral microtia patients (24) who underwent two-stage (8) and one-stage (14) reconstruction were included in the study between 2018 - 2021.
Projection, length, width, postauricular sulcus depth, cephaloauricular angle, axis of the reconstructed and normal ear were measured with digital goniometer and caliper.
Protective sensation was evaluated with the Semmes-Weinstein monofilament test.
General appearance, aesthetic subunits and function other than hearing of the reconstructed ear, donor sites (cartilage graft, temporoparietal fascia flap and skin graft), psychosocial conditions were evaluated using “Akter and Soukup Rating Scale”.
All evaluations were performed at post-operative sixth months.

Results:
Surgery and hospitalization times were shorter in one-stage technique patients ($p<0,05$).
General appearance, aesthetic subunits of the ear, donor sites and psychosocial conditions of the patients’ results were superior in one stage technique patients ($p<0,05$).
Post-auricular sulcus depth and axis angle difference between reconstructed and normal ear was more similar in one stage tecnique patients ($p<0,05$).

Conclusions:
Successful results in terms of aesthetic, psychosocial, sensory and morphometric were obtained with described one-stage reconstruction by considering the basic microtia principles as the multi-stage repairs, which are accepted as the gold standard.

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Title : Patient Reported Outcome Following the Skoog Unilateral Cleft Lip Repair among Adults – a longterm cohort study comparing to a non-cleft population

Introduction:
Satisfaction with appearance is an essential outcome in cleft care. The primary aim of the study was to compare satisfaction with lip appearance in adults treated for unilateral cleft lip and palate (UCLP) with Skoog's primary lip repair procedure to those without clefts. The secondary aim was to determine whether satisfaction with lip appearance and the desire to change the lip/face appearance correlated with the number of secondary lip revisions performed.

Materials and Methods:
All UCLP patients treated at the Uppsala University Hospital born between 1960- and 1987 (n=109) were invited to participate in this study. At an average of 37 years following the primary lip repair, the participation rate was 76% (n=83). Self-administered questionnaires including The Satisfaction with Appearance Questionnaire (SWA) and a modified version of the Body Cathexis Scale were answered by all participants. An age- and sex-matched group of adults without cleft (n=67) completed the same study protocol for comparison.

Results:
UCLP patients were less satisfied with their lip, face, and overall appearance and reported a greater desire to change the appearance of their lips and face compared to non-cleft controls ($p < 0.001$). Dissatisfaction with lip appearance correlated to a greater willingness to change the appearance of the lip and face. No correlation was found between satisfaction with appearance and the number of the previously performed secondary lip revisions.

Conclusions:
Adults treated for UCLP are less satisfied with the appearance of their lips compared to the non-cleft population. The number of secondary revisions does not necessarily correlate to greater satisfaction with lip appearance.

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Title : W-Z plasty technique versus Millard Technique in microform cleft lip reconstruction

Introduction:
Microform cleft lip is a mild form of cleft lip deformity that can be expressed with different definitions such as "hidden" and "minimal". Many surgical techniques, ranging from straight line repair to rotation flaps and z plasties, have been described in the literature for. The aim of this study is to compare the technique using the combination of W plasty and Z plasty with the Millard technique in microform cleft lip and to perform visual scoring and statistical analysis of the results.

Materials and Methods:
Twenty-four microform cleft lip patients who were operated on with the surgical techniques indicated were included in our study. Vermillion, lip skin and operation scars were scored using the Anasstassov scoring system based on the photographs taken in the 1st postoperative year of the patients. One group (14) were operated with the combination of W-Z plasty and other group (10) were operated with the Millard technique. No statistically significant difference was found between the mean scores of the groups evaluated according to the Anastassov scar scale ($p=0.4>0.05$).

Results:
W-Z plasty that provides easy access to orbicularis oris muscle with w plasty has been described as an alternative to the techniques described. This surgical technique is sufficient to treat the aesthetic appearance and function of the upper lip with minimal cutaneous scar compared to other methods with known effects. In addition, it allows the vermilocutaneous line and cupid arc to be created easily with z plasty without skin excision. W plasty prevents depressed vertical scar and facilitates the exploration necessary to restore the anatomical shape of the orbicularis oris muscle.

Conclusions:
In addition to the advantages it brings, the W-Z plasty technique has been shown as an easy to learn, more geometric alternative with similar results to known techniques.

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Title : Treatment of High intracranial pressure (ICP) in children with multisuture craniosynostosis over 2 years of age with Spring-Assisted Posterior Vault Expansion

Introduction:
Spring-assisted posterior vault expansion (SA-PVE) has previously been shown to be an effective technique for treatment of multisuture craniosynostosis during the first years of life.
The aim of this study was to evaluate the results of SA-PVE in children over 2 years of age with craniosynostosis and signs of high ICP.

Materials and Methods:
Patients over 2 years of age operated at our center with SA-PVE were retrospectively analysed. The intracranial volumes (ICV) were calculated from the CT images performed prior to surgery, at the time of spring removal and one year postoperatively. The presence of high ICP was evaluated before and after surgery.

Results:
In total 8 patients ((Crouzon/Pfeiffer (n=4), multiple craniosynostosis (n=3) and secondary synostosis (n=1)) were included in the analysis. No major perioperative complications were observed. The median age at the time of surgery was 3.8 (range 2.5-12.8) years and the time of spring removal was 5 months after insertion. In two patients, springs were removed prematurely due to exposure and one patient had wound problems after trauma. No wound infections were diagnosed. The estimated blood loss per kg body weight was in median 4.4 (range 1.4-16.8) ml/kg. Only one patient received postoperative blood transfusion. The hospital stay after SA-PVE was I median 5 days and 1 day after spring removal. The median increase in ICV was 209 (range 129-329) cm3, which represents +20.4 (range 9-27) %, from insertion to removal of the springs and the effect persisted one year after surgery. Symptoms related to high ICP greatly improved or were absent at 4 weeks and 1 year follow-up. All patients had normal fundoscopic examinations postoperatively. Postoperative imaging showed good bone healing and improvement or regress of the Chiari malformation.

Conclusions:
SA-PVE is an effective treatment in children over 2 years of age with craniosynostosis and elevated ICP.

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SESSION 5
BREAST

EURAPS

Title : The Swedish Breast Implant Registry (BRIMP) - experience with 50.000 Implants

Introduction:
The safety of breast implants has been questioned since their invention and particularly lately regarding the PIP scandal, the risk of developing Breast Implant-Associated Anaplastic Large Cell Lymphoma (BIA-ALCL) and patient reported Breast implant illness (BII). Primary endpoints of BRIMP are to detect unexpected adverse events. Secondary endpoints are that BRIMP helps in decision makings to choose defined implants in specific circumstances.

Materials and Methods:
Between 2014 and 2021 breast implants were registerd in BRIMP for both primary and secondary surgeries. Complications were studied at 60 days, one and six years postop. The incidence of long-term consequences such as brand-related capsular contraction, rupture or deflation and rotation was studied. Explant surgery was reported during the last years as well as type of capsular surgery performed at permanent explantation.

Results:
In total 50.000 implants were registered for both primary operations (71,9%) and reoperations (28,1%). The vast majority of primary operations were performed for benign conditions (91,8%). Peroperative antibiotic coverage was standard, where 23% of patients received intraoperative antibiotic irrigation in addition. Implants were predominantly placed in a dual plane position via inframammary incisions. Implant size below 400 cc was used in the vast majority of the cases and only 3,6% of the patients had implants above 600 cc. The risk for reoperation in aesthetic surgery within 60 days was less than 0.1%, with no difference between the brands. The risk for reoperation in aesthetic surgery for capsular contracture within 7 years was less than 2%. A linear increase was seen for permanent explantations together with increasing rates of total casulectomy.

Conclusions:
BRIMP helps to improve patient safety and is an important tool for providing objective information for patients, professional, health care and media.

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Title : MATRIX-FREE DUAL PLANE POST MASTECTOMY RECONSTRUCTION: A SERIES OF ONE HUNDRED CONSECTIVE PATIENTS.

Introduction:
Post mastectomy prepectoral reconstructions are becoming increasingly popular worldwide, having the great advantage of restoring the body image with minimal morbidity. However, they are contraindicated in cases of thin and poor vascularized mastectomy flaps, heavy smokers, patients with comorbidities and skinny ones.
A subpectoral/subcutaneous implant pocket is presented, it represents an evolution of the classical submuscular pocket.

Materials and Methods:
Between April 2019 and May 2022, one hundred consecutive patients underwent subpectoral/subcutaneous direct-to-implant reconstruction. The surgical technique is described step-by-step. We reviewed the patients' demographics, operative characteristics, as well as immediate complications and long-term outcomes

Results:
One hundred twenty-two procedures are recorded in the series since 22 patients underwent bilateral mastectomies. Mean follow up is 10 months (range 6-29). In 16 out of 78 patients undergoing unilateral mastectomy (20%) a contralateral mammaplasty was simultaneously performed. Implant loss was observed in two patients (2%). Early minor complications were registered in 21 patients (21%), mainly including partial loss of nipple and areola and seroma formation. Aesthetic results were considered good or excellent by the surgeons and patients in more than 90% of cases.

Conclusions:
The submuscular/subcutaneous pocket can be considered a new tool in the armamentarium of reconstructive procedures, in between submuscular/subfascial procedures and prepectoral ones. It has specific indications, advantages and drawbacks, a careful indication and an accurate surgical technique are mandatory to achieve good results.

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Title : Single vs Multiple doses of prophylactic intravenous antibiotics in implant-based breast reconstruction.

Introduction:
Multiple-dose antibiotic prophylaxis is widely used to prevent infection after implant-based breast reconstruction despite the lack of high-level evidence regarding its clinical benefit. The aim was to determine whether multiple-dose antibiotic prophylaxis is superior to single-dose antibiotic prophylaxis in preventing surgical site infection (SSI) after implant-based breast reconstruction.

Materials and Methods:
Prospective multicenter randomized clinical superiority trial conducted at 7 hospitals 2013-2018. Eligible participants were women planned for implant-based breast reconstruction. Follow-up time was 12 months. Multiple-dose intravenous antibiotic prophylaxis extending over 24 hours following surgery, compared with single-dose. First-choice drug was cloxacillin. In patients with penicillin allergy, clindamycin was used. The primary outcome was SSI leading to surgical removal of the implant within six months after surgery. Secondary outcomes were the rate of SSIs necessitating re-admission and administration of intravenous antibiotics, and clinically suspected SSIs not necessitating re-admission but oral antibiotics.

Results:
698 patients were randomized. Median age was 47 (19-78) years and median BMI was 23 kg/m2 (17-38). Within six months of follow-up, 30 patients (4.3%) had their implant removed due to SSI. Re-admission for intravenous antibiotics occurred in 47 (7.0%), and the proportion of women who received oral antibiotics was 190 (27.7%). There was no significant difference between the randomization groups for the primary outcome implant removal (P= .53), or for the secondary outcomes re-admission for intravenous antibiotics (P= .58) and prescription of oral antibiotics (P= .07). Adverse events associated with antibiotic treatment were more common in the multiple-dose group than in the single-dose group, 16.4% versus 10.7% (P= .03).

Conclusions:
Multiple-dose antibiotic prophylaxis is not superior to a single-dose regimen in preventing infection after implant-based breast reconstruction and is not recommended because of the associated higher rates of adverse events.

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Title : The effect of adjuvant radiotherapy on one- and two-stage prosthetic breast reconstruction and on autologous reconstruction: a multicenter Italian study among 18 Senonetwork Breast Centres

Introduction:
In modern breast cancer treatment, a growing role has been observed for breast reconstruction together with an increase in clinical indications for postmastectomy radiotherapy (PMRT). The optimal integration between reconstruction procedures and PMRT is still under debate. We therefore conducted a national multicenter study to analyze the impact of PMRT on breast reconstruction.

Materials and Methods:
we conducted a retrospective case-control multicenter study on women undergoing breast reconstruction. Data were collected from 18 Italian Breast Centres, and stored in a cumulative database which included: autologous reconstruction, direct-to-implant (DTI), and tissue expander/immediate (TE/I). For all patients, we described complications and surgical endpoints to complications such as reconstruction failure, explant, change in type of reconstruction and reintervention.

