



Second Annual Meeting
Of The
Royal London Hospital Orthopaedic
& Trauma Society

12th June 2009

Kensington Roof Gardens
London



The Royal London Hospital Orthopaedic and Trauma Society

Dear RLHOTS members and guests,

Welcome to the second annual meeting of our fledgling society. Thanks to the generous sponsorship provided by Johnson & Johnson, JRI and Acumed, we have been able to return to the superb Kensington Roof Gardens, the site of our stimulating inaugural meeting last year.

This has not been an easy year for any of us working in the Health Service. Many of you will be worried about training and job prospects, and there have been particular challenges and frustrations at the Whitechapel mothership. However, our department has a justified reputation for being able to work well together under fairly dire conditions. We are able to do this because, deep down in our sensitive souls, we all know that doing orthopaedics is basically great fun and transcends the little local difficulties thrown up by politicians and administrators.

So, in that spirit, cast off your cares for a few hours, take pride in your association with this happy breed, and enjoy your day!

Mark Paterson

Chairman

Royal London Hospital Orthopaedic and Trauma Society

chairman@rlhots.org

Ali Noorani

Treasurer

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Nima Heidari

Academic Secretary

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The Second Annual Meeting of The Royal London Hospital Orthopaedic & Trauma Society has been generously sponsored by Johnson & Johnson, JRI and Acumed.
Please take the time to visit the exhibition stands throughout the day.



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2nd Annual Academic Meeting
Of The
Royal London Hospital Orthopaedic and Trauma Society
Kensington Roof Gardens
Friday 12th June 2009



08:30 – 09:15	Registration and Coffee
09:15 – 09:25	Welcome address and house keeping
09:25 – 09:45	Mr Colin Natali <i>“Making your mind up in time”</i>
09:45 – 10:30	Registrar Papers (4)
10:30 – 11:00	Dr Annelie M Weinberg <i>“What the surgeon fears in treating children's elbow fractures”</i>
11:00 – 11:30	Coffee
11:30 – 12:15	Registrar Papers (4)
12:15 – 12:45	Mr Mark D Loeffler <i>“The birth of the Paralympics”</i>
12:45 – 14:00	Lunch & Workshop
13:45 – 14:00	Annual General Meeting for Royal London Registrars
14:00 – 14:45	Registrar Papers (4)
14:45 – 15:05	Mr J Mark H Paterson <i>“In the Steps of Wisdom – An Albanian Experience”</i>
15:05 – 15:30	Coffee
15:30 – 16:15	Dr Brian Witcombe <i>“The science and side effects of sword swallowing”</i>
16:15 – 16:45	Prize ceremony – Mr Michael Freeman , and closing remarks

Invited Keynote Speakers

Colin Natali *FRCS(Orth)*

Program Director of the Royal London Rotation

Consultant Orthopaedic Surgeon, Royal London Hospital, London, UK

Annelie M Weinberg *PD Dr med*

Orthopaedic Trauma Surgeon, Universitätsklinik für Kinderchirurgie, Graz, Austria

Mark D Loeffler *FRCS(Orth)*

Consultant Orthopaedic Surgeon, Colchester General Hospital, Essex, UK

J Mark H Paterson *FRCS(Eng)*

Chairman of the Royal London Hospital Orthopaedic and Trauma Society

Consultant Orthopaedic Surgeon, Royal London Hospital, London, UK

Brian Witcombe *MB FRCR*

*Honorary Consultant Radiologist, Gloucestershire Royal NHS Foundation Trust,
Gloucester, UK*



Registrar Podium Presentations

Session 1 9:45 – 10:00

A review of a consecutive case series of Open reductions for Developmental Dysplasia of the Hip over 5 years - what are the implications for screening using this proxy measure for failure?

Sanghrajka AP, Murnaghan C, Shekkeris A, Eastwood DM

Is screw fixation a sufficient method of treatment for paediatric fractures of the femoral neck?

Eberl R, Singer G, Ferlic P, Schalamon J, Höllwarth ME

Proximal Femoral Resection Arthroplasty for painful hip dislocations in cerebral palsy

Mangwani J, Paterson JMH

Delayed Presentations of Crush Injury and the Controversies Surrounding the 'Missed Compartment' or 'Wipe Out' Syndrome

Crone DM, Bridgens A, Bhatnagar G, Owen-Johnstone S

Session 2 11:30 – 12:15

Physal bone bridge formation analysed histologically after transepiphyseal lesion – Relapse of endochondral ossification

Fischerauer EE, Kraitsy K, Manninger M, Seles M, Neun U, Hofmeister A, Höllwarth ME, Weinberg AM

Thromboprophylaxis policy and mortality following hip fractures.

Heidari N, Loeffler M, Bottle A, Jehan S, Bynoth S

Case series of the use of BMP-2 in high-risk non-union cases in lumbar spine fusion

Yoon WW, Blackman M

Is the Outcome of Caudal Epidural Injections affected by Patient Positioning?

Nawabi DH, Makki D, Francis R, Hussein AA

Session 3 14:00 – 14:45

Kinematic biomechanical assessment of human articular cartilage transplants in the knee using 3-T MRI: an in vivo reproducibility study.

Millington S, Juras V, Welsch GH, Szomolanyi P, Mamisch TC, Pinker K, Trattnig S

Magnesium-alloy: a Novel Approach to Biodegradable Implants

Castellani C, Lintner R, Hausbrand P, Weinberg AM

Femoral lengthening over an intramedullary nail using a monolateral external fixation device.

Mannan K, Al-Nammari S, Goodier D

Compartment syndrome masked by epidural anaesthesia in paediatric orthopaedic surgery: report of two cases and comprehensive literature review

Crone DM, Seehra KS, Kang N, Ramachandran M, Paterson JMH

A review of a consecutive case series of Open reductions for Developmental Dysplasia of the Hip over 5 years - what are the implications for screening using this proxy measure for failure?

