Summer Scientific Meeting 2015- Free Paper Abstracts

(abstracts are listed in alphabetical order by presenter Surname)

Pedicle Perforator Flaps for Vulvar Reconstruction - New Generation of Less Invasive Vulvar Reconstruction with Favorable Results

Mr M Abdelrahman, Dr J Huang, Dr N Chang, Dr C Wu, Miss H Chen, Professor M Cheng
Canniesburns Plastic Surgery Unit

Objectives

Vulvar reconstruction after cancer surgery remains challenging. Pedicle perforator flaps are believed to be a less invasive option with better cosmesis.

Methods

A retrospective review identified 27 flaps in 16 patients who underwent vulvar reconstruction after cancer surgery using island pedicled perforator flaps. Their average age was 55.7±17.8 years (Range: 22-85). The average BMI was 23.5±4.0 (range: 18.8-28.5). Five of the 16 patients underwent unilateral vulvar reconstruction, and 11 of them underwent bilateral vulvar-perineal reconstructions. The perforator flaps included deep femoral (profunda) artery perforator (DFAP or PAP) flaps, medial circumflex femoral perforator (MCFAP) flaps, external pudendal artery perforator (EPAP) flaps, medial thigh free style perforator flapsinternal pudendal artery perforator flaps.

Results

All flaps survived with a 100 % success rate. Three patients developed small wounds that required debridement and closure after the reconstruction. All donor sites were closed primarily. During follow-up, none of the patients presented with donor site morbidities. All of the patients were satisfied with the cosmetic and functional results, except that one patient underwent a flap debulking procedure three months after surgery.

Conclusions

Compared to traditional myocutaneous flaps, perforator flaps provide thinner fasciocutaneous flaps for vulvar reconstruction with favorable reconstruction results and fewer donor site morbidities. The medial or inner thigh is a region that is rich in perforators, which allow for more versatile flap design according to the defect. Furthermore, most of the donor site can be closed primarily without complications.

The need for core outcome reporting in autologous fat grafting for breast reconstruction

Dr T Pidgeon, Mr R Agha, Mr A Fowler, Ms G Wellstead, Professor D Orgill
Mid-Yorkshire Hospitals NHS Trust

Introduction
There is growing interest in autologous fat grafting (AFG) for breast reconstruction. This systematic review examines the range of outcomes used across studies of AFG, their definitions and whether there is a need for a core outcome set to aid reporting.

Methods
Following the protocol of our previous systematic review, a search of 20 databases (1986 to March 2014) returned 35 studies which met the inclusion criteria for our systematic review. These were assessed independently by two authors. Disagreements were resolved by consensus.

Results

Of 35 studies, 27 (77%) were case series, 5 (14.3%) were cohort studies and 3 (8.6%) were case reports. A total of 51 different outcomes were reported. These studies each reported a median of 5 separate outcomes (range 2-14), of which a median of 3 outcomes were defined (range 0-14). A median of 2 outcomes per paper were pre-specified in the study methods (range 0-12) and a median of only 2 outcomes per paper (range 0-12) were both defined *and* pre-specified. The most commonly reported outcome in studies of AFG was that of "Operative details", reported by 26 studies, and 8 different outcome definitions were used. "Cancer recurrence" was reported by 20 studies, with the use of 10 different outcome definitions. Overall, there was a poor proportion of defined and pre-specified outcomes that employed a wide range of different outcome definitions.

Conclusion
There is a need for a core outcomes set for autologous fat grafting to minimise outcome and reporting bias and aid evidence synthesis.

Liquefied petroleum gas related burns. An experience from a Burns Unit in an emerging oil and gas economy

Dr Levi Nii Ayi Ankrah, Dr Edem Anyigba, Dr Kwame Darko, Mr Opoku Ware Ampomah, Mr Albert Paintsil
Korle Bu Teaching Hospital

Introduction
Liquefied petroleum gas (LPG) has gained widespread acceptance and usage in Ghana. With the recent discovery and drilling of oil, there is an anticipated increase in consumption as a result of greater availability and cheaper prices. Unpublished data indicated a rising trend in the incidence of LPG-related burn injuries presenting to our Burns Unit (11% in 2008, 16% in 2009). We present our experience regarding the epidemiology and management of LPG-related burn injuries in a unit with limited critical care facilities.

Method
This was a prospective study from January 2013 to August 2014 in 480 patients. Data was collected on the patient's demographics, aetiology of injury, extent of burns (%TBSA), presence of inhalation injury, length of hospital stay and mortality. Statistical analysis was done using SPSS v. 21.

Results
The commonest cause of burn injury was scalds (52.3%) and LPG-related burns as the second (21.7%). The LA50 for our centre was a %TBSA of 24.27%. The mean hospital stay was 28.8 days. The mortality rate was 26.5%, more than a third (36.8%) from LPG-related burns. The average TBSA burn percentage in LPG-related burns was 30.56% (range of 6 to 95%) and mean duration of stay was 25 days. There was a significant difference in survival based on the aetiology of burn (p ‹0.01).

Conclusion
This is the first study that investigates the epidemiology of burn injuries in Ghana's largest teaching hospital and indicates a worrying trend in the increase in LPG related burn injuries. With the recent establishment of ICU facilities in our unit (Jan 2015) and planned public health interventions, future studies will look at the trend of these injuries and evaluate the effects of the interventions on the morbidity and mortality

Enhanced Recovery After Surgery in Microsurgical Breast Reconstruction – Optimising Peri-Operative Care Improves Outcomes

Dr B Baker, Miss L Highton, Mr J Bedford, Miss S O'Ceallaigh, Dr A Dobson, Mr S Wilson
Royal Manchester Childrens Hospital & University Hospital South Manchester

Introduction

Enhanced recovery after surgery (ERAS) is a concept that aims to optimise and maintain physiological function, reduce surgical stress and enhanced mobilisation after surgery. ERAS pathways have been shown in multiple specialities to decrease length of stay, increase patient satisfaction and make more efficient use of resources, but are not well described in the Plastic Surgery.

Methods

In 2011 we introduced a multi-disciplinary ERAS pathway for patients undergoing elective free DIEP/TRAM flap breast reconstruction. The pathway addressed all phases of surgical care including:

Pre-operative

- Pre-operative carbohydrate loading
- DVT and antimicrobial prophylaxis

Intra-operative

- Maintenance of euvolaemia and normothermia including invasive cardiac monitoring
- Limb mobilisation and repositioning
- Use of bupivicaine in surgical sites

Post-operative

- Analgesia with oxycodone/oxynorm, avoiding PCA
- Anti-emetic protocol
- Early resumption of oral intake
- Early mobilisation
- Minimising the duration of indwelling drains, lines and catheters

Patients undergoing microsurgical breast reconstruction using ERAS were compared with a historical cohort treated with conventional care.

Results

A total of 50 patients were analysed: 25 in the ERAS cohort and 25 in the conventional care cohort. The ERAS cohort demonstrated a significant reduction in length of stay (5 vs 7 days $p<0.01$) and in opioid usage. There was no increase in pain scores, complications or re-admissions.

Conclusion

The introduction of an ERAS pathway in women undergoing microsurgical breast reconstruction promotes successful early recovery with a decreased length of stay. The pathway optimises the use of resources with potential economic benefits.

Paediatric volar plate injuries: Time to discard the splint?

Miss M Baker, Mrs M Downs, Mr S Wilson
Frenchay Hospital

Background
The management of stable paediatric proximal interphalangeal joint (PIPJ) volar plate injuries (VPI) varies widely. Current practice for our hand physiotherapists is to treat with dorsal blocking splint (DBS) andhome-based programme of active range of movement (ROM) exercises for four to six weeks. Any residual fixed flexion after this timewould be treated with formal physiotherapy until full ROM restored.

Methods
We prospectively collected data for six months on patients 16 years or younger, with stable PIPJ VPI.

Exclusions
The thumb, previous injury to digit, grade 3 VPI.

Standard management
Grade 1 VPI -mobilise. Grade 2 VPI - buddy-strapping for 10 days then mobilise. All patients were given an advice sheet with instructions to regularly perform simple ROM exercises and open appointment to attend clinic if they became concerned. Telephone consultations were made at four and eight weeks.

Results
47 consecutive patients, mean age 13 years (6-16 years) were reviewed. 13 patients had grade 1 VPI, 34 had grade 2 VPI including 30 middle phalanx avulsion fractures. No patients had concerns at four weeks. Four patients with grade 2VPI and avulsion fractures reported stiffness or fixed flexiondeformity at eight weeks, which resolved with physiotherapy and customised splinting.

Conclusion
Isolated paediatric PIPJ grade 1 and 2 VPI with minimal /no laxity can be successfully treated with advice sheet, buddy-strapping and ROM exercises without formal DBS. This represents reduced hand clinic attendances for child and parent, and resource savings for hand physiotherapy whilst maintaining excellent clinical outcomes.

The modified Sennwald-Della Santa shortening osteotomy of the distal ulna: Surgical technique and the results of 10 patients – retrospective study

Dr S Benis, Dr J Goubau, Dr B Berghs, Dr P Van Hoonacker, Dr D Kerckhove, Dr B Vanmierlo

Department of Orthopaedic Surgery, Ghent University Hospital, Belgium

Introduction
Ulnocarpal abutment is a common condition. There are different surgical methods of treatment for this pathology: open and arthroscopic Wafer procedure, ulnar shortening osteotomy. This article describes a modified fixation technique with 2 cannulated headless compression screws of the distal metaphyseal oblique osteotomy of the ulna. We report the results of 10 patients treated with this method.

Materials and methods
Patient-rated outcomes were measured using VAS (Visual Analogue Scale) for pain, PRWHE (Patient-Rated Wrist and Hand Evaluation) survey and Quick-DASH (Disability of Arm, Shoulder and Hand) survey for functional outcomes. At the time of final follow up were measured the range of motion (extension and flexion, ulnar and radial deviation, pronation and supination). Grip strength, pronation and supination strength were measured using a hydraulic dynamometer. ROM and strength of the affected wrist was compared to ROM and strength of the unaffected wrist.