Results:
From 2001 to April 2020, 3116 patients were evaluated. The risk for any complication was significantly increased in patients receiving PMRT (aOR, 1.73; 95% CI, 1.33‒2.24; p<0.001). PMRT was associated with a significant increase in the risk of capsular contracture in the DTI and TE/I groups (aOR, 2.24; 95% CI, 1.57‒3.20; p<0.001). Comparing type of procedures, the risk of failure (aOR, 1.82; 95% CI, 1.06‒3.12, p=0.030), explant (aOR, 5.49; 95% CI, 3.85‒7.83, p<0.001) and severe complications (aOR, 2.54; 95% CI, 1.88‒3.43, p<0.001) was significantly higher in the group undergoing DTI reconstruction as compared to TE/I reconstruction

Conclusions:
Our study confirms that autologous reconstruction is the procedure least impacted by PMRT, while DTI appears to be the most impacted by PMRT, when compared with TE/I which shows a lower rate of explant and reconstruction failure

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Title : Five-year comparison of biological and synthetic meshes in breast reconstruction: a single-blinded randomized controlled trial comparing the two materials in the same patient

Introduction:
Biological or synthetic meshes are commonly used in implant-based immediate breast reconstruction (IBR), but there is little high-quality evidence regarding which material is the best. The aim of this study was to compare long-term complications, corrections, and patient-reported outcome measures (PROMs) after IBR with a synthetic mesh and a biological mesh, in a single-blinded randomized controlled trial, using both materials in the same patient

Materials and Methods:
Patients operated on with bilateral mastectomy and a dual-plane reconstruction using anatomical breast implants were randomized to biological mesh on one side and synthetic on the other. Complications and corrections were predefined and prospectively registered. PROMs were measured with BREAST-Q. ClinicalTrials.Gov identifier NCT02985073. The study was approved by the Regional Ethical Committee of Gothenburg (189–16).

Results:
Forty-eight breasts were randomized. As the synthetically and the biologically reconstructed breasts belonged to the same woman, systemic factors, as well as patient related factors that may affect PROMS, were identical in the two groups. The most common complication was seroma formation with a frequency of 38% in the biological group and 3.8% in the synthetical group ($p = 0.011$). Implant loss was more frequent in the biological mesh group (8.5% vs. 2%), albeit not statistically significant ($p = 0.083$). The frequency of capsular contracture rate was zero in both groups at 5 years. Corrections were more commonly performed in the biological mesh group. Most participants were equally satisfied/dissatisfied with the synthetic and the biological mesh sides regarding some aspects whereas the biological or synthetic was favored in regarding other specific aspects.

Conclusions:
The frequency of serious complications, such as implant loss, as well as of corrections was higher in the biological mesh group. Regarding patient satisfaction, one mesh type was not clearly superior to the other; however, biological and synthetic meshes seem to give rise to different types of reconstructed breasts.

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Title : Big Data analysis of last 1000 DIEAP-flaps from Ghent.

Introduction:
Artificial Intelligence (AI) is one of the new technological forces that will shape our future. Big data and machine learning are a subfield of AI. With every admission a vast amount of data is collected from every patient. This volume of data extends beyond the physicianÂ's ability to process and is often not used to its potential

Materials and Methods:
We reviewed our database between 2004 (introduction of electronic patient file at our hospital) and 2017 for patients who underwent a DIEAP flap breast reconstruction and/or revision surgery. We found 965 DIEAP-flaps in 741 patients. The patients their complete mid-care nursing report, laboratory data, operative report and drug schedule were examined.

Results:
Mean duration of an unilateral DIEAP-flap was 387,12 min or 6,45h. A bilateral case took 567,27 min or 9,45h. No significance was found between a case who needed a revision afterward and one without need for revision. Neither unilateral (385,17 min versus 417,19 min, p=0,072) or bilateral cases (564,21 min versus 605,27 min, p=0,063) showed significant more revisions with longer anesthesia time.
In the immediate post-operative setting we see a significant drop in Mean Arterial Pressure (MAP) in all patients. Nevertheless we see that patients, before they have a revision surgery, drop significantly lower between 6-12h post-op from their breast reconstruction (MAP=73,37 versus 76,62; p<0,001)
We reviewed entire medication shedule of all patients: most of the medications are safe to use. We could see higher revision rate in patients taking Astma medication and butyrofenon.

Conclusions:
This is the first time a significant link is shown between blood pressure, certain medication and the direct need for a revision of the microsurgical anastomosis in a DIEAP-flap procedure. Only with the force of Big Data we were able to analyse this vast amount of data. Article was published in Nature Scientific Reports in 2019.

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Title : Does breast reconstruction affect prevalence of post-mastectomy lymphoedema symptoms in a long-term perspective? a national cohort study.

Introduction:
Breast cancer treatment entails a risk for developing breast cancer associated lymphoedema, however, studies on lymphoedema prevalence are scarce. Risk factors for developing lymphoedema include extensive locoregional surgery, such as mastectomy and axillary dissection, and the receipt of chemo-or radiotherapy. Breast reconstruction, both implant-based and autologous, appears to have a protective effect against the development of lymphoedema. The primary aim of this study is to assess the prevalence of patient reported local breast and arm symptoms as a proxy marker for the presence of breast and arm lymphoedema in women having had a mastectomy, with or without reconstruction, 5, 10 or 15 years prior in a nationwide cohort. The secondary aim is to assess the relationship between symptoms and type of surgery performed.

Materials and Methods:
The SweBRO study is a Swedish cross-sectional nationwide patient reported outcomes study performed of all women who had had a mastectomy in 2000, 20005 and 2010 in Sweden due to breast cancer. Cancer data was collected and matched from national registries. Several questionnaires were included in the SweBRO study and questions aimed specifically at eliciting arm lymphoedema symptoms were identified and analysed separately for the current study.

Results:
Two thousand ninehundred and four out of 5853 (response rate 49.6%) women participated in the study. Of these 30.8% (895/2904) had received a breast reconstruction, the majority of which were delayed reconstructions (719/895, 80.3%). Preliminary results show that women with mastectomy only more frequently reported symptoms consistent with breast and arm lymphoedema than women with breast reconstruction.

Conclusions:
The results of this study suggests that breast and arm symptoms may be less common in patients having had a breast reconstruction post-mastectomy compared to patients having mastectomy only.

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Title : Total breast reconstruction with autologous fat transfer vs. implants (The BREAST- trial): A randomized clinical trial

Introduction:
Contemporary techniques for breast reconstruction are implant-based reconstruction (IBR) and reconstruction using autologous free tissue flaps. This study investigates a third autologous, yet less invasive technique: autologous fat transfer (AFT). It was compared to the gold-standard IBR. Currently, there is insufficient evidence that AFT is safe and effective.

Materials and Methods:
This trial was performed in seven hospitals across the Netherlands. Breast cancer patients opting for breast reconstruction were included. Randomization to AFT or IBR was done in a 1:1 ratio. Primary outcome measure was quality of life (QoL), measured by the BREAST-Q questionnaire, at 12 months after final surgery.

Results:
A total of 193 patients were included in this study (91 AFT, 80 IBR). Of these, 64 women in the AFT group and 68 women in the IBR group completed the 12-months postoperative BREAST-Q. Main BREAST-Q scores were higher in the AFT group in three of five domains; satisfaction with breasts, physical well-being and satisfaction with outcome. Linear mixed-effects regression analysis showed QoL change over time was dependent on treatment group, in favor of AFT. Average volume achieved was 300.3ml in the AFT group vs. 384.1ml in the IBR group. No differences in oncologic events were found (4 AFT, 5 IBR).

Conclusions:
These findings corresponded to higher QoL and an increase in QoL scores over time in the AFT group compared to the IBR group. No evidence was found that AFT is unsafe. This is encouraging news since it provides a third reconstruction option for breast cancer patients.

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Title : Autologous fat transplantation prior to implant breast reconstruction enhances the outcome after two years – a randomized controlled trial

Introduction:
Radiotherapy is important in breast cancer treatment. A side effect of the treatment is tissue fibrosis that decreases the possibility for a successful breast reconstruction with implants and high patient satisfaction with the result. The most common option for mastectomized, irradiated women wishing for a breast reconstruction is autologous tissue transplantation. However, some patients are not suitable for flap surgery and it would be useful if the indications for implant reconstruction could be widened. Autologous fat transplantation prior to implant reconstruction is used to improve the overlying soft tissue quality, but the benefits regarding postoperative complications and patient satisfaction has not, to our knowledge, been confirmed in a randomized controlled trial.

Materials and Methods:
50 mastectomized and irradiated women were included in the trial. They underwent breast reconstruction with implants and were allocated 1:1 to either receive pre-treatment with autologous fat transplantation (AFT) or not. Primary outcomes were frequency of reoperations and complications. Secondary outcomes were number of days in hospital, number of outpatient visits to surgeon or nurse and patient reported outcome as reported with Breast Q. Follow-up time was two years.

Results:
21 patients underwent AFT and implant surgery and 22 implant surgery alone. The incidence rate ratio (IRR) (95 % CI) for reoperations was 0.79, p=0.193. IRR for complications was 0.46, p=0.200. The number of visits to a nurse was significantly higher in the control group (IRR 0.71, p=0.06). The AFT patients were significantly more satisfied with their breasts and psychosocial wellbeing after two years. They also had higher increase in satisfaction with breasts, psychosocial wellbeing, and sexual wellbeing when comparing baseline with two years postoperatively.

Conclusions:
This randomized controlled study indicates benefits with AFT prior to breast reconstruction with implants, especially on patient reported outcome, even if the study sample is small.

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Title : Protective role of Implant exchange on BIA-ALCL: Epidemiology Analysis of 248 Cases

Introduction:
BIA-ALCL epidemiology is unclear due to lack of implant sales data and implant registries. To overcome this limitation, we decided to identify published BIA-ALCL cases, calculate BIA-ALCL Incidence Rate (IR) and Event Free Time (EFT) and the patients' characteristics influencing them.

Materials and Methods:
A systematic literature review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement (PRISMA) was done on PubMed, Scopus, and Web of Science, to identify unique case reports and case series of BIA-ALCL from anytime to April 2022. After excluding all irrelevant and duplicated papers, a total of 114 pertinent articles were selected, featuring 248 BIA-ALCL cases. Collected data were analyzed with descriptive statistics, IR, Kaplan-Meier survival curves, and Pearson correlation coefficient.

Results:
Reported cases were most commonly from the United Sates (32.3%), followed by the Netherlands (21.8%), Italy (15.7%) and Australia (8.9%). Indication for placement was 48% reconstructive and 52% aesthetic; 73.8% were linked to macrotextured devices, none to smooth. Age at first implantation was inversely associated with EFT ($r=-0.27$, p-value <0.001). Overall IR was 0.80 new cases/100women/month, 0.90 if no BI replacement, 0.75 if one and 0.40 if two ($p<0.0001$). Mean EFT was 129 months, 75% of the cases developing by 168 months. Hazard without BI replacement peaked at 187 months since implantation, with 1 replacement at 211, and with >1 replacement peaked exponentially after 297 ($p<0.0001$). BRCA1 and TP53 patients showed a significant shorter EFT ($p=0.09$).

Conclusions:
For the first-time implant replacement has been identified as a protective factor since BIA-ALCL IR is lower and EFT longer in patients with implant replacements. Prophylactic explantation of asymptomatic patients can find indication after stratification of BIA-ALCL risks. Since BRCA1 and TP53 patients are associated to significant shorter EFT, the use of textured implants should be reconsidered in this population.

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Title : The impact of neoadjuvant chemotherapy on surgical outcomes following autologous and implant-based reconstruction: A systematic review and meta-analysis.

Introduction:
Introduction: The impact of neoadjuvant chemotherapy (NACT) on surgical outcomes following autologous and implant-based reconstruction remains unclear. The aim of this systematic review and meta-analysis is to evaluate previously published studies on the effect of NACT on postoperative complications in women undergoing mastectomy and immediate breast reconstruction (IBR) compared to women who did not receive NACT.

Materials and Methods:
Materials and methods: MEDLINE and EMBASE were searched to identify studies assessing the impact of NACT on surgical outcomes in women undergoing mastectomy and IBR. The literature was assessed using the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) statement. The effect measures were risk ratios (RR), 95% confidence intervals (CI) and p-values.

Results:
Results: The search result was 770 studies. After thorough screening, ten studies including 54.183 patients and controls were evaluated in the meta-analysis. NACT did not significantly increase wound complications ([RR]=1.05, 95% CI=0.87-1.28, p=0.62) or skin flap necrosis ([RR]=1.39, 95% CI=0.61-3.17, p=0.44). The risk of re-operation was not statistically significant following NACT compared to controls ([RR]=1.09, 95% CI=0.87-1.37, p=0.45). Furthermore, NACT was not significantly associated with an increase in reconstructive failure ([RR]=1.38, 95% CI=0.71-2.65, p=0.34).

