Winter Scientific Meeting 2016- Free Paper abstracts

(abstracts are listed in alphabetical order by presenter surname

Leukocyte depletion of the donor limb using ex-vivo normothermic perfusion

Mr Kavit Amin, Mr William Critchley, Dr Alexandra Ball, Miss Triin Major, Mr John Stone, Miss Rebecca Edge, Miss Chandanpreet China, Mr Jason Wong, Dr James Fildes
Manchester

Introduction

Solid organs contain significant leukocyte reservoirs which migrate to recipient lymph nodes and prime recipient allospecific T cells, initiating a rejection response following transplantation. We aimed to profile the leukocyte content of the donor limb and to determine whether ex vivo normothermic perfusion (EVNP) can promote immune migration into the circuit and immunodeplete the donor limb prior to transplantation.

Methods

Pig forelimbs were amputated and perfused six hours via the axillary artery. Haemodiluted leukocyte-depleted blood was recirculated at normothermia and optimal physiological oxygenation. Tissue perfusion was evaluated clinically and biochemically from blood perfusate. Perfusate underwent flow cytometry (baseline, 15, 30, 60 and 240 minutes) to characterise immune populations.

Results

All limbs functioned well and tissue viability was maintained using visual criteria. Mean arterial pressures were 71.3Hg(+/-1.8) and flow rate 264.4ml/min(+/-27.1) demonstrating adequate tissue perfusion. Flow cytometry revealed increasing efflux of live immune cells into the circuit. Significant populations of monocytes (~600,000cells/ml), eosinophils (~200,000cells/ml), NK cells (~100,000cells/ml), NK T cells (‹50,000cells/ml), CD4+ T cells (‹50,000cells/ml), CD8+ T cells (~100,000cells/ml), neutrophils (‹20,000cells/ml), and B cells (‹20,000cells/ml) in the perfusate.

Conclusion

The donor limb has the capacity to elute major populations of leukocytes following revascularization. EVNP may provide a novel platform to remove donor leukocytes prior to transplantation. This may have potential impact on minimising acute rejection and preventing graft dysfunction.

Development of the first biometric and macrophage validated human adipose tissue derived breast implant surface

Dr Simon Barr, Dr Ernie Hill, Dr Ardeshir Bayat
Manchester

Introduction
In 2015 over 9,600 breast augmentations were performed in the UK. Implant procedures account for 85% of immediate breast reconstructions. Many patients experience capsular contracture, the disfiguring tightening of the capsule that encases the implant. Textured implants reduce contracture rates but don't eliminate this disastrous condition. Extracellular matrix cues foster the regeneration of specific tissue morphologies due in part to their unique micro and nano surface textures. Functionalising implant surfaces with tissue specific textures may improve in-vivo performance.

Methods
Topographical assessment of native breast tissue using laser confocal microscopy defined its inherent texture. A computer model of breast adipose texture was created.3D photolithography and reactive ion etching were optimised to replicate two novel surfaces in silicone: an exact replica of breast adipose tissue and a surface modelled upon this tissue. PCR, cytokine, immuno and SEM revealed thein-vitro reaction of human macrophages to these surfaces.

Results
Inflammatory genes ILβ1, TNFα, and IL6 were downregulated ($p<0.001$) and anti-inflammatory gene IL10 upregulated, whilst inflammatory cytokines Gro-Alpha, TNFα and IL8 were produced in lower and IL10 in higher quantities ($p<0.01$) in culture with the novel surface. Macrophages retained a spherical morphology and fibroblasts aligned to the surface geometries on the modelled surface. Both of these effects have been postulated to reduce fibrosis.

Conclusions
The first biomimetic breast tissue derived breast implant surface is presented. Results support its potential translational ability to reduce contracture and the inflammatory phase of the foreign body reaction.

Sarcomas of the chest wall and Plastic Surgeons. The Newcastle experience

Dr Christopher Bayliss, Mr Timothy Crowley, Mr Sion Barnard, Mr Richard Milner, Mr Mani Ragbir
Newcastle

Introduction
Chest wall sarcomas are rare. Resection and reconstruction pose significant challenges. We present our experience of managing these tumours as plastic surgeons working within a sarcoma MDT.

Methods
All cases of chest wall sarcoma in which a plastic surgeon took part were analysed (2003-2016). Tumours of the breast, abdomen and groin were excluded. Demographics, surgical details and outcomes were analysed.

Results
Forty-seven patients were identified. Mean age at presentation was 58.1 years (range 7-91).Thirty-three were male and 14 female. Chondrosarcoma (n=17) was the most frequently occurring tumour followed by myxofibrosarcoma (n=6), leiomyosarcoma (n=5) and unclassified sarcomas (n=5). The majority of tumours were of high (n=16) or intermediate grade (n=17) histologically. Wide local excision was carried out in all cases. Twenty-two cases required a mesh and cement reconstruction of the chest wall. Soft tissue reconstruction involved; pedicled LD flap +-skin graft (n=17), direct closure (n=13), pedicled VRAM (n=7), free ALT flap (n=6), other (n=4). Clear resection margins were achieved in 32 patients (68%). Fourteen patients underwent adjuvant radiotherapy and four adjuvant chemotherapy. Ten patients (21%) developed a local recurrence, mean duration from resection to recurrence was 26.2 months (range 3-72). Nine patients developed metastasis. Eleven patients died (23.4%); mean duration of survival was 29 months (range 3-92). Thirty-six patients remain well, mean duration of follow up 57.7 months (range 6-141).

Conclusion
Plastic surgeons have a vital role in the management of chest wall sarcomas. We present a reconstructive approach which has enabled us to achieve good oncological and functional outcomes and a low complication profile.

Guest Lecture- Current state of the art in autologous breast reconstruction

Professor Phillip Blondeel

In contrast to implants where more complications are seen as time goes by, the cosmetic result of an autologous reconstruction improves in the years following reconstruction, despite a more complex surgical intervention in the beginning. The reconstruction of a partially or totally amputated breast needs to be performed with autologous tissue if a high quality result in long term is required without the need for repeated re-interventions.

The Transverse Rectus Abdominis Myocutaneous (T.R.A.M.) flap, a combination of one or both rectus abdominis muscles and fat of the lower abdominal wall, has probably been the most popular technique for breast reconstruction in the 90's. Other donor sites as the buttock, hip, inner and outer thigh were rarely addressed because of increased surgical complexity and the inferior quality of the donor scars. Since the late 90's, the TRAM flap is now completely replaced in our center by the Deep Inferior Epigastric Artery Perforator (D.I.E.A.P.) flap, that includes the same skin and fat island as the TRAM flap but leaves the function of the underlying rectus abdominis muscle intact. Combined with the well-known advantages of autologous breast reconstruction with lower abdominal tissue, the DIEAP flap eliminates most of the disadvantages of the TRAM flap. Weakening of the abdominal wall is hardly ever

seen anymore in these patients. The Lumbar Artery Perforator Flap (LAP) and the Superior Gluteal Artery Perforator (S-GAP) flap from the buttock area have now become first choices in autologous breast reconstruction in thin patients or patients in whom the abdomen can no longer be used. The Thoracodorsal Artery Perforator (TDAP) flap and Lateral Intercostal Artery Perforator (LICAP) flap come in handy for reconstruction of the anterior axillary fold and the lateral quadrants of the breast. All perforator flaps have a number of common characteristics: donor site morbidity is limited by preserving all muscle tissue through which the vessels run, flow through the perforating vessels is increased by redirecting a part of the blood flow of the muscle into the skin and finally, the mobility of the flap, pedicled or free, has been increased by longer vascular pedicles. By limiting the damage to the muscle to an absolute minimum, post-operative pain has reduced drastically, rehabilitation has become much swifter and hospital stay decreased significantly. Additionally, any patient can be a candidate for this type of reconstruction at any given moment after breast surgery, although immediate reconstructions are preferred.

Disadvantages of perforator flaps are largely related to the learning curve. The initial dissection time takes longer leading to extended operating times in the beginning of the learning curve. The standard plastic surgery techniques of meticulous dissection, bloodless field etc. have to be applied rigorously. The advent of a full range of new perforator flaps together with the increased use of lipofilling in the field of breast reconstruction, provides us the opportunity to offer better aesthetic results and less invasive procedures.

Implant reconstruction is becoming less popular as autologous breast reconstruction with flaps and lipofilling become more standardized. There is a distinct group of patients that might benefit from implant reconstruction as young women with small breasts undergoing bilateral mastectomy, patients with limited life expectancy, high age or poor prognosis and women refusing long surgery or scars elsewhere.

Free tissue transfer for sarcoma reconstruction: a ten-year single centre experience

Miss Jacqueline Callear, Mr Benjamin Strong, Miss Alex Sutcliffe, Mr Maniram Ragbir
Newcastle

Introduction and Aims

Soft tissue sarcomas are rare tumours of mesenchymal origin which account for less than 1% of malignant neoplasms in the UK.As the primary aim of surgical intervention is clear oncological margin, tumour resection often leaves large defects, creating a reconstructive challenge. We present our experience of 85 cases of free flap reconstruction following sarcoma excision in the North of England Bone and Soft Tissue Tumour Service.

Materials and Methods

A retrospective study of free flap reconstruction in sarcoma surgery was conducted between 2005 and 2016.Eighty-one patients (49 males, 32 females, mean age 57 years), underwent sarcoma excision and

free flap reconstruction to various anatomical locations. Medical notes and our local flap database were examined for details of sarcoma type, resulting defect, choice of free flap, complications, disease-free survival and overall survival.

Results
Thirteen different free flaps were used for reconstruction. Antero-lateral thigh (n=33), latissimus dorsi (n=21), fibula osteocutaneous (n=10) and rectus abdominis muscle flaps (n=10) were the most common flap types. Nine (11%) flaps returned to theatre for exploration, with an overall flap loss rate of 3.6%. Mean disease free survival was 980 days, whilst total mean follow up length was 1123 days.

Conclusions
Our data shows that microvascular techniques can be employed in a wide variety of challenging reconstructive situations following sarcoma resection, with an acceptable complication profile and outcomes. This broadens the options for limb salvage or functional reconstruction. We discuss when free tissue transfers are appropriate and our experience of free flap choice.

Head and neck recipient veins: does it matter?

Miss Jacqueline Callear, Mr Waseem Bhat, Mr Maniram Ragbir, Mr Omar Ahmed, Mr Michael Wagels, Mr Daniel Saleh
Newcastle

Introduction and Aims
Microsurgical tissue transplantation is a very reliable method of head and neck reconstruction. Venous failure remains the most common primary reason for flap re-exploration and/or failure. We sought to determine whether failure correlates with the use of end-to-end (E-E) or end-to-side (E-S) venous anastomosis.

Material and Methods
A retrospective study of free flap reconstruction in two large tertiary centres covering head, neck, craniofacial and skull base reconstruction, between January 2007 and May 2016, was performed.

Results
Overall 379 flap procedures with full data sets were analysed. Anastomoses were E-S to internal jugular vein (IJV) in 202 cases, and 177 E-E to other veins in the head and neck. Fifty-seven flaps (15.0%), 26 IJV and 31 non-IJV, were re-explored. Eleven flaps (2.9%) failed. Anastomotic venous congestion ultimately ended in flap failure in 0.5% and 2.3% of IJV and non IJV flaps respectively. Twenty-five IJV and 10 non-IJV flaps had multiple venous anastomoses, none of which failed. 16.0% of flaps with single venous anastomosis returned to theatre compared to 5.7% of flaps with multiple venous anastomoses. The percentage of flaps returning to theatre for anastomotic venous congestion was 4.1% and 5.7% in the single venous anastomosis versus multiple venous anastomoses groups respectively.

Conclusion
The use of the IJV when required is reasonable and our data suggests there is overall less flap failure when this deep system is used. Salvage of flaps anastomosed to the IJV seems more favourable in this combined experience.

Update- Royal College of Surgeons Aesthetic Project
Mr Stephen Cannon

Following the Keogh Review into the Regulation of Cosmetic Surgery, RCS England were charged to look at a number of areas of concern which included professional standards, potential certification of Cosmetic surgeons and accurate patient information. We did this by the formation of a Cosmetic Surgery Interspeciality Committee to take this work forward. The CSIC had membership of all the concerned Speciality Associations, patient representation and involvement of the GMC and CQC. The work has progressed and information for patients is now clearly visible on the RCS website. The professional standards together with the GMC guidelines were published this year. The on-line certification system will be ready for implementation in March 2017and will include attendance at a Masterclass initially to be held at the College.

The consultant learning curve: analysis of the first 100 consecutive one stage hypospadias repairs performed by a single surgeon in a regional centre

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Wales

Introduction
Studies in hypospadias surgery often come from established centres with few papers originating from plastic surgeons in the UK, less still discuss the learning curve associated with complex surgery.

Aim
To present the first 100 cases of primary one-stage hypospadias repair by a single surgeon, comparing complication rates between two cohorts of 50 patients in order to evaluate the consultant learning curve.

Method
A retrospective notes analysis collected data on demographics, age at surgery, severity of hypospadias, technique and complications. Results were compared with published worldwide complication rates. Two cohorts, Group A (first 50 patients) and Group B (second 50 patients), were analysed to evaluate the consultant learning curve.

Results
The first hundred patients were operated on between March 2009 and Feb 2015, with increasing numbers per year till a plateau of 25 primary one stage cases per year by 2012.
The mean age of surgery was 23 months with mean length of follow up of two years. 90% had Tubularised Incised Plate, 8% Meatal Advancement Glansplasty and 2% Duplay procedures. 96% were distal repairs.

Complication rate was 11%: 5fistulas, 3 haematomas and 3 stenoses.

Comparing Groups A & B showed a marked reduction in all complications. 75% improvement in fistula and 50% improvement in haematoma and stenosis rate.

Conclusion
The complication rates are comparable with those from pooled worldwide results. Demonstrated is a clear evidence of a consultant learning curve at the beginning of practice in hypospadias surgery. Multiple small changes in surgical practice and family education can provide significant improvements

This study will provide a realistic comparator for new consultants with a hypospadias practice.

Inception of the first national cleft trainee collaborative

Miss Ambika Chadha, Cleft Trainee Collaborative
London

Introduction & Aims
The field of UK-based cleft research has increasingly been gathering momentum. Despite being the most common head and neck congenital malformation, however, sample sizes – and thus the power of ensuing studies – remain low. Encouraged by the success of other trainee collaborative networks we set up the first ever Cleft Trainee Collaborative (CTC) to co-ordinate multi-centre studies to generate high quality research that could ultimately improve patient care and outcome.

Materials & Methods
Unlike many other surgical disciplines, cleft services within the UK are centralized and the field is an inherently multidisciplinary subspecialty. Thus efforts were made to recruit trainees from a wide range of representative disciplines including surgical (21), dental (13), psychological (1) and nursing (1). Resulting numbers of recruits reflected the niche nature of cleft. After securing trainee representatives at each of the 15 cleft units nationwide, a pilot project centred on the logging of cleft phenotypic data to support a national project nested within the Cleft Collective was rolled out to test feasibility.

