implant reconstructions has significantly increased from 18.8% in 2010 to 45.9% in 2013 (p=0.0004). Major infectious complications have significantly decreased from 8.7% in 2010 to 2.6% in 2013 (p=0.03) and are similar to total submuscular coverage at 1.4%. Additionally, after the introduction of sterile ADM, major infectious complications (10.3% (n=56) to 5.6% (n=8) (p=0.112)) and explantation (7.7% (n=50) to 2.8% (n=4) (p=0.004)) has decreased.

Conclusion: A cellular dermal matrix is a useful adjunct in immediate implant-based breast reconstruction. The development of strict guidelines for use along with the availability of sterile ADM has dramatically lowered complications and explantations.

LOP18: 1-cm versus 2-cm excision margins for patients with intermediate thickness melanoma
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Introduction: The optimum excision margins are still unclear in patients with intermediate thickness melanoma. The aim of this study was to compare the outcome of 1-cm margins with 2-cm margins in patients with tumour thickness of 1.1-4.0 mm.

Material and Methods: This is a retrospective study based on matched-pairs design. Equal patient cohorts were constructed in terms of gender, age, Breslow thickness and the anatomic location of the primary lesion. There were 80 patients who underwent an excision with 1-cm margin and 80 patients with 2-cm margin. Follow-up data were analysed by Kaplan-Meier method and Cox regression model.

Results: After a median follow-up time of 41 months, there were no differences in relapse-free survival or melanoma-specific survival between study groups. The wound was closed directly in 62 patients (78%) in the 1-cm group and in 36 patients (45%) in the 2-cm group (p=0.001).

Conclusion: According to our results, 1-cm margin may be sufficient in melanomas of 1.1-2.0 in Breslow thickness. In thicker tumours (2.1-4.0 mm), this recommendation cannot be given due to the low number of patients and follow-up events.

LOP19: Multiple familial pilomatrixomas spanning three generations: a cutaneous marker of underlying disease?
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Pilomatrixomas are benign cutaneous tumours derived from hair matrix cells of unclear aetiology. Pilomatrixomas commonly demonstrate somatic mutations in CTNNB1, a gene coding beta-catenin, a protein involved with hair follicle development. Multiple familial pilomatrixomas rarely occur and are most often associated with autosomal dominant conditions such as myotonic dystrophy and familial adenomatous polyposis (FAP). Reported literature documents only nine families with multiple familial pilomatrixomas and no demonstrable underlying association.

We present a tenth family with five members who uniquely span three generations. No evidence of myotonic dystrophy, FAP or other known associations was found. Extreme tiredness, behavioural problems and sensory disturbances were common features across three generations but bore no temporal relation to the pilomatrixomas. The existence of a germline mutation in CTNNB1 to explain these symptoms is yet to be shown. Pilomatrixomas are potentially cutaneous markers of significant underlying pathologies. Patients presenting with multiple or familial pilomatrixomas should be thoroughly assessed for other pathologies and offered genetic screening to ensure that important diagnoses are not inadvertently overlooked.

LOP20: Fibro-Lipo-Lympho-Aspiration (FLLA): A Lymph Vessel Sparing Procedure (LVSP) for Treatment of Advanced Lymphedema
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Introduction: Lymphedema is an often poorly recognized disease causing significant morbidity in advanced cases. Chronic lymphedema develops irreversible fibrotic and adipose excess tissue. In these chronic cases, lymphatic microsurgery helps to resolve the lymph stasis that adds to swelling. Notwithstanding the success of microsurgery, there often remains significant adipose tissue in the affected limb that contributes to residual lymphstasis and risk of infection.

Material and Methods: The authors discuss a recently developed Fibro-Lympho-Lipo-Aspiration technique (FLLA) to improve this chronic swelling of patients with advanced lymphedema, using a Lymph Vessel Sparing Procedure. Brorson and colleagues have presented liposuction as a relatively recent treatment for advanced stages of lymphedema; however, liposuction can be associated with varying degrees of tissue damage, including that of the lymph vessels. In patients with lymphedema, the lymph vessels and channels are often dilated in chronic cases and thus may be difficult to avoid with the liposuction cannula. FLLA gives surgeons a method to reduce the risk of further lymphatic injury in these vulnerable patients. Using blue patent violet, together with the photodynamic eye procedure with Indocyanine Green Fluorescent Micro-Lymphography, to highlight the lymphatic pathways in the limb, the excess adipose tissue is carefully aspirated with a tumescent method.

Results: The post-operative results from the initial series of 30 patients are shown, providing evidence of the efficacy of this technique in limb-reshaping whilst maintaining the optimal lymphatic flow restored by previous Lymphatic Microsurgery.

Conclusion: FLLA represents a novel adjunctive technique to remove residual tissue that contributes to a blockade in lymphatic flow without fear of risk to existing lymphatic structures.
(exterior) and the vestibular (interior) aspect of the missing chin. The superior edge of the folded free flap is deep epithelialized and the two paraphililar Abbe flaps are sutured to it.

Results: The cosmetic and functional results were very satisfactory. Oral competence was very good because the lower lip reconstruction with the use of the Abbe flaps re-establishes the oral sphincter function of the oriculans muscle.