Conclusions:
Conclusion: Immediate autologous and implant-based reconstruction following NACT is not significantly associated with an increase in post-operative complications.

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SESSION 6
AESTHETIC FACE & FACIAL NERVE

EURAPS

Title : Facial Paralysis Reconstruction: An Algorithm Based on Twenty Years´ Experience

Introduction:
In the surgical reconstruction of facial palsy, the available techniques have evolved substantially over the last two decades based on the available technology and, more importantly, on the evaluation of the aesthetic results, complications, and patient satisfaction. The purpose of this work is to relay the lessons learned from our 20 years' experience and propose an algorithm.

Materials and Methods:
We retrospectively reviewed 343 patients treated surgically for facial paralysis in the last 20 years in our center. Clinical data including complications were collected, as well as objective outcome measures with a focus on the recovery of facial symmetry and smile spontaneity.

Results:
For the rehabilitation of incomplete facial paralysis, the use of masseteric to facial nerve transfer offers the best results, with a greater capacity to restore spontaneity in women. In bilateral facial paralysis, the technique of choice is bilateral gracilis muscle transplantation in two stages, with the masseter nerve as the source of innervation. As an alternative or adjunct to the dynamic techniques, static techniques can restore facial symmetry and improve the quality of life of patients.
The choice of surgical technique is determined firstly by the time of evolution of the paralysis, as well as the laterality and the type of paralysis. In addition, the result is conditioned by age and sex, with better recovery of spontaneity in children and women. All these factors need to be considered, along with patient preferences, to achieve an optimal result.

Conclusions:
The proposed algorithm, based on our 20-year experience, simplifies the reconstruction of facial paralysis, mainly taking into account the characteristics of the paralysis and the patient's gender as factors that influence smile recovery.

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Title : Ultrasound-Guided vs Landmark-Guided Injections for Treatment of Facial Paralysis Sequelae – A Randomized Study on Body Donors

Introduction:
Botulinum toxin injection is the gold standard treatment of synkinesis and gustatory hyperlacrimation in facial paralysis patients. However, poor injection accuracy may lead to suboptimal treatment results and adverse events. Complications such as diplopia, ptosis and lagophthalmos are common after lacrimal gland injections. Intra-ocular injections have been reported in the treatment of both excessive tearing and synkinesis. Ultrasound guidance should increase injection accuracy in the facial region, but this has not been proven.

Materials and Methods:
Twenty-six hemifaces of non-embalmed cadavers were studied. In a randomized split-face manner, ink was injected with ultrasound or landmark guidance into the lacrimal gland and three common synkinetic muscles: the orbicularis oculi, depressor anguli oris, and mentalis. Injection accuracy was evaluated through several measures.

Results:
When using ultrasound guidance, most of the ink (>50%) was found inside the correct target in 88% of cases, compared with 50% using landmark guidance ($p<0.001$). This was most pronounced in the lacrimal gland (62% vs. 8%), depressor anguli oris (100% vs. 46%), and mentalis (100% vs. 54%) ($p<0.05$). All ink was found inside the correct target (no ink outside) in 65% using ultrasound guidance vs. 29% with landmark guidance ($p<0.001$). Injection accuracy (any ink in target) was 100% when using ultrasound guidance vs. 83% without ($p<0.01$). Twenty-three percent of landmark-guided depressor anguli oris injections stained the facial artery ($p=0.22$).

Conclusions:
This study showed that ultrasound guidance in facial injections significantly increased injection accuracy when compared with landmark guidance, and reduced the amount of ink lost in surrounding tissue. Clinical trials of botulinum toxin injections in patients with facial paralysis sequalae are needed to explore the effects of ultrasound guidance on treatment outcome, duration, and complications.

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Title : Advantages of using dynamic procedures compared to static in treating the paralytic eyelid in facial paralysis

Introduction:
Facial nerve weakness can lead to deficient eye closure, with reduced corneal protection leading to ulceration. Surgical remedies can be static to oppose the levator muscle (lid loading) or dynamic procedures which act to increase the strength of muscle closure. This retrospective cohort study compares these groups. The hypothesis is that dynamic reconstruction has advantages over static techniques in terms of eye closure; symptomatic improvement; blink restoration and complication rate.

Materials and Methods:
Two cohorts of patients attending a supra-regional facial palsy clinic were compared: those treated with a gold weight insertion into the upper eyelid (n=27), and those who had received dynamic reconstruction (N=37) . These included temporalis transfer; cross face nerve grafting alone (CFNG) and CFNG followed by free tissue transfer. Assessments included standard photography and video; measurement of eyelid excursion including residual gap and if full eye closure is possible. Presence of the blink reflex and symptoms of dry eye were assessed.

Results:
Overall improvement in eye closure was similar with the gold weight compared to dynamic procedures (5.1mm v's 5.3mm). A greater proportion of the dynamic cases achieved complete eye closure ($p<0.05$).Dynamic procedures also gave improved results in terms of symptom relief ($P<0.05$) and restoration of blink ($P<0.01$). Gold weight insertion gave a higher complication and revision rates overall (P,0.01) .

Conclusions:
The study confirms the hypothesis that dynamic reconstructions of the paralysed eyelid confer advantages compared to simple lid loading techniques. Improvements in lid excursion are similar but symptom improvement and blink restoration are significantly better. A decision regarding eyelid reanimation should be made early in the patient's journey of facial reanimation, to allow for accurate planning and placement of nerve grafts at an early stage.

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Title : Treatment of Labio-Mental Synkinesis with The Depressor Anguli Oris (DAO) Muscle Transfer and Selective Mentalis Denervation: A New Technique

Introduction:
Synkinesis of the lower lip and chin region is frequently associated with hypertonicity of DAO, mentalis and lower Orbicularis Oris with hypotonic Depressor Labii Inferioris (DLI). This imbalance elevates the lower lip over the upper dentition while producing a downward contraction of the commissure creating a zetadeformity. Chemo-denervation and selective myectomy successfully treat this by releasing the tethering effect on the Zygomaticus Major, improving commissure excursion and dental show but not the loss of lower lip depression. Transfer of DAO to DLI could potentially restore lower lip depression while unleashing the ZM. Selective denervation of the Mentalis would be employed in an effort to correct chin and lower lip malposition.

Materials and Methods:
This is a single-center cohort study evaluating the DAO-to-DLI transfer and selective denervation of the mentalis muscle for patients with unilateral synkinesis. Standardized measures of commissure height deviation, commissure excursion, smile angle and lower lip height deviation were collected using an objective facial landmark detection system (Emotrics) with direct measurement. Demographics and follow-up were recorded.

Results:
Ten female patients with unilateral synkinesis were evaluated (mean age: 48 years). Cause of synkinesis included Bells palsy (6), Ramsay Hunt (1), trauma (2), and tumor excision (1). Mean post-operative follow-up was 13 months. Emotrics data analyzed using a two tailed paired t-test showed improvement in lower lip depression (0.2 – 9 mm; average 3.7 mm, p value 0.001). A statistically significant improvement in smile angle and dental show (p value < 0.05) was identified with a positive trend in commissure height deviation and commissure. Complications include a wound infection that responded to conservative treatment. Transient sensory changes in the lower lip and chin were common.

Conclusions:
This early experience suggests that DAO-to-DLI muscle transfer in conjunction with selective denervation of the mentalis muscle can have a positive effect in the treatment of labio-mental synkinesis.

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Title : Minor surgery and injective treatment as adjunctive therapy for patients with facial paralysis.

Introduction:
Patients with facial palsy often suffer compromised non-verbal communication and lack essential functions such as eyelid and mouth closure, which may be challenging to target solely with physical therapy. Minor surgery performed in local anesthesia is a safe way to address asymmetry and functional concerns, either as enhancement of existent postoperative results or as primary treatment. Nonsurgical treatment such as botulinum toxin, may address periocular synkinesis, platysmal hypertonicity and mentalis muscle dimpling. Hyaluronic acid injections can also be used for symmetrization.

Materials and Methods:
From January 2016 to January 2018, 56 patients were operated in local anesthesia. Etiology of facial palsy was due to tumor resection in 32 cases and remaining cases due to Bell's palsy, trauma, vascular malformation or infectious disease.
Performed procedures include medial or lateral tarsoraphy, lateral canthopexy, upper and/or lower blepharoplasty, eyebrow lift, skin resection in the nasolabial area, insertion or removal of gold weight to the upper eyelid, wedge excision of the lower eyelid, injection of botulinum toxin and/or hyaluronic acid.

Results:
Significant functional changes were primarily observed in patients with ophthalmological and oral symptoms. Esthetic improvement was observed in a majority of patients. There were 8 complications, of which all were associated with ophthalmological symptoms.

Conclusions:
Although patients with facial palsy are challenging to treat with regard to symmetrization and functionality, numerous improvements can be performed in local anesthesia and non-surgically. Overall results imply that minor surgery and non-surgical treatment is a safe way to obtain satisfactory functional and esthetic results with low complication rates in this group of patients. Besides logistic advantages and cost efficacy, functional and esthetical improvement is achieved safely in a population often associated with high morbidity.
Consequently, we suggest incorporation of minor surgery and non-surgical treatments as adjunctive therapy to primary repair of facial palsy for optimal outcomes.

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Title : What does a facelift surgeon really do –a pilot study of 154 first questionnaires

Introduction:
Although previous studies have reviewed face and necklift anatomy and techniques, seldom were the actual techniques surgeons like to use summarized in a single work.

Materials and Methods:
We sent a Google Forms survey with 20 surgical technique questions to a group of European plastic surgeons to find out the most popular technical details of this complicated operation. Answers were analyzed, and we compared surgical techniques of the surgeons with most facelifts performed (N=43) to surgeons operating a facelift once a month or more seldom (N=111). Questions covered anesthesia, technical details, sutures, additional procedures and operating time.

Results:
As expected, most experienced surgeons reported shorter operating times, but also operated more often under local anesthesia. The most frequent additional procedure in both surgeon groups was fat grafting. The most common surgical techniques used by the experienced surgeons were superficial-musculo-aponeurotic-system (SMAS) plication and SMAS resection, minimal access cranial suspension (MACS) lift being not that popular.

Conclusions:
We were able to gather important information about facelift techniques of a big group of plastic surgeons in this pilot study. The study will be continued and sent out to a bigger group of international plastic surgeons during next months to collect more powerful data.

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Title : Three key submuscular points for non-surgical rejuvenation of the midface: an innovative and methodological approach with Injectable hyaluronic acid fillers

Introduction:
In the patient who gives his face a sad and tired look, our research group has developed a hyaluronic acid infiltration technique in 3 key points that allow to obtain a rejuvenation of the middle third of the face and eliminate the tired and sad appearance.

Materials and Methods:
During the planning of an aesthetic medicine treatment of the middle third, patients were selected for: emotional facial attributes (tired, sad and sagging appearance), aims of improvement (less tired, more attractive, younger, fuller), anthropometric assessments through standardized photos: only patients with negative or neutral lower eyelid vector were selected. Identification of the three cutaneous points that could coincide with the three insertions of the elevator muscle of the upper lip, of the small and large zygomatic muscles. Use of the needle as a delivery tool, and bolus delivery as the chosen technique. Use of FACE-Q as a pre- and post-treatment self-assessment questionnaire for the evaluation of satisfaction.

Results:
567 cases were selected, 101 male and 466 female. Mean age was 41 years, mean follow-up was 6 months. FACE-Q demonstrated high satisfaction in all study participants. An average of 1.5 ml of hyaluornic acid (Juvéderm Voluma® XC, Allergan plc, Irvine, CA) was used for each zygomatic region. No major complications were reported. The anthropometric study with the post-treatment evaluation of the lower eyelid vector showed that in all patients there was an inversion of the vector, which passed from neutral or negative to positive.

Conclusions:
This treatment algorithm demonstrate that the lifting of the insertions of three selected muscles, through hyaluronic acid, allows an upward repositioning of the midface. These 3 key points provide a repeatable and safe algorithm to rejuvenate the middle third of the face without working on the volumes, but on the position of the tissues.

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Title : A better alternative technique to columellar strut graft in patients requiring tip rotation: Septal extension-columellar graft.

Introduction:
Inadequate tip projection and rotation are frequently seen in patients with weak lower lateral cartilage. Columellar strut is one of the most used grafts to correct these deficiencies and provide nasal tip stability. However, although the columellar strut graft supports the medial crus of the lateral cartilage, it does not provide a significant increase in tip rotation.
In this study, a graft that can both contribute to type rotation like a septal extension graft and provide medial crus support like a columellar strut graft was designed and named as septal extension-columellar graft. The aim of this study is to compare the septal extension-columellar graft with the columellar strut graft and to investigate their superiority over each other.