Sanghrajka AP, Murnaghan C, Shekkeris A, Eastwood DM
The Hospital for Sick Children, London

Introduction

The ultimate goal in the management of developmental dysplasia of the hip (DDH) is to achieve a concentric reduction of the hip. Early detection allows the vast majority of cases to be successfully managed with an abduction splint, which is associated with considerably fewer complications than open surgical reduction.

To assist early detection and management, there is a national program of universal clinical screening, which is supplemented in most neonatal units with a policy of selective ultrasound scanning (USS) for clinically unstable hips, or those with specific risk factors. It has been shown that effective screening programs can eradicate late-presenting DDH, and consequently the need for open surgical reduction of the hip. Open reduction of the hip can therefore be used as a proxy measure of failure of screening for DDH.

The purpose of this study was to review a consecutive case series of open reductions performed over the last five years at a tertiary level Paediatric Orthopaedic centre, in order to determine what proportion were due to preventable failures of contemporary screening and management.

Methods

A retrospective review of a consecutive series of primary open reductions performed for non-teratologic dislocation, from 2004 to 2009. Cases were identified from theatre logbooks. Casenotes were analysed and telephone interviews performed to gather information regarding each patient, including perinatal history, birthweight, medical history and risk factors for CDH (breach, oligohydramnios, packaging disorders, family history). The data was analysed to determine what proportion of cases were potentially avoidable, and were therefore attributable to failures in screening and management.

Results

A total of 55 patients (73 hips) were suitable for inclusion in the study. We were unable to contact 7 patients, leaving 48 patients, (64 hips), in the study group. Four distinct groups of patients were identified: 1) Appropriately screened and managed- 7 patients, in whom a Pavlik harness failed- all cases were bilateral. 2) Delayed management - 7 patients in whom the USS was delayed, which delayed the commencement of Pavlik harness treatment to beyond 12 weeks. 3) Late diagnosis (after 3 months), with risk factors - 4 patients had risk factors, but never received an USS. 4) Late diagnosis, without risk factors- 30 patients were diagnosed late (median age 16 months), but had no risk factors that would have triggered selective USS. Groups 3 and 4 were not suitable for any treatment other than open reduction due to the delayed presentation.

Discussion

Over the last five years, our unit has not performed a single case of open reduction for unilateral congenital dislocation of the hip, in which a Pavlik harness had been applied in a timely manner. This highlights the importance of early detection and treatment.

The results of this study show that a substantial proportion, (nearly one quarter), of open surgical reductions in our series may have been avoided simply by the prompt implementation and delivery of existing screening protocols, with selective USS screening.

Clinical screening was responsible for detection in only 16% of cases in this series. The majority of patients in our series (62%) would not have been detected by risk-factor based USS. Whether this group represents failures of clinical screening as delivered at present, and supports the use of universal ultrasound remains controversial; the results of this study cannot further arguments in this area.

However, clinical screening and selective USS do not appear to be sufficient to completely eliminate late-presenting DDH and the need for open surgical reduction; an alternative strategy would be required to achieve this goal.

Is screw fixation a sufficient method of treatment for paediatric fractures of the femoral neck?

Robert Eberl, Georg Singer, Peter Ferlic, Johannes Schalamon, and Michael E Höllwarth
Department of Pediatric Surgery, Medical University of Graz, Graz, Austria

Background

In children fractures of the proximal femur are rare representing less than 1% of all paediatric fractures. Displaced fractures of the proximal femur need adequate reduction and rigid fixation. The main research question of the present retrospective analysis is whether or not screw fixation is a sufficient form of treatment for paediatric fractures of the femoral neck.

Methods

All patients with fractures of the proximal femur treated in our department between 1990 and 2005 were included. Injury pattern, fracture characteristics and mode of treatment were analyzed. The outcome measurement included the Harris-Hip-Score (HHS) and the difference of the collodiaphyseal angle (CDA) to the unaffected side. All patients following screw fixation were analyzed in more detail.

Results

We identified 31 patients with a fracture of the proximal femur. The mean age of the patients at the time of injury was 10.6 years (range 1-16 years). 26 out of 31 fractures (83.9%) required operative intervention. A loss of reduction was observed in 15 patients following operative treatment. This loss correlated significantly to the age of the patients. Screw fixation of Delbet II and III fractures was performed in 21 cases (<12a: n=10; ≥12a: n=11). Significant differences of the HHS and the CDA were observed when comparing patients younger and older than 12 years of age respectively.

Conclusion

While screw fixation seemed to be a sufficient method for treatment in stable fractures in children younger than 12 years of age, three quarters of the operatively treated patients older than 12 years of age showed a loss of reduction. This implant device can not be recommended in older patients due to a significant number of post-traumatic coxa vara.

Delayed Presentations of Crush Injury and the Controversies Surrounding the 'Missed Compartment' or 'Wipe Out' Syndrome

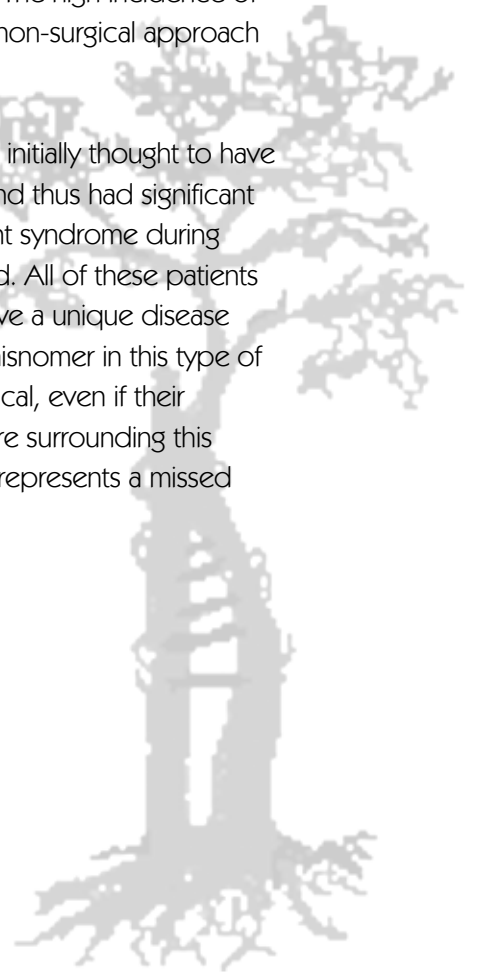
Crone DM; Bridgens A; Bhatnagar G and Owen-Johnstone S