LOP22: Utilizing Indocyanine Green Angiography in the Evaluation of Varying Levels of Venous Congestion in a Novel Rat Model

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Introduction: Flap venous congestion can lead to flap necrosis and remains a challenge to the reconstructive surgeon. Current standard of practice relies on clinical judgment to identify flaps that have compromised outflow; however no quantitative measurement is currently available. Here we sought to determine the utility of ICG Angiography to quantify varying levels of venous congestion at early time points in a rat hindlimb model.

Material and Methods: Male Sprague Dawley rats underwent partial lower limb amputation, leaving only the femoral vessels and femur intact. Unilateral femoral vein occlusion was performed at occlusions of 25%, 75%, 85%, 92% and 100% of vessel diameter. The relative perfusion level of occluded and non-occluded contralateral control limbs was tracked with ICG Angiography throughout a 10 minute time course. Perfusion levels at 2 minutes post injection as well as initial slope of ICG inflow were analyzed and compared between all groups.

Results: ICG Angiography detected statistically significant (p < 0.05) differences in limb perfusion two minutes following ICG injection in the 100% (16.3% ± SD 10.0), 92% (35.78% ± SD 33.46) and 85% (48.46% ± SD 23.88) occluded limbs compared to contralateral control limbs (87.71% ± SD 13.37) but did not detect any differences in the 25% (91.72% ± SD 20.89) and 75% (84.78% ± SD 23.88) occlusion groups. Significant differences were also found between the slopes of the 85% (0.60 ± SD 0.48), 92% (0.39 ± SD 0.50), and 100% (0.15 ± SD 0.13) occlusion groups when the slope of each limb was compared to control (1.65 ± SD 0.40).

Conclusion: ICG Angiography was able to quantify 85% and 100% levels of venous occlusion. However, in this model, no differences were found in perfusion levels of ≤75% venous occlusion versus control. Further research is necessary to further characterize the utility of quantitative ICG Angiography.

LOP23: Impaired Regenerative Ability of Aged and Diabetic Adipose Derived Stem Cells is Caused by Depletion of Cell Subpopulations

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Introduction: Neovascularization is essential for tissue repair. Both aged and diabetic patients suffer from a reduced neovascular response leading to complications in wound healing. While it has been shown that mesenchymal stem cells derived from adipose tissue (ASCs) promote tissue regeneration, it also becomes increasingly clear that their function is impaired in aged and diabetic populations. Here we investigate the impact of aging and diabetes on the regenerative potential of ASCs.

Material and Methods: ASCs were harvested from young, diabetic and aged mice and their viability, proliferation, neovascularogenic capacity and regenerative cytokine profile were compared. Furthermore, their effect on wound healing was determined and microfluidic single-cell gene expression analysis was performed.

Results: Aged and diabetic ASCs are compromised in their ability to establish a vascular network both in vitro and in vivo (*p<0.05). This is likely due to reduced expression of pro-angiogenic and anti-oxidative cytokines (Angpt1, VEGFa, HGF, SOD3 and SOD2, *p<0.05). Seeding onto a regenerative biomimetic hydrogel fails to rescue the functional impairment of aged and diabetic ASCs resulting in delayed wound healing (*p<0.05) and reduced wound-vascularity upon healing (*p<0.05). Utilizing single cell transcriptional analysis to examine the composition of the ASC population, we identified a subpopulation of cells defined by the expression of genes associated with stenness, tissue remodeling and vasculogenesis, which was diminished in aged and diabetic mice.

Conclusion: Our results implicate a novel pathophysiologic mechanism underlying ASC dysfunction in aged and diabetic populations and that the utility of autologous ASCs for cell-based therapies in these patients may be limited.

LOP24: Mesenchymal stem cells from radiated skin exhibit defects in colony formation

Presentation has been cancelled.

LOP25: An ancient wound dressing newly discovered - spider silk for wound healing

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Introduction: Spider silk is known for its outstanding mechanical properties combined with a high biocompatibility. Its application as a wound dressing was popular in ancient times. However, other wound dressings replaced spider silk in the last centuries. The aim of this study was to investigate spider silk as wound dressing with modern methods.

Material and Methods: In a pilot study, an indian runner duck (Anas platyrhynchos) suffering from chronic wound on the foot caused by a trauma was filled with a bundle of spider silk. Healing was documented via digital photography. To prove safety and potential influences in the healing process, full thickness wounds of 1, 9 or 16 cm² were set on the dorsal skin of sheep (Ovis aries) and treated with spider silk. Skin biopsies were taken after 2, 4 and 6 weeks, after 8 weeks skin was explanted and analyzed histologically. Untreated wounds served as controls. Additionally, vascular reactions to spider silk were investigated in the hen egg chorioallantoic membrane (CAM).

Results: In the wound of the duck, clinical inflammation decreased after 3 days, complete wound closure could be observed after 8 days. The dorsal wounds in the sheep did not show significant differences, however, tendential differences were seen in the histologies regarding epidermal thickness, number of skin appendages and vasculization. Neovascularization could be proven in the CAM as neovessels tended to grow along spider silk fibres.