Surgical procedure
Oblique metaphyseal osteotomy of the distal ulna, fixed with two cannulated headless compression screws.

Results
The average postoperative VAS for pain was 23.71 (SD of 30.41). The average postoperative PRWHE score was 32.55 (SD of 26.28). The average postoperative Quick- DASH score was 28.65 (SD of 27.21). By the most patients the range of motion and the grip strength of the operated side was comparable with the unaffected side.

Conclusion
The potential advantages of our surgical technique are the less amount of osteosynthesis material and the smaller incision. The oblique direction and the metaphyseal location of the osteotomy potentially allowing shorter time for union.

Patient satisfaction of breast size following implant surgery: An ongoing assessment

Mr T Brown
Renaissance Plastic Surgery

Patient dissatisfaction with breast size after breast implant surgery can lead to early secondary procedures in a proportion of cases.

Different systems of sizing a patient preoperatively have been proposed, including detailed measurements and computer-assisted assessment. Whatever system is used, a surgeon needs to obtain feedback to ascertain that the system is effective at producing a satisfactory outcome. The present study represents a second cycle of audit.

In this study, 137 patients who underwent breast augmentation by a single surgeon were prospectively assessed for a 12-week period after surgery to determine their satisfaction with their breast size. Both expectations and desire to change implant size were assessed.

Early (week 1) expectations of the patients were a good predictor of their long-term assessment 12 weeks after surgery and their desire to change their implant size. The patients with a greater body mass index (BMI) and larger implant volume were more likely to express a desire for a change in implant size early in the postoperative course.

The findings showed that 19.4 % (26/134) of the patients wished to have larger implants by 12 weeks after surgery. Patients with a base width ›13cm were more likely to desire a larger implant. 3.7 % (5/134) felt smaller implants would be preferable. All of these patients had a BMI ‹19.

The information produced by this audit is important to the provision of future informed consent for this surgeon. Without similar data from their individual practices, surgeons cannot provide patients with an accurate assessment of their satisfaction after breast augmentation surgery. A similar undertaking is strongly recommended for surgeons performing breast implant

A prospective study on the use of a novel epidermal grafting machine to optimise outpatient wound management

Miss Nicola Bystrzonowski, Miss Nadine Hachach-Haram, Miss Sarah-Jane Edmondson, Dr Oliver Smith, Mr Muholan Kanapathy, Ms Lucy Twyman, Mr Toby Richards, Mr Ash Mosahebi
Royal Free Hospital

Aim
Current wound management with the use of split thickness skin graft often requires hospital admission, a period of immobility for some, attentive donor site wound care and pain management. This study evaluates the feasibility of using a novel epidermal graft-harvesting device, which allows pain-free epidermal skin grafting in the outpatient setting.

Method
A prospective analysis of 16 patients was performed, 9 acute and 7 chronic wounds. All patients underwent epidermal grafting in the outpatient clinic. The device harvests epidermal micrografts through the formation of suction blisters without the use of anaesthesia. Combining negative pressure (200mmHg) and heat (40°C), it produces a uniform arrangement of epidermal grafts within 30 minutes, which are then transferred on a dressing to the wound bed.

Results
Completely healed wounds were noted in 10 patients, while more than 50% reduction in wound size was seen in another 4 patients. There were only 3 failed grafts due to underlying medical comorbidities and an infected bed prior to application, which destroyed the graft. The donor sites healed within 5 days in all patients. Our patients reported none or very minimal pain, were mobilising immediately after the procedure and returned home the same day with a lightweight, simple dressing.

Conclusion
This automated device offers a novel method in autologous skin harvesting resulting in minimal pain and a scar free donor site. Complete wound coverage is achieved, while maintaining patient independence. It has the potential to save NHS resources by eliminating the need for theatre space and a hospital bed, while at the same time benefiting patient care.

A single surgeon's experience of infection rates in k-wires in hand surgery: Buried vs Unburied

Dr J Canny, Miss R Hossain, Mr A Lahiri
Sandwell and West Birmingham NHS Trust

Introduction

Anecdotal evidence exists to suggest that buried K wires are superior to unburied k-wires in preventing infection however this has not been strong enough to be formalised in a guideline. We present a closed loop audit of one consultant hand surgeon's practice in a DGH over a 3 year period.

Methods

We looked at the data retrospectively primarily for all patients under one consultant hand surgeon from 2011 to 2013 who had k-wires inserted as part of their operation. We interrogated their notes and computer records to establish rates of infection post-procedure. Following this we re-audited the data in a similar way of the same surgeon for those patients who had their procedure performed in 2014. Patients who had incomplete records were excluded from the data.

Results

From 2011 to 2014 114 patients were identified. 13 (11.4%) were excluded due to incomplete records. Of these 73 (72.3%) patients had buried k-wires and 1 became infected (1.4%) and 28 (27.7%) patients had unburied K-wires with 4 (14.3%) developing infections. In 2014 19 were performed and 3 (15.8%) excluded due to lack of data. Of the remaining 16 all were buried (100%) with none infected. We demonstrated a significantly increased rate of infection in unburied vs buried k-wires, OR 14.67 vs OR 0.068 P=0.0186.

Discussion

Initially the majority of the procedures were performed with buried k-wires. Due to limited resources a move was made to performing procedures with unburied k-wires. Initially the audit showed an increased rate of infection in unburied wires so a decision was taken to revert to a buried method. The data shows a significantly increased infection rate for unburied k-wires as opposed to buried wires. As a result we would recommend the buried approach.

Partial mandibulectomy without bony reconstruction in patients with large tumors of the oral cavity: Experiences, functional outcome and aesthetic satisfaction

Miss P Chadha, Mr R Hirt, Mr S Knipping, Mr T Schrom, Mr F Bast
Chelsea and Westminster Hospital

Introduction

The current standard for reconstruction of large mandibular defects is the use of free fibular flaps. However, this option is not without complications and the benefit of extensive reconstruction for patients

with large oral cancer and multiple co-morbidities is unclear. Partial mandibulectomy without reconstruction is an appropriate and acceptable surgical option for carefully selected patients.

Materials and Methods

All patients who underwent a partial mandibulectomy due to significant cancer size, deemed unsuitable for reconstruction, were included between January 2009 and March 2013. Outcomes included survival rate, carcinoma recurrence, and specific patient perspective outcomes assessed by a questionnaire. All patients received 6 weeks ofintensity modulated radio-chemotherapy.

Results

23 patients, 6 female and 17 male with an average age of 59.8 years (range from 43-75 years) comprised 19 oropharyngeal carcinomas and 4 floor of the mouth cancers, all of which had a stage of cT4. All underwent partial mandibulectomy without reconstruction. There was no evidence of local tumour recurrence in the follow up period for any patient (range 5 to 50 months, average of 27.3 months). 8 patients developed regional or distant metastases and have since died. 21/23 patients and 19/23 patients rated an improvement in mastication function and pain post-operatively respectively. 17/23 patients reported an improved aesthetic outcome postoperatively.

Conclusion

Mandibulectomy without reconstruction is an acceptable management option for a carefully selected group of patients with extensive tumour growth, who may not be suitable for the extensive surgery involved with reconstruction.

The dogear flap as a second choice for breast reconstruction in patients who already underwent a DIEAP flap

Dr B Colebunders, Dr B Depypere, Professor K Van Landuyt
University Hospital Ghent

Introduction and aims

Patients with previous deep inferior epigastric perforator flap (DIEAP) reconstruction or abdominoplasty are often a challenge for breast reconstruction. Several second choice flaps have been described such as the transverse upper gracilis flap (TUG), profundus femoris artery perforator flap (PFAP), superior gluteal

artery perforator flap (SGAP) and the lumbar artery perforator flap (LAP) depending on patients' body habitus.

Patients who underwent a dieap flap or abdominoplasty occasionally present with dogears on both sides of the abdominal scar. The adipose tissue and skin of these dogears is supplied by perforators of the deep circumflex iliac artery (DCIA). The DCIA flap was first described in 1979 by Taylor. We introduce this "dogear" flap for autologous breast reconstruction.

Material and methods
We performed three breast reconstructions using a dogear flap in patients who had a previous DIEAP flap or abdominoplasty. We will describe harvest technique, patient characteristics and outcome.

Results
Postoperative course in all three cases was uneventfull. Reconstructed breast weight was comparable to the original breast volume.

Conclusion
In selected patients, who present with excess skin and fat at the sides of the abdominal scar after a dieap flap or abdominoplasty, a dogear flap is a good second option for breast reconstruction

Tactys arthroplasty in the AZ Groeninge Hand Centre: good impressions

Dr B Craggs, Dr J Vanhaecke, Dr M Dezillie, Professor F Stockmans
Universitair Ziekenhuis Brussel (UZ Brussel), Vrije Universi

Introduction
Proximal interphalangeal (PIP) joint arthroplasty is a challenging procedure. In the past we have used silicone spacers and pyrocarbon joints. Correct implant sizing is difficult, and results vary even in same patient-same surgeon-same pathology surgery. We therefor wanted to evaluate our short term results after tactys arthroplasty.

Material and methods
A prospective study was performed including all patients needing PIP arthroplasty from February 2012 until November 2014. Indications were recorded, epidemiology, complications, and clinical outcome including range of motion and PRWHE and DASH scores.

Result
15 patients were included, 16 PIP joints were treated. 10 patients required arthroplasty because of arthritic degeneration with disabling pain, 3 patients needed revision of a previous arthroplasty, and two patients because of trauma to the PIP joint. Fingers treated were ray 2 (n=4), ray three (n=7), ray 4 (n=3) and ray 5 (n=2). Majority of patients were female (n=11), with an average age of 64 and numbers of right hands

treated was 11 compared to 6 left hands. Follow-up was a mean of 9.6 months since surgery. We recorded two complications: one superficial surgical site infection and one swan neck deformity. Clinical outcome is good, but still under investigation.