Conclusions
The CTC is not like other trainee collaboratives for several reasons. Firstly, it draws trainees from a much wider range of disciplines. This, in turn, may impact on the motivations of some trainees to

collect data that may not necessary interface with their parent specialty. It is a niche subspecialty and this is reflected in the numbers recruited. A CTC approach, however, is likely the best way to generate sufficient power for nationalized studies on a congenital pathology.

A protocol to deep phenotype the unilateral cleft lip deformity

Miss Ambika Chadha, Professor Jonathan Sandy, Professor David Edwards, Dr Yanzhong Wang, Professor Piet Haers
London

Introduction and Aims
No classification of cleft lip is able to discriminate the 3D morphometry of the defect sensitively enough to represent the full phenotypic spectrum. This limits baseline severity assessment, surgical outcomes analysis and advanced phenotype/genotype correlations. A more precise and comprehensive analysis of phenotype – *deep* phenotyping - of cleft lip is required. This paper describes a protocol to achieve this aim drawing from the fields of imaging science, machine learning and clinimetrics.

Material & Methods
A collaboration between the Cleft Collective, Kings College Department of Perinatal Imaging, 3dMD Imaging systems and South Thames Cleft Service generates 3D photographs of unoperated babies with unilateral cleft lip (UCL). Each of these faces in this 'experimental' cohort is compared to an 'average' UCL face generated from a 'control' cohort of UCL patients. Non-rigid transformation is applied to determine how different each experimental face is from the average through the process of image registration. A similarity coefficient is calculated to represent this difference which is then graphically distributed to identify clusters (sub-phenotypes) and isolates (extreme phenotypes), each defined by a multidimensional probability distribution. Newer UCL faces can then be fed into these distributions to see how well they fit into phenotypic groups and the groups adapted accordingly.

Conclusions
This protocol to deep phenotype UCL, developed over two years, can potentially be used to retrogradely target genetic analysis as has been successfully achieved in other conditions. It is self-refining through its machine-learning element and holds promise to address some of the current limitations of cleft research.

A new and safe approach to correct the prominent ear deformity: the distally based perichondrio-adipo-dermal flap technique with or without conchal cartilage excision

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Background
Otoplasty techniques are generally divided into two categories; cartilage-cutting and cartilage-sparing. The cartilage-cutting techniques have been criticized because of their high risk of hematoma, skin necrosis and ear deformity. As a result, suture based cartilage-sparing methods like Mustardé and Furnas have become increasingly popular. However, post-auricular suture extrusion may be seen with these techniques and recurrence rates up to 25% have been reported.

Methods
In this study, cartilage-sparing otoplasty is redefined by introduction of the distally based perichondrio-adipo-dermal (PAD) flap, elevated from the postauricular region. 113 ears (53 bilateral and 7 unilateral) in 60 patients (32 females and 28 males) were operated with defined technique by the same surgeon. After the conchal cartilage excision is done in cases where needed, the PAD flap is advanced posteriorly and sutured to the mastoid fascia to correct the deformity. The different parts of the ear deformity (upper pole, lobule etc) can be corrected with ease with different number of sutures according to the specific need. The flap acts as a strong postauricular support to prevent recurrence, also correcting both the conchoscaphal and the conchomastoid angles.

Results
There were no hematomas. After an average follow-up of 30.8 months (3-40 months), recurrence was seen in only one of the former patients who requested no further surgery. No patients developed suture extrusion, granuloma or tension pain.

Conclusion
We introduce a simple, safe and versatile otoplasty technique to correct different kinds of prominent ear deformity with benefits of a resultant natural-looking antihelical fold and less tissue trauma. The distally based perichondrio-adipo-dermal flap seems to prevent suture extrusion and may also help to reduce recurrence rates. By forming neochondrogenesis, stimulated by elevation of the perichondrium, this flap gives promise of longer durability of the newly formed antihelical fold.

Investigation of the reliability of assessment of videofluoroscopy for velopharyngeal dysfunction

Ms Catherine de Blacam, Mr David Orr

Introduction and Aims
When considering surgery for velopharyngeal dysfunction (VPD), videofluoroscopy provides an adjunct to history, examination and perceptual speech assessment. The aim was to develop a set of standardised variables for the assessment of videofluoroscopy samples and to validate these across a group of surgeons and speech therapists.

Materials and Methods
Using a structured forecasting method, multidisciplinary representatives from the cleft units in Ireland developed a list of variables for the assessment of videofluoroscopy for speech. Inter-rater correlations were used to validate the resulting assessment form both for individual speech therapists and surgeons and for combined surgeon-speech therapist teams.

Results
Fifteen variables were included in the videofluoroscopy assessment form. These included binary (yes/no) response items such as 'short palate', 'Passavant's ridge present' and 'mobile palate', as well as more detailed items 'attempted closure point = superior, at or inferior to plane of hard palate' and 'coordination = normal or impaired'. Inter-rater reliability was poor to fair (Fleiss' kappa, 0.0-0.4) for all items when individual surgeons and speech therapists used the form to assess 24 anonymised videofluoroscopy samples. Inter-rater reliability was fair to moderate (Fleiss' kappa 0.2–0.6) among surgeon-speech therapist teams when the assessment was repeated three months later.

Conclusion
There is a lack of standardisation in the assessment of videofluoroscopy for speech. This study demonstrates inconsistent reporting by surgeons and speech therapists. Formalised training in videofluoroscopy interpretation may improve reliability.

How to develop innovations within the NHS and get them to market

Dr Richard Deed

The current financial crisis in the NHS and the increasing healthcare burden due to changing demographics, mean that the NHS will require radical changes in the ways it delivers care in the future.

Some of key changes required in the delivery of future care will need to take advantage of innovative ways of working and the implementation of new treatments and technologies, many of which originate from staff within the NHS.

However, despite being renowned as an originator of ideas, the pace and scale of implementation and adoption of such ideas by the NHS has been relatively slow; the time lag between innovation conception and development to adoption is often too long.

The presentation will describe some of the key, relevant, local and national drivers for innovation. It will also explain some of the infrastructure and mechanisms to support the development and adoption of innovations from within and in partnership with the NHS.

The presentation will be evidenced with real-life examples of how some recent innovations have been developed and brought to market, benefiting the NHS directly through improvement to healthcare, but also demonstrating what it takes, to be successful and how individuals involved in their development can directly benefit

Unifying management of paediatric spitz tumours: development of management guidelines

Miss Charlotte Defty, Miss Sara Beattie, Miss Jessica Fielding, Dr Jo McPartland, Dr Arti Bakshi, Ms Sian Falder

Aims
To analyse existing published literature on Spitz naevi and variants, review a large paediatric case series and suggest management guidelines from best available evidence.

Methods
Information was collated from electronic and paper records for all children under 18 years presenting to Alder Hey Children's Hospital between January 2008 and December 2013 with histological diagnosis of Spitz naevus, DSN, PSCNOR or AST. All histopathology sections underwent expert dermatopathology review.

Results
106 children were included. Original histopathological reporting was inconsistent and variable. Expert histology confirmed eleven Atypical Spitz (10.4%), (three more than originally), nine PSCNOR and 86 Typical. Sixteen cases had pre-excision diagnosis of Spitz. 51 (48.1%) were in the head and neck, 43 (40.6%) on the limbs and 12 (11.3%) on the trunk. Follow up varied from 0 to several years. Of Atypical Spitz,nine were low risk (Spatz 0-2),two intermediate risk (3-4) and none high risk. Only one was incompletely excised and this recurred. Three others underwent wider excision.There were no reported metastases. Most published evidence on this topic is level 3 and 4 (non-analytic studies and expert opinion).

Conclusion
We propose suggested guidelines for initial biopsy, histological reporting, re-excision, MDT discussion and follow up based on information from the literature review and our findings from the case series.

Botulinum toxin A in the treatment of Raynauds phenomenon secondary to scleroderma using a safer dorsal hand approach

Dr Kiran Dhaliwal, Miss Michelle Griffin, Dr Sebastian Salinas, Dr Kevin Howell, Professor Chris Denton, Professor Peter Butler

London

Introduction

Raynaud's phenomenon (RP) is common in scleroderma and causes pain, ulceration and gangrene. Botulinum toxin A (Btx-A), injected via a digital palmar approach, has been shown to be effective for RP. However, hand weakness resulting from lumbrical malfunction is a recognised complication and can last for up to six months.

Aim

To determine the effect of Btx-A injected via a dorsal approach, on hand function and symptoms.

Methods

Twenty patients, diagnosed with RP secondary to scleroderma, were treated with ten units of Btx-A injected into the hand via a dorsal approach. Hand assessment and thermographic images were performed prior to injection and post injection, at 15 minutes and six weeks, in a temperature controlled room at 23°C. Assessment included grip strength measurements, range of movement (ROM) of each joint in the hand, Kapandji thumb opposition test and pain score. Patients reported any pain, colour change, cold intolerance and completed a Disabilities of the Arm, Shoulder and Hand (DASH) score.

Results

89% of patients reported reduced pain, improved colour change and reduced swelling. 73% had reduced frequency and severity of Raynaud's attacks. Pain scores decreased by 1.18 points on average. There was a significant increase in DASH ($P=0.001$) and Kapandji scores ($p=0.001$ in dominant hand and $p=0.029$ non dominant hand). Hand strength (pinch and power grip) increased significantly ($p<0.05$). There was a significant mean increase in temperature of all fingers ($p<0.05$) and an overall increase in the ROM in all joints, post injection. No patients reported hand weakness.

Conclusion

Btx-A injected via a dorsal approach improves symptoms and reduces the number of attacks without the hand malfunction associated with the palmar approach.

Septorhinoplasty for the East Asian nose

Professor Eunsang Dhong

Septorhinoplasty for East Asians is very challenging in terms of anatomic difference in soft tissue and cartilages. Most of deformities involving the dorsal and caudal septum require any kind of cartilaginous graft. So septoplasty with swing door concept remaining majority of quadrangular cartilage is hardly adopted in East Asians except for the rare reduction rhinoplasty. Submucous resection (SMR) is one of the routine procedures in Asian rhinoplasty.

In most cases, postero-caudal septum loses its integrity after correcting septal deviation with SMR, and also loses its tip projection. Furthermore, in patients who have weak septal cartilage or saddle deformity, key stone area need to be reinforced by spreader graft at the same time. Proper spreader graft at rhinion, caudal septal strut, or columellar strut at the posterior septal angle confirm the solid L-strut. This solid L-strut will be the nasal base for the enhanced tip projection. In the patients who have proper height of bony dorsum with hypoplastic lower 2/3 which represents so called “under projected tip”, the extension of remaining L-strut is effective. With this concept, many East Asian rhinoplasty can be performed successfully without using any alloplastic implants. And most of the secondary cases complicated from previous usage of alloplastic implants can be corrected by this method.

In this session, I want to discuss extending the L-strut for the better anterocaudal projection of nasal dorsum and tip based on my cases.

The surgical management of trigonoscaphocephaly as a result of combined metopic and sagittal synostosis

Mr Thomas Dobbs, Mr Omer Salahuddin, Mr JayaRatnam JayaMohan, Mr Peter Richards, Mr Shailendra Magdum, Mr Steven Wall, Mr David Johnson
Swansea

Introduction and Aims

The combination of sagittal and metopic synostosis is rare, resulting in a scaphocephalic shape, but with an absence of frontal bossing and therefore varying degrees of trigonocephaly and occipital prominence. Treatment is primarily surgical, with a combination of procedures to address both the scaphocephaly and trigonocephaly required involving multiple surgeries. We present our experience of treating combined trigonoscaphocephaly in a single stage procedure, proposing a management strategy based on the severity of the deformity.

Methods

The Oxford Craniofacial Unit database was searched from its inception in October 2004 to August 2013

to identify all patients with combined sagittal and metopic synostosis. Case notes were then manually searched to identify those patients who had true trigonoscaphocephaly.

Results
Of 2856 patients in our database a total of nine were identified as having had true trigonoscaphocephaly. Seven of these patients underwent a combined single stage procedure with an average Cephalic Index of 68.7% preoperatively and 80.3% postoperatively.

Conclusion
Management of trigonoscaphocephaly has been traditionally performed by multiple, staged surgical procedures. We propose that it can instead be managed in one single surgical procedure, determined by the severity of the deformity. If the deformity is mild/moderate a combined frontal-orbital advancement remodelling and subtotal calvarial remodelling can be performed, however if there is an occipital bullet we propose the combination of frontal-orbital advancement remodelling and total calvarial remodelling performed in one operation with the patient turned from prone to supine intraoperatively.

A morphable model of the human head as an outcome tool for craniosynostosis surgery

Mr Christian Duncan, Mr Hang Dai, Dr Nick Pears
Liverpool

Introduction
We present the world's first morphable model of the Caucasian head, and demonstrate proposals for its use to measure outcome following craniosynostosis surgery.

Method
The 'Headspace Project' was a public partnership data gathering exercise delivered between September 2013 and January 2014. Using specific photographic protocols and consent, images of volunteers were compiled into a database with metadata. 3D images were imported into Matlab, automatically aligned, and compiled to produce a model of head shape, comprising of a mean and modes of variation. 3D clinical images of craniosynostosis patients were compared with this model.

Results
Images (752 males, 770 females and 1 transgender) with age ranges and metadata were collected. A model was constructed from a demographically matched subset and used to demonstrate post-operative outcomes in 25 scaphocephaly patients aged over 3 years who were operated on consecutively using two protocols with recorded standard outcome measures (cephalic index, blood loss and complications). Mean of the mahalanobis distance changed from greater than ten standard deviations from normal pre-op to two standard deviations post-op in both groups.

Conclusion
We've developed a morphable model of the human head that can generate comprehensive aesthetic outcomes using 3dMD photos of scaphocephaly patients.

Transfusion trends in fronto-orbital advancement: an analysis of 700 cases in the national craniofacial service

Mr Christian Duncan, Miss Moira Stanley, Dr Ed Carver, Dr Carol Miller, Dr Russell Evans, Ms Andrea White
Liverpool

Transfusion practice is reviewed annually in the national craniofacial service following an initial 4 unit audit in 2003. Transfusion in fronto-orbital advancement was adopted as an indicator of safe practice in the national craniofacial service in 2014.

Data on donor exposures in fronto-orbital advancement from successive years between 2012 and 2016 was analysed and presented in a standardised format. Comparison was made with the same data collected in 2003 and changes in anaesthetic throughout the audit period were recorded.

Results of 710 fronto orbital advancements showed that donor exposure per patient (DE/pt) dropped from 2.35 to 1.11 between 2003 and 2016. Variances between the four units were wider at the beginning of the audit cycle (range 2-2.84) and converged (0.88-1.27 in 2016). The reducing trend flattened at the end, suggesting that further reductions with current surgical and anaesthetic practice are unlikely. Anaesthetic practice review through the cycle provided a converging consensus in favour of reduced cross matching, use of tranexamic acid, specific triggers to transfusion and use of blood products. Through continuous audit of high volume practice, the national craniofacial service has characterised and provided a strong consensus on best transfusion practice in fronto-orbital surgery.