Materials and Methods:
Between 2021-2022, 22 patients were included in the study retrospectively. Columellar strut graft was used in 11 patients and septal extension-columellar graft was used in the other 11 patients. Nasolabial angle, nasofrontal angle and nasal tip projection ratio (Goode ratio) were measured in both patient groups. Data were evaluated with the Mann-Whitney U test using the SPSS 22.0 program.

Results:
While there was a statistically significant difference in terms of nasolabial angle between patients using septal extension-columellar graft and patients using only columellar graft ($p<0.05$), no significant difference was found in terms of nasofrontal angle and type projection (Goode ratio) ($p>0.05$).

Conclusions:
Columellar strut graft is one of the most commonly used grafts. However, its inadequacy in type rotation has been shown in articles. Septal extension-columellar graft, which is a modification of the columellar strut graft planned to prevent this insufficiency, has not been found in the accessible literature. Septal extension-columellar graft is thought to be an ideal graft for patients with weak lower lateral cartilage and who require tip rotation.

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Title : Transection of Pitanguy's Midline Ligament to Avoid Supratip Depression in Closed-Approach Low-Septal-Resection Dorsal Preservation Rhinoplasty

Introduction:
Supratip depression is a common complication after preservation rhinoplasty. In this study, we present a simple surgical maneuver to prevent supratip depression.

Materials and Methods:
Thirty-six patients who underwent closed-approach low-septal-resection dorsal preservation rhinoplasty between January and June 2021 were included in this retrospective study. Depending on the operation performed on Pitanguy's midline ligament, the patients were divided into two main groups as follows: (i) a group in which Pitanguy's midline ligament was transected (the transection group) and (ii) a group in which Pitanguy's midline ligament was preserved (the preservation group). Standardized postoperative 6-month lateral-view photographs were scanned for the presence of supratip depression or pollybeak deformity. The Rhinoplasty Outcome Evaluation (ROE) scale was applied at 6 months.

Results:
Supratip depression was observed in four patients in the preservation group ($n = 16$), and it was not observed in any of the patients in the transection group ($n = 20$; $p < 0.05$). There was no pollybeak deformity in either group. For the ROE scores and number of satisfied patients, no statistically significant difference was found between the groups with Pitanguy's midline ligament transected versus preserved ($p > 0.05$). There was no other complications.

Conclusions:
Transecting Pitanguy's midline ligament reduces the likelihood of supratip depression and does not affect the likelihood of pollybeak deformity in closed-approach low-septal-resection dorsal preservation rhinoplasty.

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Title : Choice of Technique for Cartilage and Bony Vault Reduction in Preservation Rhinoplasty

Introduction:
Although recently popularized, techniques and idea of dorsal preservation dates back to early 20th century. Since then we have seen a decade full of exciting innovations and breakthrough in aesthetic nose surgery in rhinoplasty. The field is ripe with many techniques, each with its own specific pros and cons. Therefore it can be a daunting process to transition into preservation rhinoplasty from traditional structure techniques and pick the most appropriate technique for a given deformity.

Materials and Methods:
52 patients were operated using preservation rhinoplasty techniques which included low septal strip resection (36 patients, 69%), high septal strip (17 patients, 32%), midseptal strip (2 patients, 3,8%). Techniques for bony vault reduction consisted of push-down technique (24 patients), let-down technique (13 patients), asymmetric let-down (9 patients) and cartilage-only dorsal preservation (6 patients). Results are evaluated from post operative photographs in term of hump resection, radix height, surface irregularities on nasal bridge, tip projection, tip rotation, axis deviation and dorsal light reflections.

Results:
Best candidates for low septal strip resection include patients with severe axis and septal deviation, large humps (>4mm) and high radix. On the other side high septal strip excision is found to lead to better results in patients with high septal deviations and small humps (<4mm). Push-down technique provided better skeletal support but let-down technique is found to be more effective for larger humps. Cartilage only dorsal preservation is evaluated as the best technique in extremely kyphotic humps.

Conclusions:
Preservation rhinoplasty techniques proved to be invaluable in a significant portion of patients that can lead to very good results with operations easy to perform and potentially simpler revisions. In this presentation author tries to delineate specific indications together with tips/pitfalls for each technique and demonstrate their results on patients in 2 years of preservation rhinoplasty practice.

SESSION 7

UPPER EXTREMITIES & LYMPHATICS

EURAPS

Title : A microsurgical approach of refractory chylous ascites using the deep inferior epigastric lymphatic cable flap connected to gastroepiploic lymph node flap: a case series.

Introduction:
Chylous ascites (CA) is the abnormal leakage of lipid-rich lymph into the peritoneal cavity, typically brought on by peritoneal lymphatic pressure or disruption of the lymphatic system. At least one-third of patients are non-responders to medical therapy and may require additional treatment.
Many surgical options have been described, but most have yielded suboptimal outcomes.
We aim to suggest a novel approach to solve intractable CA based on the reported clinical improvements of extremity lymphedema following vascularized lymph node transfer (VLN). We present a case series of patients affected by refractory, cancer-related CA who underwent a lymphatic cable flap transfer (LCFT) involving the deep inferior epigastric artery (DIEA) and vein (DIEV), as well as surrounding fat and lymphatic tissue connected to a pedicle gastroepiploic-VLN flap.

Materials and Methods:
Seven consecutive CA patients were treated with LCFT between January 2010 and January 2020. Peritoneal fluid triglyceride concentrations greater than 110 mg/dL, refractory to conservative management for more than 6 months, malnourishment, and candidates for feeding jejunostomy were all inclusion criteria. Congenital CA cases were excluded.
Other pathologies were ruled out by abdominal CT, and lymphoscintigraphy confirmed peritoneal lymphatic obstruction. The abdominal circumference was measured at the level of the umbilicus before and after paracentesis. The pre-and post-surgery serum albumin levels were compared.

Results:
With at least a two-year follow-up, all seven patients recovered from CA and tolerated regular diet well, with no further paracentesis required. All patients showed improvements in waistline measurements, thoracic re-expansion, and normalized albumin levels. No perioperative or postoperative complications were reported.

Conclusions:
In seven patients, a LCFT based on the DIEA and DIEV was found to be a viable treatment for intractable CA, with favorable and safe long-term outcomes. The intra-abdominal lymphatics that have become obstructed are bypassed to an extraperitoneal route. Local lymphangiogenesis is also proposed as part of the flap's functional mechanism.

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Title : Perioperative Evaluation Form and Predictive Factors for Lymphaticovenous Anastomosis (LVA) Surgery for Lymphoedema (the ppLVA study)

Introduction:
The lymphaticovenous anastomosis (LVA) procedure involves identification of obstructed lymphatic vessels and targeted bypass of these into neighboring venules in order to treat lymphoedema. The LVAs have been shown to improve patient's quality of life (QoL), reduce volume, infection episodes and the need for compression garments. However, there are still many unanswered questions related to LVA surgery; e.g., the timing of surgery, location, and what perioperative findings predict good outcomes. This is the first study to use a structured evaluation form to assess perioperative findings in LVA surgery, aiming to identify positive or negative predictive factors for successful outcome.

Materials and Methods:
Perioperative findings during LVA surgery are collected systematically according to a newly developed grading tool. The findings are compared to pre- and post-operative outcome measures (QoL, volume and indocyanine green lymphography (ICG-L)) at 6-11 and 12-24 months. Patients are recruited from centres in Holland and Sweden.

Results:
One hundred patients have been operated on and recorded with the perioperative form. Outcomes from the first 23 patients (59 anastomoses) will be presented. Great variation is seen in the duration of lymphedema (7-410 months). The location of the lymphatic-vessels correlated well with the ICG-L, leakage of lymphatic fluid was seen when vessels were cut in 88% of cases, and the lymphatic vessels were a little to very fibrotic in 40% of cases. Venous backflow was seen in 31% of cases, lymphatic fluid was seen flowing into the vein in 62% of cases at release of the clamp, and in 78% of cases the surgeons where happy with their result.

Conclusions:
It is feasible to collect accurate data between centres with the structured protocol, and a perioperative evaluation form could be a useful tool to identify predictive factors for the outcome of LVA procedures, elucidating previously unanswered questions and direct future surgical treatment protocols for lymphoedema.

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Title : Primary lymphovenous anastomosis after extended soft tissue resection in the medial thigh for reduction of lymphocele and lymphedema

Introduction:
Postoperative chronic lymphocele and lymphedema represent severe burdens for soft tissue sarcoma patients that are already physically handicapped after a long recovery time due to the invasiveness of oncologic surgeries and treatment thereafter. We have shifted our focus to lymphedema and lymphocele risk reduction with prophylactic lympho-venous anastomosis (LVA) simultaneously after sarcoma resection in the medial thigh.

Materials and Methods:
We performed multiple LVA simultaneously after sarcoma resection in the upper medial thigh areai n 12 patients . The postoperative course was followed up closely and postoperative occurrence of lymphocele and lymphedema was clinically assessed. Data obtained was compared to patients without prophylactic lymphatic surgery. A literature search outlining the latest clinical data, current treatment strategy landscape, and their application into clinical practice and expected future progress for the management of lymphatic complications was added to the investigation.

Results:
ICG was technically feasible to detect severed lymphatic vessels after extended soft tissue resection in all patients. Primary LVA reduced lymphocele formation and severity of lymphedema over a course of 12 month in all patients compared to the cohort that was not treated prophylactically. The reported incidences for lymphedema in literature after preventive LVA range from 0-12.5%.

Conclusions:
Primary LVA after soft tissue sarcoma resection in the medial thigh is feasible and improves the overall postoperative course. Lymphocele prevention with LVA is poorly studied in sarcoma patients. We recommend that this technique should be seen as an additional concept to achieve an overall better postoperative outcome in these challenging surgical settings. We strongly recommend ICG to detect severed lymphatic vessels to either anastomose or ligate those under the microscope primarily simultaneously after sarcoma resection in the upper medial thigh area.

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Title : The Confluence Point: a new incision strategy for lymphaticovenular anastomosis in peripheral lymphedema.

Introduction:
In the last five years, many advances has been made in terms of preoperative planning using new imaging technologies. The high case load of lymphaticovenular anastomosis (LVA) performed using ultrahigh frequency ultrasound bring us to find a new incision site, the confluence point, where two major functional lymphatic channels merges into one than becomes sclerotic soon after.

Materials and Methods:
From October 2021 to May 2022, 60 consecutive patients affected by extremity lymphedema who underwent LVA were prospectively assessed. Preoperative planning included ICG lymphography (ICG-L) and Ultra-high frequency ultrasound (UHFUS). The LVAs at the confluence points were evaluated in terms of operative time and LVA dynamics after the anastomosis, and compared to the incisions without V-Con convergence points.

Results:
The confluence point was preoperatively detected in 26 (43%) cases. The lymphatics proximal to the confluence point showed similar calibers to the distal ones, with no significant size increase, and underwent a lumen obstruction 0,5 to 1 cm after the confluence point in 22 (92%) cases. The mean operative times for LVA at the confluence points was 39 ± 8 minutes in ULL and 42 ± 6 minutes in LLL, significantly lower compared to the incisions with 2 anastomoses that was 57 ± 8 minutes for ULL ($p<0,0001$) and 69 ± 15 minutes for LLL ($p<0,0001$). No complications were registered.

Conclusions:
The LVA of confluence points derives from the ultimate anatomical findings detectable by Ultra High-Frequency Ultrasound, and showed to be an effective method to minimise the number of LVA while maintaining the maximal lymph flow and the best dynamics through the anastomosis.

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Title : The laparoscopic right gastroepiploic vascularized lymph node flap – reducing donor site morbidity in the surgical treatment of lymphedema

Introduction:
Introduction:
Vascularized lymph node transfer (VLNT) represents an established technique to treat lymphedema, but has been associated with the risk of iatrogenic donor-site lymphedema. The right gastroepiploic vascularized lymph node flap provides a promising alternative.

Materials and Methods:
Methods:
We report a series of 32 patients treated with conventional or extended VLNT from the omentum. If two flaps were panned an extended flap was harvested and divided at the center. Flap inset was performed in the groin, the ankle or on both locations on one or both legs depending on the type and degree of lymphedema.