Conclusion

Three years of experience with this new implant has shown us that the full modular concept allows putting a wide joint surface on a small stem. The length reconstruction can be adapted, and the implant is self-stabilising. Patients don't need physiotherapy, but do their own self re-education. Results in this small study are encouraging with good clinical outcome and limited number of complications. The instrumentation however is not self-explanatory.

Experience with bridging plates in the AZ Groeninge Hand Centre: functional range of motion with minimal disability

Dr B Craggs, Dr J Vanhaecke, Dr M Dezillie, Professor F Stockmans
Universitair Ziekenhuis Brussel (UZ Brussel), Vrije Universi

Introduction

Distal radial fractures with extensive comminution of the metaphyseal-diaphyseal junction present in two distinct patients groups: elderly, osteoporotic patients after low-energy trauma and young patients after high-energy trauma. Treatment is especially difficult if the articular surface is involved. Internal distraction or bridge plating is an accepted treatment for both patient groups, and involves a dorsal 3.5-mm plate placed extra-articularly from the radius to the second or third metacarpal, stabilizing the diaphysis and maintaining distraction across the radiocarpal joint. We assessed the clinical outcome by analysing time to plate removal or fracture healing, number of complications, range of motion and Disabilities of the Arm, Shoulder, and Hand (DASH) score at six months postoperatively

Material and Methods

A prospective study was performed including all patients who were treated with a distraction plate for a comminuted distal radius fracture from December 2012 onwards. Follow-up included the use of radiographs, physical examination, and PRWHE (Patient related wrist/hand evaluation) and DASH (Disabilities of the Arm, Shoulder and Hand) scores.

Results

20 patients were operated on between December 2012 and August 2014, 11 women and 9 men. Mean age of patients was 61 years old (range 20-87yo) by 3 surgeons (FS 7, JV 7, MD 6). 4 patients had a distal radius articular fracture, including one patient with a scapho-lunate dissocation. 18 patients were elderly people who suffered a low energy trauma (fall from standing height); the remaining two patients were 20 year-olds who suffered a high energy trauma. The plate was fixed either to metacarpal 3 (50%) or metacarpal 2 (50%). Additional fixation (K wire or screw fixation) was required in almost half of patients (9). The plate was removed after a mean time of 3 months (range 2-5). Two patients required secondary volar plate fixation because of loosening of the plate and difficulties mobilising respectively. Complications occurred

in 30% patients (n=6). Complications included short radius causing distal radio-ulnar joint conflict, fracture proximal to the bridging plate, malunion, and tendon rupture or irritation. Range of motion, PRWHE and DASH scores in all patients with follow-up at 6 months were good to excellent.

Conclusions

The use of a distraction plate combined with reduction of the articular surface and bone-grafting when needed is an effective technique for treatment of fractures of the distal end of the radius with extensive metaphyseal and diaphyseal comminution. A functional range of motion with minimal disability despite the prolonged period of fixation across the wrist joint was found in both young and elderly patient groups.

Lumbar artery perforator free flap: Anatomical study and clinical experience in breast reconstruction

Dr B Craggs, Dr C Brussaard, Dr A Zeltzer, Dr B Hendrickx, Dr K Seindenstuecker, Professor M Hamdi
Universitair Ziekenhuis Brussel (UZ Brussel), Vrije Universiteit Brussel (VUB)

Introduction

Breast reconstruction with lumbar artery perforator (LAP), which was described only in one case report, is indicated in patients with unfavorable abdominal donor site. In addition to our clinical experience with LAP free flap breast reconstruction, we present an anatomical study of the origin and course of the perforators.

Material and methods

Images of multi-detector computerized tomography MDCT scan were used to visualize the location of the dominant lumbar artery perforator in 20 patients. X- (horizontal line connecting the highest points on both illiac crests) and Y-axes (the midline along the spinal processi) were used as landmarks to localize the lumbar perforators. The medical files of our patients who underwent LAP breast reconstruction were also analysed.

Results

MDCT imaging in 20 female patients with mean age 47–year old revealed an equal number of dominant perforators (10 left, 10 right); 60% were at the level L3-4, 30% at the level L4-5 and the remaining at the level L2-3. The dominant perforators were mainly located 42.6mm from the Y axis at their origin at the transverse process, and 69.5mm (4 fingers breadth) when emerging in the subcutaneous tissue. Six patients had 8 successful LAP flaps for breast reconstruction. Due to shortness of pedicle and mismatching between diameter of lumbar artery and internal mammary artery (IMA), vascular bypass was required in 50 % of the cases. The major complication at the donor site was seroma (80%).

Conclusion

The lumbar artery perforator has a constant anatomical location. The free LAP flap provides ample amount of tissue for breast reconstruction, however, its major disadvantages are small artery diameter, shortness of the pedicle; and high seroma rate at the donor site.

Inferior gluteal artery perforator based flap reconstruction after abdominoperineal excision for low rectal carcinoma

Miss H Creasy, Mr M Pramateftakis, Miss P Mohanna, Mr P Roblin, Mr J Constantinides, Mr A Schizas, Mr M George, Mr D Ross
Guy's and St Thomas' NHS Foundation Trust

Aim
The use of myocutaneous flaps has been shown to reduce the perineal wound complications following perineal resection. The aim of this study is to present our long-term experience of the use of inferior gluteal artery perforator (IGAP) based V-Y flaps for the immediate reconstruction of the perineum following excisional surgery. To our knowledge this is the largest series of immediate perineal reconstruction using IGAP flaps presented to date.

Method
A series of patients that underwent IGAP reconstruction following excision of rectal carcinoma, between April 2008 and June 2014, were analysed retrospectively for patient demographics and outcomes, at a median follow-up of 7.4 months.

Result
A total of eighty patients underwent immediate IGAP reconstruction for rectal carcinoma, fifty-three following abdominal perineal excision (APE), with the remainder undergoing multi-visceral excision (MVR). 98% (n=78) underwent neoadjuvent radiotherapy, with eleven of the thirty opting for vaginal reconstruction. 31% (n= 25) experienced minor wound complications, including cellulitis and mild superficial dehiscence. Early return to theatre for wound complications occurred in 7.5% (n=6), with 7.5% requiring late return to theatre for delayed wound healing. One patient underwent scar revision and another had flap debulking. 13.8% reported prolonged perineal pain on sitting with two requiring pain team referral. Three patients were diagnosed with a pernieal hernia, with two requiring revision.

Conclusion
Our experience has shown that IGAP flaps are a safe, robust and reliable option for reconstruction of the perineum following major excisions, with an acceptable rate of complications compared to other reconstructive options.

A 5-year review of facial fractures in the Australian Outback

Miss A Dargan, A Prof U Orda
Mount Isa Base Hospital

Bony facial injuries can often require a multi-disciplinary approach. This single-centred study looked at patients who have presented to a small rural hospital in Queensland with facial fractures over the last 5 years, from 2009 to 2014. Despite being small, Mount Isa Base Hospital, aided by the Royal Flying Doctor Service (RFDS), covers a large geographical area of 500 000km^2, with a population of around 40 000 people, including townships and properties often accessible only by gravel roads or plane. There are no maxillo-facial or otolaryngology services in Mount Isa, and the nearest centre is almost 1000km away, so organizing specialty review, intervention or follow-up poses significant logistical challenges for both staff, and patients and their families.

We identified 536 patients who suffered single/multiple facial fractures in the 5-year period, excluding fractured teeth, looking at aetiology, management and complications. The most common fracture was mandibular, accounting for almost half of patients identified. The most common aetiology was assault, followed by motor vehicle accidents. In contrast to similar studies in the USA, where gunshot wounds (GSW) often resulted in the most severe injuries, we found no patients with a facial GSW injury in the time examined. There was, however, a significant amount of blunt trauma assault, in both genders, and also a high number of patients who presented late resulting in infection, did not attend for specialty treatment or were lost to followup.

This study reports the prevalence and ateiologies of facial fractures in rural Queensland, and sheds a light on the logistics required in managing such injuries in a remote location, which may help to improve patient care strategies for the future.

An epidemiological study of 600 hand injury patients presenting to a tertiary referral centre

Miss C Dover, Mr D Chester
Queen Elizabeth Hospital

Background

Hand injuries are a common presentation of trauma, with fractures alone having an annual incidence of 3-4/1000. The impact on healthcare services is therefore great, with consequences for the workforce and local economy.

Methods

Our study was conducted in the emergency department of a tertiary referral centre. The inclusion criteria for participants was an injury sustained to the hand or soft tissues of the forearm, as a direct result of trauma, between August 2012 and August 2013. An epidemiological study was then performed on patients presenting within the identified busiest month of that year.

Results

Our results demonstrated a high incidence of hand injuries presenting to the emergency department in the summer months. Two-thirds of our population were male, and 61% aged below 35 years. Closed

fractures and wound injuries, related to work and sport, were the most common presentation (85% of injuries). The majority of our patients presented in the afternoon and evening (55%), with two-thirds of patients being referred to the specialist hand unit. There was a correlation with socioeconomic class.

Conclusion

Our tertiary centre continues to receive high volumes of patients with trauma to the hand, with an increased service demand over the summer months and out of hours. Over half of the presenting injuries were sustained in the workplace. The results of our study shall be used to target those patients identified as being at risk from hand trauma injuries, in both prevention and management strategies, with a particular focus on local construction workers. In addition, we are in the process of implementing a new evening clinic, to cater for hand injuries presenting out of hours.

Hypospadias Practice – 13 years in the making

Miss A Edwin, Mr C Ramanathan, Mr H Siddiqui
University Hospital North Durham

Introduction

I present the work of the 2 senior authors with joint practice. Our aim was to assess the progression of outcome in hypospadias surgery in our hands over the last decade. Outcomes and complication rates were compared against international figures of repute.

Methods and Materials

Patients were identified using 3 databases. Patient data from the clinical records was sourced and analysed. PubMed central was searched to provide a complication and revision overview from the international literature.

