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## ALOPLASTY 1

### ALO1/1

#### RESURFACING OF THE HIP. HISTORY AND PROGNOSIS

Trč T

Method of resurfacing is relatively old. It has been established in 50ties by implant designed by prof. Charnley from teflon teflon. The idea was nice, very similar to present type of resurfacing of hip, but material was wrong. Result was disaster. Polyethylen was used in later activity in this field or as cup (Free-man) or as head of femur (Furua). Design of such implants was also similar to present types. Problem of polyethylens disease compromised the results.

The most effective type of resurfacing was Tharies implant. Follow up 10 years shows 62% satisfied patient. Concept of save reimplantation was declared. To save bone in THR is the best contact metal-metal, because allowed really superficial preparation of joints. Design of prosthesis by McMinn was probably first THR successfully used (except hemiarthroplasty).

Practically each producer of implant has in portofolio »replacement type« of hip joint.

Complications due to problem of neck (fracture), loosening of socket and reimplantation are

### ALO1/2

#### THE RESULTS OF COMPARISON OF FUNCTIONAL ACTIVITY OF HIP RESURFACING WITH TOTAL HIP REPLACEMENT

Kannan V, Witt JD, White T

University College London Hospital NHS Trust

**Introduction:** We report the results of activity and functional outcome of matched pair analysis comparing hip resurfacing with total hip replacement with a minimum follow up of 22 months

**Materials and methods:** 14 matched pairs were selected in terms of age (within 4 years), sex and diagnosis, of which 10 pairs were females and 4 pairs were males. The mean age was 49.7 (19–63). The average follow up was 22 months. The Birmingham hip resurfacing was used in all patients in the resurfacing group and the Furlong HAC stem in all cases in the THR group with the CSF cup in most cases. Functional outcome was measured using Harris Hip score, WOMAC, SF 36 and the UCLA and Tegner activity scores

**Results:** The mean Harris Hip score, SF 36, WOMAC, UCLA and Tegner activity scores in the BHR group were 86.8, 77.3, 49.7, 6.1 and 3.6 respectively. In the Furlong group the Harris Hip score, SF36, WOMAC, UCLA and Tegner activity scores

were 82.9, 79.0, 29.5, 5.6 and 3.2 respectively. There was no statistical difference in the mean scores between the two groups. With regard to functional activity, 21% of patients in both the groups scored 8 or more on the UCLA activity scale. 21% of patients in the BHR and 14% in the Furlong group scored 3 or more on the Tegner activity scale

**Conclusion:** In our study, hip resurfacing was not associated with a significant increase in activity level or functional outcome compared with total hip replacement.

### ALO1/3

#### THE RESULTS OF HARRIS FUNCTIONAL SCORE IN PATIENTS WITH RESURFACING T.H.A

Savadkoochi DG, Zehtab MJ, Savadkoochi MG

**Introduction:** The problems of Hip Joint in patients with Osteoarthritis or Avascular Necrosis of femoral head or any Traumatic, inflammatory process like as rheumatoid arthritis and also congenital disorders like C.D.H from 100 years ago until now have been created that the surgeons have attempted to make an artificial Hip which could be able to work similar normal Hip Joint unfortunately in this way there have been many problems as biomechanical problems and also biochemical problems.

As we now the normal Hip Joint is a ball and socket Joint the size of the head with new acetabulum socket is also important: Sir Charnley explained 22 mm femoral head with the same size of inner side of acetabulum Muller changed it to 32 mm.

The problems of sterilization especially for polyethylene and chance of oxidation which results wear between metal femoral head with polyethylene cup has been still unsolved, also try to make a better quality of polyethylene and changing to ultramolecular weight polyethylene couldn't be able to solve this problem.

Biomaterial problems also created many type of chemical containment like: metal to polyethylene, ceramic to ceramic, ceramic to polyethylene.

But now specially during last decade metal to metal has been made a better quality and decreased the chance of wearing.

Resurfacing metal to metal Total Hip Joint has a normal size to patient's Hip Joint, the chance of dislocation will be decreased, the chance of wear also reduced, and remaining the femoral neck in femoral bone stock is another advantage.

**Material and methods:** During 2001 to 2006 we had about 43 cases of Hip Joint disorders which we did metal on metal resurfacing Total Hip Arthroplasty.

The average age was about 44 years old. We had 14 cases of A.V.N of femoral head with some degree of O.A of Hip Joint

and 29 cases osteoarthritis of Hip Joint with normal femoral neck and also the quality of bone stock were good. There were no cases of C.D.H or Rheumatoid arthritis in our series. We did for all of our cases postero lateral approach for resurfacing T.H.A.