Department of Trauma and Orthopaedics, The Royal London Hospital, London. UK

Abstract

The crush and reperfusion injury phenomenon are well described. The experiences in Israel and the associated literature warned of the consequences of performing fasciotomies in 'missed compartment syndrome' also known as 'wipe out' syndrome. The high incidence of infection and increased morbidity/mortality suggested a conservative, non-surgical approach to be the preferred treatment in these cases.

We present three cases of crush injury which presented late and were initially thought to have wipe out syndrome, yet displayed very unusual disease progression and thus had significant delay to fasciotomy. These patients experienced 'staged' compartment syndrome during their inpatient stay and had phased fasciotomies over a 48 hour period. All of these patients had viable muscle at operation, suggesting that crush injury patients have a unique disease process. Whilst the term 'compartment syndrome' may actually be a misnomer in this type of injury, the consequence of the underlying pathology is ultimately identical, even if their presentation and pathophysiology are different. We review the literature surrounding this subject and warn against the presumption that prolonged crush injury represents a missed opportunity.



Physeal Bone Bridge Formation Analysed Histologically After Transepiphyseal Lesion – Relapse Of Endochondral Ossification.

Fischerauer EE¹, Kraitsy K¹, Manninger M¹, Seles M¹, Neun U¹, Hofmeister A², Höllwarth ME¹, Weinberg AM¹

¹Department for Paediatric and Adolescent Surgery, Medical University of Graz, Austria

²Institute for Biomedical Research, Medical University of Graz, Austria

Aim.

Growth plate trauma is clinically known to initiate bone-bridge formation, causing partial or full premature physéal closure. Literature about the underlying healing mechanism is controversial. The aim of this study was to investigate whether bone bridges develop by endochondral ossification or intramembranous ossification.

Material and Methods.

Male Sprague-Dawley-rats (4 weeks, ~100g) were subjected to a unilateral transphyseal drilled lesion of 1.2 mm diameter of the proximal tibial physis. Bone bridge formation was analyzed histologically on days 1, 3, 7, 14, 28, and 82 post-lesion (n=5 rats per group, Masson`s trichrome stain) and by μ -CT (n=5, days 28 and 42). Immunohistochemistry for Collagen I, and II was performed on cryosections of the growth plate.

Results.

Masson`s trichrome stains documented stages of endochondral fracture healing at the site of physéal lesion. The hematoma seen on days 1 and 3 was replaced by cartilage tissue on day 7 which was observed prior to bone bridge formation (day 28, further confirmed by μ CT). The cartilaginous tissue which filled the growth plate injury gap by day 7 was positive for Collagen II labelling. The bone bridge, histologically and radiologically observed by day 28 was positively labelled by Collagen I, an osteoid specific protein.

Conclusion

This study clearly shows that bone bridges form within one month period by the process of endochondral ossification post physéal injury.

Thromboprophylaxis policy and mortality following hip fractures.

Nima Heidari, Mark Loeffler, Alex Bottle, Shah Jehan, Sharon Bynoth
Colchester Hospital University Foundation NHS Trust

Background

Chemical thromboprophylaxis has been shown to reduce the incidence of venous thromboembolism (VTE) for patients with fractures of the hip. There is controversy as to whether the various prophylactic regimens in use also reduce mortality.

Methods

Using postal and telephone questionnaires we collected data from English National Health Service (NHS) hospital pharmacies about the local chemical thromboprophylaxis policy for patients admitted to hospital with hip fractures in the financial years from April 2003 to April 2007. These fell into five categories: hospitals using 1) aspirin (Aspirin Group), those using 2) low molecular weight heparin (LMWH) at the recommended dose of Enoxaparin 40mg once daily or Dalteparin 5000u daily (Standard Dose Heparin Group), those using 3) LMWH at half dose of Enoxaparin 20mg once daily or Dalteparin 2500 daily (Half Dose Heparin Group), 4) hospitals without a policy (No Policy Group) and 5) those whose policy we do not know as they did not respond (No Response Group).

Using routine admissions data we ascertained in-hospital mortality rates (all years), total mortality at 30 days (2003 to 2006) and at one year following admission to hospital (2003 to 2005). We ascertained unplanned readmission within 30 days of discharge for episodes of thromboembolism and bleeding (all years) and ascertained the incidence of readmission with a primary or secondary diagnosis of pulmonary hypertension (all years). Unplanned hospital readmission rates for all causes within 30 days (all years) and one year (2003 to 2006) were also established.

Results

The hospitals using LMWH in half the dose recommended by the British National Formulary had significantly reduced mortality in hospital (odds ratio (OR) 0.79, 95% CI 0.69-0.90, $P = 0.0006$), at 30 days (OR 0.8 (0.70 – 0.92), $P=0.001$) and at one year (OR 0.89 (0.80 – 1.00), $P = 0.050$) compared with no policy. This same group had a statistically significantly higher readmission rate within one year. There was no significant difference in hospital readmission within 30 days or diagnosis of thromboembolism or haemorrhage between the groups. The incidence of subsequent readmission to hospital with a coded diagnosis of pulmonary hypertension was statistically significantly increased compared with the no policy group in the non responder group.

Conclusion

Our data suggest that the thromboprophylaxis regimen for patients with fracture neck of femur should be half dose LMWH for the duration of the hospital stay.