Results:
Results: All flaps were harvested laparoscopically by the visceral surgery team including in a child with incomplete situs inversus. Flap harvest takes 45-60 min on average. In the beginning patients received a single flap (n=14). Due to the anatomy of the omentum comprising a dual blood supply, two veins from both ends of the flap are connected to avoid venous congestion. During the later course we changed the protocol to double flap inset at a proximal and a distal location on the extremity (n=18). At 6 months postoperatively volume reductions up to 20% of the circumference were seen and patients experienced a significant softening of the tissue. Notably, also severe lymphedema of the lower legs responded well to the distal inset of the flap. There were no seromas at the donor site and no complications on the receiving extremities. One patients suffered from a perforated gastric ulcer 6 weeks after surgery, in which no clear relation to the flap harvest could be established. No long-term complications were seen so far.

Conclusions:
Conclusion: The right gastroepiploic vascularized lymph node flap provides well vascularized lymphatic tissue, which can be harvested with minimal donor site morbidity. Complications such as prolonged seroma at the donor site and iatrogenic lymphedema can be avoided.

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Abstract No.: 119 **Category:** Extremities: Upper Extremity **Time:** 4 **CR:** No

Event : 33rd Annual EURAPS Meeting, STOCKHOLM, Sweden, 25-27 May 2023

Title : Disparities in Targeted Muscle Reinnervation in Major Upper Extremity Amputation

Introduction:
Post-amputation pain is a debilitating sequela of upper extremity (UE) amputation. Targeted muscle reinnervation (TMR) can help prevent pain and improve quality of life. The purpose of this study is to evaluate national trends and disparities in TMR following UE amputations.

Materials and Methods:
An analysis of the Nationwide Inpatient Sample, the largest inpatient database in the United States, was conducted from 2016-2019. ICD-10 codes were used to identify patients who underwent UE amputation with and without TMR. Associations between the use of TMR and various patient and hospital factors were analyzed.

Results:
A total 1,789 patients underwent UE amputation in the United States. Of them, 62 (3.5%) received TMR. The majority of TMR occurred in urban teaching hospitals (>95%). There were no differences in likelihood of receiving TMR based on sex, race, or income. Compared to those in New England, patients were less likely to receive TMR in the South Atlantic (OR .33, 95% CI 0.11-0.95, p=0.04), East South Central (OR .13, 95% CI 0.03-0.95, p=0.009), West South Central (OR .12, 95% CI 0.03-0.44, p=0.001), Mountain (OR .10, 95% CI 0.02-0.54, p=0.007) and Pacific regions (OR .10, 95% CI 0.02-0.36, p=0.001). There are no significant differences in cost or length of stay between patients who received TMR and those who did not.

Conclusions:
Access to TMR following UE amputation is associated with differences by geographic region. Given that TMR has not been shown to increase cost or length of stay, increased efforts to incorporate this procedure into training and practice around the country will help to ensure equitable access to TMR.

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Abstract No.: 160 **Category:** Extremities: Upper Extremity **Time:** 4 **CR:** Yes

Event : 33rd Annual EURAPS Meeting, STOCKHOLM, Sweden, 25-27 May 2023

Title : Free Functional Gracilis Muscle Opponensplasty: Indications and Long Term Outcomes

Introduction:
Reconstruction of thenar function is most commonly performed with opponensplasty tendon transfers. While beneficial, tendon transfers require cortical retraining and fall short of native function. When thenar function is lost due to thenar muscle injury with preserved median nerve function, intuitive thumb opposition can be restored with free functional muscle transfer innervated by the thenar branch of the median nerve. Only two cases have been previously published, and the literature lacks long term rigorous follow up of outcomes. In this two-patient case report, we demonstrate the benefits of this procedure versus opponensplasty, demonstrate videographic documentation of long-term outcomes for successful cases, and provide expert guidance to surgeons considering performing this procedure.

Case Report:
2 cases of traumatic thenar muscle loss are reviewed; one owing to a blast injury, and the other due to compartment syndrome. Both patients underwent thenar reconstruction with free functional gracilis muscle transfer, with anastomosis to the radial vessels and nerve coaptation to the recurrent branch of the median nerve. Other procedures were also performed to treat concurrent conditions such as contractures and tendon injuries. Both flaps survived completely, and both patients regained voluntary contraction of the transplanted muscle with Medical Research Council (MRC) grade M4 power. Videographic followup is demonstrated at 2 years post-op.

Conclusions:
This case report is the first to provide long term videographic results of gracilis free functional muscle transfer (FFMT) for thenar reconstruction. Reconstruction of thenar muscle function using the gracilis FFMT can provide excellent long-term results and has unique benefits as compared to traditional opponensplasty. This procedure should be considered as an alternative to traditional tendon transfers in select cases involving loss of thenar musculature with intact median nerve function.

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Title : Recontruction of Finger Defects by Using Superficial Circumflex Iliac Artery Perforator Free Flap

Introduction:
Reconstruction of finger defects is challenging due to 3-dimensionel circular and longitudinal structure, thin soft tissue cover, multiple joints and function. Multiple finger defects are also not uncommon due to the proximity of fingers. Therefore, ideal flaps should be designed as thin, pliable and chimeric flaps that can be attached to additional skin island, bone and fascia without adversely affecting finger functions. This study aimed to present reconstruction result of various dimension and content finger defects with SCIP free flap.

Materials and Methods:
17 patients who underwent reconstruction for finger defects with SCIP free flaps were retrospectively reviewed. Demographic characteristics of patients, injury mechanisms, characteristics of defects and flap, duration of surgery and complications were researched.
The functional disabilities of the injured hands were evaluated using DASH questionnaires. The cosmetics satisfaction about color and texture of fingers were scored by using 5-point Likert satisfaction scales with referring to the opposite fingers. The patients followed up an average of 20.3 months.

Results:
14 of the patients were male, 3 were female. The mean age was 30.3±9.2 years. Reconstruction was performed with a SCIP free flap, including a skin island (n=10), two skin islands (n=5), skin and fascia islands (n=1), and 3 skin and 1 fascia island (n=1). The mean size of skin islands ranged from 4.6 to 21 cm2. 1 arterial and 1 venous insufficiency were treated by renewing the anastomosis. No flap failure was observed. Mean surgical duration was 132.9±21.4 minutes. The flaps were well adapted to the recipient areas with high patient satisfaction (4.7±1.2). The hand functional limitations of the patients improved significantly after surgery (pre-op DASH=81.4±6.4, 12 month DASH=14.4±5.6).

Conclusions:
Free SCIP flap is one of the ideal flap options for finger defects with thin and pliable structure, chimeric design, minimal donor-site morbidity and well-concealed scars.

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Title : COMPARISON OF THE RESULTS OF HOMODIGITAL PERFORATOR PROPELLER FLAPS AND FREE TOE PULP FLAPS IN REPAIR OF FINGERTIP DEFECTS

Introduction:
The aim of this study is to compare the reconstruction results of homodigital perfarator propeller flap and free lateral great-toe pulp flap in fingertip defects.

Materials and Methods:
11 patients who underwent fingertip reconstruction with homodigital sensate propeller flaps, and 15 patients who underwent fingertip reconstruction with free lateral great-toe pulp flap were included in the study.

Demographic characteristics of patients, comorbidities, injury mechanisms, characteristics of defects and flap, duration of surgery, complications, return-to-work, and follow-up period were compared between the groups.

Functional disabilities of the upper extremities, finger cosmetics, sensory recovery, and pinch power were evaluated using DASH questionnaires, 5-point Likert scales, Semmes-Weinstein monofilament and static 2-point discrimination tests, and pulp pinch-strength test, respectively. All results were compared between both groups.

Results:
In the homodigital group, 8 patients were male and 3 patients were female. The mean age of the patients was 34.8 years. Etiology included crush trauma (n=7) and guillotine-style fingertip amputation (n=4). The dimensions of the soft tissue defects were between 2.2±1.2 cm2.
In the toe-pulp group, 12 patients were male and 3 patients were female. The mean age was 32.1. Etiology included crush trauma (n=12) and finger amputation (n=3). The mean size of the flap was 3.6±1.1 cm2. The mean surgical duration was longer in the toe flaps.
All patients and observers were satisfied with finger's cosmetics. There was no significant difference in sensorial, functional and satisfaction scores in both techniques ($p<0.05$). While the lateral great-toe flap is sufficient for all dimension and tissue deficiencies (soft-tissue, nail, bone, tendon), the homodigital flaps are insufficient in large and composite defects.

Conclusions:
Depending on the type and severity of the trauma, various techniques have been used for fingertip defects. Especially in large and composite defects, great-toe free flaps are superior to homodigital flaps.

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Title : The Bridged Digital Artery Perforator Flap as an Alternative Reconstructive Option for Dorsal Digital or Toe Soft Tissue Defects

Introduction:
Dorsal digital soft tissue defects are considered among the most challenging to reconstruct. Numerous treatment options are proposed, including advancement flaps, antegrade, retrograde flow flaps, adipofascial flaps, and digital artery perforator flaps. However, the optimal treatment remains controversial. The concept of the “bridge principle,” consisting of the indirect transfer of the flap to the defect area through a muscular bridge, has recently introduced by authors for medial canthal reconstruction. The aim of the study was to examine the feasibility of its application in digital reconstruction for dorsal defects and the development of a new flap. The utilization of the dorsal subcutaneous adipofascial digital or toe tissue as a “bridge” led to description and development of bridged digital artery perforator flap as an alternative treatment of such defects. This flap moves thin and pliable tissue with excellent match to native skin. It is a cost-effective alternative to a dermal regeneration template requiring only one operation, which makes it an appealing option for a surgeon with limited resources

Materials and Methods:
From November 2017 to September 2019, a series of 14 patients (mean age of 57.1 years) suffered from dorsal digital or toe soft tissue defects of different dimensions and sustained reconstruction with this new technique.

Results:
Twelve digits and 2 toes have been concerned. The mean size of the defects was 1.3 X 1.1 cm. All flaps survived without a sign of venous congestion. No functional digital or toe problems were observed during the follow-up period (mean of 11.6 months). Minor wound dehiscence presented in 2 cases (2 of 14 or 14.3%) and a transient skin swelling around the flap in 1.

Conclusions:
A new concept was introduced to resolve a challenging problem. Initial outcomes are very encouraging. These flaps could be a valuable and reliable reconstructive option.

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SESSION 8

PELVIC, GENDER & LOWER EXTREMITY

EURAPS

Title : THIGH RECONSTRUCTION BETWEEN FORM AND FUNCTION: ALGORITHM FOR FLAP SELECTION BASED ON A SERIES OF 58 ONCOLOGICAL PATIENTS

Introduction:
Thigh reconstruction after oncological resection represents a challenge in terms of ideal morphological and functional outcomes to aim for.
The purpose of this paper is to review our institutional experience in the field of thigh reconstruction, proposing an algorithm to choose the most convenient pedicled or free flap approach according to the different clinical scenarios.

Materials and Methods:
The authors retrospectively reviewed patients who received thigh flap reconstruction after oncological resection between 2014 and 2021. Demographic and operative data were recorded. Patients undergoing the 12 months follow-up appointment were asked to rate on a 5-point Likert scale the aesthetic and functional outcomes of the reconstructive procedure. Additionally, patients who received a free functional muscle transfer to restore quadriceps or hamstring function were evaluated 12 months post-operatively with the MRC muscle power scale.

Results:
58 thigh reconstructions were performed after sarcoma (40), melanoma (10) or skin cancer (8) resection. Pedicled flaps were used in 43 patients, either in a free-style (35 ALT-AMT-PAP perforator-based flaps) or classical island fashion (8 ALT flaps).
Microsurgical reconstruction was performed in 15 patients for extensive defects > 8 cm in width (7 SCIP-ALT-TDAP-LD flaps) or when > 50% of the quadriceps or hamstring compartments were resected (8 FFMT with ALT-VL or LD flaps). Minor complications not impacting the final outcome were observed and managed conservatively in 17% and 13% of the pedicled and free flap groups, respectively. 1 flap loss was registered in the pedicled group. Overall patients' satisfaction was high, with mean aesthetic and functional ratings of 4.31 and 4.12 respectively. In the 8 FFMTs group, M5, M4 and M2 strengths were observed in 4, 3 and 1 patients respectively.

Conclusions:
Oncological thigh defects of moderate dimensions are usually well addressed with pedicled perforator flaps. Microsurgical reconstruction offers reliable and reproducible results in extensive defects or when functional restoration is indicated.