How plastic surgery departmental income is affected by surgical notes and the variability of clinical coding

Miss Alexandra F L Edwin
Durham

NHS hospitals have used clinical coding since 1997 to monitor their activity. In 2012, Payment by Results changed how NHS hospitals were funded. OPCS codes have been used to calculate tariffs and therefore income. Could there be optimal but accurate text in clinical notes that could improve departmental income?

Departmental data was subjected to a number of queries including: Which were the top 10 earners? Which procedures earnt the most money? Whether a biopsy was an incision biopsy, punch biopsy or excision? And what would be the income differential?

S069 (Unspecified other excision of lesion of the skin) £740.97/case earnt the most income for the department, followed by S065 (excision of skin of the head and neck) £609.05/case.

The highest earners per case were W331 open biopsy of bone £14330/case, X104 amputation through metatarsal bones £12488/case and W315 vascularised pedicle autograft of bone £8858. To put this into context DIEP flaps earnt £6629 per case.

Head and neck skin excision is our highest earner. An incision biopsy of the lip could be a punch biopsy earning more than a simple biopsy by £198. Or if it is an excision biopsy, dropping the word biopsy could add to our departmental income by up to £22414/year.

In conclusion, I firmly believe none of this information should influence our clinical decision making as regards the patient but if being better informed can generate a larger income for our departments, clinical note making should change to do this.

Opening your mind to others

Professor Martin Elliott

Surgery can be very isolating, especially in these days of hyper-specialisation. Surgeons live in sheltered environments and work long hours. If you don't get out much, it is an effort to learn from others. But it can and should be done. Out there in the big bad world are people who do things in newer ways, using different technology, more sophisticated teamwork or just plane better. In this talk I will describe how we have learned from several other industries including F1, the airline industry, hotels and others. All for the benefit of the patient. I will leave you with the questions...why is it so hard to spread good practice in the NHS? And why do doctors have to re-prove everything

Free tissue transfer for burns reconstruction

Miss Rebecca Exton, Mr Mansoor Khan
Salisbury

Introduction

Free tissue transfer was first described in a burn patient in 1975, in which a free groin flap was used. With a role in function restoration providing good quality, pliable tissue cover to complex wound beds. We present our data of a single surgeon experience of free tissue transfer in the burn patient.

Methods
All burns patients who underwent free tissue transfer over a six-year period were included. Procedures were undertaken by a single surgeon. Determining patient demographics, time to flap and outcomes.

Results
Twenty-eight patients underwent 32 free tissue transfers. Mean age at the time of burn was 15 years. The average time from the burn injury to a flap procedure was 21 years, two performed within a year of the injury. ALT was most frequently performed (53%), followed by parascapular flaps (27%). With 100% flap survival.

Discussion
Free tissue transfer provides an excellent solution to complex burn scars which can be performed in a timely manner. Pre-expansion for neck contracture aids in neck contouring by using the capsule to suspend the flap. The most notable area for further study is the interface between flap and adjacent, skin which in some patients has a propensity to develop hypertrophic scars.

Feasibility of da Vinci® robotic cleft palate repair: development of a novel robotic instrument for trans-oral robotic surgery

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Toronto

Purpose
Advantages of a robotic approach to cleft palate repair includes improved visualisation and access, magnification, ergonomics, education and audience engagement. The purpose of this study is to develop a robotic approach to cleft palate repair utilising a phantom model as a test bed.

Method
A high-fidelity life-size cleft palate phantom was developed from patient imaging/3D printing and validated with a multi-centre trial with trainees and senior staff and utilized to test the feasibility of performing a robotic cleft palate repair using a da Vinci® Si with 5mm and Xi with 8mm instruments. A novel robotic wrist was then developed utilising CAD and prototyped using 3D printing.

Results
All steps of a cleft palate repair were completed with both the Si and Xi systems. Fewer instrument collisions and greater instrument excursion was demonstrated with the Xi in comparison to the Si as a result of the slimmer robotic arms and the design of the 8mm instrument wrist. Larger 8mm instruments obstruct the field of view and restrict the utilization of additional arms. A novel articulating wrist was designed to reduce instrument diameter that consists of two revolute joints and a gripper which minimizes the number of components and maintains a minimum bending radius.

Conclusions
The da Vinci® Xi demonstrated superior performance in comparison to the Si as a result of the 8 mm instruments wrist design and slimmer robotic arms. A novel robotic wrist was designed to further miniaturise the instrumentation while minimising bending radius to ensure more compact instrument articulation within the small confines of the infant oral cavity. This study confirms the feasibility of using a robotic approach to surgical repair of the cleft palate.

Does simple trapeziectomy work for base of thumb osteoarthritis?

Mr Matthew Gardiner, Dr Pragash Kamalathevan, Mrs Cushla Cooper, Professor David Beard, Professor Abhilash Jain
Oxford

Introduction
Base of thumb osteoarthritis is a common cause of pain and disability. The recent Cochrane review (Wajon 2015) recommended simple trapeziectomy but concluded, "we are uncertain if any surgery has benefits compared to no surgery, non-surgical therapies or sham surgery as no studies were found assessing these comparisons." We aimed to complete asystematic review of simple trapeziectomy for treating base of thumb OA.

Methods
Embase, MEDLINE, PubMed, Cochrane Central, ClinicalTrials.gov and the WHO International Clinical Trials Portal were searched for published and unpublished studies in any language from inception to June 2015. The primary outcome was the effect of simple trapeziectomy on pain.

Results
23 studies (783 patients)were included. There were no RCTs identified; observational studies were included in the narrative review. Fifteen recorded subjective pain scores in the post-operative period. The percentage of continuing post-operative pain ranged from 0% to 64%. Over a third of studies reported worsening functional outcome scores.

Conclusions
Simple trapeziectomy has a poor evidence base with no RCTs comparing it with conservative management. Many of the studies report continuing pain and reduced function in a large proportion of patients. We propose that further feasibility work is completed to identify current variation in surgical practice, attitudes towards placebo surgery and identify treatment populations and preferred outcome measures in advance of a clinical trial.

Hunterian Lecture

A/Professor J Greenwood

In 1869, 76 years after John Hunter's death, the first 'fresh skin' allograft was transplanted. This 'pinch grafting' with allogeneic skin was no more informed of the principles of tissue rejection than Hunter's own 'tooth and cock's comb' work a century earlier. Although advances followed (Ollier 1872, Thiersch 1886), improved tools to harvest graft, Tanner's graft meshing & expansion (1964); the graft has, relatively unchanged, been in use for around 150 years.

The downsides of the skin graft, and donor site, have been tolerated because alternatives did not exist. Attempts to replace this useful asset were not pursued since those whom the skin graft failed, such as extensive burn injuries, invariably died. Huge advances in care of the major burn-injured patient in the second half of the last century, however, meant that these patients now usually survive the initial insult, and the onus has shifted from mere survival to rapid wound closure, scar quality and functional outcome. The skin graft's limitations are now laid bare.

To produce a viable alternative to the skin graft needed a Hunterian approach - considered questions and hypothetical answers to deliver ideal properties; lateral thought prompted hybrid utilisation of modern polymer chemistry and cellular culture techniques. A staged study programme followed, enhanced by the use of appropriate in vivo study models, based on properties derived from comparative anatomy (another of Hunter's loves). A two-stage strategy has been developed, each stage conferring significant advantages to the major burn patient, together creating wound closure without recourse to skin grafting, but requiring the construction of a bioreactor environment. The journey to this solution is described and illustrated.

Three-dimensional printing supports chondrogenesis of human adipose stem cells on nanocomposite scaffolds

Miss Michelle Griffin, Mr Nick Prinsloo, Professor Alexander Seifalian , Professor Peter Butler
London

Introduction

POSS-PCU is a synthetic nanocomposite that has shown promise as a synthetic cartilage replacement, fabricated using traditional salt-leaching manufacture. In this study, we investigated the use of three-dimensional printing to improve the ability of POSS-PCU to support cartilage differentiation of human adipose stem cells (hADSCs).

Materials and Methods

POSS-PCU was fabricated using an extrusion desktop 3D-printer. The chondrogenic differentiation of hADSCs was compared on POSS-PCU built using 3D-printing, traditional salt-leaching techniques and Medpor. The expression of chondrogenic markers including collagen type II and aggrecan was

investigated using QT-PCR, immunocytochemistry and ELIZA over 21 days in-vitro. The scaffold's structure and mechanical properties were also characterized.

Results
The gene and protein expression of aggrecan and collagen type II was upregulated on 3D-printed scaffolds compared to salt-leached and Medpor scaffolds over 21 days ($p < 0.05$). POSS-PCU also showed greater chondrogenic differentiation of haDSCs than Medpor during the in vitro culture ($p < 0.05$). The 3D-printed POSS-PCU scaffolds demonstrated a uniform surface, internal structure and mechanical properties compared to salt leached and Medpor ($p < 0.05$).

Conclusions
The introduction of uniform pores increased the chondrogenic potential of POSS-PCU nanocomposite scaffolds. 3D-printing may provide cues to direct the chondrogenic differentiation of adult adipose derived stem cells.

The eyelid reconstruction after basal cell carcinoma removal

Dr Marina Gushchina
Moscow

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

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

Material and Method
Sixteen patients with BCC of the eyelid margin were treated. Complete surgical excision of tumors was performed according to the standard technique. The displaced flap of conjunctiva, the free flap of cartilage of the ear or perforated polymeric implant (PPI), displaced flaps circular muscles and displaced or free skin graft were 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 when we close formed defects. CP and PPI were made of a mixture of oligomeric compositions by the method of photopolymerization. Fixation of displaced tissues carried out by using the U-shaped sutures to provide a stable fixation on the postoperative period. Sutures and CP were removed 7-10 days after operation.

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. When using PPI for the

reconstruction of tarsus was achieved, optimal anatomical, functional and aesthetic results with tight the eyelid margin to the eyeball and the formation of an optimal contour of the eyelid margin.

Conclusion
The developed novel method of surgical rehabilitation of patients with basal cell carcinoma of the eyelid margin with using the polymer hexagonal compression plates for fixing displaced tissue provides stable anatomical and functional results. Using perforated polymeric implant for the reconstruction of tarsus allows to achieve the best aesthetic result.

Proximie: transforming through augmented reality

Ms Nadine Hachach-Haram, Mr Ash Mosahebi
London

Background
Surgery is a hugely visual science that demands a 'hands-on' approach to learning. No matter how many times one reads it in a book, it is always far more useful, interesting and engaging to be able to watch the surgery, to ask questions and to visualise anatomy and pathology in real time.

Aim
PROXIMIE is an augmented reality platform developed to allow access to experts via a cloud based system. PROXIMIE aims to revolutionise the way medical professionals provide consultation, teaching, and virtual guidance locally and globally and is the first solution to use augmented reality, integrated with a comprehensive patient record and imaging system to assist with ensuring the very best medical and surgical talent is available to provide unrivalled expertise and to encompass a multidisciplinary perspective in real time. PROXIMIE is a software that has been used successfully locally and globally and has the capacity to transform surgery

Methods
PROXIMIE was used to enable visual collaboration, video, 3D-animated surgery and detailed record systems to integrate patient medical records on one platform. Surgeons from five international sites (two NGOS and three teaching hospitals) trialled it.

Results
All institutions successfully utilised PROXIMIE and reported it being extremely useful in their endeavours of providing surgical training and support

Conclusion: This system can be used to provide teaching, consultation, and virtual guidance globally using a dedicated infrastructure for the health care provider. Such measures can strengthen the delivery of care significantly that would be invaluable to any organization and healthcare system. Senior surgeons can be virtually assisting in any operating theatre in the world at any time.

An investigation into the efficacy of a single low dose of insulin in the prevention of excessive cutaneous scarring in patients undergoing aesthetic breast surgeries

Mr M-J Hallam, Miss Alexis Thomas, Miss Elizabeth Pitt, Mr Charles Nduka
Aberdeen

Introduction
Scarring is a major clinical problem, however treatments for reducing or preventing scars are either ineffective or prone to complications. Previous pilot work has inferred a possible benefit of low dose insulin to reduce scarring. We present a RCT assessing the efficacy of insulin as a scar reducing therapy.

Methods
Ninety-one patients undergoing bilateral breast surgery were analysed in a randomised, double blind, intra-patient, placebo-controlled trial. A single low-dose insulin(0.4IU) was injected to the medial 3cm of sub-mammary incision of one breast and placebo to the other at the time of surgery. Patients were followed-up at 3, 6, and 12monthsfor scar analysis using the Manchester Scar Scale (including a VAS).

Results
As expected, the majority of patients had good quality scars, with only a slight improvement overall in the insulin-treated group($p = 0.055$). However, after separate analysis of those with suboptimal scars (45 scars with suboptimal contour and 25 with distortion) using Wilcoxon signed rank test showed strong evidence for the scar reduction at 12 months ($p=0.048$, $p=0.045$ respectively).

Conclusions
Insulin has been demonstrated to have potential as a scar reducing therapy. Unsurprisingly patients with good quality scars showed no overall response to insulin. However, a statistically significant treatment effect compared to placebo was seen in those who had a tendency towards the development of poor scars. Further work is required to delineate more precisely the patient groups who may most benefit from this treatment.

Smart polymers: a new toolbox for reconstruction?

Miss Rachael Harrison, Dr Iain Dunlop, Professor Molly Stevens, Mr Shehan Hettiaratchy
Wakefield

Introduction
Smart polymers are beginning to make an impact within tissue engineering and regenerative medicine (TERM) for the development of advanced scaffolds to guide healing and regeneration. Such polymers are extremely versatile and easily modified for diverse applications. An example of what can now be achieved with polymers is presented.

Materials and Methods
A versatile scaffold has been developed that uses a controlled radical polymerisation to produce a polymer brush surface functionalization from a micro-fibre scaffold of poly-ε-caprolactone (PCL). The scaffold topography, produced by electrospinning, has a fibre size comparable to collagen found in extracellular matrix. The fibre surfaces are functionalized with an antifouling coating based on poly(ethylene glycol), pOEGMA. This resists cell and protein binding and is designed to act as a temporary interface to protect gliding surfaces from adhesion formation following injury. Furthermore, novel monomer units are being developed for drug release and further functionalization, and in combination with an opposing cell-adhesive surface through the use of cell-adhesive peptides to produce a bilayer.

Results
A novel antifouling pOEGMA coating has been produced from electrospun PCL scaffolds with the ability for spatial control. The antifouling surface significantly outperforming controls for cell and protein binding at time 0 and following 10 weeks incubation in saline in physiological conditions suggesting it is both effective and stable over a clinically useful time frame.

Conclusions
Smart polymer systems have the potential to provide a toolbox of "off the shelf" scaffolds that in the future may augment current techniques and improve patient outcomes.

IL-33 is a novel therapeutic target in Dupuytrens disease (DD)

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Exeter

Introduction and Aims
The ideal treatment for DD would be aimed at preventing the progression of the early nodular phase to flexion contractures of the digits. Currently there is no approved therapeutic agent for early disease and, based on studies in our lab which identified TNF as a therapeutic target, a phase II clinical trial is ongoing. However, the cause of persistence of the localised inflammation remains unknown and the anti-TNF would need to be injected on multiple occasions. This study aimed to identify the drivers for chronic inflammation.