Results

340 patients were identified. The 110 non hypospadias penile cases were excluded. At least 205 male patients were identified to have had a hypospadias or chordee repair by the senior authors, and their notes including follow up information were available for use. There were 376 operations performed by our team. 132 operations were primary repairs, 9% operations were for complications, 6% required a revision procedure for irretrievable complications or wound dehiscence and 79 procedures (including salvage 34%, complications 24%) after being operated on by another surgeon.

The English literature review showed overall complications rate varying from 4.4% to 50%. We have analysed the data of our cohort of the patients based on the type of hypospadias, the year of operation, the type of operation, complication profile and follow up periods.

Conclusion

This series represent a moderately large data collected over 13 years. Reflection on complications and revisions continue to help improve our practice. Our data is compared with that of the international peers

in this presentation. The Audit of the outcome in our patient group also helps to answer some of the questions asked by the parents of new cases in a practice-specific way.

Repair of finger soft tissue defects with second and third dorsal metacarpal artery perforator flaps

Dr D Eric, Professor M Ninkovic, Dr S Kojic, Dr S Maric, Dr Z Maksimovic, Dr M Kovacevic, Dr N Lalovic
Department of Plastic, Reconstructive and Hand Surgery, University Hospital Foca

Introduction and aims
The second and third dorsal metacarpal artery perforator flap is a versatile solution for resurfacing soft-tissue defects of index, middle and ring finger. This study aimed to show our experiences in the reconstruction of fingers soft tissue defects by second and third dorsal metacarpal artery perforator flaps.

Material and methods
Twenty one patients with finger defects were treated at the Department of reconstructive and plastic surgery, University Hospital Foca, during the period from January 2009 to December 2013 year. These flaps were used to reconstruct soft-tissue defects after debridement of infected wounds in 12 patients, traumatic wounds in 6 patients, and after excision of skin tumours in 3 patients. The locations included 5 index fingers, 12 long fingers, 4 ring fingers.

Key results with supporting statistical analysis
The average flap size was 2.6 × 2.0 cm .13 flaps were based on the second dorsal metacarpal artery perforator, 8 were based on the third dorsal metacarpal artery perforator. Nine flaps were used to resurface defects distal to the proximal interphalangeal joint, and twelve flaps were used to resurface defects over the proximal interphalangeal joint and proximal to it. Complications included venous congestion in three flaps, with total loss of one flap and infection in one case.

Conclusions
The second and third dorsal metacarpal artery perforator flaps are a thin flaps and can reliably cover soft-tissue defects up to the proximal half of the distal phalanx. These microsurgical non-microvascular flaps preserve major arteries and the quality of transferred tissues is optimal as the 'like-to-like' principle of reconstruction is respected.

Flow Cytometry Analysis of Nanofat derived Stromal Vascular Fraction Reveals Improved Progenitor Subpopulations When Compared to Standard Lipoaspirates

Dr G R D Evans, Dr D A Banyard, Dr A D Widgerow
The University of California, Irvine

Introduction and Aims
"Nanofat," first described by Tonnard *et al.* in 2013, is a form of fat processing that implements mechanical emulsification of lipoaspirate (LA) prior to injection for the correction of superficial rhytides and pigmentation. The procedure has proven safe and effective, however, little work has been done to further characterize the stem/progenitor cell populations of the stromal vascular fraction (SVF) generated by this technique.

Material and Methods
Standard vacuum-assisted liposuction was used to obtain 100 ml LA from 2 patients undergoing routine elective procedures. 50 ml of each LA was subjected to nanofat processing. The nanofat as well as the remaining 50 ml LAs were subjected to collagenase digestion. The resulting SVF pellets were then stained with propidium iodide and a multi-color antibody panel. The cells were then subjected to flow cytometry analysis for absolute cell count and population quantification.

Key results
The nanofat processed SVF was found to contain higher mean concentrations of markers associated with hematopoietic (CD45+/CD34+, 7.6% ± 0.3 vs 3.8% ± 1.9) and mesenchymal (CD45-/CD34+, 2.3% ± 0.9 vs 1.8% ± 0.2) stem cell activity. Subpopulation analysis revealed increased prevalence of ADSCs (32.3% ± 3.1 vs 23.2% ± 3.6) and endothelial progenitor cells (18.6% ± 4.1 vs 7.3% ± 1.9) when compared to control.

Conclusions
Nanofat has proven useful in the amelioration of superficial rhytides and pigmentation, but more research is needed to define the underlying mechanisms of its regenerative capacity. Despite a common source, the creation nanofat appears to induce a lineage commitment of progenitor cells (ADSCs and EPCs) that contribute to the superior clinical results previously observed.

Total reconstruction of the eyelid margin after basal cell carcinoma removal

Dr M Gushchina, Professor E Egorova
The S Fyodorov Eye Microsurgery State Institution, Russia, Moscow

Introduction and Aims
Basal cell carcinoma **(BCC)** is the most common type of skin cancer and is treated by complete surgical excision (Robert B. Renne, 2012).

The aim of our study was to develop novel method of surgical rehabilitation of patients with BCC of the eyelid margin.

Material and Method

We had 16 patients with BCC of the eyelid margin. We used the standard technique for complete surgical excision of BCC. The displaced flap of conjunctiva, the free flap of cartilage of the ear or perforated polymer implant (PPI) for the reconstruction of tarsus, displaced flaps circular muscles and displaced or free skin graft we used for the reconstruction of extensive end-to-end defect of eyelid margin. We used the polymer hexagonal compression plates (CP) with many holes for fixing displaced tissue for closing formed defects. Fixation of displaced tissues was carried out by using the U-shaped sutures to provide a stable position on the post-op rehabilitation. Sutures and CP removed after 7-10 days.

Results

Anatomical and functional reconstruction of the eyelid margin was achieved in all patients. However, when using free flap of cartilage of the ear for the reconstruction of tarsus the eyelid margin is not densely adjoined to eyeball and an outline of the eyelid margin was deformed ($p<0.05$). When using PPI for the reconstruction of tarsus tight contact of the eyelid margin to the eyeball and the formation of an optimal contour of the eyelid margin were achieved ($p<0.001$).

Conclusion

The developed novel method of surgical rehabilitation of patients with BCC of the eyelid margin with using CP for fixing displaced tissue provides stable anatomical functional results. The use of PPI for the reconstruction of tarsus allows to achieve the best aesthetic result.

SPSS The Static Peri-orbital Sphinteric Sling with Minimal Access Facia Lata Graft : A Simple Solution for a Complex Problem

Mrs K Hamnett, Mr A Iqbal
Whiston Hospital

Aim

To present a simple solution to the complex problem of paralytic ectropion with a Static Peri-orbital Sphincteric Sling (SPSS).

Background
Paralytic and senile ectropion results in exposure conjunctivitis and epiphora. It is caused by lower lid diastasis with exposure punctal eversion and loss of orbicularis contraction resulting in loss of capillary action and mechanical failure of tear propulsion into the lacrimal apparatus. Lid tightening options include lid suspension or lid tightening with either lid resection or canthal adjustment with potential risk of mal-attachment.

Method
SPSS is a suspension technique addressing both medial and lateral canthi using fascia lata harvested via minimal access. The idea is to form a circular suspension with upwards diverging vectors. Access is with a tunnelling technique with a Coleman fat harvesting cannula via small stab incisions of the lower lid and supraciliary area or through a supraciliary brow lift incision if done simultaneously. The graft forms a ring from the lower lid tarsal space, deep planes along the medial canthus, conforming the concavity of the inner canthus, along the supraciliary area deep to frontalis. In the same plane deep dissection is performed along the lateral canthus. The two ends are joined to adjust the tension of the sphincter and sutured.Additional suspension of the mid face enhances the efficacy of this procedure.

Conclusion
SPSS restores lid contact physiologically, decreasing the vertical and horizontal aperture of the palpebral fissure, whilst suspending the lower lid from both canthi providing robust structural support.

Donor limb harvest in hand and upper extremity transplantation: surgical and logistical factors

Mr Omar Hausien, Dr Edward Swanson, Mr James Abraham, Dr James Higgins, Professor Andrew Lee, Dr Jaimie Shores, Dr Gerald Brandacher
School of Clinical Medicine, University of Cambridge

Hand and upper extremity transplantation offers a superior reconstructive solution for select patients lacking a functional upper limb. Seventeen years from the first successful hand transplantation, its technical and immunological feasibility is now established, and is evolving. The number of centres performing or planning hand transplantations worldwide has increased considerably. To facilitate this transition, unified protocols are required. Here, we describe the surgical and logistical aspects of donor limb harvest. For such an endeavour, it is imperative that multiple medical and surgical specialties and teams work in concert to achieve a common pre-defined goal. We provide an illustrative overview and explanation of the donor limb recovery process, including the sequence of events, logistics, and inter-specialty team interaction. Through review of the current literature, we acknowledge and address possible variations. We include techniques used by the senior authors. We further discuss how donor limb harvest fits into the organ recovery process for multi-visceral donors. It is important that all members of all teams involved in this procedure, including the solid organ harvest teams, donor hospital staff and others

involved are aware of the limb harvest process. Opportunities for future research in this field are further discussed.

Are hypoxic cells the key to angiogenesis of tissue engineered constructs in regenerative medicine research?

Miss Jasmine Ho, Professor Martin Birchall, Dr Umber Cheema, Dr Katerina Stamati
UCL

Introduction and Aims

A major obstacle in engineering tissue engineered constructs is the inability for implanted cells to survive in vivo without an adequate blood supply. Neovascularisation can occur given time but this can take weeks and therefore carries risk of irreversible cell damage and ultimately graft failure. Hence, acceleration of angiogenesis within the tissue construct is desirable.

Material and Methods

We seeded a combination of HBMSCs, HDFs and HUVECs into collagen hydrogels. These hydrogels were rolled to produce a variation of oxygen tension gradient within the core structure. The effect on the cells seeded were studied. These cells were seeded in various oxygen concentrations to determine its effects on forming tubular structures. Finally, chorioallantoic membrane (CAM) assays was performed to determine if *in vivo* angiogenesis is increased.