Case series of the use of BMP-2 in high-risk non-union cases in lumbar spine fusion

W W Yoon, M Blackman
Department of Trauma and Orthopaedic Surgery
Colchester General Hospital

Background

The use of Bone Morphogenic Protein (BMP) has been gaining popularity amongst the spinal community for spinal fusion. Concerns exist regarding heterotopic bone formation and endplate resorption and its cost effectiveness in spinal surgery. We present a case series where BMP-2 has been used without iliac crest bone graft in a cohort of patients with a high risk on non-union.

Patients and methods

Between 2008 and 2009, 15 patients underwent revision surgery involving lumbar interbody fusion using interbody cages, posterior instrumentation and Local bone graft augmented with BMP-2. These patients were selected for the use of BMP-2 by virtue of their previous failed surgery and most being smokers. The patients had a mean age of 40.3 years and were followed up by an average of 28.5 weeks following surgery. This was a single surgeon series using 12mg of BMP-2 in total. All patients underwent a preoperative and postoperative clinical evaluation with ASIA charts, visual analog scale for pain and radiographical analysis in clinic.

Results

All cases showed new bone formation and bony fusion within 36 weeks post op. There was no evidence of end-plate resorption in any of the cases. There was an average of a 4.2 point reduction in their preoperative VAS pain scores and all patients who were in employment pre operatively returned to work. All patients considered the operation worthwhile and there was no evidence of the sequelae of heterotopic bone formation in this study.

Conclusions

This series demonstrates that in a series of high-risk cases union in lumbar interbody fusion can be achieved. Whether BMP-2 can be attributed to this solely will be a matter for debate and this cannot be proven in this study. Our study did not demonstrate any end-plate resorption that had worried other protagonists and this may be due to a low dose of BMP-2 within the cage. This case series demonstrates that in patients with high risk of non-union where one would rather not revisit the operative site again BMP-2 may of use in this challenging type of surgery.

Is the Outcome of Caudal Epidural Injections affected by Patient Positioning?

Nawabi DH, Makki D, Francis R, Hussein AA
Department of Trauma and Orthopaedic Surgery,
Princess Alexandra Hospital Trust, Essex, United Kingdom

Background

The use of caudal epidural injections in the treatment of low back pain and radicular leg pain is commonplace. The reported efficacy however remains variable. Evidence from the spinal anaesthetic literature suggests that the use of hyperbaric solutions and patient positioning on the dependent (to be operated) side can enhance sensory block. Taking this principle on board, we have investigated the effect of patient positioning on the outcome of caudal epidural injections in an attempt to identify a simple method of improving the benefit attained from a treatment which is widely used but not uniformly effective.

Objective

To investigate the effect of the lateral decubitus position after a caudal epidural injection on outcome.

Methods

A prospective randomized controlled trial was set up. A total of 57 patients undergoing caudal epidural injection for low back pain associated with radicular leg pain were included. The patients were randomly allocated into two groups. Group 1 (treatment group) consisted of 28 patients who were positioned lateral decubitus by turning them on to the side of the painful leg postoperatively. Group 2 (control group) had 29 patients who were laid on the back following injection. Patients were assessed using the Verbal Pain Score (VPS) and the Oswestry Disability Index (ODI).

Results

Both groups responded positively to the injection. There was a statistically significant greater improvement in VPS in Group 1 compared to Group 2. No difference was noted between the two groups when improvement in ODI was compared.

Conclusion

Laying a patient on the side of their leg pain following a caudal epidural injection has a beneficial effect on the degree of pain relief but not functional outcome. As the results of caudal epidural injections are unpredictable, we recommend that this simple and safe maneuver be introduced as routine post-injection to aid in the eventual outcome of a potentially difficult clinical problem.

Kinematic biomechanical assessment of human articular cartilage transplants in the knee using 3-T MRI: an in vivo reproducibility study.

Millington S¹, Juras V², Welsch GH², Szomolanyi P², Mamisch³ TC, Pinker² K, Trattnig S²

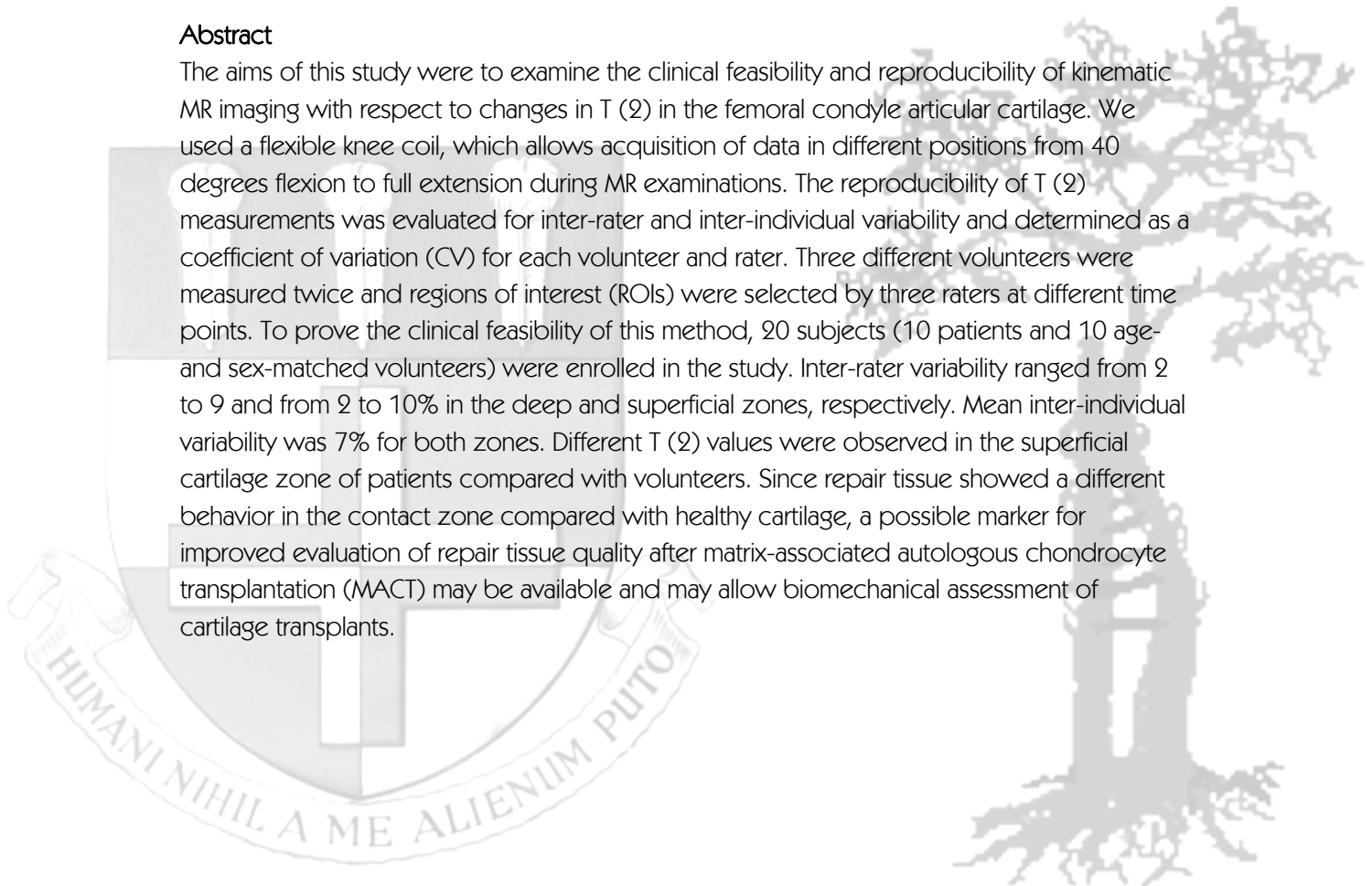
1. Royal National Orthopaedic Hospital, London, UK