Materials and Methods
Surgically excised DD nodules were investigated using a combination of immunohistochemistry, immunofluorescence, FACS, CyTOF, RT-PCR, and Western blotting.

Key results
DD nodules comprise mainly of myofibroblasts and immune cells, including macrophages and mast cells, which are attracted by locally secreted chemokines. The nodular cells secrete cytokines,

including low levels of TNF and IL-33. Addition of IL-33 to mast cells and M(IL-4) macrophages resulted in secretion of ~50-100pg/ml TNF. TNF exposure at this concentration led to differentiation only of palmar dermal fibroblasts, but not non-palmar fibroblasts from DD patients or palmar fibroblasts from normal individuals into myofibroblasts. The myfibroblasts secreted IL-33 and addition of neutralising antibodies to IL-33 or siRNA inhibition led to down regulation of the myofibroblast phenotype, with the combination of TNF and IL-33 inhibition being the most efficacious.

Conclusion
We demonstrate that IL-33 has an important role in perpetuating localised inflammation in DD and targeted inhibition of TNF combined with IL-33 blockade offers a novel therapeutic approach.

Reducing the vermilion notch in primary unilateral cleft lip repairs: Z- plasty versus the Noordhoff triangular flap

Dr Saadia Jan, Professor Farid Khan
Lahore

Objective
To compare Z-plasty and the Noordhoff flap for reducing notching in the vermilion during primary repair.

Study design
Comparative study

Place and duration of study
Plastic Surgery Department, Mayo Hospital Lahore from March 2008 to August 2010.

Methodology
Patients presenting for primary unilateral cleft lip repair were included. The modified Millard's technique was used for lip repair. The percentage of the total vermilion thickness notched was recorded at 6 months follow up. The repair was graded as: ‹0.5mm good, ›0.5mm but ‹1mm satisfactory and ›1mm poor. Patient satisfaction was rated on a scale of 1-10, with 10 being the happiest patient.

Results
In Group 1 (Z-plasty) 25 patients, and in Group 2 (Noordhoff flap) 20 patients achieved a good result. Five patients in Group 1 and seven patients in Group 2 achieved a satisfactory result. Three patients in Group 2 had a poor result. Patient satisfaction and vermilion repair were comparable when comparison was made between the two groups (p›0.05).

Conclusion
The Noordoff flap needs more expertise and finesse. All three poor results were achieved early in the study. Z-plasty was easier to execute and gave a good result in almost all hands.

Novel biomarker in venous disease: the role of Connexin 43 to predict poor wound healing

Mr Muholan Kanapathy, Professor David Becker, Professor Toby Richards, Mr Ash Mosahebi
London

Introduction and Aim
Venous leg ulceration is a feared complication of venous insufficiency. However, it is not known if varicose veins predispose skin to poor wound healing and increase risk for venous ulceration. We present the role of gap junctional proteins, Connexins (Cx), as a marker of poor wound healing and venous ulceration.

Methods
Patients undergoing intervention for varicose veins were assessed according to CEAP classification: C0 (n=12), C2 (n=12), C4 (n=12), and C6 (n=12). Paired 4mm punch biopsies were taken from above the ankle (pathological) and above the knee (control). Tissues were stained for H&E and immunohistochemistry for Cx43, Cx30, and Cx26 and analysed using confocal microscope.

Results
H&E staining revealed increased inflammation, loss of dermal architecture and epithelial hyper-thickening in the pathological skin from C4 onwards. The overall absolute Cx expression and Cx expression per cell in the pathological skin similarly increased across the CEAP grades ($p<0.05$) from as early as C2. Cx43 expression had the highest positive correlation between the pathological and control skin ($p=0.001$).

Conclusion
Cxs were expressed increasingly with venous disease progression and the overexpression starts as early as C2, suggesting that skin is preconditioned in varicose veins for poor wound healing. Stepwise sequential increase in Cx43 from C0 to C6 which is seen before histological changes suggest that it is a sensitive biomarker for poor wound healing and venous ulceration. This is the first time that it has been shown that the presence of varicose veins is associated with poor wound healing suggesting the need to treat varicose veins early to prevent future leg ulcers.

A current reconstructive algorithm in truncal reconstruction: the expanding role of free-styled perforator flaps and supermicrosurgery

Mr Ruben Yap Kannan, Mr Mark Gorman, Mr Firas Al-Aswad
East Grinstead

Introduction
The trunk, extending from the neck to the perineum, is a massive area accounting for more than a third of the total body surface area and enclosing deep cavities such as the mediastinum and the peritoneal

cavity. The reconstructive challenges here include both the coverage of large surface defects, deep cavities and sometimes, a combination of both.

Patients and Methods
In this retrospective case review over a 36-month period, 29 patients' had a total of 30 flap reconstructions for post-oncological defects from July 2013 to June 2016. This study excluded breast reconstructions. These defects were closed with either pedicled flaps (muscle flaps (n=2), perforator flaps (n=26)) or free flaps (n=2).

Results
Overall flap survival was 100% in all groups with distal tip necrosis noted in 8% of the pedicled perforator flap subset, mainly during the early phase of the study. Subsequent technical modifications such as the 'muscle-cuff' technique and supermicrosurgery-based venous supercharging were statistically shown to significantly reduce these complications

Discussion
Flap selection followed the Bell's curve normogram with perforator flaps being the largest flap subset of choice for truncal defects (87%) as these are areas perfused by rich vascular networks with multiple perforating vessels. Pedicled muscle-only flaps were reserved for volume defects while free flaps were used for massive surface defects, greater than 600cm^2.

Perfecting aesthetic results in abdominoplasty: the champagne groove technique

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Athens, Greece

Background
The champagne groove is the deepening between the vertical abdominal muscles. In artistic works and in perfect bodies the groove is always there. Our aim is to demonstrate, a novel technique to achieve exactly that in abdominoplasties.

Technique
After defining the middle line of the abdomen, we inject Klein solution in the midline between the xyphoid and the umbilicus. We begin the abdominoplasty as normally and when the dissection reaches the level of the umbilicus we perform radiofrequency assisted liposuction. Then we remove the fat with a cannula No 3 in a distance of 3cm bilaterally of the midline. Before the closure we introduce 2-4 stitches between the liposuction area in the midline and the abdominal wall. These stitches are under tension and pulling the flap downward. The champagne groove has been already created.

Patients
From May 2010 to Nov 2015 we performed the champagne groove technique in 171 patients. Mean age of patients was 44 years old. Mean follow up was 2.5 years.

Results
In all patients the champagne groove was obvious after the operation. After five years follow up the results were stable. Patients were very satisfied with the results.

Conclusion
The champagne groove technique is an easily performed one with long lasting results. It offers the tone of perfection in abdominoplasty, evolving it to a highly defined body sculpting procedure and providing high quality aesthetic results.

Cephalic vein transposition in autologous breast reconstruction salvage: a review of outcomes and implications for patient care

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East Grinstead

Introduction and Aims
Success in microsurgical autologous breast reconstruction relies on establishing an effective circulation. Cephalic vein transposition (CVT) is a valuable option for augmentation, supercharging or replacement of venous anastomoses to salvage free flaps. Little is known about the effect of CVT use on patients. We examined our seven-year experience of CVTs with focus on lymphoedema development in the cephalic vein donor limb.

Method
A retrospective review was performed of consecutive patients undergoing autologous microsurgical breast reconstruction from 2009-2015.Patients needing CVTs were identified and notes reviewed.

Results
From 2009-2015, 1208 free tissue transfers for breast reconstruction were performed at our institution. Twelve patients required CVT for flap salvage. Eleven notes were available. Mean age at reconstruction was 51 (43-74).All were non-smokers. All had previous axillary surgery, causing post-mastectomy lymphedema in four patients. For reconstruction timing, nine were delayed, two were immediate. These were seven MS-TRAM and four DIEP flaps. Indications for CVT were venous insufficiency in all but one patient, who had scarred vessels. Five CVTs were performed during initial flap surgery; six were done within 24 hours. All anastomoses used a venous coupler; none were revised. All flaps survived. No wound or scar problems were seen. Lymphedema worsened in two ladies with pre-existing post-mastectomy lymphedema and arose de-novo in another two patients.

Conclusions
The cephalic vein is a valuable local option for free flap salvage in breast reconstruction. Lymphoedema change was seen in 1/3 of our CVT patients. We now counsel patients undergoing microsurgical breast reconstruction about potential lymphoedema following CVT.

OptiFLAPP: an undergraduate-led national survey

Dr Richard Kwasnicki, The OptiFLAPP Collaborative
London

Background
The National Mastectomy Audit and clinician surveys (Sadideen and Motakef), highlight variation in peri-operative management and outcomes for patients undergoing free flap breast reconstruction. OptiFLAPP (optimising fluid and peri-operative pathway in free-flap breast reconstruction) is an undergraduate-led national survey which aims to identify and characterise variation in clinical practice preferences.

Methods
An undergraduate working group and senior steering committee were organised through the RSTN. Regional collaborators were recruited to compose a directory of all surgeons and anaesthetists involved in free-flap breast reconstruction and conduct face-to-face surveys. A survey based on multiple peri-operative factors was developed, and Research Electronic Data Capture (REDCap) was used to collect and store data. The key outcome measure was variance practice preferences both within and between centres. The survey was launched on the 6 June 2016. (http://reconstructivesurgerytrials.net/clinical-trials/optiflapp/)

Results
Collaborators identified 134 plastic surgeons and 61 anaesthetists across the UK and Ireland. Four weeks after the launch of the survey, 114 complete or partial responses were registered (58% response rate). Data collection continues.

Conclusions
This work will provide the largest sample to date of clinician practice variation in the UK.The undergraduate, cross-disciplinary approach is another feature of this collaborative project.

Systematic pathological component scores for skin-containing vascularized composite allografts

Dr David Leonard
Glasgow

Introduction
Vascularized Composite Allograft (VCA) transplants show encouraging short to medium term results. Improved understanding of the pathogenesis of rejection is required. The 2007 Banff working classification proposed four grades of acute rejection, but did not score individual components. Our aim was to develop a pathological component scoring system for skin-containing VCAs to facilitate standardized data collection and clinical research.

Methods
The scoring system was established from experimental studies in porcine VCAs, a close analogue of human skin. Following preliminary studies of normal skin and autologous free flaps, 28 H&E-stained sections of biopsies from MHC mismatched VCAs were scored by two pathologists in blinded fashion. To evaluate prognostic value, biopsies from four VCAs accepted without clinical rejection (mean follow-up 293 days) were compared to four VCAs which rejected (mean survival 22 days).

Key Results
The scoring system assesses: perivascular cells/dermal vessel (pc), perivascular dermal infiltrate area (pa), luminal leukocytes/capillary or venule (c), epidermal infiltrate (ei), epidermal apoptosis or necrosis (e), endarteritis (v), and chronic allograft vasculopathy (cav). These features will be demonstrated. Inter-observed reproducibility was acceptable with weighted kappa scores of pc (0.673), pa (0.399), ei (0.464), e (0.663), v (0.766), and c (0.642). Parameters predictive of rejection were: pc ($p<0.02$), pa ($p<0.03$), ei ($p<0.0005$), e ($p<0.003$) and c ($p<0.005$).

Conclusions
This component scoring system complements Banff grade, is clinically applicable, reproducible, and correlates with clinical outcome. The schema is rich in data and eminently suitable for clinical research.

Replantation to Transplantation

Professor L Scott Levin

Since the introduction of the operating microscope for vascular anastomosis by Jacobson and Suarez in 1960, reconstructive microsurgery has had a profound impact on orthopaedic surgery.
Beginning with replantation and revascularization, the microsurgical reconstructive ladder has evolved from simple reattachment of amputated parts to the development of composite tissue allotransplantation, functional microneural reconstruction including functional free muscle transfer, the concept of perforator flaps, free-style flaps, pre-fabricated free flaps, and the last on the reconstructive ladder has expanded to include vascularized composite allotransplantation (VCA). Borrowing from principles and practices of solid organ transplantation, the ability to transfer vascularized allotransplants has revolutionized upper extremity surgery and represents more than promise of “reconstruction.” VCA offers “restoration” of amputated upper extremities.

Orthoplastic Extremity Reconstruction

Professor L Scott Levin

The simultaneous combined use of soft tissue techniques such as free tissue transplantation or fasciocutaneous flaps, combined with modern orthopaedic principles of fixation and limb salvage have led to the concept of orthoplastic extremity reconstruction.

The overlap of specialties of orthopaedic surgery and plastic surgery so called orthoplastic surgery follows principles and techniques of both specialties to provide optimal outcomes for patients with threatened extremities.

The main categories that these principles are employed involved trauma (acute fracture, chronic nonunions, and infected nonunions); tumor (soft tissue sarcoma patients that undergo limb salvage with free tissue transplantation for defect management; sepsis (both acute and chronic orthopaedic infections following fractures, joint replacement, and chronic wounds that require treatment by myocutaneous or free tissue transfer); hand surgery that incorporates the principles of orthopaedic and plastic surgery both in traumatic and reconstructive patients, and limb salvage in pre-amputation limbs such as in the dysvascular patient or diabetic patient that now can be salvaged with macrovascular reconstruction and microsurgical transplantation of innervated and non-innervated flaps.

Common to all these groups is the interaction of orthopaedics and plastic surgery in combined efforts for limb salvage.

Flap Viability Index: ensuring flap survival in perforator flap based breast reconstruction

Dr Derek Liang, Dr Joseph Dusseldorp, Dr David Pennington
Concord

Introduction
The absolute weight of tissue that one perforating blood vessel can reliably perfuse remains a contentious issue in reconstructive microsurgery. This is important in breast reconstruction where large flaps are often required to correct the mastectomy defect. Our algorithm, known as the Flap Viability Index (FVI), assists in decision-making regarding adequate perforator diameter and maximal flap weight. The aim of this study was to determine the clinical efficacy of the FVI its biological plausibility with ultrasongraphic testing.

Methods
We prospectively analysed 118 free DIEP flaps to determine if pre-operative measurement of perforator diameter could improve the safety of flap harvest. Colour Doppler Flow (CDF) quantification was also used inten cases to record arterial flow through the DIEP flap pedicle post-operatively and determine the correlation between perforator size and flap viability index.

Results
Seven cases of partial flap necrosis occurred, all of which occurred in flaps with FVI less than our recommended level. Routine use of the index also led to harvest of larger flaps based on smaller perforators and increased FVI measurements (28.38 vs 15.67; p=0.003). Colour doppler flow rate in DIEP flap pedicles correlated linearly with perforator diameter and the FVI (r=0.82, p=0.01).

Conclusion
This study confirms the biological plausibility of the FVI and validates its utility in improving DIEP flap safety. With experience, utilization of the FVI equation increases confidence in raisinglarger flaps based on fewer perforators. This holds the potential advantage of improving aesthetic outcomes in breast reconstruction whilst reducing donor-site morbidity, operative time and complications.