Results

Cells within the core of 3D constructs were in a state of hypoxia. VEGF production is increased in the core of 3D collagen constructs in the first 8 days, indicating that hypoxia may promote angiogenic signals for induction of vascularisation *in vivo*. We have also demonstrated that hypoxic conditioned cells also increase tubular formation of endothelial cells. On-going *in vivo* CAM assays are currently undertaken to show whether these parameters will accelerate angiogenesis.

Conclusion

This type of hypoxic mediated cell behaviour is supported by extensive published literature, where have found that cells adapt to prolonged hypoxia with increased self-renewal and multipotency. These finding will have a significant impact on the use of potential cell lines as therapeutic source of angiogenic factors for regenerative medicine purposes.

Pre-Pectoral Implant Placement with Total Acellular Dermal Matrix Cover – A New Technique for Implant Based Breast Reconstruction

Miss Rachel Holt, Miss Lyndsey Highton, Mr Jonathan Duncan, Mr John Murphy, Miss Siobhan O'Ceallaigh

UHSM

Introduction
The conventional approach to implant based breast reconstruction involves sub-pectoral implant placement with partial detachment of the pectoralis major muscle (PMM). This may be accompanied by total sub-muscular implant placement or a lower pole acellular dermal matrix (ADM) sling. Compared to pre-pectoral implant placement, the advantage of an improved cosmetic result comes with the disadvantages of post-operative pain, PMM functional impairment and breast animation. We report a novel technique of pre-pectoral implant placement with total implant coverage by ADM.

Methods
This technique was used in a total of 14 breasts in 11 patients in 2014. In 4 cases this followed skin-sparing-mastectomy, in 5 cases for revision of previous implant based reconstruction and in 1 case for revision of breast augmentation.

A cohesive gel anatomical implant was placed in the pre-pectoral plane and completely covered with ADM. We utilised a contour and an 8 x 16cm sheet of Strattice™, which were sutured together and to the fascia of the PMM and inframammary fold to contain the implant.

Patients were discharged the day after surgery with a drain(s) and prophylactic antibiotics.

Results
The cosmetic outcome and patient satisfaction have been good to date. There has been no evidence of animation, implant dislocation, implant rim visibility or palpability or significant capsular contracture. There have been no complications in this series.

Conclusion
Pre-pectoral implant placement with total ADM coverage represents a novel approach with good cosmetic results whilst avoiding the disadvantages of PMM detachment. Whilst our small series has shown promising results longer term follow up and further studies are required.

Outcome of closed metacarpal fractures managed non-surgically

Mr M M Hosain, Dr Z N Khan, Mr M U Anwar
Glasgow Royal Infirmary

Introduction
Metacarpal fractures are relatively common hand fractures. Although the treatment algorithm is guided by the clinical picture, location of the fracture, the stability of the fracture, as well as the resultant deformity. Many metacarpal fractures do well without surgery. There is a paucity of literature and persistent controversy to guide hand surgeons on the best treatment algorithm.

Aims
The aim of this study is to find out the overall out-come of closed metacarpal fractures managed nonsurgically and related factors that affect outcomes.

Materials and Methods
This retrospective study comprises 155 patients who had closed metacarpal fractures managed nonoperatively in Pinderfields General Hospital from October 2013 to December 2013. Data was collected from notes, reviewing X-rays; hand therapy outcome forms, telephoning patients. Data was then analyzed in Excel spreadsheet.

Results
Half of the patients are in the age group 16-30 years. Males are about 6 times more than females. One third of patients were smokers. More than one third of patients were smoker, and 50% of the fracture caused from punch. Most of the patients were right hand dominant and commonly injured. About half of them are little finger fractures with common site has been the neck. 88% of patients got the full range of movement; rest of them had some degree of movement restriction. Over all 90% of patients were happy with their outcome both functionally and aesthetically, 5% satisfied with Function.

Conclusion
Non surgical management of closed metacarpal fracture showed a very good functional outcome and patient satisfaction. But Proper assessment, patient selection and hand therapy follow up is important.

Made-to-measure partial toe transfers for finger reconstruction: a case series

Dr Sébastien Hugon
Namur Regional Hospital

Introduction
Small composite segmental defects of the fingers are sometimes adequately treated by composite made-to-measure transfers from the toes. While the classical harvesting approach involves a long pedicle and an extensive dissection, the short pedicle technique has proven efficient and considerably less invasive.

Material and methods
We present here a six-case series of short pedicle partial toe transfers used for finger reconstruction, either on their own or as part of a reconstructive plan, operated between 2012 and 2014. Patients were aged from 7 to 65. Two were smokers. Transfers involved one partial proximal second toe phalanx, one great toe pulp, two composite bone-pulp-nailbed from the great toe and two from the second.

Results
All transfers survived completely. All patients were pleased with the aesthetic and functional outcomes, while donor site sequelae were considered acceptable. When relevant, sensory recovery was good but in one case.

Conclusion
This procedure is reliable and useful for patients requiring like with like reconstruction. The overall donor site morbidity is low and we found the results gratifying. It has then become our standard of care for those difficult situations

A novel isolation protocol for auricular chondroprogenitors (CPCs) and implications in cartilage tissue engineering

Ms Zita Jessop, Mr Mohammad Javed, Dr Sian Morgan, Dr Yadan Zhang, Dr Emman Combellack, Dr Ilyas Khan, Professor Iain Whitaker
Welsh Centre for Burns and Plastic Surgery

Introduction
Manufactured allogeneic tissue-engineering based technologies have the potential to avoid donor site morbidity. In the case of cartilage, the use of non-related stem cell sources (eg: ADSCs) produces inelastic cartilage, prone to calcification. We present a novel protocol for isolation and characterization of chondroprogenitors (CPCs) and discuss findings in the context of manufacturing workflow strategies for regenerative medicine therapies.

Methods
Human auricular cartilage samples were stored at 2-8°C in sterile media (DMEM with 1% gentamycin) and processed within 6 hs using a pronase/collagenase digest. CPCs were isolated using differential fibronectin cell adhesion assays. CPCs were expanded and differentiated into chondrocytes under 2D culture (to 70-80% confluence before being detached and cryopreserved) and pellet culture conditions at 37°C 5% CO2.

Results
Our findings include the first demonstration of CPCs in the chondrium in addition to the perichondrium that had been previously described. Cell digests produced over 50% cell viability using tryptan blue staining. The iCELLigence impedance-based cell assay system allowed us to determine optimal conditions for cell growth, proliferation and adhesion in real time. Single CPCs formed colonies that contained over 64 cells each after 2 weeks. We discuss these results in the context of the manufacturing workflow for autogenous and allogeneic regenerative medicine therapies.

Conclusions
We isolated CPCs from the chondrium and demonstrated high proliferative and chondrogenic potential. Efficient isolation of CPCs from human auricular cartilage and optimisation of cell growth and differentiation is a crucial step towards clinical translation.

The classic facelift enhanced- The peeling assisted volume enhancing (PAVE) lift concept

Dr K Kaye
Ocean Clinic , Centre for Plastic, Aesthetic And Reconstructive Surgery

Introduction

Surgical rhytidectomy techniques have become an indispensable part of modern concepts of facial rejuvenation during the last 20 years. Many different techniques have been described and the tendency over the last decade shows a clear trend towards less invasive surgical techniques with natural results, where the overall goal is a rejuvenated not an overstretched face. The rejuvenation or regeneration of the skin itself is an essential part of any facial rejuvenation and significantly influences the overall result.
Very few publications exist on the safety and efficiancy of a combined, same session use of medium to deep peeling techniques and surgical rhytidectomy. This abstract highlights the possibilities, limitations and outcomes of a single-step adjuvant intraoperative use ofTCA and Phenol peeling procedures and autologous fat injection techniques during surgical rhytidectomy.

Material /Methods

The PAVE concept has been established in more than 150 patients since 2008 in our clinic and has become our standard for facial rejuvenation combining the simultaneous, single session use of TCA /Phenol Peeling techniques and volume enhancing autologous fat grafting with any classic facelift technique (MACS/OMEGA/SMAS)

Results

We are able to present aesthetic outcomes in long term results of the PAVE concept within a 5 year period and histologic studies taken from actual patients, proving that this combined technique is save, efficient and enhances the aesthetic outcome.

Conclusion

The adjuvat use of TCA/phenol peeling techniques and autologous fat transfer within our PAVE -Facelift concept is histologically proven save and enhances the outcome of any classical lift and defines a more complete rejuvenation concept.

Flexor Tendon Repairs in Children: Outcomes from a specialist tertiary centre

Dr W Sim Khor, Ms L Cooper, Ms N Burr, Mr B Sivakumar
Royal Free Hospital

Aim

To evaluate the functional outcomes of early active mobilization (EAM) after paediatric flexor tendon repair at one centre from 2006 to 2013.

Methods
All children were retrospectively reviewed. A generic rehabilitation protocol was used for the first 4 to 6 weeks: boxing glove immobilisation (<5 years); dorsal blocking splint and cage (5-10 years) with modified EAM regime or dorsal blocking splint +/- cage (10-16 years) with adult EAM regime. Outcomes were assessed using the ASSH Total Active Mobilisation (TAM) and original Strickland criteria (OSC). Rupture rates, infection, contracture and re-operation were recorded.

Results
57 children were included: 42 boys and 15 girls; 20 pre-schoolers (<5 years), 11 pre-adolescents (5-10 years) and 26 adolescents (10-16 years). Sixty-three fingers were injured, 99 tendons: 52 flexor digitorum profundus (FDP), 41 flexor digitorum superficialis (FDS) and 6 flexor pollicis longus (FPL). 44 children and 56 tendons were suitable for statistical analysis of functional outcome (after excluding incomplete therapy notes and FPL injuries). Completion of therapy resulted in better final joint recovery (OSC $p=0.000258$; TAM $p<0.000156$). Functional outcome was not affected by age, zone of injury, concominant nerve injury or number of core strands. Complications included: 1 (1.25%) rupture, 1 (1.25%) post-operative infection requiring washout and 3 (3.75%) contractures, 2 (2.5%) requiring re-operation.