2. Department of Radiodiagnostics, MR Centre of Excellence, Medical University of Vienna, Austria.

3. Orthopaedic Surgery Department, Inselspital, Berne, Switzerland

Abstract

The aims of this study were to examine the clinical feasibility and reproducibility of kinematic MR imaging with respect to changes in T₂ in the femoral condyle articular cartilage. We used a flexible knee coil, which allows acquisition of data in different positions from 40 degrees flexion to full extension during MR examinations. The reproducibility of T₂ measurements was evaluated for inter-rater and inter-individual variability and determined as a coefficient of variation (CV) for each volunteer and rater. Three different volunteers were measured twice and regions of interest (ROIs) were selected by three raters at different time points. To prove the clinical feasibility of this method, 20 subjects (10 patients and 10 age- and sex-matched volunteers) were enrolled in the study. Inter-rater variability ranged from 2 to 9 and from 2 to 10% in the deep and superficial zones, respectively. Mean inter-individual variability was 7% for both zones. Different T₂ values were observed in the superficial cartilage zone of patients compared with volunteers. Since repair tissue showed a different behavior in the contact zone compared with healthy cartilage, a possible marker for improved evaluation of repair tissue quality after matrix-associated autologous chondrocyte transplantation (MACT) may be available and may allow biomechanical assessment of cartilage transplants.



Magnesium-alloy: a Novel Approach to Biodegradable Implants

Castellani C., Lintner R., Hausbrand P., Weinberg AM.

Department of Pediatric and Adolescent Surgery, Medical University Graz, Austria

Purpose

Necessity of implant removal is one of the biggest disadvantages of osteosynthesis in pediatric trauma surgery. It requires a second general anesthesia and is associated with local morbidities as vascular/nerve damage or infections. This could be overcome by introduction of biodegradable implants for fracture stabilization. However biodegradable implants currently available on the market are very brittle which makes osteosynthesis difficult. The aim of this project was to investigate the bone-implant-interface of a novel magnesium alloy (MG) biodegradable material in comparison to standard titanium (TN) implants in a rat model.

Methods

90 Male Sprague Dawley rats were obtained at a weight of 150g after approval of the veterinary board. In general anesthesia a mid-diaphyseal transcortical hole was drilled with a 1.6mm drill. Either MG or TN pins (1.6mm diameter, 8mm length) were press fit to the drill hole. OPs were performed bilaterally. Rats were allowed full weight bearing immediately. Animals were euthanized after 1m, 3m or 6m. At euthanasia blood was drawn for microscopic differential blood counts. A microfocus CT (μ CT) was used to determine the bone-implant contact (BIC) and the bone volume per free space (BV/TV) in the medullar cavity. Biomechanical push-out-testing was used to determine the maximum push-out-force (Fmax) and the maximum shear strength (Smax).

Results

Of 90 animals 68 survived and could be evaluated. There were no signs of local inflammatory reactions and no relevant differences in the blood counts. Weight gain was similar in both groups. Beginning biodegradation could be macroscopically observed in all MG specimens at 3m and 6m. At μ CT BV/TV and BIC were significantly higher for MG compared to TN at 1m ($p = 0.007$ and 0.01 respectively; Mann-Whitney-U-Test) and 3m ($p = 0.02$ and 0.01 resp.). After 6m BIC was significantly higher for MG ($p = 0.003$). Regarding the biomechanical tests Fmax and Smax were significantly higher for MG compared to TN at 1m ($p = 0.001$ and < 0.001 resp.), 3m ($p = 0.002$ and 0.001 resp.) and 6m ($p < 0.001$ for both parameters).

Conclusion

In the present model MG lead to no inflammatory reactions. All radiologic and biomechanical parameters investigated to analyze the bone-implant-interface were significantly better than those of TN implants (as commonly used for osteosynthesis). MG appears to be a promising material for design of biodegradable implants which are harder and thus better suited for osteosynthesis than current materials.

Femoral lengthening over an intramedullary nail using a monolateral external fixation device.

