PATIENTS TREATED WITH ONCOPLASTIC BREAST CONSERVATION REQUIRE MORE POSTOPERATIVE RADIOLOGICAL IMAGING, CONSEQUENT BIOPSY AND OUTPATIENT CLINIC VISIT THAN PATIENTS TREATED WITH SIMPLE WIDE LOCAL EXCISION

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Introduction and aims: Oncoplastic breast conservation surgery (OBCS) is a more complex, technically demanding surgical technique than simple wide local excision (WLE). Further, after OBCS it is more challenging to interpret postoperative surveillance imaging. Hence we compared number of postoperative imagings, biopsies and outpatient visits in patients treated with OBCS and simple WLE.

Material and methods: Consecutive patients treated with level II OBCS (n=84) were compared to patients who underwent simple WLE (n=319) in the same unit during similar period of time. Number of imagings, biopsies and outpatient visits were compared using student’s t-test within the initial 24 months postoperative period. Difference was considered statistically significant when p value was less than 0.05.

Results: OBCS patients required significantly more post-operative ultrasound (OBCS:0.595[0-6] per patient vs. WLE:0.091 [0-3];p< 0.0001), MRI (OBCS:0.995[0-3] per patient vs. WLE:0.015 [0-1];p= 0.004), and breast biopsy (OBCS:0.44[0-3] per patient vs. WLE:0.019 [0-1];p< 0.0001). Abnormal findings on postoperative imaging were also much more frequent after OBCS (0.143[0-2] per patient vs. WLE:0.012[0-1];p< 0.0001). This required more clinic visits from patients who were treated with OBCS (4.583[0-13] per patient vs. WLE:1.99[0-7];p< 0.0001). The total number of post-operative imaging was also higher after OBCS (mean 2.25[0-8] vs. WLE:2.017[0-1];p= 0.0842).

Conclusion(s): More frequent postoperative breast ultrasound, MRI, more common abnormal radiological findings and consequent breast biopsies reflect the relative complexity of OBCS. When taking informed consent for OBCS patients should be discussed that they are more likely to come often to the outpatient clinic and have radiological tests and biopsies after OBCS compared to simple WLE.

BREAST IMPLANT-ASSOCIATED ANAPLASTIC LARGE T-CELL LYMPHOMA: INSTITUTIONAL EXPERIENCE AND REVIEW OF THE LITERATURE

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Introduction and aims: Breast implant-associated anaplastic large T-cell lymphoma (ALCL) is a rare disease reported in limited case reports. The purpose of this study is to report on the clinical presentation, treatment, and outcomes of ALCL within a single institution experience as well as to analyze the current research on the clinical manifestations of the disease.

Material and methods: The PubMed and EMBASE databases were reviewed for articles on implant associated ALCL published from 1997 through 2013. A retrospective review was then performed of all ALCL patients who presented and received treatment at MD Anderson Cancer Center from 1997 to 2013. Preoperative demographics, diagnostic imaging, implant characteristics, surgical and adjunct treatment, complications, and oncologic outcomes were assessed. Pathologic and laboratory evaluation were reviewed including immunohistochemistry staining and scanning electron microscopy.

Results: Eight women were treated during the study period for breast implant-associated ALCL. Original indication for implant placement included cosmetic augmentation (62.5%) and reconstruction for acquired deformity (37.5%). Seven (87.5%) of patients had a history of a previous malignancy, which included breast cancer (62.5%), Basal cell carcinoma (25%), and Hodgkin’s lymphoma (12.5%). Average time from breast implantation to ALCL symptoms was 123 months.

Conclusion(s): Breast implant associated ALCL is an uncommon malignancy with a mixed clinical presentation usually characterized by indolent localized disease but may rarely be associated with systemic spread. Greater national awareness and larger multicenter studies are required to improve diagnosis, identify causal association, and for the determination of ideal treatment algorithms.

USE OF AUTOLOGOUS FAT GRAFTING FOR RECONSTRUCTION POST-MASTECTOMY AND BREAST CONSERVING SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS OF ONCOLOGICAL OUTCOMES

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Introduction and aims: There is growing interest in the potential of autologous fat grafting (AFG) for breast reconstruction. However, concerns remain regarding its effectiveness, safety and interference with mammography. The possibility of local growth factors and adipose derived stem cells causing cancer recurrence is a key concern.

Material and methods: A protocol was published apriori. All studies investigating AFG for women undergoing reconstruction post mastectomy or breast conserving surgery for treatment of breast cancer were considered. We assessed six domains; Oncological, clinical, aesthetic/functional, patient-reported, process and radiological. A total of 19 Electronic databases were searched from 1st January 1986 to 31st March 2014 (including PubMed, Medline, Scopus and the Cochrane Library). Two independent reviewers assessed eligibility of articles for inclusion and extracted data.

Results: 35 studies were included (3,689 patients). Current studies show high patient and surgeon satisfaction at medium term follow up of 18 months with an average of 1.9 sessions. Fat necrosis is the commonest complication at 4.4% (the majority were Grade I Clavien-Dindo). Other harms include the need for further radiological investigation through interval mammograms (11.5%) and the need for biopsy (2.7%). The weighted mean recurrence rate was 4.4% at 24.6 months. Meta-analysis showed no significant difference it the oncological event rate (p=0.10).
Conclusion(s): AFG is a potentially useful tool within the armamentarium of those performing breast reconstruction. The need for long-term follow up is underscored by this review. High quality research is required to demonstrate long-term oncological ramifications and to determine the potential for AFG as a total breast reconstruction method post-mastectomy.