Conclusion
EAM is a practical and safe way to rehabilitate children after flexor tendon repair without increasing ruptures or adhesions. Most children under five are managed effectively in a bulky bandage. Compliance with hand therapy is important for final joint recovery.

Cold intolerance following Dupuytren's contracture surgery using patient reported outcomes

Mr I King, Mr H Belcher
Queen Victoria Hospital

Introduction
Cold intolerance (CI) is an undesirable but expected consequence of traumatic hand injuries. The impact of CI on elective hand surgery has neither been quantified nor significantly investigated. Dupuytren's contracture is a common condition managed by hand surgeons throughout the world, with open and minimally-invasive techniques. Informed consent for procedures relies on an understanding of potential sequelae. We investigated the appearance and impact of CI following Dupuytren's contracture intervention.

Methods
A prospective single-centre audit of patients undergoing intervention for Dupuytren's contracture was undertaken between September 2013 and December 2014. Validated cold intolerance questionnaires (CIQ36) were distributed to patients listed for surgery preoperatively and after, at 12 months, to compare changes in presence and impact of CI.

Results
Of 120 patients identified, 38 patients completed both pre- and post-operative surveys. Interventions comprised fasciectomies (n=27), dermofasciectomies (n=7) and Xiapex (n=4). Average operative age was 64 and 14 patients reported pre-operative CI. CIQ36 scores worsened in 5 patients, remained static in 1 and improved in 8 (CI resolved in 4). 6 patients developed new CI following 5 fasciectomies and 1 Xiapex procedure. CIQ36 scores varied widely.

Conclusions
CI can arise following elective hand surgery for Dupuytren's contracture. Impact is variable but CI can resolve in some patients, indicating a dynamic underpinning process. Patient-reported outcomes of the impact of CI on quality of life have guided a change in our practice. We now routinely discuss CI in elective hand surgery pre-operative counselling.

Simplifying Facelift: contour congruent concepts

Dr Michael Klaassen
OneSixOne Gillies Ave

The literature is abundant with descriptions of various methods for rejuvenation of the face. From an extensive review starting in the 1900s and up to 2014, it is clear that many publications fail to address the 3D anatomy of the facial form. Many authors have offered their experience and approaches, anatomically, surgically and with precise technique, yet it was F V Nicolle who in 1997 wrote the most sensible words of advice for the novice considering this procedure. The evolution in facelift method has gone full circle from the European pioneeers of the 1920s fast forward to the modern European plastic surgeons of today. What is the fundamental principle that could help the young plastic surgeon, faced with his or her first facelift patient?

This paper documents the evolution of a concept from the early 1990s, influenced by the early application of lipomorphoplasty by a now retired Sydney plastic surgeon, L Ho. He realised the importance of the change-over plane bewteen the frontal and lateral facial planes, both in the ageing process and attempts to restore youthful contours. This plane separates the zone of facial expression from the zone of mastication and has been re-named the major facial pilaster. Pilaster is from the structural taxonomy and denotes a projecting column, around which spatial change occurs.

The contour congruent facelift, that has evolved in our practice is a method based on the fundamental principle of preserving and restoring the major pilaster, This will be described in anatomical and surgical

detail with clinical, radiological and computer framework facial modelling as evidence for why we are enthusiastic about this approach in the › 300 patients treated since 2004.

Transpalpebral browpexy – A Review of a Single Surgeon's Experience and Refinements of Technique

Mr C Lewis, Miss R Taghizadeh, Mr P Valand , Mr O Ahmed
Royal Victoria Infirmary

Introduction
A spectrum of surgical approaches is available for forehead rejuvenation. Transpalpebral browpexy through an upper eyelid incision provides excellent access and can be combined with an upper blepharoplasty amongst other adjunctive procedures.

Aims
To evaluate the efficacy of transpalpebral browpexy in a consecutive case series of patients undergoing this procedure by a single surgeon and highlight refinements of technique.

Materials and methods
A retrospective analysis of all patients undergoing transpalpebral browpexy +/- adjunctive procedures over a 6 year period by a single surgeon (OA) was performed.

Results
40 patients underwent transpalpebral browpexy (range 32 – 81 years). Ten (20%) patients were treated for brow ptosis and lagopthalmos secondary to facial palsy (browpexy, temporalis myoplasty, gold weight) with the remainder (80%) treated for ptotic eyebrows and glabellar rhytids. All patients were happy with their postoperative aesthetic results. One patient required re-operation for recurrent brow ptosis.

Conclusion
Transpalpebral browpexy achieves excellent results through a standard upper blepharoplasty incision, allowing treatment of those with ptotic eyebrows who need brow stabilisation or elevation, together with those requiring concomitant upper eyelid surgery.

Temporomandibular Joint Ankylosis: A Formidable Surgical Problem

Associate Professor N McLean, Mr S Chummun, Associate Professor P Anderson, Professor D David
Australian Cranio-Facial Unit

Introduction and Aims

TM Joint ankylosis is a verysevere and debillitating condition, resulting in significantproblems with mastication, appearance, airway and oral hygeine andwas originally described in antiquity. This paper reviews the management of 34 patients with a total of 52 ankylosed TM joints, treated in the Australian Cranio Facial Unit, Adelaide, allfollowing the ACFU protocol for the treatment of this condition.

Materials and Methods

Details of allthe patients with TM Joint ankylosis, including demograghics, diagnosis, treatment and outcome, were extracted from the Cranio FacialUnit's computerised data base. All followed the ACFU protocol for the treatment of this condition, which consisted of a full multi-disciplinary review, dental and oral hygeine assessment, complete radiological investigation, feeding and airway assessment and a trial of conservative treatment, prior to being considered for surgical correction.

Results

The majority of the 34 patients were female, from Asian countries, over 70% had a bony ankylosis, 25% had undergone previous surgery elsewhere and in 50% the aetiology was trauma, followed by infection, then Noma. Twenty-nine have undergone thesurgical correction of 44 joints, over half have required multiple procedures, a total of 32 Costo-chondral grafts have been used and 111 adjunctive Cranio-Maxillo-Facial operations were required.

Intensive post-operative splintage and physiotherapy has been employed and yet despite this, several still suffer from limited mouth opening.

Conclusion

TM joint ankylosis is an extremely difficult surgical problem to treat, despite radical surgery, joint reconstruction and intensive post-operative physiotherapy.

Indocyanine Green Lymphography Following Axillary Lymph Node Dissection to Prevent Seroma

Dr R Mistry, Ms N Forster, Miss M van Zanten, Ms A Jeeves, Professor S Neuhaus, Ms J Bingham, Mr Y Caplash
Royal Adelaide Hospital

Introduction & Aims
Post-operative seroma is a well known complication following regional lymph node dissection. The goal of this study is to determine the feasibility of indocyanine Green (ICG) lymphography following axillary lymph node dissection to detect any leaking lymphatic vessels for ligation, in order to prevent seroma.

Material & Methods
Prospective case series of patients undergoing elective axillary lymph node dissection. Patients underwent intradermal ICG injection and Near Infra-Red camera analysis following lymph node dissection. Lymphatic ICG leakage was analysed. Large lymphatic vessels were ligated prior to wound closure. The primary outcome of the study is to determine the feasibility of visualizing lymphatic vessels within the wound bed and ligating them at the time of surgery.

Key results
7 patients were recruited into the trial. The average number of discrete lymphatic vessels visualized in the axillary wound bed was 3. The average number of Weck ligation clips used was 4. Following ICG injection, the average time to complete lymphography and ligation was 12 minutes.

Conclusions
Intraoperative ICG lymphography following axillary lymph node dissection is a feasible method of detecting leaking lymphatic vessels. Further investigation of this technique is warranted.

The Impact of Electronic Cigarettes on the Microcirculation of the Hand

Mr M Pywell, Mr M Wordsworth, Mr R Kwasnicki, Miss P Chadha, Mr S Hettiaratchy, Mr T Halsey
Imperial College Healthcare NHS Trust

Introduction and Aims
Cigarette smoking reduces hand microcirculation and is associated with poor wound healing and worse outcomes after hand surgery. Electronic cigarettes (e-cigarettes) are increasing in popularity but there is no data available regarding their effect on hand microcirculation. Our aim was to assess the effect of e-cigarette smoking on hand microcirculation in a placebo-controlled healthy subject laboratory study.

Material and Methods
Fifteen subjects were recruited (6 smokers, 9 non-smokers). A non-invasive laser Doppler probe (O2C, Medizinteknik, Germany) was attached to the finger pulp to measure blood flow. A 5-minute smoking protocol was commenced, followed by 20 minutes of continuous monitoring, for nicotine (24mg) and placebo (0mg) e-cigarettes. Wilcoxon Signed-rank assessed change in flow for both e-cigarettes. Mann-Whitney U tests compared response in smokers to non-smokers.

Key Results with Supporting Statistical Analysis
Blood flow to the hand was significantly reduced following 24mg e-cigarette smoking (superficial 29% p=0.035, deep 15%, p=0.008). The effect was present during smoking and up to 20-minutes thereafter. The 0mg e-cigarette produced no significant reduction in blood flow. Smokers and non-smokers had comparable responses.

Conclusions
The study provides the first evidence of the reduction in blood flow to the hand caused by e-cigarette smoking. The lack of effect whilst using the placebo suggests that the nicotine content rather than the action of smoking is responsible for the vascular response. Although further work is needed to determine clinical correlation, these results suggest that hand surgery patients may benefit from avoiding nicotinic e-cigarette smoking.

The Impact of a Full Time Plastic Surgeon on a Regional Trauma Unit

Dr N Sargazi, Mr A El-Gawad, Mr B Narayan, Dr L Shanks, Mr D Bell, Mr S Nayagam, Mr K Graham
The Royal Liverpool University Hospital

Introduction and Aims
BAPRAS/BOA provide guidelines for lower limb trauma management. A mandatory step is joint input from orthopaedic and plastic surgeons, often not available in trauma units. Transfer to a specialised unit for soft tissue coverage may not be cost effective and may jeopardise timely intervention.