Ken Mannan, Shafic Al-Nammari, David Goodier

Abstract

Femoral lengthening is often difficult for patients to tolerate as once the distraction phase is complete frame removal becomes an issue. Standard consolidation phase times in adults may be take three to four times the duration of the distraction phase. It has been shown that lengthening over an antegrade femoral nail reduces this consolidation time, but the corticotomy must be in diaphyseal bone and the length that can be gained may be limited. This series considers the use of a retrograde technique. It also reduces the risk of infection via the pin sites as it allows early frame removal. Five patients have undergone six femoral lengthenings performed over an intramedullary nail using a monolateral external fixation device to produce distraction. 1 female patient was bilateral for femoral lengthening due to short stature. The other four male patients were lengthened after post traumatic shortening following open fracture, or after segmental resection for non-union or for infected non-union. Mean age was 28 (25 to 54 years). The mean increase in bone length was 7.7cm (5-16.4cm) and this was achieved over a period of two and a half months (2 to 6 months). The mean time for consolidation was 4 months (3 - 9 months).

An appropriate distal femoral coticotomy was performed for lengthening and a femoral nail (Retrograde knee nail - Trigen) inserted. This was locked distally, but unlocked proximally. A Limb Reconstruction System rail (LRS rail – Orthofix) external fixator was then applied to the bone passing half pins through the femoral cortex anterior or posterior to the femoral nail. The nail was advanced proximally through the greater trochanter, sufficient to allow lengthening to occur. Once distraction was complete the nail was locked proximally once and the external fixator removed. One major complication occurred, which was a case of femoral artery injury which needed repair. There was no case of infection. All limbs were satisfactorily lengthened.

We recommend this technique for patients in whom femoral lengthening is required, in whom a distal femoral coricotomy is suitable, and without the need for progressive correction of angular deformity. It permits early locking of the nail and removal of the external fixator allowing the regenerate to consolidate without the risk of deep infection occurring via the pin sites.

Compartment syndrome masked by epidural anaesthesia in paediatric orthopaedic surgery: report of two cases and comprehensive literature review

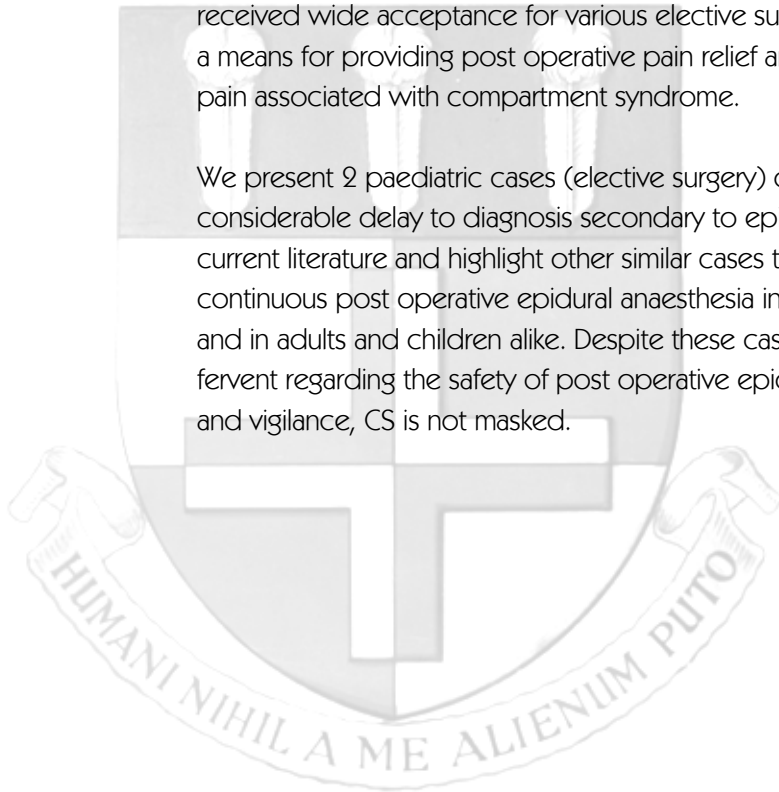
Crone DM, Seehra KS, Kang N, Ramachandran M, Paterson JMH.

Department of Trauma and Orthopaedics, The Royal London Hospital, London. UK

Abstract

Compartment Syndrome [CS] occurs as a consequence of swelling within a myofascial compartment. Expeditious diagnosis and fasciotomy is critical. In lower limb trauma, surgeons and anaesthetists are justifiably cautious about regional anaesthesia, however, in elective surgery these techniques are becoming increasingly utilised. Epidural anaesthesia has thus received wide acceptance for various elective surgical procedures. It has been advocated as a means for providing post operative pain relief and many believe that it does not mask the pain associated with compartment syndrome.

We present 2 paediatric cases (elective surgery) of missed compartment syndrome due to considerable delay to diagnosis secondary to epidural anaesthesia. We have reviewed the current literature and highlight other similar cases that have demonstrated CS due to continuous post operative epidural anaesthesia infusions, both in trauma and elective surgery and in adults and children alike. Despite these case studies, the anaesthetic literature remains fervent regarding the safety of post operative epidural infusions and insists that with due care and vigilance, CS is not masked.



Poster Presentations

Outcome after ACL reconstruction - Comparing single to double bundle technique.

Kittl Ch., Tanzer K., Boldin Ch., Seibert F.J.

Femoral neck fracture after removing an irritating PFNA blade

Tanzer K., Puchwein P., Lanz Ph., Clement H.; Seibert F.

Lengthening of Midfoot in a Case of Lower Extremity Hemimelia

Tanja Kraus and W.E. Linhart



Outcome after ACL reconstruction - Comparing single to double bundle technique.

Kittl Ch., Tanzer K., Boldin Ch., Seibert F.J.