The patients could be able to walk by walker from third day of operation. The mean HHS before surgery was  $(31.7 \pm 9.2)$  which improved to  $87.9 \pm 11.2$  about 7 months after surgery.

We had 2 cases of sciatic temporary sciatic nerve palsy due to benet retractor which became normal after 3 " months latters.

#### **ALO1/4 THR IN THE CASES OF METAL ALLERGY**

Szabó G, Bucsi L

NO ABSTRACT SUBMITTED

#### **ALO1/5 A VERY UNUSUAL COMPLICATION OF BOERHAAVE'S SYNDROME FOLLOWING A TOTAL HIP REPLACEMENT**

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\*S.H.O in Accident and Emergency; \*\* S.H.O in Anaesthesia; \*\*\* ; SpR Cardiology; \*\*\*\*\* D Archery, Consultant Orthopaedic Surgeon

**Objective:** We are reporting a case of Boerhaave's syndrome, a rare complication of excessive vomiting, in a post operative patient. Our aim is to highlight the fact that this complication if missed can cause life threatening complications.

**Method:** A 62 year old female with an unremarkable previous medical history except for mild asthma underwent minimally invasive left total hip replacement for severe osteoarthritis. She developed shortness of breath, the day after surgery. The Chest x-ray showed left basal collapse with pleural effusion, surgical emphysema and pneumomediastinum. A left sided chest drain was inserted. Her condition deteriorated and she had a CT scan which showed a large left sided hydropneumothorax and a small right sided hydropneumothorax and evidence of a pneumomediastinum. The patient was moved to the ITU and was intubated, she continued to deteriorate. Though there was only a suspicion of an oesophageal tear, confirmation was achieved after a gastrograffin swallow, which was done almost a month after the total hip replacement.

**Results:** After moving to a tertiary hospital, oesophagogastroduodenoscopy and triple lumen NGJ tube insertion was tried but failed because it was not possible to pass the tube through the pylorus. Two days later jejunostomy was performed through a left upper quadrant abdominal incision. A contrast swallow test was repeated on fifty third post hip surgical day. This showed no further leakage and a barium meal ruled out gastric outlet obstruction. Exactly two months after total hip replacement jejunal feeding was stopped and she was subsequently discharged to her home on sixty second post operative.

**Conclusion:** Boerhaave's syndrome is a rare but potentially life threatening condition resulting from a spontaneous transmural oesophageal perforation usually after an effort of vomiting. The diagnosis of Boerhaave's syndrome is often missed or delayed because of its similarity of presentation to many of the more common thoracic pathologies e.g. pneumonia, myocardial infarction, pneumothorax, empyema and subphrenic abscess. Therefore this is just to remember that Boerhaave's syndrome is one of the differential diagnoses in these situations.

#### **ALO1/6 THREE DIMENSIONAL CT BASED ALGORITHM FOR ASSESSING WEAR IN TOTAL HIP REPLACEMENT – A CLINICAL STUDY**

Kannan V, Richards R, Sauret V, Cobb JP

Dept Of Orthopaedics, Imperial College London, Dept of Medical Physics, University College London

**Introduction:** Accurate three dimensional wear analysis of radiographs has its own limitations (1,2). We report the results of a clinical study of three dimensional wear analysis using a low dose CT based algorithm.

**Materials and methods:** Twenty four patients (32 hips) who had undergone Furlong uncemented THR agreed to take part in our study. Of the 32 hips, 20 hips had polyethylene inserts and 12 hips had ceramic inserts. The maximum follow up for the polyethylene and ceramic groups were 12 years and 5.5 years respectively.

All the patients were scanned and using custom software program, 3D reconstruction of the components and wear measurements were made.

**Results:** There was no significant ( $<1\text{mm}$ ) wear in x and y axis in either group, however there was significant evidence of wear in relation to time in the z axis (max wear =  $-2.5\text{mm}$ ) in the polyethylene group alone.

Measurements obtained by two independent observers showed a strong correlation particularly in the polyethylene group ( $0.99$ ,  $p$  value  $<0.0001$ ).

#### **ALO1/7 KNEE FUSION WITH THE METHOD OF SEGMENTAL BONE TRANSPORT BY USING »CUSTOM MADE MONORAIL FIXATOR« AFTER INFECTED TOTAL KNEE PROSTHESIS**

Tuncay I, Senaran H, Karalezli N

Chronic resistant infection after total knee arthroplasty is one of the most challenging position for orthopaedic surgeons. One or two stage revisions usually may not be suitable. In such positions, the only solution is to get the knee fusion. Internal fixators can be nest for the microorganisms in infected area. There are two goals. The first and the most important one is the eradication of the infection, and the second one is knee fusion.