A case-controlled study of recurrent giant cell tumour cases

Mr Liam Linney, Miss Jurga Pikturnaite, Mr Fawaz Al-Hassani, Dr Charlotte Jennings, Dr Bipin Mathew, Mr Alastair Platt, Mr Daniel Thornton, Mr Richard Pinder
Hull

Introduction
Giant cell tumours (GCTs) are the second commonest tumours found in the hand. Recurrence rates are said to be as high as 40%. We conducted a review of all cases of recurrence of GCTs treated at two plastic surgery units over a 20-year period to identify histological factors which may predict the likelihood of recurrence.

Methods
All cases of GCTs in hands between 1996 and 2015 were reviewed retrospectively and a case-control matching (for sex and age) histological analysis of these was performed of recurrences.

Results
287 tumours occurred in 275 patients (2/3 in females, mean 48 years of age). All cases were treated with surgical excision. There was a 10% (29 patients) recurrence rate in our series. The histological characteristics of the recurrent tumours were compared with sex and age matched control cases and the results are discussed.

Conclusions
Our study represents one of the largest database of giant cell tumours to date and describes the typical characteristics of the condition. To our knowledge case-controlled histological analysis of GCT recurrences has not yet been reported and may help guide the clinician when counseling patients with GCTs.

Oligometastatic disease in AJCC stage IV melanoma: incidence and outcomes of primary surgical resection

Miss Michelle C I Lo, Miss Jane Maraka, Miss Samantha White, Miss Laura Wingfield, Miss Kelly Almand-Chinn, Mr Marc Moncrieff
Norwich

Introduction and Aims
AJCC stage IV melanoma patients were traditionally considered to have a poor prognosis. With advent of new, targeted therapy, it is commonplace to offer these rather than surgical intervention. The aim of this study is to identify patients who could derive long-term survival benefit from primary surgical intervention.

Materials and Methods
All patients presenting with AJCC stage IV melanoma treated at a tertiary melanoma referral centre between 2004 and 2013 were identified. Patient demographics, tumour and metastases characteristics, treatment modalities and outcomes were analyzed.

Key Results and Statistical Analysis
A total of 198 stage IV melanoma patients (125 males, age 22-94 years, median 67 years) were identified. 54 patients had extracranial stage IV disease. Median follow-up was 7 months (0-110 months). The three most frequent sites for distant metastasis were lung (53%), liver (28%) and brain (27%). In 24 patients (16.7%), 33 lesions were resected with curative intent. Melanoma-specific survival in the oligometastatic surgical cohort was 31% versus 5.3% in the non-surgical group ($P<0.0001$). Patients with ≤ 2 sites treated with surgery had a significantly improved melanoma-specific survival compared to those who were medically managed (18 versus 8 months, $p=0.0021$). The addition of regional lymphadenectomy to the surgery has no bearing on patient outcome.

Conclusion
Our study would suggest that 1 in 6 patients with extra-cranial stage IV disease, limited to two distant sites, could benefit from primary surgical intervention, with potential long-term survival benefit of 30%. The use of newer agents in the neoadjuvant setting to increase the number of resectable stage IV patients is an exciting possibility.

An outcome study comparing "Te" technique to stacks procedure in correcting extensor lag of vascularized toe PIP joint transfers

Mr Charles Yuen Yung Loh, Professor Yu-Te Lin
Taiwan

Introduction
The use of vascularized second toe proximal interphalangeal joint (PIPJ) for vascularized joint

transfers (VJT) allows for restoration of powerful pinch/grasp and range of movement (ROM) of a PIPJ in the hand. However, the lack of central slip formation in the majority of toes results in finger PIPJ extension lag. Extension lag associated with poor central slip formation in the lesser toes can be corrected using central slip reconstruction methods such as the Stack's method but are more cumbersome, involving extensive dissection and soft tissue manipulation. Te's technique is a novel and simple procedure that can achieve similar or better outcomes.

Materials and Methods

We compare outcomes of both techniques in recreating the insertion point of the extensor tendon in the VJT and measure the reconstructed PIPJ outcomes in five fingers each.

Results

The use of this novel technique has seen equivalent results of reconstructed PIPJ ROM (70°) across a spectrum of injury modalities. We used this technique on five finger PIPJ reconstructions in four patients followed up for an average of 12.9 months. The median extension lag was 10 degrees. We obtained a 93.8% finger PIPJ ROM compared to the pre-transferred ROM of the lesser toe PIPJ. There was a 50% reduction in time taken during joint inset compared to Stack's method. Grip, key, tip and tripod pinch strength was equivalent to Stack's method at three-month follow-up.

Conclusion

The novel Te's technique allows one to easily correct for inherent extensor lag of toes in VTJs. This will nullify 'toe PIPJ angles' as a preselection criteria in determining patients suitable for VJT, thus enabling more patients to benefit from vascularized joint transfers associated with improved outcomes and minimal extensor lag.

Update- Breast Implant Registry

Ms Fiona MacNeill

The Breast and Cosmetic Implant Registry (BCIR) went live on October 10th 2016. The registry was set up in response to recommendation 21 in the Keogh 2013 Review of the Regulation of Cosmetic Interventions and was developed in partnership with NHS Digital, Department of Health, Medicines and Healthcare Products Regulatory Agency (MHRA), patient representatives, ABS, BAPRAS, BAAPS and other agencies. A Breast Implant Steering Group provided clinical and advised on content, governance and outputs.

The BCIR is expected to capture the details of all breast implant procedures completed in England by both the NHS and private providers and is designed to collect demographic details, data on implant used and surgery techniques, for any person who has breast implant surgery for any reason, so they can be traced in the event of a product recall or other safety concern relating to a specific type of implant or technique. The registry will also allow the identification of possible trends and complications relating to specific implants. Explicit patient consent will be required to add their details to the registry in addition to the usual consent for the surgical procedure. Patient information leaflet and consent forms are available on http://digital.nhs.uk/bcir.

ABS and BAPRAS and BAAPS encourage all of our members to participate.

Single surgeon, 15 years outcomes to complete bilateral cleft lip and palate treated by asynchronous lip and hard palate repair

Miss Federica Maggiulli, Mr Nigel Mercer
Bristol

Introduction and Aims

A retrospective longitudinal study to evaluate the effect of the three stage approach to correct bilateral cleft lip and palate malformation.

The aim was to investigate growth, speech and other outcomes at 15 years of complete BCLP (CBCLP) treated by a single surgeon.

Material and Methods

Forty-seven(32 Male and 15 Female) CBLP cases treated from January 1993 to December 2009 were identified via retrospective notes review. Diagnosis was confirmed from written records, clinical photographs, and/or pre-operative study models. The inclusion criteria included all complete clefts who were able to comply with audit record taking.

Patients with Simonart's band (<3mm) were included only if no hard tissue union was present. Strapping was used but no appliance-based pre-surgical othopaedics or NAM were used for any patients. All were treated by the same surgeon (NM) in three main stages: Unilateral lip and hard palate closure with a vomer flap between three and four months in two stages; Soft palate closure, performed with intravelar veloplasty (IVVP) between six and nine months.

Key Results

Speech outcomes and type of articulation errors;
Dental and facial growth outcomes;
Audiology results;
Fistula rate.

Conclusion

There are various techniques to correct BCLP and longitudinal data on treatment outcomes are scarce. The three-stage approach has been found to have a low rate of complications in terms of speech and fistula formation. Growth results remain problematic but no premaxilla has been lost. Audiological and psychological data will be presented.

The 'cord and tape' tendon model for tendon repair - an innovative, versatile and inexpensive simulation model

Mr Sanjib Majumder, Mr Sean Duffy
Wakefield

We describe a new synthetic model for flexor tendon repair training, the 'Cord and Tape' tendon simulator, which is easy to make from inexpensive and readily available material and has very realistic handling properties. We also present the results for an evaluation of the simulation model as a training tool.

Results

Fifteen plastic surgery registrars (ST3 - ST6) completed the simulation session, 14 (93.3%) responded with completed written feedback.

Two (14.3%) found the 'Cord and Tape' model very realistic, nine (64.2%) realistic, two (14.3 %) unrealistic with one (7.1%) very unrealistic.

Compared to porcine tendons, one (7.1%) attendee found the model very realistic, nine (64.2%) realistic, three (21.4%) unrealistic and one (7.1%) very unrealistic.

Impact on practice

The majority (64.2%) of the attending plastic surgeons found the 'Cord and Tape' tendon model a realistic and an equal number found the model realistic when compared to porcine tendon.
Not unexpectedly, the vast majority would prefer porcine tendon for training purposes. However, considering the aforementioned issues associated with easily accessing and using cadaveric or porcine tendon for simulation training, the 'Cord and Tape' model offers a synthetic, inexpensive, easy to make from inexpensive easily available material model with realistic handling properties.
We propose the 'Cord and Tape' model as a useful tendon substitute for trainee surgeons of all grades.

Current techniques of nasal dorsal augmentation and short nose correction in Korea

Dr Suh Man Koon

The Asian nose is characterized by its flat nasal dorsum and low, short tip. Thus, one of the most frequently performed rhinoplasties in Asian countries is the nasal dorsal augmentation.

This presentation will be a brief introduction about the dorsal augmentation technique and short nose correction in Korea.

Dorsal augmentation

Materials for dorsal augmentation are categorized into two types: one is autogenous tissue, the other is implant. There is no doubt that autogenous tissue is superior to the implant in the aspect of safety. So, most western doctors prefer to use autogenous tissue for the dorsal augmentation. Asian rhinoplasty surgeons have dilemma on performing dorsal augmentation: is the autogenous tissue always the best material? Shouldn't we use the implants because of the side effects? It may be partially true on the view point of western doctors.

However, autogenous tissue also have lots of downsides, such as resorption, lack of defined shape, donor site morbidity, and Asian nose has very low nasal dorsum, which cannot attain enough height with the autogenous tissue and their dorsal skin is quite thick, which is tolerated quite well from the implant. Thus, implants are still the most preferred material in Asian countries.
Dorsal augmentation with implant consists of the following procedures:
(1)Design and implant carving
(2)Inframarginal incision
(3)Supraperichondrial, subperosteal dissection(pocket formation)
(4)Implant insertion

Short nose correction

The logic of short nose correction is repositioning of alar cartilage to the caudal direction.

Detailed procedures of the alar cartilage release and fixation of lengthened alar cartilage will be presented in this lecture.

Also, the presentation will review the strong supporting graft technique and indicate the techniques for the soft tip by using flexible graft.

Influence of an octenidine-based wound gel on postoperative wound healing and scarring after abdominoplasty

Dr Johannes Matiasek
Vienna, Austria

Introduction and Aims

Octenidine is a common antiseptic agent in the area of surgical interventions because of its antimicrobial efficacy and outstanding biocompatibility index. We investigate the direct post-operative application of octenilin® on typical procedures in the field of plastic surgery in a prospective, randomised controlled intervention study. The aim of this study is to determine the influence of a direct post-operative application of an octenidine-containing wound gel on wound healing and scarring after abdominoplasty.

Material and Methods

In this study we enrolled 33 patients who underwent abdominoplasty because of medical indications (eg. Cutis laxa abdominis). To ensure an intraindividual comparison, each patient received both

dressings (study-group: octenilin® wound gel; control-group: Omnistrip® dry plaster) immediately after surgery. We evaluated wound-healing tendency, pain during dressing changes and scar formation after two weeks, three, six and twelve months. Regarding scar-evaluation, skin-elasticity, sebum on the skin, transepidermal waterloss, skin hydration, melanin content and erythema level were determined with special probes. Furthermore the Vancouver Scar Scale (VSS) and pain level during dressing change are determined.

Results
At the time of surgery the mean patient age was 44.1 years. On average 5.6 dressing changes were necessary. Wound healing disorders occurred more often in the control-group. In the control-group (dry plaster Omnistrip®) patients reported significant more pain and superficial skin injuries during dressing changes occurred. Objective scar-evaluation after 3, 6 and 12 months resulted in a significant higher skin-elasticity and significant lower transepidermal water loss in the octenilin® group which is confirmed in the VSS.

Conclusion
The immediate post-operative application of the octenidine-containing hydrogel octenilin® after abdominoplasty results in favoured scar formation compared to our actual standard therapy. Less hypertrophic scar formation was observed in the study-group.

The 2015 NICE melanoma guidelines and the sentinel node paradox: evidence-based or arbitrary?

Mr David Morgan Jones, Mr Martin Heaton, Mr Marc Moncrieff
Norwich

Introduction and Aims
The 2015 NICE melanoma guidelines state '1.5.1 Do not offer imaging or sentinel lymph node biopsy (SLNB) for stage 1A or 1B melanoma with a Breslow thickness of less than 1 mm.' This is at odds with current international guidelines and denies SLNB for a subset of patients in the same AJCC class (IB). We aimed to see if denying pT1b melanoma patients SLNB in our service could be justified.

Methods
We identified AJCC IB melanoma patients who underwent staging with SLNB from our prospective database.

Results
In total, 502 patients were identified with pTIb (Breslow 0.8mm - 0.99mm) and pT2a melanomas (115 and 387 patients respectively). The cumulative rates of positive SLNB for pTIb & pT2a patients was 7.0% (8/115) and 12.7% (49/387) respectively (p=0.1; NS). The overall survival comparison between the two groups was significant (p=0.04). The thinner pT2a cohort (Breslow 1mm-1.49mm) had identical cumulative SLN positivity rates (7.0% v 9.6%; NS) and identical overall survival curves for 'all SLN', 'SLN negative' and 'SLN positive' groups when compared to the pT1b group.

Conclusions
Our data confirmed that the incidence of SLN positivity for pT1b melanomas is greater than 5% and the prognostic information afforded to the patient and clinician alike is identical to that for thinner pT2a melanomas. Accordingly, we believe that withholding SLNB from pT1b patients is not justified in our service. An urgent review of the 2015 NICE guidance on this point is required.

Oxford Plastics smartphone app: an innovative approach to junior doctor induction

Ms Rossel Morhij, Mr Alex Ramsden
Oxford

Introduction
An effective, high quality and enjoyable induction programme is a key for a smooth running of a department and untroubled handover of responsibilities and patient care. Unfortunately, induction programmes can sometimes be formulaic and uninspiring. Many junior doctors, particularly those cross-covering or working out of hours, find it hard to revisit the information given at induction. The aim of this study is to improve the induction process.

Methods
A mobile smartphone application, Oxford Plastics, has been developed by the author. The app contains guidance on plastics emergencies, common injuries, referral pathways and practical skills. It also contains information about the department, hospital services and guidelines.

Results
A questionnaire has been completed junior doctors prior and post induction of the app. Results of the questionnaire and demo of the app will be presented.

Conclusion
The findings of this small survey suggest that current induction programs for junior doctors could benefit hugely from the introduction of this smartphone application. The app provides portable access to an at-a-glance guide for new junior doctors starting in our plastic surgery department, increasing confidence and providing a more enjoyable placement and safer and more efficient service for patients.

Facial reanimation in complex cases: the power of microsurgery

Mr Stephen E Morley
Glasgow

Introduction and Aims
Reanimation surgery in irreversible facial paralysis is the gold standard of treatment. Complex cases mean those with previous extensive surgery or radiotherapy. Reanimation surgery is challenging in this group. Sometimes microsurgical techniques like nerve grafting and free muscle transfer are

overlooked in favour of local muscle transfers. This study analyses the utility of microsurgical techniques in such cases.