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Title : Versatility of perforator flaps for lower extremity defect coverage:Technical highlights and single center experience with 87 consecutive cases

Introduction:
Lower extremity defects have been and remain one of the greatest challenges in reconstructive surgery.Perforator-flaps have been accepted as a valid procedure to cover such a defect.Different techniques have been described and nowadays many options are available.In the present report, we gathered most of them,presenting an updated and large case series where different pedicled and free perforators-flaps were employed in simple and complex scenarios in a large series of cases.

Materials and Methods:
Eighty-seven patients presenting soft tissue defects of the lower extremities were treated by means of different perforator-based flaps, in either free or pedicled fashion.The flaps were based on different perforator vessels,namely dLCFA, PFA, SFA, MSA, PA, PTA, ATA and MPA.Patients' mean age was 61.9 years old,58 were males and 29 females.The 12 patients received sequential flaps and 9 received double free flaps,for a total sum of 106 flaps.The causes of the defects were trauma in 41 patients and tumors in 46 patients,located throughout the lower limbs.Size of the defect ranged from 3×4cm to 25×9cm.

Results:
The dimensions of the flap skin paddles ranged from 3cm×4cm to 16cm×5cm for the pedicled flaps (42 cases) and from 6cm×4cm to 25cm×8cm for the free ones (45 cases).Mean flap's size was 48 cm2 for the pedicle flaps and 104 cm2 for free flaps. In two pedicled cases, a distal congestion was encountered, requiring a second surgery.All the patients were successfully treated and no flaps were lost.Mean follow-up period was 8.4 months (range 3-12 months).No range of motion impairment was encountered after surgery and all the patients were able to return to habitual life.

Conclusions:
The present case series highlights the reliability and versatility of perforator flaps for lower extremity defect coverage.Following careful consideration of the etiology,dimensions, location, patient comorbidities,and presence of adequate perforators,a pedicled or free-perforator-flap can be potentially successful in the most disparate circumstances.

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Title : The use of Peroneus Brevis in Reconstruction of the Lower Limb – What we have learned from 47 cases.

Introduction:
Introduction
Fracture fixation of the ankle is difficult requiring access both medially and laterally. Open fracture is worse resulting in soft tissue defect complicating bony fixation. Often patients require soft tissue coverage either primarily or when metal work is infected. There are many methods to treat this problem however a particular issue presents in older subjects who present multiple comorbidities and a laterally located soft tissue defect. These patients are unsuited to long procedures or multi-stage reconstruction. In this instance one is faced with a paucity of viable options hence, we present the peroneus brevis (PB) muscle flap.

Materials and Methods:
Materials & Methods
We performed a prospective study evaluating the use of PB flaps in lower limb reconstruction. Subjects were collated using a database and multiple variables were assessed including; patient demographics; comorbidities; defect size; peri-operative timings; time in theatre; use of inotropes / blood transfusion; mean hospital stay; patient morbidity / mortality; flap survival.

Results:
Results
During 2015-2022, 47 patients underwent lower limb reconstruction using PB muscle flaps. 41 cases involved PB and skin graft alone whilst 6 were more complex requiring addition local and free tissue techniques. 26 presented with infected metal work. The mean patient age was 59 (20-93 years), and mean ASA 3. Mean defect sizes size was 4.3 x 7.8cm (2-18cm). Mean time from admission to definitive closure was 4.4 days (0-21 days), and mean time in theatre 153 minutes (45-350 minutes). 16 patients required inotropes and 12 had blood transfusion. Mean length of stay was 14.6 days (0-58 days), 1 patient (aged 90) died. 100% of flaps survived and mean Enneking score was 67.

Conclusions:
Conclusion
We present the largest series of PB flaps, highlighting the benefits and risks, and advocating it as a suitable technique for reconstruction of lateral defects in distal third of the lower limb.

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Title : Donor-site morbidity after single vs double gastrocnemius muscle flap harvest in orthoplastic reconstruction: what to expect?

Introduction:
Little is known about the donor side morbidity of harvesting both gastrocnemius heads, with no studies in literature. This work compares and critically analyses the donor site morbidity of two matched cohorts of patients, reconstructed by double or single (medial) gastrocnemius flap, respectively.

Materials and Methods:
Data was collected retrospectively in a prospectively maintained database of patients who underwent soft tissue coverage of the knee involving the use of both pedicled gastrocnemius flaps (medial + lateral). Patients with knee arthrodesis, hip arthritis or other conditions limiting lower limb motion were excluded. Quantification of residual ankle and knee strength and range of motion was performed together with Lower Extremity Functional Scale (LEFS) to obtain functional outcomes.

Results:
9 cases of double gastrocnemius (DG) reconstruction were included for the final functional evaluation. Such patients were compared with an age and etiology-matched (trauma, infected knee material and tumors) cohort of 11 patients treated with a single (medial) gastrocnemius flap (MG).
Mean follow-up time was 25±3 months.
Key differences were found in plantar flexion ROM and knee flexion strengths. These were significantly reduced in the DG group, by 18±7 degrees and 4.7±1.6 Kg, respectively.
Interestingly plantar flexion strength decreased minimally and was not significant.
Comparison of the LEFS score showed a statistically significant lower score for the DG.

Conclusions:

Harvesting of DG induced a acceptable diminution of the knee/ankle function, compared to MG flap.
The impact on every day lower limb tasks was minimal, reflected in minimal LEFS score reduction.
DG flap is a useful technique for reconstruction of large soft tissue defects around the knee without reverting to a free flap. The additional morbidity did not impact daily living/walking activities owing to compensatory mechanism of remaining synergistic muscles. The indication of the DG flap, should be reconsidered in younger, high demanding patients, where a free flap should be preferred.

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Title : Comparison of outcomes between early and delayed weight bearing following lower limb free flaps: an 18-month single centre study

Introduction:
Post-operative protocols following lower limb free flap surgery are not well defined with a lack of consensus in the literature around limb dependency and weight bearing. It has been proposed that early weight bearing following lower limb free flap reconstruction is safe but there is a lack of high-level evidence or accepted guidelines. Our aim was to compare the complication rate for lower limb free flaps before and after the introduction of an enhanced lower limb free flap protocol with earlier dangling (day 3 vs day 4) and weight bearing (day 5 vs day 14) post lower limb free flap surgery.

Materials and Methods:
All lower limb free flaps performed between June 2020-January 2022 at a tertiary-referral centre for plastic surgery were identified from a departmental flap database. Patient data was collected from the comprehensive lower limb free flap database, medical notes and electronic records. Our exclusion criterion was any patient prescribed non-weight bearing due to the method of bone fixation.

Results:
A total of 38 patients, 15 pre- and 23 post-enhanced protocol were identified for comparison. The mean age was 43 (17-72) with a M:F of 3:1. There was no difference in the type of flap reconstruction between groups, with the anterolateral thigh flap the most common in both groups. No differences were identified in the number of complications related to dependency/weight bearing before and after the introduction of the enhanced protocol, with the mean length of stay reduced from 12 to 10 days (p=0.28).

Conclusions:
The new enhanced protocol remains the standard of care in our unit, as we demonstrated a reduction in length of stay with no difference in complication rates following early weight bearing after lower limb free flap surgery.

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Title : Sexual well-being in transgender patients: could gender confirming-chest surgery be enough? Outcomes from a prospective study.

Introduction:
In gender-confirming chest surgery, hardly any study has evaluated the improvement of the sexual well-being of transgender patients after breast augmentation or removal. This prospective study aims to assess the potential improvement of body awareness during sexual intercourse and the nipple-areolar complex (NAC) sensitivity recovery after gender-confirming chest surgeries. Eventual differences in perceived outcomes after surgery between male-to-female (FtM) and female-to-male (MtF) patients were analysed.

Materials and Methods:
From October 2019 to April 2021, all transgender patients eligible for gender-confirming chest surgery in our institution were asked to file BREAST-Q and BESAQ questionnaires to investigate not only aesthetic outcome and psychological well-being, but also body awareness during sexual intercourse. The Semmes Weinstein monofilament test was used to evaluate NAC sensitivity recovery. Different follow-ups were considered: pre-op, 4 and 12-month post-op.

Results:
21 FtM and 12 MtF patients were enrolled in the study. Both FtM and MtF patients experienced significant improvement in psychological well-being and chest/breast satisfaction already at 4-month post-op, compared to pre-op values. Body awareness during sexual intercourse improved significantly at 4-month post-op in the FtM groups ($p<0.001$), but at 12-month post-op in the MtF group ($p<0.01$), only after completion of genital reassignment. No correlation between body awareness during sexual intercourse and NAC sensitivity was observed in either group.

Conclusions:
While aesthetic and psychological well-being outcomes increased quickly post-operatively in both groups, sexual health remained low among MtF patients until they completed their transition by the vaginoplasty surgical procedure. NAC sensitivity recovery was found to be not contributive to the improvement of sexual health of transgender patients after gender-confirming chest surgery.

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Title : Gender-affirming chondrolaryngoplasty: surgical technique and results

Introduction:
Gender-affirming chondrolaryngoplasty consists in the reduction of the thyroid cartilage prominence (also known as 'Adam's apple'), and it is supposed to help in reducing one's gender dysphoria.
Literature presents very few papers describing surgical technique and results.
Primary aim of this paper is to present our surgical technique, results and complications.

Materials and Methods:
Appropriate patient selection and thorough review of expectations are essential during pre-operative evaluation.
Surgical technique is hereby described.
A retrospective review of the procedures operated between 2015 and September 2022 has been performed. Immediate and late complications, as well as satisfaction with surgery (expressed as: request for further surgery), are presented. To date, no validated PROM specific for patients with gender dysphoria has been described.

Results:
Hereby the surgical technique: general anaesthesia; 2.5- to 3.5-cm incision at cervicomental junction; strap muscles separated at midline; anterior pericondrium incised and elevated; depending by the level of ossification of the anterior prominence of the thyroid cartilage, this is reduced with surgical blade #15, or bone Rongeur and burr; strap muscles approximated medially: subcutis and skin sutured.
Forty two patients underwent gender-affirming chondrolaryngoplasty.
No patient presented the following complications: hematoma, disturbance of laryngeal function (e.g. when speaking or swallowing), infection, wound dehiscence, pain. One patient received revision surgery for irregular scarring; one patient received Kenacort injection for hypertrophic scarring. One patient requested additional shaving surgery, which was denied by our multidisciplinary team, since patient's dysphoria was resolved, and enhancement surgery is not allowed within the government-based hospital. To date, no other patient requested further surgery.
PROM could not be assessed, since GENDER-Q for gender-affirming chondrolaryngoplasty is still under development.

Conclusions:
Gender-affirming chondrolaryngoplasty is to be considered a safe procedure; it assists in reducing gender dysphoria.
Pre-operative counselling is critical to select appropriate patients, and optimizing outcomes.
A validated PROM is needed for assessing the outcomes.

Author :	Gennaro Selvaggi
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Title : Chest Masculinization at Sahlgrenska University Hospital: 11-year experience and 380 primary cases; changes in practice and surgical results

Introduction:
Since 2011, the Ghent algorithm for chest masculinization in gender dysphoria was first introduced by the senior Author at **, and later modified.
Aim of this paper is to report on surgical results following chest masculinization, and changes in practices, as implemented in the last years.

Materials and Methods:
In the period August 2011-February 2022, 380 primary chest masculinization have been performed at **. Of these, 370 journals have been examined for surgical techniques, early and late complications, and revision surgeries.
Ethical approval was obtained.

Results:
Most used techniques were: double incision with free Nipple-Areola Complex (NAC) graft (253 cases, 68%) and concentric circular (95 cases, 25%). Other techniques were: extended concentric, hemiperiareolar, J incision with supero-lateral pedicle, horizontal incision with inferior pedicle.
Reoperations for early complications (i.e.: bleeding / hematoma) occurred in 3 cases (one case each following double incision, concentric circular, and J-incision with supero-lateral pedicle techniques); total NAC necrosis occurred in 3 cases, one case each following double incision, concentric circular, and extended concentric techniques; partial NAC necrosis occurred in 2 cases following double incision, and in 2 cases following extended concentric techniques; late secondary surgeries was required by 21% of the patients (respectively, 15%, 35% and 78% following double incision, concentric circular, and extended concentric techniques). Injection of corticosteroids for hypertrophic / keloid scarring was required in 2.4% of the cases (respectively, 2.3% and 3% following double incision and concentric circular techniques).
Throughout the years, the Ghent algorithm was modified as follows: due to the high rate of revisions, since 2015 extended concentric technique, is only used for secondary cases.

Conclusions:
The Ghent decision algorithm was modified throughout the years.
In current practice, revision surgery is required in 15% to 35% of patients.
There is no significant difference in NAC survival when comparing double incision to concentric circular technique.