Four patients underwent knee arthrodesis with the method of segmental bone transport by using monorail fixator after infec-

ted total knee arthrodesis. One was male and the others were female. Mean ages were 66 (min 59, max. 72). Mean operation was 2.5 (min 1, max 6) before our treatment. The operations were done in two steps. At the first one all the infected implants including the bone, just like tumor, resected. Limit to resection was to reach the bleeding healthy bone. After resection, custom made monorail fixator applied to all lower extremity through 6mm half pins. The spacer was prepared as 2 grams teikoplanin was mixed to 40 grams bone cement. It was put in to defect. As last stage, percutaneous osteotomy was done. One mm per day lengthening was started at the 10th day after the operation. As second step, spacer was removed and acute compression was done at the knee joint. Full weight bearing was allowed during the fixation period. After consolidation period, fixator was removed followed by dynamization. Mean follow up was 18 months. Infection was eradicated and fusion was achieved in all cases. Mean external fixation time was 11 months. Mean shortening after treatment was 2cm. We did not see any complication except one major pin tract infection that we had to remove the pin. All the patients had satisfied the treatment. Knee arthrodesis with unilateral external fixator technique is demanding but very satisfactory treatment method for chronic resistant total knee replacement cases.

#### ALO1/8

#### UNCONSTRAINED TRIPOLAR HIP IMPLANT: EFFECT ON STABILITY

Guyen O, Chen Q, Kai-Nan An, Bejui-Hugues J, Berry DJ

**Introduction:** To investigate successful outcomes using tripolar implants for total hip arthroplasty instability we compared the *in vitro* range of motion to impingement of a tripolar cup and a conventional cup.

**Material and methods:** In order to assess the range of motion to impingement of a tripolar hip implant (22 mm head) and a conventional cup (22 and 28 mm head), we designed a new automated hip simulator in which a full pelvis and a proximal femur were mounted. A digitizer arm allowed assessing proper orientation of the implants (45 degrees of cup lateral opening, 20 degrees of cup anteversion, and 20 degree of stem anteversion neutral varus/valgus). The same femoral stem was used for both implants. Impingement was detected using conductive foil.

**Results:** The tripolar implant provided increases of 30.5 degrees in flexion, 15.4 degrees in adduction, and 22.4 degrees in external rotation when compared with the 22.2 mm femoral head diameter conventional implant. At the critical position in 90 degrees of hip flexion, there was an increase of 45.2 degrees in internal rotation. At 0 and 30 degrees of external rotation, the increase of extension was respectively 18.8 and 7.8 degrees. Bony impingement was the limiting factor.

**Conclusion:** Despite the extremes of motion measured may exceed what occurs *in vivo*, unconstrained tripolar implants increase the arc of motion prior to impingement in situations at risk for dislocation and are, therefore, expected to provide greater stability.

#### ALO1/9

#### THE USE OF UNCONSTRAINED TRIPOLAR HIP IMPLANTS IN PATIENTS AT RISK FOR DISLOCATION: A RETROSPECTIVE STUDY OF 163 PATIENTS WITH A 2 TO 5 YEAR FOLLOW-UP

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Affiliation: Hôpital Edouard Herriot – Orthopaedic Department (Pavillon T), Lyon, France

**Introduction:** Total hip arthroplasty instability is well documented to be more common in specific demographic groups. We report a retrospective analysis of the use of an unconstrained tripolar cup for primary hip replacements in selected patients at risk for dislocation.

**Materials and methods:** At our institution 167 primary total hip replacements (THR) were performed in 163 patients (99 women and 64 men) at high risk of instability between January 2000 and December 2003. 84% of the patients had at least two risk factors for dislocation. The mean age was seventy-two years (range, twenty one to ninety-seven years) at the time of the arthroplasty. An unconstrained tripolar cup was used in all cases.

**Results:** During the study period, 24 patients died. 21 patients died of unrelated causes 1 to 41 months postoperatively. 2 patients died from pulmonary embolism, and one from infection at the involved hip site. The mean follow-up was 40.2 months (range, 24 to 65). No dislocation was observed. Harris hip score improved from 39.6 to 83.4 ( $p < 0.05$ ). Six hips were revised: one early failure of the cup fixation because of a persistent traumatic pelvic discontinuity, one migration of a fully HA-coated femoral component, one trochanteric nonunion, one periprosthetic fracture and two deep infections. No aseptic loosening of the cup was observed at latest follow-up.