Introduction

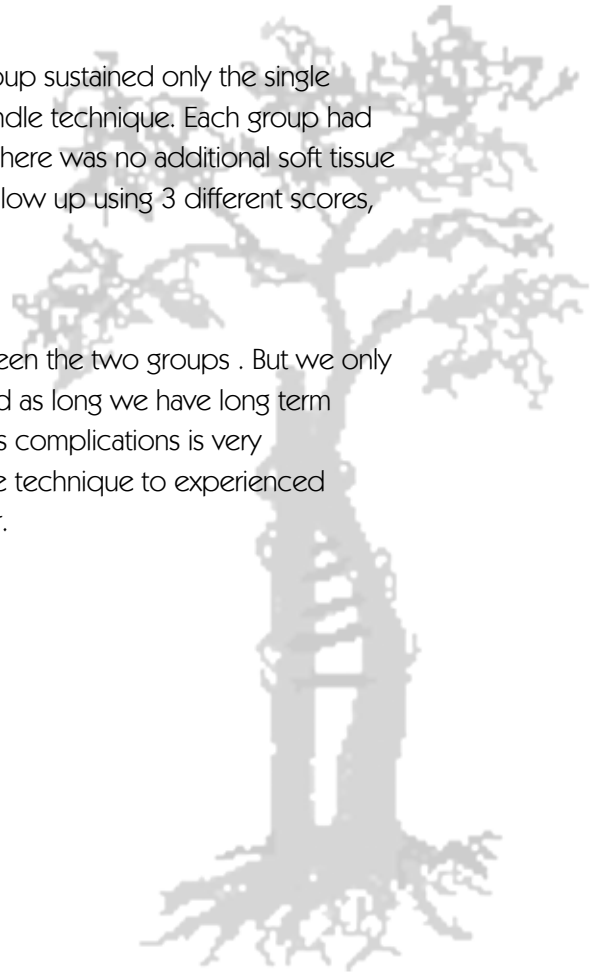
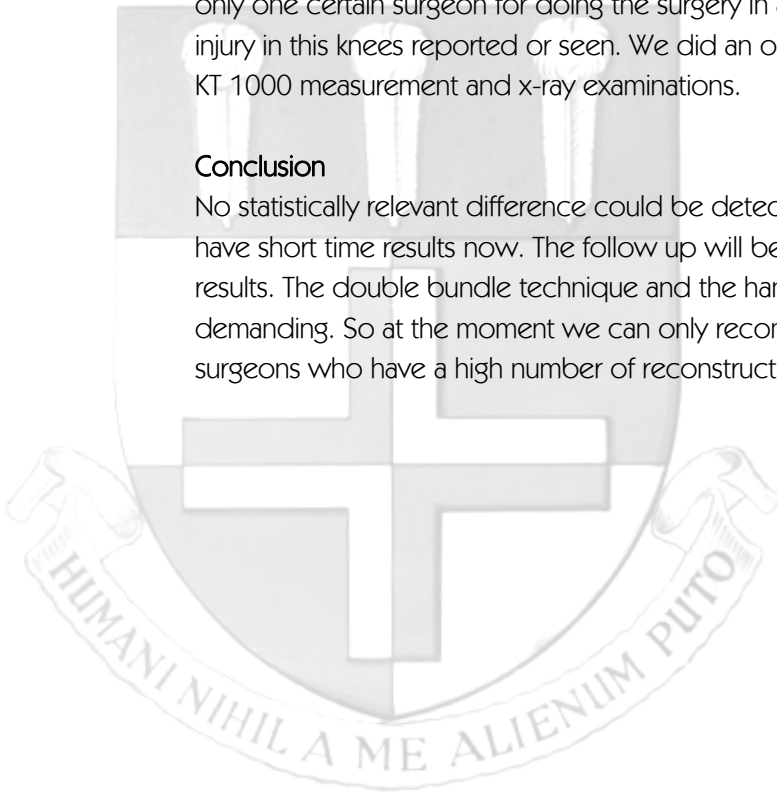
The anterior cruciate ligament according to anatomical studies is formed by an anterior - medial and posterior -lateral bundle. So the double bundle technique is a new discussed possibility for the reconstruction of this ligament .Beside the semitendinosus \gracilis graft we are using this technique now for a better anatomical reconstruction.

Material and method

We can report on two different groups of patients. One group sustained only the single bundle technique and the other group only the double bundle technique. Each group had only one certain surgeon for doing the surgery in all cases. There was no additional soft tissue injury in this knees reported or seen. We did an one year follow up using 3 different scores, KT 1000 measurement and x-ray examinations.

Conclusion

No statistically relevant difference could be detected between the two groups . But we only have short time results now. The follow up will be continued as long we have long term results. The double bundle technique and the handling of its complications is very demanding. So at the moment we can only recommend the technique to experienced surgeons who have a high number of reconstructions a year.



Femoral neck fracture after removing an irritating PFNA blade

Tanzer K., Puchwein P., Lanz Ph., Clement H.; Seibert F.

Department of Traumatology, Medical University Graz, Austria.