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Title : Age-Related Differences for Trans-Females Undergoing Gender Affirmation Surgery

Introduction:
It has been theorised that there are 2 subgroups within the trans-female population: individuals who are predominantly androphilic and those who are predominantly gynephylic or interested in both male and female partners. Aim of the study was to explore the role of a dichotomous distribution of age at dysphoria onset in individuals diagnosed with trans-female dysphoria.

Materials and Methods:
40 trans-females who presented for gender affirmation surgery (GAS) were included in this study. Their age distribution was plotted as a histogram and the population was then divided at the median self-reported age of onset of gender dysphoria—that is, those 17 years and younger and those 18 years and older. The 2 groups were then compared with regard to demographic data, partnership history, various quality of life parameters, as well as sexual orientation and sexual history.
Main Outcome Measure: Self-developed questionnaires, Questions on Life-Satisfaction and Body-Image, Freiburg-Personality-Inventory, Rosenberg Self-Esteem-Scale, and Patient-Health-Questionnaire were used.

Results:
Early-onset, gender-dysphoric trans-female patients underwent GAS at a much younger age (mean 32.7 vs 43.8 years, P = .004), but had similar characteristics regarding weight, height, body mass index, marital status, and living situation to individuals who reported later onset of gender dysphoria. Preoperatively, they showed greater depressive symptoms (4.6 vs 3.3 points, P = .045), which disappeared after GAS. Following surgery, the younger trans-females were predominantly attracted to men (52.6%), whereas individuals who were diagnosed with late-onset of gender dysphoria preferred women or both men and women (85.7%) as sexual partners (P = .010). Younger trans individuals were more frequently sexually active (73.7% vs 42.9%, P = .049).

Conclusions:
Our findings suggest that there are 2 trans-female populations that differ in age of dysphoria onset, sexual history, and multiple personal details including sexual orientation. These data may be used to improve care to transgender individuals by providing treatment reflecting their sexual interests.

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Title : Phalloplasty with perineostomy instead of urethral lengthening, a safe method for masculinizing genital gender affirming surgery

Introduction:
Phalloplasty is an essential operation to female-to-male transgender patients who have gender dysforia related to their genitalia. Common procedure is to combine urethral lengthening, in this way it's possible to void in standing position. All of the earlier studies show a significantly high number up to 50-70% complications of urethral lengthening, especially in form of fistula and/or stenosis of anastomosing site. Despite this high risk of complications, phalloplasty with urethral lengthening is still a golden standard of masculinizing genital gender affirmation surgery. In our clinic we've had a more critical point of view to urethral lenghtening because of wellknown complication risks and we have provided more phalloplasties without urethral lenghtening, making a shaft-only phalloplasties combined with perineostomy, scrotoplasty, testicle and erectile prothesis implantation and glansplasty. This combination creates a masculine appearance and function of genitalia, though possibility of voiding in standing position is not reached.

Materials and Methods:
Data of possible complications and further revision operations after phalloplasty was collected from electric patient journals. Groups of phalloplasties with or without urethral lengthening were created.

Results:
46 phalloplasties were performed in 2017-2021 in our clinic. 7 of those with urethral lengthening and 39 without. All patients with urehtral lengthening had some form of complication and needed at least one more revision surgery, many of them several. Phalloplasties without urethral lengthening (perineostomy only) had no need to revision surgery because of urological postoperative problem though masculine perineal form with perineostomy was created. Mean follow up time was 36 months.

Conclusions:
Phalloplasty with urethral lengthening sets patients in a significantly high risk to postoperative urological complications with need to revision surgery. Though creating a phalloplasty without urethral lengthening combined with perineostomy is also an urethral operation, it's still more safe operation to transmasculine patients. More prospective studies and patient reported data are needed to confirm these results.

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SESSION 9

AESTHETIC BREAST & BODY

EURAPS

Title : Evaluation of long-term changes in breast shape after breast reduction surgery: A retrospective single center study of 122 patients

Introduction:
Breast reduction surgery is among the most performed plastic surgery operations throughout the world. Despite developments of a variety of surgical techniques for reduction surgeries, long-term developments of the breast contour after surgery cannot be well estimated.
The aim of this study is to evaluate the long-term changes in breast shape after reduction surgery to refine the surgical planning.

Materials and Methods:
From 2011 to August 2021 122 patients undergoing a breast reduction mammoplasty surgery were identified. A retrospective cohort analysis of these patients and their surgical reports with emphasis on the contour changes was performed. Measurements were taken from the photographs using the Image J program from the anatomical landmark-points.

Results:
In this study 122 (244 breasts) female patients were included. When comparing the changes in the shape of the breast during different periods all showed a statistical significance ($P<0.0001$).

The mean increase of the distance between intraoperative and >1 follow up for the N-IF on the right side was 16 mm (±9) and 14 mm (±10) on the left side, for the S-NL on the right side 9 mm (±12) mm and 9 mm (±14) on the left side, for the C-NL on the right side 26 mm (±30) and 24 mm (±29) on the left side.

Conclusions:
This study shows the long-term postoperative changes in breast contour after breast reduction mammoplasty surgery. This means the surgeon should take in consideration the long term changes in breast shape during the operation. Our study revealed the following mean changes of the following distances: N-IF ≈ 15 mm, S-NL ≈ 9 mm, C-NL ≈ 25 mm. This information may be used by plastic surgeons in procedure selection and patient counseling. Overall, the results in this single center showed a satisfactory and symmetrical postoperative change in breast shape in the long term.

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Title : The value of bedside ultrasound as a screening tool for implant-related complications in the follow-up of after breast augmentation.

Introduction:
Breast augmentation continues to be a frequently performed surgical procedure worldwide but there are raising concerns regarding implant-associated complications, such as capsular contracture, rupture, BIA-ALCL, and so-called Breast Implant Illness. Since the shape of the breast might not change in the event of a complication, it can be difficult for the physician to know if the implants are compromised. In June 2020, the International Breast Implant Check Clinic (IBICC) was founded, an in-office setting where patients receive both a physical and an ultrasound examination performed by a board-certified plastic surgeon to address symptoms or patient worries regarding their implants.

Materials and Methods:
This study included all women who presented to IBICC from June 2020 until September 2022. Clinical and ultrasound findings and implant related complications were recorded.

Results:
A total of 570 patients (1140 implants) were examined. 347 (61%) patients came for a routine check-up, 223 (39%) patients had symptoms that made them seek IBICC. 33 (6%) patients were worried about BIA-ALCL or BII. The average implant age at examination was 10 years. 124 (22%) patients presented with a capsular contraction Baker grade III or IV. 58 (5%) implants were ruptured. 12 (2%) patients presented with a swelling with verified fluid around the implant on ultrasound examination and were consequently referred to a breast center to rule out BIA-ALCL. One of these 12 patients was then diagnosed with BIA-ALCL.

Conclusions:
Bedside ultrasound allows a good evaluation of the implant, shows possible rupture, signs of capsular contracture and most importantly presence of fluid that may have formed around the implants, and is an important tool when implementing routine breast implant follow-up to improve safety for women with breast implants.

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Title : Effect of montelukast on capsular contracture after breast augmentation: a comparative study

Introduction:
Leukotriene antagonists zafirlukast and montelukast are sometimes used by plastic surgeons off-label to prevent and treat capsular contracture in breast implant surgery. At the present, only a few studies investigated their efficacy in long term.

Materials and Methods:
A retrospective analysis was performed to investigate the effectiveness of montelukast in preventing and treating capsular contracture.
This study included 264 consecutive women, who underwent primary breast augmentation using textured or smooth silicone prostheses.
Surgery was performed in all women using an infra-mammary approach and dual-plane pocket, and treatment of at least 3 months of montelukast was offered to them at the regimen of 10 mg once a day. Therefore, patients were divided into two groups on the basis of montelukast treatment.
Follow-up on montelukast efficacy was obtained by a combination of office chart review and standardized telephone questionnaire with a minimum follow-up of 5 years.

Results:
One-hundred-forty-five patients received montelukast for at least 3 months. Mean age of the patients was 35.82±8.71 years (range 18-68 years), and co-morbidity was present in 11.76% of cases. All groups combined had a mean follow-up evaluation of 78.71±13.45 months (range 60-136 months) and mean breast size (cc) of 333.89±107.60 cc (range 155-690 cc).
Capsular contracture occurred in 2 cases in the study group (1.4%), while 4 cases in the control group 3.3%, p=0.413)
No significant differences were found for the use of montelukast versus control in the prevention of capsular contracture after surgery, although the number of affected patients and the severity of capsular contracture were higher among the patients who did not use montelukast. No adverse effects were found.

Conclusions:
Montelukast may prevent and improve symptoms of capsular contracture. However, further studies are needed for justifying its somministration.

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Title : Complications related to injections with Los Deline/Aquafilling for breast augmentation: A systematic review and case series

Introduction:
The global aesthetic industry has been searching for a less invasive procedure to increase breast volume and since 2008, a filler called Los Deline (BioTrh, s.r.o., Czech Republic), is being used for breast augmentation. It is a hydrophilic gel composed of >97% sodium chloride solution (0,9%) and <3% copolyamide according to the producers. Until year 2018 the name of the product was Aquafilling and from the beginning it was developed for facial contouring. Surgeons at breast units in Stockholm have encountered and treated patients with complications after injections with this filler. This systematic review and case series aim to evaluate complications and radiological changes after breast augmentation with this filler.

Materials and Methods:
We performed a literature search on PubMed, Web of Science and Embase databases. The study followed the guidelines of PRISMA. We had no language restrictions. Relevant articles were searched from the date of inception. All studies were read by two authors.
We plan to do a retrospective chart review at breast units in Stockholm on patients with complications after breast augmentation using Los Deline between 2018 and 2022.

Results:
Our search strategy resulted in 1316 publications after duplicates were removed. After the eligibility assessment, 15 studies (2 retrospective cohort studies and 13 case reports) were subjected to extraction. Overall, 182 women with complications after injection with Los Deline/Aquafilling were included. In total 328 different adverse events were reported e.g. pain, migration, breast deformities and infections. The majority of complications occurred late, up to 144 months after injection.and patients were treated with incision or surgical revision of the affected breast.

Conclusions:
Los Deline can cause breast deformities, infections and also has the ability to migrate. These complications can be severe and require several surgical revisions. We do not consider Los Deline to be a safe product for breast augmentation.

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Title : Patient-reported satisfaction and quality of life six months after breast augmentation

Introduction:
Breast augmentation surgery remains to be one of the most performed elective cosmetic procedures. Therefore, it is essential to measure outcomes from a patient's perspective to evaluate success since a successful aesthetic result is particularly determined by the patient. The aim of this study was to evaluate patient-reported satisfaction with breasts, psychosocial well-being, physical well-being, and sexual well-being in patients who underwent breast augmentation using validated questionnaires.

Materials and Methods:
This is a multicenter cohort study based on a routine outcome measurement system. Patient-reported satisfaction and health-related quality of life were determined with the BREAST-Q Augmentation Module at baseline and six months post-surgery.

Results:
In total, 1405 patients were included. After six months postoperatively, significant changes in BREAST-Q scores (ranging from 0 to 100) were observed: satisfaction with breasts (mean, effect size: +57, 3.8), psychosocial well-being (+38, 2.1), physical well-being (-14, -1.2), and sexual well-being (+44, 2.4). Furthermore, all scores improved independently of their intake scores and in each scale similar postoperative scores were reached. In post-surgery evaluation, the physical well-being of the chest was decreased. The psychosocial well-being and the sexual well-being scales correlated moderately to strongly with the satisfaction with breasts scale six months after breast augmentation. Among subgroups based on patient characteristics, there was no difference in outcomes, except for the subgroup based on BMI.

Conclusions:
Significant improvement in patient-reported satisfaction with their breasts, psychosocial well-being, and sexual well-being can be seen six months after breast augmentation regardless of a declined physical well-being after this procedure. Preoperative satisfaction and health-related quality of life scores do not affect the postoperative levels. As a result of these insights, communication between surgeon and patient regarding expected outcomes can be improved.

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Title : The “octopus head” dermoglandular flap: a novel technique for breast auto-augmentation after implant removal

Introduction:
Patients who underwent previous breast augmentation may need implant removal for mechanical complications or other causes, even after long time since implant positioning. After prosthesis removal, the residual parenchyma can be reshaped through a mastopexy with breast auto-augmentation. Several techniques have been described in the literature, but none of them can be considered the gold standard. In this study, we present our preliminary experience in breast auto-augmentation after implant removal through a novel autoprosthesis technique: the “octopus head” dermoglandular flap.