Materials and Methods
Complex cases were defined where there had been extensive surgery or radiotherapy in the site creating an adverse surgical field. Consecutive cases from a single surgeon's practice were identified. Assessments included photography and video images and Nottingham Scores.

Key Results with Supporting Statistics
Fourteen cases were identified with seven having previous extensive attempts at reanimation; five having extensive surgery for head and neck cancer, of whom three had radiotherapy, and two having extensive surgery for other reasons. Average age was 44, range 17 to 70. Male to female ratio was 5 to 9. All patients received free muscle transfer with either a gracillis or latissimus dorsi flap with 13 one stage and 2 two stage. Flap success was 100% with no serious complications and all patients showed increased smile measured at themodiolus ($p<5$).

Conclusions
Patients with facial paralysis may have received complex surgery relating to the cause of their paralysis or may have had extensive previous surgeries to try and correct asymmetry. This group of complex facial paralysis patients pose challenges to the facial re-animation surgeon. Microsurgical techniques should be considered in these cases as even in an adverse surgical field excellent results with minimal morbidity can be achieved.

A comparison of the healthcare costs and quality of life of limb salvage versus amputation in open tibial fractures: a systematic review and meta-analysis

Mr Benjamin Moxley-Wyles, Miss Natasha Wielogorska, Miss Lorraine Harry
Brighton

Introduction and Aims
Open tibial fractures are common traumatic injuries, requiring multidisciplinary decision-making. Treatment goals aim for functionality, however in severely injured cases limb salvage may result in poorer outcomes than primary amputation. Due to variability in assessed outcome measures, the evidence comparing limb reconstruction with amputation is inconclusive. In the current financial landscape, patient outcome and cost are fundamental considerations.

Methods
Medline, Embase, and Cochrane Library databases were searched for observational studies reporting on adults with Gustilo IIIB/C open tibial fractures, comparing limb salvage versus primary amputation using quality of life (QOL) and healthcare costs. Risk of bias was assessed for eligible studies, and data was pooled where possible.

Results
Five studies were eligible, contributing data for 176 individuals. Studies reporting cost showed salvage was significantly cheaper than amputation ($p<0.01$, $p<0.006$). Two studies reported QOL using Short Form 36. There was no significant mean difference between salvage and amputation for physical and psychological components of QOL; 5.44 (95% CI: -6.23, 17.10) and -2.94 (95% CI: -9.83, 3.96), respectively. Amputation was associated with significantly fewer Quality Adjusted Life-Years when compared to salvage ($p=0.02$).

Conclusions
QOL outcomes are comparable with limb salvage and primary amputation. Salvage is cheaper if prosthetic costs are excluded, however omission of full cost data demonstrates poor engagement with economic outcomes, leading to ambiguity. Further research comparing QOL and treatment economics could contribute to limb salvage verses amputation management decisions.

Three thousand non-surgical sclerotherapy treatments of vascular anomalies with intralesional Bleomycin injection

Mr Tobian Muir, Mr Ahmed Al-Mousawi, Mr Devratt Katechia, Dr Gareth Kessell, Dr Rajamanickam Jayaraj, Dr Sheamus Fitzgerald
Middlesbrough

Introduction and Aims
Surgical treatment of venous and lymphatic malformations is often disappointing and prone to recur after resection. We present our long term outcomes with specific emphasis on complex, tongue and lymphatic malformations. 3000 treatments have been performed in our unit in the last 13 years. We present our experience in 573 patients with vascular anomalies

Material and Methods
Patient demographics, clinical response, treatment and complications details were prospectively recorded. Treatment was administered by ultrasound guided percutaneous IBI. Serial standardised photographs allowed assessment of lesional response. Pulmonary surveillance was performed on all patients.

Key Results with Supporting Statistical Analysis
292 venous malformations, 116 haemangiomas, 107 lymphatic malformations, 18 capillary-venous malformations, 16 capillary malformations and 11 arteriovenous malformations underwent IBI. Complete resolution occurred in 59.3%, significant improvement in 28.3%, and modest improvement in 9%, with a 96.6% overall response rate. Minor complications occurred as follows: swelling (n=6), transient skin hyperpigmentation (n=6), nausea and vomiting (n=3), rash (n=5), pain (n=2), skin ulceration (n=1). No patients developed pulmonary symptoms or complications. Five malformations recurred.

Conclusions
Our multi-disciplinary team has successfully treated complex and recurrent vascular anomalies with low recurrence rates. Ultrasound guided non-surgical bleomycin sclerotherapy provides excellent success and low recurrence rates without the morbidity and limitations of surgery.

Sphincter manometry: a novel method of assessing velopharyngeal (VP) function.

Mr Ralph Murphy, Mr Gerard Laitun, Miss Laura Howell
Preston

Introduction
As well as perceptual speech evaluation, clinical assessment of VP function is usually by a combination of visualising the VP port and measuring oral/nasal air flow.

The VP sphincter is, however, a dynamic muscle unit whose contractile function determines not only air/fluid continence but also the tonality of speech.

A method of measuring the strength of VP valve closure may help in characterising further the multifaceted nature of VP incompetence (VPI).

Aim
To measure VP sphincter pressure in the assessment of VP function in patients presenting with VPI.
To explore the relationship between pressure measurements during phonation and other relevant indices.

Method
A mechanical pressure sensing bulb was used to measure VP sphincter pressure (cm H_2O) at the time of videofluoroscopic assessment of the velopharynx.

Results
28 patients.Males=Females.Age (years): 5 - 36 (mean 10; SD 5.9).
Cleft/Non-cleft: 16/12 (5 syndromic)
Pressures (cm H_2O): 5 - 30 (mean 14.2; SD 6.7)
Patients with mild VPI, small endoscopic gap and complete VP closure tended to achieve higher sphincter pressures.
Pressures were lower in syndromic patients (mean 8.6 ; SD 4.2) than in nonsyndromic cleft patients (mean 13.2; SD 4.5) and non-cleft patients (mean 19.7 ; SD 7.9)

Conclusion
Sphincter manometry is well tolerated in patients undergoing assessment of VPI. Early results show potential discriminatory and predictive value in the management of this condition.

40 Years of Plastic Surgery Education: What have I learned?

Dr Foad Nahai

Although I have not been in practice for forty years, I have been a student and teacher of surgery and in particular plastic surgery dating, back to my days as a trainee. I have witnessed many disruptive changes in surgical education yet at the same time I believe a key component of the training has remained constant with little change.

As I see it there are three aspects to surgical education, the cognitive, the surgical skills and what I like to refer to as the intangibles. The cognitive simply reflects teaching and retention of anatomy, physiology, pathology and wound healing as it relates to our specialty. Surgical skills and learning techniques are acquired whilst the intangibles refer to a host of attributes including judgement, experience and professionalism. We have witnessed significant changes in how we teach the basic sciences. Surgical skills can be acquired in the microsurgical lab, the cadaver lab, and the simulation lab. The teaching of the intangibles remains the same, changing little if any. It is the time tested traditional apprenticeship it has been for nearly a century.

Cognitive knowledge, the learning and retention of facts, is no longer the domain of classroom lectures or dissections in the anatomy lab. Almost all we need to know is readily and instantly available on our hand held devices.

The introduction of microsurgery into our specialty in the 1970s marked the beginning of the acquisition of surgical skills not only in the operating room but in the animal lab. Simultaneously anatomical dissections and operative simulations in the cadaver contributed further to the teaching of surgical skills. Today the virtual surgical suite where procedures are taught through simulation are becoming an essential part of the teaching of surgical skills.

I believe the intangible attributes, the most important component of surgical education, cannot be acquired on line, through books or even in the classroom. This is where the time tested apprenticeship is essential and has changed very little over the years.

The management of fibro-adipose vascular anomalies at a tertiary referral centre: the Great Ormond Street Experience

Mr Dariush Nikkhah, Miss Rosalind Ashton, Mr George Murphy, Miss Caroline Mahon, Mrs Alex Barnacle, Mr Jamil Moledina, Miss Maria Miranda, Miss Gill Smith , Mr Branavan Sivakumar
London

Introduction

Fibro-adipose vascular anomaly (FAVA) was first described in the literature as a discrete subcategory of vascular anomalies in 2014. FAVA has been confused with venous or lymphatic malformations, but

certain pathognomonic features help to identify these lesions. We describe our experience managing FAVA and offer a treatment algorithm.

Methods
A retrospective review of patients treated for FAVA was performed. Twenty-three cases were identified. Patient demographics, location, symptomatology, and initial provider were documented. Imaging modalities, treatments, and their complications were noted.

Results
The mean age of our patients wa snine years (9 months- 17 years). The majority first presented to the dermatology team before being referred to interventional radiology or plastic surgery. The lower limb was more than twice as likely to be affected as the upper limb (16/23 and 7/23, respectively), and the gastrocnemius muscle was most commonly implicated. Aching, neurogenic-type pain was a common complaint (16/23). MRI was the most common imaging modality that helped distinguish FAVA from other malformations. Combinations of sclerotherapy, cryotherapy, or surgical excision were performed. Fractional tendon lengthening for joint contracture and nerve decompression were common adjunctive procedures.

Conclusions
FAVA has a different presentation in comparison to other vascular malformations including intractable pain and joint contractures. If sclerotherapy is unsuccessful or if the lesion has a strong fibrofatty component, this lesion should be considered. Surgical excision may be performed in conjunction with additional procedures. We strongly support a multidisciplinary team when managing these rare lesions.

Vascularised Lymph Node Transfer in DIEP patients and effects on reducing lymphoedema. VLNT DIEP - A Multicentre, National Randomized Controlled Trial.

Mrs Lopa Patel, Ms Ruth Waters
Stoke-on-Trent

Introduction
Almost 50% of mastectomy patients suffer from lymphedema post-reconstruction. Studies demonstrate lower quality of life and current mainstay treatment (compression, massage, physiotherapy and surgery) are unsuccessful. Recurrent infections add to further health care costs. Vascularised lymph node transfer (VLNT) surgery has shown promise. Lymphangiogensis is thought to drive two theories explaining the mechanism of action of VLNT; nodes shunting to the venous system or reconnecting disrupted lymphatics in the area. We propose a multicentre national RCT evaluating the benefits of VLNT in reducing upper extremity lymphedema in patients undergoing DIEP surgery.

Methods
Method of clinical application is highlighted by a study demonstrating successful harvesting of superficial inguinal lymph nodes as a single unit with vessels from the superficial circumflex pedicle and transfer to the axilla during DIEP reconstruction with lymphatic vascular anastomosis to retrograde thoracodorsal vessels. Inclusion criteria wasany adult female post mastectomy awaiting delayed microvascular breast reconstructive surgery with symptomatic upper extremity lymphoedema to be randomised to VLNT versus nil intervention.

Key results
Primary outcomes wereobjective reduction in arm size, lymphoscintography and PROMs measured at 3, 6, 9 and 12 months. Secondary outcomes included cost benefit analysis of procedure versus chronic rehabilitation costs.

Conclusion
Anecdotal and small-scale studies demonstrate this technique significantly reduces lymphoedema at 12 months post-operatively and eliminates the need for compression bandages. This randomised controlled trial has the potential to add level 1 evidence to literature.

The perforator DCIA flap for breast reconstruction

Mr Nakul Patel, Dr Thomas Hayakawa, Dr Edward Buchel
Leicester

Introduction and Aims
The deep circumflex iliac artery (DCIA) flap was first described in 1979. In 2007, Morris described the anatomic basis of the DCIA perforator flap. We describe the DCIA perforator flap for autologous breast reconstruction including harvest technique, ICG perfusion results, indications, and outcomes.

Material and Methods
The study is a retrospective review of our first 40 consecutive perforator DCIA flaps in breast reconstruction used in 22 patients. The flap was used either as the sole method of reconstruction, or in combination with a DIEP flap as part of a two flap to one breast method of reconstruction. Indications were either absence of DIEP perforators, or insufficient tissue requiring the recruitment of the adjacent DCIA perforasome.

Key Results
Forty consecutive DCIA flaps were reviewed, of which 90% percentage were bilateral reconstructions. Four patients had prior harvest of the abdominal tissue, while 18 did not have enough anterior abdominal tissue for the required reconstruction. Average pedicle length measured 6cm with 1.5 and 2.0mm artery and vein diameters, respectively.

All flaps survived. Reconstructed breast volumes were subjectively equivalent or greater than the original breast volumes. Donor site complications occurred in 3 of 22 patients. One emergent return to the theatre occurred for a twisted pedicle.

Conclusion

The perforator DCIA flap is an excellent option for secondary autologous breast reconstruction when anterior abdominal tissue is unavailable or as a DIEP-DCIA combination flap for increased volume. Knowledge of the perforator anatomy limits donor morbidity, expedites harvest, allowing for rapid reliable flap transfers.

Total functional abdominal wall reconstruction with innervated chimeric rectus femoris and anterolateral thigh free flap

Mr Nakul Patel, Dr Thomas Hayakawa, Dr Edward Buchel
Leicester

Introduction and Aims

Restoration of the functional abdominal wall remains one of the greatest clinical challenges facing the reconstructive surgeon. We describe our case series of innervated chimeric rectus femoris-ALT free flap reconstructions for this complex reconstructive conundrum.

Materials and Methods

A retrospective review of case notes was performed to ascertain patient characteristics, operative steps and outcomes over the five-year study period from 2000 to 2015. All cases utilised acellular dermal matrix as an underlay, followed by chimeric rectus femoris-ALT flaps to restore the normal anatomy of fascia-muscle fascia of the functional abdominal wall.

Results

Twelve cases of total abdominal wall reconstruction with innervated chimeric rectus femoris and ALT free flaps were performed for loss of bilateral rectus abdominis muscles. All flaps were anastomosed to the intra-abdominalgastroepiploic vessels and secured between the xiphisternum and pubic symphysis to recreate a neo-rectus abdominis muscle. There were no flap losses. There was one return to theatre for heamatoma evacuation, in which the patient made a satisfactory recovery. Functional outcomes included the ability to carry out a sit-up, of which all but one patient was able to perform.

Conclusions

The chimeric rectus femoris-ALT flaps are an excellent option for total functional abdominal wall reconstruction. Understanding the technique of flap harvest, inset and recipient vessels choice provides a functionally near-normal abdominal wall with primary healing in this complex patient population.

The lumbar artery perforator flap conundrum: managing a short pedicle

Mr Nakul Patel, Miss Barbara Craggs, Mr Rishi Sharma, Professor Moustapha Hamdi, Mr Venkat Ramakrishnan
Leicester

Introduction and Aims
The lumbar artery perforator (LAP) flap for breast reconstruction is useful to consider in those patients in who abdominal based flaps are not an option. The flap offers reliable and good calibre perforator with significant flap volume. The main shortcoming of the flap is its short pedicle length and small calibre vessels. We discuss the various surgical options to alleviate this issue.