Aim
To review the impact of a full time plastic surgeon in a regional Trauma and Orthopaedic (T&O) unit.

Method
Patients admitted under T&O at RLBUHT requiring plastic surgery input between January 2010-December 2014 were divided into a retrospective and prospective group depending on their admission date in relation to the employment of a full time plastic surgeon. Time from referral to review and intervention by the plastic surgeon was compared in addition to hospital stay and cost.

Results
29 patients were included; 11 patients in the retrospective and 18 in the prospective group. Average time from referral to initial review by a plastic surgeon was 7 days (range 0-18 days) in the retrospective group,

compared to within 24hours in the prospective group (range 0-3 days). Only 9% of the retrospective group were seen within 24hours of referral compared to 68% of the prospective group. Average time from initial review until the first plastic surgical intervention was 10 days and 1 day in the retrospective and prospective groups respectively. Cost of inpatient stay from referral until definitive plastic surgical intervention was £12,692.11 compared to £977.07 per patient in the retrospective and prospective groups respectively.

Conclusion

The addition of a full time consultant plastic surgeon led to an 85.7% decrease in time from referral until plastic surgical advice and a 90% decrease in time until plastic surgical intervention.

An update of current and future use of nanotechnology in the management of cutaneous melanoma

Mr A Shiatis, Miss H Lloyd-Hughes, Mr A Pabari, Mr A Mosahebi, Dr A Seifalian
Royal Free Hospital

Introduction

Malignant melanoma is a common form of cancer with a high survival rate amongst those diagnosed early. Late presenters often suffer with lymphatic and vascular metastasis affecting local lymph basins and solid tumours. The management of such cases is challenging, and current chemosurgery techniques minimally affect survival. Nanotechnology, the study of materials less than 100nm in size, offers great potential in revolutionising the management of melanoma. New molecules and nanoparticles are designed world-wide in an aim to improve the diagnosis and treatment of melanoma. We present an update of all the nanomolecules that are being designed and trialled in melanoma.

Methods

We performed a literature review of nanomolecules in the management of malignant melanoma and we present our findings in 4 categories: diagnostics, drug delivery, therapeutics to include immunotherapy, photodynamic and gene therapy, as well as the novel field of theranotics. We have also identified and present all the clinical trials that are underway in this field and also present some of their findings.

Results

Current nanomolecules in use for melanoma include quantum dots, cornell dots, nanocages. These are used to improve diagnosis for advanced stage disease but also to deliver chemotherapeutic and immunotherapy agents to target cancer cells. These agents can also be delivered to enhance radiotherapy but also induce targeted phototherapy to help reduce tumour size. There are 16 clinical studies underway worldwide.

Conclusion
Advanced stage melanoma is challenging to treat with current conventional techniques. As members of the skin MDT, knowledge of the available nanomolecules and clinical trials is paramount for every plastic surgeon.

Burns infection profile of Singapore: prevalence of multi-drug resistant Acinetobactor Baumaunii and the role of blood cultures

Mr C Song, Dr J Hwee, Dr S Chong
University of Edinburgh

Introduction
With various changes implemented, such as peri-operative antibiotics for tangential excision, this retrospective study reviews the infection profile of burns patientsat the centralized national burns unit of Singapore. Worldwide, the appearance of multidrug-resistant (MDR) strains of Acinetobacter Baumanii (AB) continues to worsen patient outcomes. Thisstudy also surveys the role of blood cultures in the unit.

Method
452 burn patients admitted to the unit, between the period of 2011 to 2013, with cultures performed were included in the study. The yields of various cultures were evaluated and 2684 samples were amassed, of which 984 (36.7%) were positive. For TBSA ‹20% a yield of 1.1% for blood cultures was reported. Patient variables for predictors of MDR AB infection acquisition and bacteremia were evaluated through multivariate analyses.

Results
Pseuodomonas Aeruginosa(67patients) as the most common organism in TBSA ‹20% while MDR AB (39)was most prevelant in TBSA ↗20%.The mean time between surgery and bactermia was 10.6 days (range -18 to 68 days).2.9% and 8.8% of bactermic episodes occured within 24 and 48 hours respectively. This is a decrease from a predecessing study (45.3% for 24 hours and 60% for 48 hours). Multivariate analyss revealed length of hospital stay TBSA ↗20%as predictors of MDR AB infection.TBSA↗40%and length of stay were identified as predictors of bacteremia.

Conclusion
MDR AB infection burdens patient management especially withTBSA ↗20% and longer hospital stay. Prophylactic antibiotics may reduce peri-operative bacteremia but role in MDR infection needs to be evaluated. The role of blood cultures in TBSA ‹20% needs reconsideration.

Effect of Botulinum Toxin Type A on Fibroblast Differentiation

Professor I Suh
Kangnam Sacred Heart Hospital, Hallym University Medical Center

Introduction
Botulinum toxin type A is known to prevent fibroblast proliferation and expression of TGF-B1. During wound healing procedure, fibroblasts induce contraction after synthesizing extracellular matrix. We tried to identify effect of botulinum toxin type A on differentiation of fibroblast to myofibroblast by comparing the amount of differentiated myofibroblasts between botulinum toxin type A treated group and control group.

Material & Methods
Tissue specimens from 10 scars (five normal mature scars, five hypertrophic scars) were obtained from nine patients who visited our department for scar revision. Fibroblasts isolated from the tissue specimens were cultured until confluent and pretreated with TGF-β1 to induce differentiation before treatment with botulinum toxin type A. Expression of the myofibroblast marker α-SMA in cell cultures was evaluated by ELISA method. Fibroblast-to-myofibroblast differentiation was further evaluated by immunocytochemistry and confocal microscopy.

Results
Our results showed that α-SMA mRNA and protein levels were significantly lower in botulinum toxin type A-treated cells than in the control group (treated with TGF-β1 only) in fibroblasts derived from hypertrophic scars but not fibroblasts derived from normal scars. Immunocytochemistry results also showed that fibroblast-to myofibroblast was significantly decreased after botulinum toxin type A treatment in fibroblasts derived from hypertrophic scars.

Conclusion
Our results showing that botulinum toxin type A directly inhibits fibroblast to-myofibroblast differentiation in vitro indicate its potential for use in treating wounds expected to develop into hypertrophic scars after trauma, burn, or surgery.

Classification and Surgical Correction of Asymmetric Calves in Asians

Professor I Suh
Kangnam Sacred Heart Hospital, Hallym University Medical Center

Introduction
In Asia, one of the most important factors in being physically attractive is to have aesthetically pleasing legs, which has made calf contouring surgery an issue nowadays. When one leg is abnormally changed because of various factors (e.g., iatrogenic causes, poliomyelitis, cerebral palsy, trauma, and tumor resection), the tissue atrophies. Such asymmetric calves can be corrected by various surgical methods.

Material and Methods
Calf asymmetry is defined as a difference in the maximal circumference greater than 2.0 cm between both calves. From 2005 to 2012, the authors carried out calf contouring operations on 68 patients. For patients with mild or moderate asymmetry, selective neurectomy, with or without liposuction was performed on the hypertrophic calf according to shape and severity. For patients with severe asymmetry, selective neurectomy with liposuction was performed for the hypertrophic calf, whereas the hypotrophic calf was treated with fat injection or silicone implantation.

Results
At a minimum of 3 months' follow-up, the mild group patients had a size difference less than 0.5 cm. The moderate and severe asymmetry groups showed size differences less than 1.2 and 2.3 cm, respectively. No functional problems or major complications were shown. Minor complications included five cases of wound dehiscence, three cases of hematoma, and six cases of hypertrophic scar at the incision site.

Conclusion
Classifying patients into three groups according to the maximal circumferential difference between both legs and treating them separately using different surgical methods could significantly provide satisfying outcomes in both functional and aesthetic aspects.

Isolated limb infusion: the Leeds 10 year experience

Miss V Teoh, Mr D Wilks, Mr A Cheang, Mr R Wade, Miss C Yiannakis, Mr W Bhat, Mr H Peach
Leeds Teaching Hospital NHS Trust

Introduction
Isolated limb infusion (ILI) is a minimally invasive technique compared to conventional isolated limb perfusion (ILP).

ILI is increasingly used to treat rapidly recurrent malignant melanoma or for limb preserving palliation. We report our results of a single surgeon's experience using the ILI technique in the management of locally recurrent, surgically non-resectable melanoma.

Methods
47 ILI procedures were performed in 45 patients between 2004 and 2014 at the Leeds Regional Melanoma Unit. Patient parameters and clinical outcomes were evaluated according to the WHO criteria.

Results
The median patient age was 72.3 years (49.9-92.7). 63% were female. 32 patients had melanoma (68%), 8 had sarcoma (17%) and 3 patients had Merkel cell carcinoma (6%).

No toxicity-related amputations or compartment syndrome were noted.

The median follow up duration was 20.5 months (7-131) following treatment. The overall response rate after one or more treatments was 77%, deriving a complete response in 23% of cases involving melanoma.

Conclusion
This is the first reported UK experience of isolated limb infusion. ILI is a simple and effective means of managing rapidly progressive or unresectable melanoma of the extremities.

Breast Augmentation in the Office-based setting

Miss CJ Tollan, Mr V Sivarajan
Canniesburn Plastic Surgery Unit, Glasgow Royal Infirmary

Introduction
Procedures performed under local anaesthetic and sedation are becoming increasingly popular with a decrease in the length of recovery and risk of intra-operative complications.

The aim of this study was to illustrate the feasibility of office-based breast augmentation surgery.

Method
A retrospective review and questionnaire was performed on 77 consecutive patients undergoing breast augmentation under local anaesthetic and sedation between March 2013 and January 2015. The procedures were performed by one Consultant Plastic Surgeon.