Materials and Methods:
From January 2020 to January 2022, 8 patients (16 breasts) underwent implant removal and simultaneous auto-augmentation with the "octopus head” technique at our institution. Inclusion criteria were: BMI<30, mild-to-moderate breast ptosis, a sternal notch-nipple distance >23 cm, an areola-inframammary fold distance >6 cm, a dermoglandular flap thickness >1 cm. Patient’s demographic and clinical characteristics, postoperative complications and patient-reported satisfaction were recorded. Patients were marked as in a traditional wise pattern mastopexy. A superiorly based dermoglandular flap was elevated and assembled as a sphere (the octopus head), thus simulating an autologous implant. Then the flap was anchored cranially to the pectoralis major fascia. Finally, the breast was closed in a standard inverted-T fashion.

Results:
Mean age was 45 years (range 25-68). BMI ranged between 22.5 and 27.6 kg/m2 (mean 25.2). Mean follow-up was 15 months (range 6-24). No major complications occurred. We observed two minor complications (1 case of hematoma that was managed conservatively and 1 case of NAC malposition). All patients were satisfied for the aesthetic and functional result. Only one patient asked for revision surgery.

Conclusions:
In our experience, the “octopus head” dermoglandular flap has proved to be a safe and reliable option for breast auto-augmentation after implant removal, providing a good cosmetic result, with enhanced breast projection and upper pole fullness, a low complication rate and a high patient-reported satisfaction.

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Title : MAMAS (Mastopexy Augmentation Made Applicable and Safer): A new surgical technique with standardized preoperative planning

Introduction:
Simultaneous breast augmentation with mastopexy is growing in popularity. It is a high-risk procedure that can lead to postoperative complications, patient dissatisfaction and increased risk of litigation. The aim of this study is to describe an approach for the inverted-T augmentation-mastopexy technique, which limits intraoperative modifications, minimizes errors, and decreases post-operative complications and patient dissatisfaction.

Materials and Methods:
The study included 107 patients with Regnault's grade I and II ptosis and severe pseudoptosis. All patients were marked according to our novel technique, Mastopexy Augmentation Made Applicable and Safer (MAMAS) and operated by a single surgeon. All patients underwent simultaneous breast augmentation with Siltex Mentor round silicone gel breast implants and mastopexy. Postoperatively patients filled the BREAST-Q. The mean follow-up was 21 months.

Results:
107 women received treatment in this study. 16 presented with post-operative complications, 11 in the early stage of recovery and 5 in the late stage. There were 8 cases of minor wound healing complications, all treated conservatively. 2 cases of infection were noted, both were treated with oral antibiotics. One patient experienced post-operative bleeding after 13 days, which required surgical revision. In the late stage of recovery, five cases of implant displacement occurred and required revision surgery. No cases of capsular contracture and seromas were reported. According to Breast-Q, all patients were satisfied.

Conclusions:
MAMAS surgical technique focusing on precise preoperative marking for augmentation mastopexy is simple and easily reproducible. The procedure has a low complication rate and high patients' satisfaction. It provides predictable and stable results over time.

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Title : Narrow Inferior Central (NIC) septum-based pedicle: a safe technique to improve aesthetic outcomes in breast reduction.

Introduction:
Inferior-central pedicle has some aesthetic drawbacks including hypertrophic scar along the inframammary fold, squaring of the breast contours and a tendency to produce 'bottoming-out' over time. The aim of the study is to verify if the Narrow Inferior Central (NIC) septum-based pedicle can allow the surgeon to improve aesthetic outcomes compared to the traditional inferior-central pedicle approach.

Materials and Methods:
40 breasts underwent NIC-based breast reduction (Group-A) while 37 breasts underwent traditional inferior-central pedicle (Group-B). The NIC-based pedicle was drawn with a width of 3.5 to 4.5 cm. Inferior pedicle length, width, preoperative breast volume, weight of resection, operative time and incidence of NAC complications were collected. The measurements recorded were sternal notch to nipple distance (S-N) and nipple to IMF distance (N-IMF) at the time of preoperative markings and at 1, 6 and 18 months after the procedure, assessing their variation over this period. Statistical analysis was performed using independent samples t-test and considering a p-value <0.05 as significant.

Results:
The two groups were homogeneous regarding demographics, operative data and preoperative S-N and N-IMF distances. Both groups showed no total or partial nipple-areola necrosis. At the 18-month visit, S-N ($p<0.00001$) and N-IMF ($p=0.00039$) distances were found to be statistically different between the two groups, in favor of NIC group. Changes in N-IMF distances between 1- and 18-month visit were statistically different among groups, (1.38 cm vs 2.20 cm, $p<0.0001$), with a length variation of +17.51% and +28.46% respectively. Patient satisfaction rate regarding "breast shape" ($p=0.021$), "lower pole appearance" ($p=0.00017$) and "scar" ($p=0.047$) was higher for group-A.

Conclusions:
NIC-based pedicle proved to be a safe procedure and allowed us to overcome limitations that typically characterize the inferior-central pedicle, i.e. 'bottoming out' deformity, hypertrophic scar of the lower pole and squaring of the breast contours.

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Title : The stenotic lateral pole: a new anatomical entity conditioning the surgical technique in breast augmentations.

Introduction:
Tissue compliance (i.e. the capability of tissues to be distended) is the main factor conditioning the outcome of implant-based breast augmentations. While the tight lower pole is a well known condition described in tubular breast deformities, lateral pole tightness is an anatomical alteration that, although frequently seen, has not been previously described. When this alteration is encountered, convexity of the outer quadrants is missing, resulting in an apparent lateral malposition of the NAC. If this anatomical alteration is disregarded, the implant volume will shift medially, thus worsening the diverging aspect of the NACs

Materials and Methods:
In a 10-yr period (2011-2020), 219 women were seen for primary breast augmentation. Thirty-two women showed unilateral or bilateral constriction of the outer pole with lateral NAC displacement at clinical evaluation. However, in 24 women the midline-to-NAC distance was similar to that recorded in “standard” patients, meaning that lateral NAC displacement was only apparent and due to missing external convexity. Moderate prophile round implants were used in order to have a broad implant base, sufficient to provide lateral fullness but also to reach the inner quadrants. The well-known manoeuvres usually utilized for lower pole correction in tubular breasts (retinacula scoring, section of fibrotic bands, and glandular flaps in the most challenging conditions) were carried out at the outer sectors, so that the implant could create a lateral convexity without reaching outside the breast footprint.

Results:
In all patients the procedure produced a convex lateral pole and an apparent inward rotation of the NAC. However, since the medial implant border was positioned as close as possible to the parasternal line, the NACs appeared slightly laterally dislocated on the breast mound.

Conclusions:
Stenosis of the lateral breast pole is a frequent, previously undescribed alteration which must be recognized preoperatively in order to properly select the surgical strategy in breast augmentations.

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Title : Prospective Morphometric Study Between Yin-Yang and Inferior Pedicle Breast Reduction Techniques

Introduction:
Breast reduction techniques should aim to achieve “ideal breast shape”. The goal of our study is to compare two techniques of breast reduction and evaluate which technique most achieve the “ideal breast shape”. Their technical aspects are:
1) The inverted T inferior pedicle technique uses an inferior pedicle to nourish the NAC and a skin closure with an inverted T pattern.
2) The Yin-Yang technique uses the principles of gland remodeling characterized by the following: 1. superomedial pedicle for the nipple, 2. glandular resection pattern with an S-shape on the right breast and exact opposite Z-shape on the left breast, 3. laterally based inferior pole dermoglandular flap. The movement and interdigitation of the two flaps allows narrowing of the mammary base, stable lower pole and satisfactory nipple projection. 4. Skin resection is performed with Wise pattern.

Materials and Methods:
A total of 750 inverted T techniques and 89 Yin-Yang have been performed in the last 5 years. The study analyzes prospectively 30 patients divided in two groups: 1) 15 patients underwent the Yin Yang technique and 2) another 15 patients the inferior pole inverted T technique. Morphometric analysis was performed for both techniques collecting the nipple projection, mammary base width, position of the new NAC and IMF, nipple-IMF distance. Photographic documentation with images overlapping were taken before and after surgery. Follow up was at 1 year

Results:
The Yin Yang technique exhibited unchanged volumes distributions, mammary able and projection over time and an average increase of the nipple to IMF length of only 15 percent for reductions greater than 1200 g per side.
The inverted T inferior pedicle technique showed instability of the lower pole and poor projection. Similar complication rates and nipple sensation findings were detected between the two analyzed techniques. 

Conclusions:
The Yin-Yang technique better achieves ideal breast shape with stable results over time.

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Title : The management of post-gravidic diastasis recti in abdomens with minimal skin laxity: a cohort study on 116 patients to compare patients satisfaction with BODY-Q.

Introduction:
Diastasis recti is a common condition, affecting about 30% of women after pregnancy. In patients with loose abdominal skin, diastasis can be corrected along with a conventional abdominoplasty. However, patients with inadequate skin laxity, who are not amenable to a full tummy-tuck, may be managed either with mini inverted-T scar abdominoplasty or mini-abdominoplasty with umbilical float.

Materials and Methods:
A retrospective review of a prospectively maintained database was performed for all patients undergoing rectus diastasis correction between 2018 and 2021.
Inclusion criteria were: post-gravidic diastasis recti, minimum to none abdominal skin laxity, BMI<25, autologous correction of diastasis without the aid of meshes, follow-up longer than 6 months, adequate comprehension of the Italian language.
Exclusion criteria were: history of massive weight loss and/or bariatric surgery, moderate-to-severe abdominal skin laxity, conventional abdominoplasty, abdominal dermolipectomy>500 g, previous abdomen and/or flanks liposuction, history of abdominal major surgery and/or ventral incisional hernia.
Complication rates were compared between the two groups. Patient-reported outcomes were evaluated by BODY-Q © (Italian version), administered 6 months post-operatively.

Results:
116 patients meeting the inclusion criteria underwent diastasis recti correction: 64 patients were managed by a mini inverted-T abdominoplasty (group A), while 52 patients underwent a mini tummy tuck procedure (group B). The two groups were well matched with regard to age, BMI, diastasis width, pregnancies ($p > 0.05$). Dermolipectomy mean value was higher (294g vs 93g, $p>0.05$), while mean surgical time was longer (154' vs 135' $p=0.01$) in group A.
Complication rates (seroma, hematoma, delayed wound healing, abnormal scarring, diastasis recurrence) were comparable between groups ($p>0.05$). Patient-reported outcomes did not reveal any statistically significant differences for body-image, abdomen, skin, scars and stretch marks scales of BODY-Q ($p>0.05$).

Conclusions:
In selected patients, both procedures can lead to satisfactory outcomes.. Advantages and limitations of each procedure should be discussed with the patient before surgery, to choose the most appropriate approach.

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Title : Liposuction Complications Reporting Occurring in Ambulatory Surgery Centers: An Analysis of the American Association for Accreditation of Ambulatory Surgery Facilities (AAAASF) Patient Safety Data Reporting

Introduction:
Liposuction is one of the most common cosmetic surgical procedure performed worldwide. Despite its popularity, little has been documented regarding peri-operative complications due to its outpatient nature. This study aims to analyze the most common complications that accompany liposuction-related surgical procedures and subsequently identify high-risk patient and facility-specific factors that may increase the risk of sequelae.

Materials and Methods:
Adults that experienced liposuction-related complications from 2019 through 2021 in the United States were identified in global surgery accreditation authority AAAASF's sequelae database. Patients were then divided by complication type and procedure location. Demographics and facility-specific variables were analyzed. Descriptive statistics were performed to evaluate complications and provide risk-adjusted measures.

Results:
A total of 984 patients with complications were included. The median age of patients was 47 (IQR 37, 53) with a median BMI of 28.7 (IQR 25.7,32.2). The Southeast had the most complications (431) followed by West (232), Southwest (125), Midwest (106), and Northeast (90). Unplanned re-operation was the most common complication overall, representing 24% of procedures involving head and neck, 25% in the upper extremity, 18% in the trunk, and 18% in the lower extremity. There were 21 deaths. 18 (85.7%) were from procedures of the trunk and 13 (61.9%) occurred in the Southeast.

Conclusions:
Procedures that involve liposuction have been shown to be associated with significant morbidity and mortality through a variety of medical and surgical complications. Given the high frequency and variability in how liposuction is performed worldwide, a more thorough assessment of complications is critical to improve the safety of this popular procedure.

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