Material and Methods
The average pedicle length is short and attempts at gaining more pedicle length are fraught with complications. We present the six main options to combat this:
a) Internal mammary vessels directly
b) Internal mammary vessels with a vein graft
c) Thoracodorsal vessels with a vein graft
d) Serratus anterior vessels directly
e) Deep inferior epigastric (DIE) vessels as a pedicle (composite vein and artery graft)

Results
All the above options have been utilised and are feasible. Facilitating anastomosis directly onto the internal mammary vessels is achieved by partial or complete costal cartilage removal at a lower interspace (3rd or 4th). Sites for vein grafts include the long and short saphenous veins in the lower limb. The DIE vessels can be harvested through a small phannenstiel incision. We present the clinical results from two centres (St Andrews, UK, and UZ Brussels, Belgium).

Conclusion
The free LAP flap provides ample tissue for breast reconstruction with a good calibre perforator. We present all the potential ways to overcome its short pedicle and advocate the use of the DIE vessels as an interpositional graft (Van Landuyt).

McIndoe's Guinea Pig Club: the prototype patient support group

Mr Theodore Pezas
London

Background
Pioneering plastic surgeon Archibald McIndoe received training in general surgery at the prestigious Mayo Clinic in the USA. Upon moving to London in 1930, he was persuaded by his cousin Gillies to work alongside him as a plastic surgeon at St Bartholomew's Hospital. Following the outbreak of WWII,

McIndoe moved to East Grinstead in Sussex where he was commissioned by the RAF to establish one of the main centres for plastic and jaw surgery during and after the war in what is now Queen Victoria Hospital. Always prioritising the interests of his patients above all else including standard protocol earned him the trust of his patients which nicknamed him “The Boss”.

Methods
An interview with current secretary of the Guinea Pig Club Mr Bob Marchant conducted in 2010 sheds light on the formation of the Guinea Pig Club, a group of badly burnt RAF pilots treated for their injuries by McIndoe during the Second World War and arguably the first support group for patient's with disfiguring burn injuries.

Results
There were a number of unorthodox approaches used by McIndoe to develop rapport with his patients and also enable them to rejoin society which Mr Marchant discusses in the above interview.

Conclusion
The Guinea Pig Club is a prime example of where the idea of the patient support group originated. McIndoe's influence as a surgeon-social worker provides insight into how plastic surgery has continued to place emphasis on multidisciplinary team efforts when attempting to rehabilitate patients with disfiguring injuries.

Reconstructing complex lateral temporal bone defects: the Birmingham approach

Mr Jonathan C E Pollock, Dr Abi Opeodu, Mr Richard Irving, Mr Peter Monksfield, Mr Demitrious Evriviades, Mr James Baden
Birmingham

Introduction
Complex defects around the temporal bone require a multidisciplinary approach, with the need to reconstruct 3-dimensional defects of bone, skin and subcutaneous tissue, along with management of potential defects in the facial nerve, pinna and dura. We present our experience at a tertiary referral centre, and the approach we adopt to tackle each component of the reconstructive challenge.

Methods
We carried out a retrospective review of all temporal bone defects requiring reconstruction over a seven-year period.

Results
Forty patients were treated over the study period (14 female:26 male) with an mean age of 66 years (range: 24 years – 82 years).Thirty-seven cases were for malignancy (15 SCC, 10 parotid malignancies, 4 BCC, 8 other malignancy) with two cases performed for osteoradionecrosis, and one for recurrent cholesteatoma. Twenty-five free flaps, 11 regional flaps, and 15 static facial slings were used, with one

partial flap failure. Adjunctive procedures to the facial nerve included nerve grafting in six cases, and nerve transfers in three cases.

Conclusions
The QE hospital in Birmingham is a tertiary referral centre for lateral skull base surgery, and thus provides a frequent supply of complex reconstructive challenges for the plastic surgery department. We present our approach to management of each component of these defects, which should be tackled in a bespoke and multi-disciplinary manner.

Osseointegrated implants for auricular reconstruction: is simultaneous tumour resection and implant placement reliable?

Mr Jonathan C E Pollock, Dr Nakita Knapp, Dr Jasvir Chaggar, Mr Nick White, Mr Sat Parma, Mr James Baden, Mr Demetrius Evriviades
Birmingham

Introduction
Reconstruction of the ear following partial or total pinnectomy for malignancy can be complex, and frequently autologous reconstruction is not a suitable option in this patient cohort. Osseointegrated implants provide a reliable and aesthetically pleasing reconstruction, but are not widely placed in the primary setting due to concerns over implant reliability, especially with the potential for future radiotherapy. We present our series of osseointegrated implants used following tumour resection to establish the impact of timing of implant placement on implant survival.

Method
We conducted a retrospective review of all implants placed for prosthetic rehabilitation of auricular defects following tumour resection in our unit between 2005 and 2015.

Results
One hundred and sixty-four implants were placed in 72 patients with the commonest indication for pinnectomy being cutaneous SCC (45.8%). Overall implant survival rate was 91.5% (150 out of 164 implants) with a mean time to failure of 10.2 months. One hundred and fifty implants (91.4%) were placed primarily following tumour resection. Implant survival was comparable to the delayed implant placement group (8.6% Vs 7.6%). Radiotherapy was given to 23.6% of patients and failure was notably higher when implants were placed in previously irradiated bone (70.6%).

Conclusions
We present the largest series of osseointegrated implants for auricular reconstruction following malignancy in the world literature. Our series demonstrates that implant placement at the time of resection is highly reliable and had clear advantages for both the patient and cost effectiveness. We would advocate the use of primarily placed implants to reconstruct pinnectomy defects in all patients following tumour resection.

Prognostic Significance of Microsatellites and Sentinel Node Status for Melanoma Patients

Dr Sami Ramadan, Dr Mark Mikhail, Mr Milap Rughani, Mr Oliver Cassell, Mr Marc Moncrieff
Norwich

Background
The latest version of the AJCC classification for melanoma identified for the first time microsatellites as a clinically significant biomarker. There remains limited published data on microsatellites, particularly the prognostic association with sentinel lymph node (SLN) status.

Methods
A retrospective analysis of all patient with confirmed microsatellitosis in two UK centres (Norwich and Oxford) between 2001 and 2015 was carried out (n=68). SLN status was determined and correlated to the likelihood of recurrence and disease prognosis.

Results
Sixty-eight patients were identified and 24 (35.3%) had a positive SLN biopsy. Post-operative follow-up time ranged from 0-112 months (median 29 months). Overall five-year survival was 64.0% for SLN negative and 46.0% for SLN positive patients (p=0.03). Microsatellitosis and a positive SLN biopsy was also associated with significantly worse progression-free (p=0.007) and disease-specific (p=0.04) survival. Locoregional (LR) recurrences predominated as first progression: LR=18 v. distant=6.

Conclusions
Our results indicate that microsatellitosis in combination with a positive SLN biopsy represents a high risk of early relapse for melanoma patients. We would advise staging patients with microsatellites using SLN biopsy and molecular markers. Adjuvant therapy is likely to be indicated for these patients in the near future.

Formation of an in-vitro skin equivalent using porcine keratinocytes and fibroblasts applied to DermACELL decellularised dermis

Mr Saikat Ray, Dr Alison Lansley, Professor Anthony Metcalfe, Mr Baljit Dheansa
East Grinstead

Introduction and Aims
Massive burns cause extensive skin loss which can be difficult to regenerate. There are a number of dermal regeneration templates in clinical use which provide a dermal base to apply a split skin graft onto in order to promote wound healing. However, the possibility of resurfacing larger areas using a small skin biopsy to culture cells in conjunction with a human decellularised dermis has not been evaluated. DermACELL®(DC) is decellularised cadaveric human dermis processed by LifeNet Health™,

US. The aim of this study was to investigate whether skin could be regenerated using fibroblasts and keratinocytes in conjunction with DermACELL® *in vitro.*

Materials and Methods
Circular pieces of DC were placed in the correct orientation over membranes of cell culture inserts in a 12 well plate. Porcine keratinocytes and fibroblasts were seeded and grown onto DC. At day 12, the construct was lifted to the air-liquid interface (ALI). After culturing at the ALI for 22 days, the DC was prepared for histological and immunohistochemical analyses to establish the presence of cytokeratin 14 as well as laminin.

Results
Groups treated with DC and fibroblasts initially for eight days, followed by keratinocytes had the potential to form a skin equivalent *in vitro* (after 34 days in culture). A stratifying, organised multi-layer (3-5 layers) epidermis was seen continuously along the whole section of the construct. Proliferating basal keratinocytes and a new basement membrane were also observed.

Discussion
This study has demonstrated the potential to form a skin equivalent using skin keratinocytes, fibroblasts and DC. These results suggest that it may be possible to resurface large wounds with DC and a small donor site to harvest skin cells for culture.

A training pathway for humanitarian medicine

Professor Anthony Redmond

This presentation will outline the development of a national UK Emergency Medical Team for response to disasters overseas and potentially for national disasters. In particular it will describe the work of UK-Med in developing training programmes for those who wish to respond to sudden onset disasters overseas and how this fits into and supports the work of the WHO Emergency Medical Teams secretariat in Geneva. There is now a global registry for emergency medical teams and agreed core standards. These will be explained and the crucial input into training and deployment of the specialty of plastic and reconstructive surgery

Patients with a failed sentinel node biopsy- what next?

Miss Clare Rivers, Mr Srinivasan Iyer
Preston

At Royal Preston Hospital, patients with a malignant melanoma of Breslow thickness 1-4mm are offered sentinel node biopsy (SNB) at the time of wider excision and counselled accordingly.
From January 2009 to February 2016, 593 patients were listed for SNB. Twenty-five patients failed to undergo successful SNB despite radio-isotope injection, resulting in a 4.22% overall failure rate.

Reasons for failure were no nodes identified (n=14) which constitutes a complete technical failure; nodes in more than two anatomical sites (n=3); inability to identify nodes intra-operatively (n=4); inability to access nodes due to anatomical position (n=2) and patient comorbidity (n=3). Despite lymphoscintogram highlighting difficulties in identifying the sentinel node, four patients underwent exploratory surgery (16%) with the addition of blue dye which were unsuccessful in identifying or accessing a sentinel node.

The average Breslow thickness of the original melanoma was 2.29mm. The most common site of original lesion was the trunk (53.8%) with the most common reasons for failure being technical failure (n=6) and multiple nodes in multiple sites (n=3) in these patients.

Following SNB failure, 14 patients were discussed in the ss MDT with 11 specifically discussed due to the failed procedure. Holistic needs were addressed in follow up with four patients. There was lack of consistency in discussing the failure during consent, staging strategy and addressing the patient anxiety after failure.

Patients decide to undergo SNB following careful consideration and failure can cause distress. We recommend counselling of the risk of failure during consent, a holistic needs assessment afterwards and clear staging guidelines for patients who fail to undergo successful SNB.

Does breast size predict back pain?

Mr Andrew James Bowey, Mr Paul Sanderson, Miss Deborah Lees, Dr Ignacio Serrano-Pedraza
Newcastle upon Tyne

Introduction and Aims

Back pain is commonly assumed to be related to large breast size. A common indication for breast reduction surgery is back pain. Most studies suggest a relationship between breast size and back pain. Few if any studies look at females without back pain. We aimed to assess the prevalence of thoracic and low back pain and its association with breast size.

Materials and Methods

1650 questionnaires were sent out to women, 1145 were analysed. Pain diagrams, VAS scale and analgesic requirements in the previous three months for back pain were completed. Bra size was self-reported. Breast volume was calculated from cup size. 73% had undergone professional breast measurement. Age, height, weight and type of job were also recorded.

Results

58.7% reported back pain during this period. There was no relationship between back pain and age, BMI or height. There was a strong association between breast volume and thoracic back pain, but no relationship between low back pain and breast volume. Using logistic regression the goodness of fit for thoracic back pain was G2= 6.54. The goodness of fit p-value was p=0.477. There is thus a very good estimation of the percentage of thoracic pain as a function of breast volume.

Conclusion
There is a clear association between breast size and thoracic back pain, but not low back pain. Moreover in thoracic pain there is a clear relationship between the volume of the breast and the amount of pain. Females with breast size larger than 1327mls have an increased risk of developing back pain, this equates to a bra sizes of 34L/36H/38G/40F/42E. This is the first study to have shown that thoracic back pain is related to breast size but not to low back pain.

Application of a 2-Layer VAC assisted wound closure following inguinal lymph node dissection.

Miss Esther Gathura, Miss Riti Sharma, Mr Martin Heaton, Mr Marc Moncrieff
Norwich

Inguinal lymphadenectomy is associated with a high rate of post-operative wound healing complications. We have evaluated our outcomes following application of a novel 2-layer VAC (TLV) system used to simultaneously drain the cavity and externally compress the wound in place of conventional closed suction drainage and dressings.

Method
We retrospectively analysed a total of 133 patients who underwent either inguinal or ilioinguinal lymph node dissection between January 2011 and November 2015.
We collected data on length stay in hospital, seroma formation rates, volume of fluid drained and other complications.

Results
Mean length of hospital admission was 9.2 days, ranging fromone to 65 days.Elevent patients (8%) returned to theatre due to wound complications. Mean rates of seroma formation were analysed in 82 patients and the overall incidence was 56%.
TLV was used in 30 patients. The TLV system was associated with a significantly reduced rate of lymphocele formation ($p<0.002$) and had a significantly shorter period with the drain in situ ($p<0.003$). There was also a tendency to fewer complications with the VAC assisted closure group.

Conclusion
We found that TLV assisted wound closure significantly reduced the rates of seroma formation and led to fewer complications after inguinal lymphadenectomy in our series. We suggest that a formal comparative trial is merited.

OPBOOK: connecting trainees and consultants to improve aesthetic training

Mr Andreas Shiatis, Miss Hawys LLoyd-Hughes, Mr Allan Ponniah, Mr Ash Mosahebi
London

Recent reports from the Cosmetic Surgery Interspecialty Committee as well as Sir Bruce Keogh urge for greater control of aesthetic practitioners in addition to credentialing of cosmetic surgery.

Unfortunately, for current trainees aesthetic training is currently sparse in many deaneries around the UK; the often hectic private sector schedule and increased NHS responsibilities of juniors make it particularly difficult for trainee and consultant timetables to match each other.

To overcome this obstacle, a group of trainees and consultants has designed a new smartphone application which aims to match consultant and registrar availability. Opbook, provides a platform where consultants can make trainees aware of private operating lists and SpRs can offer their services if they are free from clinical commitments.

Features available for consultants include the ability to directly invite "favourite" trainees to an operating list in addition to browsing through volunteer trainees' profiles prior to choosing the most suitable assistant. Trainees can also set up a list of favourite consultants and they will be notified once a favourite makes a list available to trainees.

The application will be released in London in September as a pilot but we plan to expand to a national scale prior to the end of the year. It will be available for free on both iPhone and Android devices. We hope to introduce this useful tool to everyone in the next innovation meeting at BAPRAS so that more plastic surgeons can utilise it in an attempt to enhance aesthetic training for current trainees.