Introduction

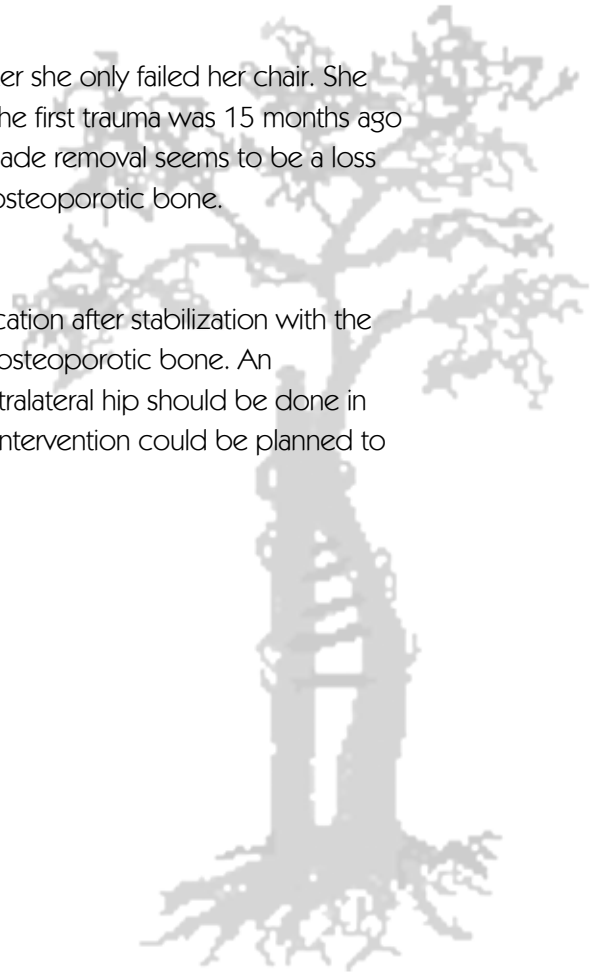
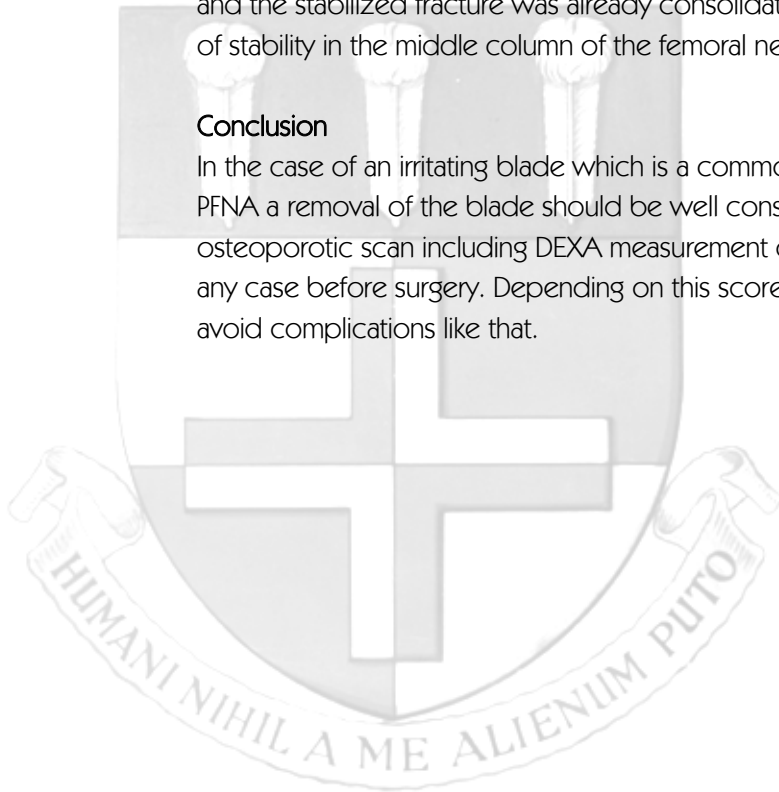
Femoral neck fracture without adequate trauma is rare. We have seen one in a healed intertrochanteric fracture (AO 31 A1.3) after removing the blade from the proximal femur nail. A comparable case after stabilization with the PFN was published in 2001.

Case

An 85 year old woman sustained a femoral neck fracture after she only failed her chair. She had her irritating PFNA blade removed two weeks before. The first trauma was 15 months ago and the stabilized fracture was already consolidated. The blade removal seems to be a loss of stability in the middle column of the femoral neck in the osteoporotic bone.

Conclusion

In the case of an irritating blade which is a common complication after stabilization with the PFNA a removal of the blade should be well considered in osteoporotic bone. An osteoporotic scan including DEXA measurement of the contralateral hip should be done in any case before surgery. Depending on this score the right intervention could be planned to avoid complications like that.



Lengthening of Midfoot in a Case of Lower Extremity Hemimelia

Tanja Kraus and W.E. Linhart

Case Report

Hemimelia of the lower limb belongs into the group of congenital deficiency disorders. There are several etiologies postulated to be responsible for hemimelia. The clinical spectrum can range from minimal shortening of the long bones to severe deficiencies.

This case report presents the case of a complete transverse terminal hemimelia of the foot. The patient had severe shoe-related and weight-bearing problems with repeated development of pressure sores and during presentation in childhood also increasing psychological problems because of his foot deformity.

We performed a midfoot lengthening procedure using an Ilizarov ring-fixator. The aim of the surgery was to improve foot function, to avoid the need for special orthopedic shoes, and to avoid pressure sores.

During the lengthening process, several soft-tissue problems occurred which needed to be treated with secondary procedures. The patient is happy with the final result, and is able to wear normal shoes after completion of the treatment.



Delegate List

H Ahmed
 M Alam
 W Al-Hakim
 S Al-Nammari
 F Altaf
 A Amin
 S Ang
 S Atrah
 M Barry
 A Berridge
 H Bhinda
 M Blackman
 H Bosman
 J Bradley
 A Bridgens
 T Bucknill
 D Coggings
 C Critchley
 D Crone
 L Di Mascio
 R Eberl
 M Freeman
 I Garnham
 B Goldie
 D Goodier
 B Grange
 T Greer
 R Grewal
 N Heidari
 I Hujazi
 M Hynes
 C Jayadev
 C Jowett
 A Khan
 V Khanduja
 C Kittl (Graz)
 K Kraitsy (Graz)

T Kraus (Graz)
 M Lamba
 M Loeffler
 J Mahaluxmivala
 C Maizen
 O Malaga Shaw
 J Mangwani
 H Mann
 K Mannan
 S Matthews
 S McMahon
 C Middleton
 S Millington
 D Nairn
 C Natali
 D Nawabi
 A Noorani
 B Okafor
 S Owen-Johnstone
 M Paterson
 N Rahman
 J Saksena
 A Sanghrajka
 N Saw
 G Scott
 P Sloper
 J Stanton
 R Tahmassebi
 A Thomas
 J Thomas
 K Vemulapalli
 N Wardle
 A Watson
 A Weinberg (Graz)
 B Witcombe
 J Wong
 W Yoon