**THERAPEUTIC FREE FLAPS — TRANSDUCING THE FLAP WITH VIRAL VECTORS TO TREAT RESECTED TUMOUR BEDS OF MACROSCOPIC AND MICROSCOPIC RESIDUAL DISEASE**

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Introduction: The use of free flaps is an integral part of the surgical management of cancer, but does not add any therapeutic benefit. Incorporating genes into the flaps can transform them into protein factories that can subsequently carry out cell killing through a bystander mechanism.

Aim: To describe the mechanism of cell killing that occurs and describe the possible therapeutic flaps that can be established.

To establish a working tumour model, in Fischer 344 adult male rats, assessing the ability to treat microscopic and macroscopic residual disease [MRD/MaRD], following cancer resection.

Material and methods: The Superficial Inferior Epigastric Artery (SIEA) was used in Fischer 344 Adult male rats. A reliable tumour cell line was established and subsequently resected. Adenovirus encoding a thymidine kinase gene was transduced into the flap and Ganciclovir (50 mg/ml) was given systemically. Therapeutic efficacy was determined by the level of tumour growth/regression that occurred.

Results: This study demonstrated a significant delay in tumour growth in the macroscopic residual disease model (p = 0.0005); a significant increase in survival (p = 0.0001) and a significant difference in time to reach measurable tumour growth (p = 0.0001).

Conclusion: There is a real potential to use free flaps therapeutically and not just as a reconstructive option.

**ADIPOSE MESAENCHYMAL STEM/STROMAL CELLS AND PERIPHERAL BLOOD ENDOandelier COLONY FORMING CELLS FOR TISSUE ENGINEERING**

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Introduction and aims: The goal for the treatment of full-thickness skin loss remains to produce a tissue-engineered substrate that replicates the epidermal/dermal in vivo niches to fulfil aesthetic and functional demands. A novel way to do this would be pre-vascularisation of dermal substitutes resulting in earlier isoculation. This would increase the trajectory of wound healing and improve the final aesthetic result.

Material and methods: From adult donors, we isolated and characterised peripheral blood (PB) endothelial colony forming cells (ECFC) and adipose-derived mesenchymal stem/stromal cells (AdMSCs) which stabilise ECFC-derived vessels. We compared ECFC migration within different collagen I and fibrin gels using a novel 3D-chemotaxis chamber and timelapse microscopy. Based on these studies, the optimal modified collagen I gel was fabricated containing ECFC/AdMSC co-cultures at varying concentrations and vessels quantitated using confocal imaging and Imaris software. These pre-vascularised gels will be assessed in a humanised mouse wound model and compared to: a) gels containing ECFCs/AdMSCs prior to vascular network formation; b) empty gels or c) a novel functionalised scaffold containing ECFCs/AdMSCs.

Results: A 2mg/ml collagen I gel containing fibronectin was identified as optimal for ECFC migration. A similar construct was therefore produced containing PBECFCs/AdMSCs and 3D tubules formed in vitro within 7 days. Gels were then successfully scaled up to enable implantation into an in vivo surrogate wound healing model.

Conclusion(s): A PBECFC/AdMSC co-culture has demonstrated a potential autologous, renewable adult-derived source of cells for pre-vascularisation of scaffolds which could lead to improved graft take and appearance in full-thickness wound repair.

**OUTCOMES OF TREATING STAGE-II LYMPHEDEMA PATIENTS WITH FREE LYMPH NODE TRANSFER: A PROSPECTIVE CONTROL STUDY**

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Introduction: The purpose of this prospective control study is to evaluate the effectiveness of free LNT in stage-II lymphedema patients.

Methods: During the last three years 41 patients were diagnosed as stage-II lymphedema, based on clinical examination, MRI and lymphoscintigraphy of the affected limb (29 upper, 12 lower). They were randomly divided in two groups: Group-A patients (n = 21, mean age 47 years) underwent microsurgical LNT; Group-B patients (n = 20, mean age 49 years) were managed by conservative therapy, for six months. Post-operatively, Group-A patients followed a similar six-month physiotherapy program. All forty-one patients stopped physiotherapy and compression bandaging at the sixth month and underwent re-examination of the affected extremities at the twelfth month; limb volume was measured, infection episodes were recorded and subjective information regarding pain, feeling of heaviness and overall functional recovery, was also given by each patient.

Results: Reduction of the limb volume was observed in both groups; mean reduction was greater in Group-A (57%) than in Group-B (18%). In Group-A, only one infection episode per patient was documented, while three episodes in Group-B. All Group-A patients reported painless and heaviness-free extremities with overall functional improvement. In Group-B, five out of twenty patients were painless, thirteen reported reduction of pain, while nine reported reduction of heaviness; only twelve patients stated subjective functional improvement of the limb, while eight reported no functional changes.

Conclusion(s): LNT represents an effective therapeutic approach for stage-II lymphedema patients; it significantly reduces the limb volume, decreases recurrent infections and improves the overall function.

**ORAL LOW-DOSE PROPRANOLOL FOR INFANTILE HAEMANGIOMA**

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Recent reports on protocols of the propranolol treatment for infantile haemangioma (IH) were based on the subjective