Outcomes of the Enhanced Recovery after Surgery (ERAS) pathway in microsurgical breast reconstruction

Miss Katia A M Sindali, Miss Victoria Harries, Miss Ana Borges, Mr Martin Jones
East Grinstead

Introduction

The ERAS pathway is a tool aimed at optimising patient care by reducing the physiological alterations caused by a surgical procedure, thus reducing recovery time, surgical morbidities and hospital length of stay. This study analyses the impact ERAS pathway on patients undergoing microsurgical breast surgery at a tertiary plastic surgery centre.

Methods

All patients undergoing microvascular breast surgery over an eight-month period were retrospectively included in this study. Hospital length of stay, complication rates and peri-operative optimisation were

analysed. Outcomes of surgery were compared between patients admitted on the traditional recovery after surgery (TRAS) pathway to those admitted on the ERAS pathway.

Results
One hundred and thirty-eight patients were included in the study. Seventy-two patients were admitted on the TRAS pathway and 66 patients on the ERAS pathway. There was no significant difference in length of stay in the two groups (ERAS 4.7±1.2 days, TRAS 5.0±1.8 days p=0.25). There was a non-significant reduction in return to theatre and readmission rate in the ERAS group (11% vs 21% p=0.1 and 6% vs 11% p=0.29 respectively). We noted a significant reduction in the total number of complications (TRAS 61% ERAS 29% p=0.02), as well as a difference in time to catheter removal, time to independent mobilisation, time to laxative prescription and time to removal of the PCA, all in favour of the ERAS group.

Conclusion
The ERAS pathway is likely to play an important role in the future of breast microsurgical reconstruction. We encourage all plastic surgery centres to adopt the use of the ERAS pathway to reduce surgical morbidities and improve patient care.

Can DIEP breast reconstruction be safely offered to obese patients? A single-surgeon series

Miss Rieka Taghizadeh, Dr Andrew Wong, Mr Simon Bennet, Mr Kenneth Graham
Liverpool

Introduction
With the high incidence of breast cancer and rising trend in worldwide obesity, there is also an increase in the number of obese patients seeking autologous breast reconstruction. Studies have demonstrated significantly higher complications rates with obesity and free abdominal flap breast reconstruction. This has been a long-standing area of interest for the author. The paper outlines the steps and algorithm involved in minimising complications.

Materials and Methods
Upon commencing her post, the author removed the BMI restriction for autologous breast reconstruction. Following detailed pre-operative assessment and anaesthetic review, patients were offered delayed and immediate breast reconstruction. Careful anaesthetic and technical measures as well as standardised post-operative steps were undertaken in order to minimise flap related and general complications in obese patients. All outcomes were closely monitored and recorded.

Results
100 consecutive DIEP flap reconstructions were performed with the average BMI of 30. There was no flap losses, and higher BMI was not associated with a statistically significant increase in patient, flap or donor site related complication. The author has established a successful routine in offering autologous breast reconstruction to obese patients, leading to an increase in referral pattern for this cohort.

Conclusion

Autologous breast reconstruction can be safely offered to obese patients if careful pre-operative assessment and optimisation, as well as technical and anaesthetic considerations are undertaken. This should be followed by postoperative management steps to minimise complications.

Trauma Lessons Learned- Military theatre to civilian battle-ground

Mr Nigel Tai

Advances in trauma care are always catalysed by conflict – a fact recognised by Hippocrates who wrote that "He who desires to practice surgery should go to war". The origins of modern plastic surgery are rooted in the necessity to find innovative ways of managing war-wounded from the First and Second World Wars. The most recent conflicts have also yielded multiple advances in trauma care, but this dialogue is not one-sided. Civilian Trauma Systems have also been responsible for the propagation of multiple advances in trauma care from which military casualties have benefitted. Acknowledging this two-way traffic and securing continuous collaboration between civilian and military researchers will secure optimal patient care in both health systems.

Cleft care in a developing country

Mr Kim K Tan

This lecture will cover factors affecting provision of cleft care in Malaysia, highlighting the lack of manpower, the problems of patient access, and their effect on uptake of treatment.
Training in Plastic Surgery in Malaysia will be discussed.

The outcomes and opportunities of cleft missions to Borneo over a 12-year period will be described. Additionally, a patient sponsorship scheme within Peninsular Malaysia, supported by a multinational CSR programme, will be outlined

The cleft surgical journey- a personal approach

Mr Kim K Tan

This lecture will cover a personal approach to the comprehensive treatment of cleft patients in a developing country. The problems of achievability of the traditional multi-disciplinary approach within the private sector will be discussed. Coordination of the treatment plan between the different team members, according to a standard protocol, is orchestrated by the surgeon. The protocol in place will be presented as a journey from birth to the completion of treatment in early adulthood.

Regulation of vitamin D bioavailability in human skin by fibroblasts and keratinocytes during wound healing

Mr Jing Qin Tay, Dr Ola Kamala, Dr AM Graham, Dr MJ Thornton, Mr AL Mahajan

Bradford

Epidermal keratinocytes (EK) metabolise cholecalciferol to 25(OH)D3 via 25-hydroxylase (CYP2R1) and then to active vitamin D3, (1,25(OH)2D3) via 1α-hydroxylase (CYP27B1). Local levels are regulated by 24-hydroxylase (CYP24A1) which inactivates 1,25(OH)2D3. Both 1,25(OH)2D3 and the vitamin D receptor (VDR) are required for normal granulation tissue formation in murine wounds. However, the role of vitamin D3 in human dermis during wound healing is less clear.

Primary cultures of dermal fibroblasts (DF) and EKs were established from female facial skin. Immunocytochemistry and qRT-PCR were used to determine expression of VDR and metabolising enzymes in cultured cells. DF migration in response to vitamin D analogues was assessed in a scratch-wound assay and differentiation by expression of α-SMA. The effect of vitamin D analogues on wound closure was investigated using an ex vivo human wound healing model.

Expression of VDR was higher in DFs than EKs (n=6 donors), while expression of CYP enzymes required for metabolism of vitamin D3 was higher in EKs. 1,25(OH)2D3 inhibited DF migration while cholecalciferol and 25(OH)D3 had no effect. Scratching of DF monolayers up-regulated α-SMA, while incubation with 1,25(OH)2D3 or 25(OH)D3 reduced expression, but cholecalciferol had no effect. 1,25(OH)2D3 accelerated the wound closure ex vivo after 3 days in culture, while cholecalciferol and 25(OH)D3 had no effect.

This study demonstrates vitamin D metabolism during wound healing is regulated by EKs and DFs Different responses by EKs and DFs suggest important autocrine and paracrine signalling mechanisms between these cell types are required during the wound healing response. Loss of this signalling may contribute to impaired wound healing.

Comparing plastic surgery national litigation causes, rates and costs with other allied surgical specialties

Mr Alexander Trevatt, Mr David Thomson, Mr Mark Soldin

Introduction and Aims

Litigation costs represent a significant financial burden in Plastic Surgery. This study aimed to identify key causes and trends in litigation claims in Plastic Surgery, and compare these with allied surgical specialties.

Material and Methods

A Freedom of Information request was made to the NHS Litigation Authority for all claims data related

to Plastic, Orthopaedic, Oral & Maxillofacial (OMF) and Ear, Nose & Throat (ENT) surgery over the last ten years. Linear regression analyses were used to identify and compare trends in rates and average cost per claim. The most common causes of claims and their average costs were compared.

Key Results

Orthopaedic and OMF surgery showed significant (p=<0.01) upward trends in litigation rates, whereas rates were stable for ENT and Plastic Surgery. Average cost per claim was £24,424.90 in Plastic Surgery, compared to £75,841.98, £72,506.61 and £22,932.14 in orthopaedic, ENT and OMF surgery respectively. Unnecessary operations were the most common reason for claiming in Plastic (133 claims; total: £3,248,511.87), Orthopaedic (1400 claims; total £73,713,816.13) and OMF surgery (55 claims; total £802,685.18). They were the 2nd most common cause in ENT (100 claims; total £2,549,620.75).

Conclusions

A better understanding of the causes of litigation claims and how they vary amongst specialties will help us to develop strategies to reduce our litigation burden. Plastic surgery is similar to OMF and compares favourably to orthopaedic and ENT surgery with regards to average cost per claim. In all specialties, a key way of improving litigation burden will be to reduce the number of unnecessary operations performed.

Multifaceted supersized free flaps in reconstruction of the skull base

Prof Dr Peter Vogt, Professor Christine Radtke, Dr Felix Paprottka, Dr Ramin Ipaktchi
Hannover

Introduction

Large skull base defects mainly caused by multimodal therapy and radical tumour resection require reconstruction by free flaps for aesthetic, functional and skull base reconstruction. We present our experience with multifacetted megaflaps.

Methods

Nine patients with extensive skull base defects (including three hemifaciectomies/craniectomies) treated interdisciplinarily with ENT and neurosurgery received reconstruction by latissimus dorsi (LD) (n=4), LD-scapula flaps (n=2), vertical rectus abdominis flaps (n=2) and greater omentum flap (n=1). Mean follow-up period was 2.3 years +/- 2.2 years (0.5 – 4.5 years).Flap coverage addressed the reconstruction of multiple epithelial linings by designing cutaneous paddles to external skin, buccal side, throat, nasal side wall and base).

Results

In all patients closure of the huge and complex defects was achieved. Mean operating time was 5:53 hours (4:45 – 7:52 hours). One patient required an arterio-venous loop of the brachiocephalic vein to construct sufficient recipient vessels due to an avascular neck. All dura defects sealed by soft tissue after patching them with facia lata healed without infection. Flap-survival rate was 100% and none of

the patients deceased during the follow-up period. Surgical key points are proper flap choice depending on the defect complexity and dimensions.

Conclusion

Microsurgical flap coverage of large skull base defects by well-perfused tissue provides an efficient and safe treatment option. Complex loss of external skin, soft tissue, mucosa of oral and nasal cavity as well as dura defects require specially designed free flaps. The choice of each flap has to be defined on the basis of the individual case and the local requirements.

Placebo controls in surgery

Dr Karolina Wartolowska

Surgical randomised controlled trials (RCTs) incorporating a placebo arm are uncommon. In 2012, we systematically reviewed the literature to identify all placebo-controlled surgical RCTs. Our primary aim was to analyse the benefits and risks associated with such trials. Despite imposing few search restrictions, we identified less than a hundred trials. This raised the question "why are there so few placebo-controlled RCTs of invasive procedures?" To answer this question, we asked surgeons about their attitudes towards sham procedures. We also reanalysed the identified trials to appraise the feasibility of incorporating sham procedures. Finally, we drew up guidelines on when such trials are acceptable from an ethical point of view.

Immediate hand transplantation following elective upper limb amputation: outcome at 3 years

Mr Daniel Wilks, Mrs Sarah Taplin, Dr Maggie Bellew, Professor Simon Kay
Leeds

The Leeds Hand Transplantation programme performed the first UK hand transplant in 2012. The outcomes are reported at three years when rehabilitation and recovery are stabilised.

Immediate unilateral upper limb transplantation was performed at the distal forearm following elective amputation of the dominant, functionless right hand. The contralateral hand and wrist were also functionally compromised.

Functional composite outcomes (disabilities of the arm, shoulder and hand, and the hand transplant severity score) improved markedly following surgery. Measures of psychological wellbeing (general health questionnaire, SF36, depression and body image indices) broadly remained unchanged. Intrinsic muscle function returned at 18 months and sensibility continued to improve up to 24 months.

Secondary procedures were required and necessitated temporary modification of immunotherapy.

Several episodes of acute rejection were identified and successfully managed. We discuss their origins, implications and management.

Lessons for the continuing development of limb allotransplantation in the UK are identified.

The Synthes ProPlan CMF Software for mandibular and maxillary reconstruction using a free osseocutaneous fibula flap: our experience of 45 cases.

Mr James Wokes, Mr Matthew Kennedy, Mr James Adams, Mr Maniram Ragbir, Mr Omar Ahmed
Newcastle

Introduction
Mandibular and maxillary reconstruction can be necessary following head and neck tumour resection. Our reconstructive option preference is the free osseocutaneous fibula flap with osteotomies to contour the fibula. We present our experience using the Synthes ProPlan CMF Software.

Methods
Forty-five consecutive ProPlan osteotomised fibula reconstructions have been undertaken for complex mandibular or maxillary defects. Patients are assessed at a multidisciplinary Head & Neck Oncology clinic. Pre-operative CT scans of the head and neck as well as the lower limbs are undertaken. These images are sent to Synthes and an interactive online design session results in 3D-planning images, osteotomy guides, anatomical models and bespoke fixation plates. Intra-operatively, the osteotomy guides indicate precise tumour resection and graft harvest sites, while accurately identifying the fibular osteotomy and screw fixation locations for the custom-made plate. This simplifies the flap raising and inset.

Results
We compared our intra-operative findings, patient outcomes and complications, both pre- and post-the introduction of ProPlan.

Conclusions
ProPlan permits a simple, reproducible method of osseocutaneous flap planning assisting mandibular and maxillary reconstruction. It allows the execution of pre-planned procedures in theatre, streamlines all osteotomies which reduce surgical error and time. Improved bony interface, reduced flap ischaemic time and the custom designed lower profile plates that perfectly fit the flap and remaining facial bone are all benefit of using ProPlan.

Feasibility study of preoperative radiotherapy in mastectomy and autologous free flap breast reconstruction

Mr Simon Wood, Mr Paul Thiruchelvam, Dr Suzy Cleator, Mr Navid Jallali, Mr Daniel Leff, Mr Stuart James, Miss Fiona MacNeill, Miss Dimitri Hadjiminas
London

Many reconstructive surgeons are reluctant to undertake an immediate, autologous breast reconstruction in patients who may receive post-mastectomy radiotherapy (PMRT) as a result of the perceived risk of higher rates of long-term complications and potentially worse aesthetic outcomes. As the indications for PMRT broaden, this practice may deny an ever-increasing number of women the benefit of an immediate reconstruction.

Aim
This feasibility study will evaluate the safety of offering radiotherapy before mastectomy and immediate autologous free-flap reconstruction (DIEP and S-GAP)

Methodology
Contemporaneous data was captured on nineteen patients at two academic breast surgical units including patient demographics, treatment details, tumour characteristics, post-operative and survival outcomes.

Results
The average age of patients was 46 years (28-72); body mass index (BMI) 28.4kg/m^2 (23-37.6) and specimen weight 678gm (257-1040).Eighteen patients had a DIEP flap and one patient an S-GAP flap reconstruction. The mean-time from completion of neo-adjuvant radiotherapy (NART) to breast reconstruction was 17.8 days (13-24). There were no flap failures and no cases of mastectomy skin flap necrosis. At a mean follow-up of 16.2 months, there were no loco-regional recurrences, five distant relapses with a mean presentation at 13.7 months and two breast-cancer related deaths at 13.9 and 22.2 months respectively.

Conclusion
This feasibility pilot study suggests that mastectomy and autologous free-flap breast reconstruction is surgically feasible within four weeks of completion of neo-adjuvant radiotherapy. In this small cohort of patients, altering the sequence of radiotherapy did not result in flap failure or post-mastectomy skin flap necrosis.