Sedation was administered by a Consultant Anaesthetist using intravenous propofol to produce a moderate level of conscious sedation. Fentanyl analgesia was used. Local anaesthesia was administered by the surgeon.

The operative technique will be discussed. Procedures were carried out in an ambulatory clinic operating theatre environment with controlled ventilation.

Results
The average age was 33.6 years and BMI was 21.88. The mean procedure length was 53 minutes. The average implant placed was 330cc. Fifty five percent of patients had anatomical implants and 45% round. Twenty nine percent of patients had a subglandular plane, 71 % had Tebbetts Dual Plane. Three patients suffered complications, two haematomas and one infection.

Patient satisfaction was high with 84.4% rating it as 10/10. 91% ranked the procedure as 8/10 or above for being 'pleasant'. The results of multiple questions rated quality factors (the reputation of the surgeon and clinic and the quality of the implants) ahead of the lack of need for a general anaesthetic or a hospital stay.

Conclusion
Breast augmentation is feasible under local anaesthetic and sedation and should increasingly be an option for patients.

Long term outcome of proximal row carpectomy. Results after more than ten years

Dr M Van Nuffel, Professor L De Smet
University Hospitals

Introduction and aims
In wrist arthritis, removal of scaphoid, lunate and triquetrum bones or proximal row carpectomy (PRC) is a standard procedure. The main disadvantage is developing arthritis between the capitate head and the lunate fossa. This depends on the pre-existing cartilage damage and maybe on the shape of the head of the capitate head. The long term follow-up of this procedure has always been a reason for concern.

Materials and methods
All patients who underwent a PRC at our institution with a minimum follow-up of 10 years were reviewed, grip force and range of motion, quick DASH (Disability of Arm, Shoulder and Hand) and PRWE score (Patient Related Wrist Evaluation) were evaluated. Wrist radiography was performed to detect any arthritis. The oldest radiography was retrieved and the initial shape, flattening of the capitate and decrease in joint space were evaluated.

Results
Results were compared using a paired t-test with a significance set at $P<0.05$. Linear regression analysis was used to detect any correlations between the data. The mean ratio of flexion compared to controlateral was 71%, extension 76%, radial deviation 59% and ulnar deviation 76%. Mean grip force was 85% of contralateral and pinch grip 91%. The mean DASH score was 15% and the mean PRWE score was 17/100. Radiographies showed a statistical significant decrease in joint space and flattening over 10 year. There was no correlation between these findings and the functional outcome scores.

Conclusions
PRC seems a reliable solution for degenerative arthritis of the wrist and good clinical results remain consistent over a longer time. Radiological changes seem unavoidable, but in most do not correlate with functional outcome.

Baran technique to treat mucous cyst of perionychium

Dr L Van Overstraeten, Dr E Camus
Hand Foot Surgery Unit

The mucous cyst is a distal lesion of the dorsal side of finger, frequently associated with DIP arthritis. It's an arthrosynovial ganglion characterised by a fragile skin over the lesion and often by a longitudinal deformation of the nail. The surgical treatment decrease recurrence to 5%

Baran described a specific procedure for the mucous cyst of the perionychium: large elliptic excision of the perionychium and the cyst. The evolution gives a spontaneous restoration of the perionychium with the retraction of the scar.

The clinical series concerns 30 patients with mean follow up of more than 10 years.

Baran's excision of mucous cyst of peronychium is a simple technique which gives minimal disagreement and good aesthetic aspect of the finger.

Management of necrotising fasciitis within an adult burns centre - are outcomes better?

Mr J Ward, Mr J Yarrow, Ms D Nguyen
Welsh Centre for Burns and Plastic Surgery

Introduction

Prompt diagnosis, thorough surgical debridement, antibiotics, critical care and expert reconstruction are critical for necrotising fasciitis (NF) patients to achieve the optimum clinical outcomes. Like burns patients they represent a complex group requiring multiple theatre trips, meticulous wound care, soft tissue reconstruction and multidisciplinary follow-up. Since 2010, NF patients referred to our service have been managed within our adult burns centre. These patients had previously been managed by our plastic surgery on-call team. This study aimed to assess if clinical outcomes were improved for NF patients by management within a burns centre.

Methods

A retrospective case-note review was undertaken for all identifiable patients referred during 2008-14. Patient demographics, percentage TBSA tissue loss, length of stay, number of theatre trips, VAC therapy duration, time-to-healing, post-operative morbidity and discharge destination were analysed using the unpaired T-test.

Results
Thirty patients were identified: 18 patients managed within and 12 patients managed outside the burns centre. Time till admission was 6 days lower for patients managed within the burns centre (1 day vs. 7 days) and these patients demonstrated a shorter total-NHS stay (37 days vs. 47.5 days). The number of theatre trips, VAC therapy duration, time-to-healing and graft loss were equivalent. All patients survived to discharge.

Conclusion
Managing NF patients within a burns centre reduced length of total NHS stay with patients receiving specialist input more promptly. Whilst no difference in clinical outcomes was identified between groups, by managing NF patients within a burns centre we feel we were able to improve quality of care.

Evaluation and Comparison of burn mortality predication scores in an Irish population: Is the Belgian score the best?

Mr J Woods, Ms C Quinlan, Mr O Shelley
St James's Hospital

Introduction
Prediction of likely survival or lethality of Burn injury is an important aspect of initial burn assessment and stratifying patient care. Multiple scoring systems exist to perform this, including the Belgian Outcome in Burn Injury, Boston Score, Abbreviated Burn Severity Index (ABSI) and Revised Baux (rBaux) scores. Our aim was to validate and compare the utility of these scoring systems in burns in an Irish population.

Materials and Methods
All acute admissions to the national burns unit of the Republic of Ireland from 2012-2014 were included and a database including relevant admission and outcome information was collated. Predicted mortality was calculated using the Belgian, Boston, ABSI and rBaux scores and this was compared with observed mortality. Predictive accuracy was assessed using a receiver operating characteristics curve and negative predictive value was calculated.

Results
Mortality was found to be 5.32% (19/357) over the study period. A total of 84 burns (>10% total body surface area) were included in the study. The mean age was 52.07, with a mean TBSA of 24.30% (range 10-90%) and an inhalational injury rate of 47.6% (n = 40). The Belgian score had the highest overall predictive accuracy, with an area under the curve of 0.921 (Boston = 0.848, ABSI = 0.821, rBaux = 0.901). Although the ABSI had the highest negative predictive value of 100% (Belgian = 97.0%, Boston = 86.8%, rBaux = 90.6%), it had a low positive predictive value of 52.8%, significantly over-predicting the mortality rate.

Conclusions
All the scoring systems evaluated proved to be valid in an Irish population. However the most accurate, reliable and therefore useful predictor of mortality was considered to be the Belgian Outcome in Burn Injury scoring system.

Hypospadias Salvage with Single Stage Repair

Miss I Yonjan Lama, Mr K Khan, Mr S Wharton, Mr A Bracka
North Bristol Trust

Introduction and Aim
Long term complications following hypospadias surgery can be very difficult to treat and often result in lifelong morbidity for those patients affected. The purpose of this study was to evaluate the use of single-stage hypospadias salvage surgery for its effectiveness in treating these challenging patients.

Material and Methods
A retrospective analysis was undertaken of all single stage Snodgrass and Snodgraft hypospadias salvage procedures performed between June 2001 -2004. Patients were evaluated for demographics, surgical details, complications, and final functional and cosmetic outcome.

Key Results
A total of 40 patients underwent single stage Snodgrass or Snodgraft hypospadias salvage surgery under a single surgeon (AB). The mean age of patient was 9 years old (3-28 years); four were adult patients. The mean number of hypospadias operations prior to salvage was 3.5 (1-16). The majority underwent salvage with Snodgraft repair (88%, n=35), with the remaining undergoing Snodgrass repair (12%, n=5). One third of cases required re-operation post salvage surgery. At mean follow up of 5 years (2 months-12 years) we report a 94% functional success rate and 91% good cosmetic result. Two patients reported persistent functional problems (stenosis and spraying respectively), and three reported cosmetic issues (2 cases of scarring,1 coronal fistula).

Conclusion
In our experience single stage Snodgrass and Snodgraft hypospadias salvage procedures are effective treatments for selected patients in this difficult cohort of patients.

The Effect of Electrical Stimulation on Adipose Derived Stem (ADSC) Differentiation

Mr S Zack-Williams, Dr B Cousins
UCL Centre For Nanotechnology & Regenerative Medicine, Divisions of Surgery & Interventional Science, University College London

Introduction

Adipose derived stem cells (ADSCs) form colonies within adipose niche. Historically, they were exposed to glial growth factors to obtain neural phenotypes. Our aim was to determine if electrical stimulation could provide the electromechanical stimulation for neural differentiation.

Materials & Methods

ADSCs were obtained from patients undergoing routine abdominoplasty and liposuction with ethical approval from the Royal Free ethics committee. ADSCs were seeded at 75,000 cells/ml in 8 channel gold microelectrode arrays prior to low voltage electrical stimulation (1-11 mV) using Electric Cell Impedance Spectroscopy (ECIS) over 3 days at multiple frequencies. We observed the effects of electrical stimulation on cell metabolism, proliferation, and differentiation studies using immunohistochemistry of β-III tubulin to identify the neural phenotype.

Results

Electrical stimulation of ADSCs increased rates of growth, proliferation resulting in higher impedance values. After stimulation, ADSCs formed distinctive sub-populations of cells staining negative with oil red o and a changed phenotype. The cells appeared more spread with spindle fibroblastic morphology at higher cell numbers. Immunohistochemistry confirmed the change in phenotype on the gold microelectrodes with small populations of cells staining positive for β-III tubulin representing the neural phenotype.

Conclusion

We demonstrate that electrical stimulation can enhance cell growth, proliferation and differentiation of ADSCs into neural phenotypes at low voltages without exogenous growth factors. This growth factor free method represents a major step in the translation of ADSC therapies for nerve disorders.