**Conclusion:** The tripolar implant was extremely successful in achieving stability. However, because of the current lack of data documenting the polyethylene wear at the additional bearing, the routine use of tripolar implants in primary THR is discouraged and should be considered at the present time only in selected patients at high risk for dislocation with limited activities.

#### ALO1/10

#### PATIENT SELECTION IN MIS THR SURGERY

Bucsi L

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**Purpose:** To give a summary of MIS techniques, a summary on the own results with the »one incision« minimally invasive THR and a summary of the results concerning the radiological evaluation explaining the importance of patient selection in MIS THR surgery.

**Material and methods:** There were 58 one incision minimally invasive THR performed in the Orthopaedic Department of St. George County Hospital Székesfehérvár, Hungary from 1<sup>st</sup> of June 2003 to 31<sup>st</sup> of December 2005. Minimalized direct lateral approach was performed in all cases. The size of the skin

incision, the blood loss and the hospitalisation time were measured. The postoperative pain was compared to the pain in the cases of standard lateral approach. The position of the cup, the position of the stem and the radiological position of different type of implants were evaluated, the average BMI was given for different groups and the influence of the BMI was analysed.

**Results:** The average skin incision was 8 (6,5–9) cm. The average postoperative bloodloss in the cases with capsular reconstruction was 473 (150–960) ml and in the cases with capsular resection: 780 (450–1300) ml. In the control group, where 58 patients were randomly selected and patients had standard lateral approach to the hip the postoperative bloodloss was 822 (350–1250) ml. The postoperative pain was 55% less intensive in that 15 cases where patients had contralateral standard lateral approach earlier. The average hospitalisation time was 4,41 (3–11) days. Concerning the cup positioning there was no difference between the two groups in this series. In the cases of stems, mainly in the cases of Exeter stems- with thick cement mantle- the number of the slight stem varus positions was significantly higher in the MIS group.

**Discussion:** In well-selected cases, where the anatomical condition is suitable for minimally invasive procedure the postoperative bloodloss is much less and the postoperative pain mainly due to the size of the approach is diminished. According to the author's opinion the hospitalisation time is definitely less, but it could be reduced much more in consequence to strict patient selection. In spite of the rather low average BMI (25,2) the relatively high number of varus stem malpositions are warning, the shape of the hip region could be important factor as well. Slim patients (BMI<25) with moderate OA, »healthy« and well motivated patients are the best candidates for MIS THR surgery.

#### ALO1/11

##### MINIMAL INVASIVE SURGERY – MYTH AND FACTS

Trč T, Chládek P

Ortopedická klinika UK 2. LF a FN Motol, Dětská a dospělá ortopedie a traumatologie

Miniinvasive surgery is very challenged, is used in hip replacement, knee replacement and other types of surgery. Miniinvasivity which is declared as minimal harmesivity to all tissues is sometimes mstakenly used as miniincision surgriery techniwque or less invasive surg. techniques. Exact definition is not establish, we propose our explanations and discusse MIS hip surgery, which we use in clinic. We use standardly anterior, anterolateral and lateral approach. We used also posterolateral especially for Resurfacing. Although we can present first results but we can discuss plus and minuses in wiew of surgeon and patient.

#### ALO1/12

##### MUSCLE STRAIN DURING 3-D COMPUTER SIMULATED MIS TOTAL HIP ARTHROPLASTY

Grecula MJ, Buford WL, Norcross JP

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**Introduction:** The total hip arthroplasty (THA) procedure involves extreme positioning of the limb to accomplish the tasks of hip dislocation, acetabular preparation, femoral preparation, and component insertion. With the increasing interest in minimally invasive »muscle sparing« THA, knowledge of the strain and elongation of the individual muscles around the hip during these maneuvers is important.

**Methods:** A whole-body kinematic simulation developed in our lab was used to interactively move the lower limb into the positions needed to perform a total hip arthroplasty using a minimally invasive posterior approach. During the simulation, joint angles, muscle origin to insertion path lengths, and moment arms were monitored. Comparisons were made at four static positions corresponding to the leg position with hip dislocation, acetabular preparation, femoral preparation, and component insertion. Resting muscle fiber length was measured during a fresh cadaver dissection and also calculated using the whole body kinematic structure. Muscle strain was then calculated as change in fiber length relative to resting length.

**Results:** Over all of the muscles studied, the measured strain ranged from 67% to 218%. The average strain was 163%, with a standard deviation of 49%. The lowest strain was seen in the anterior fibers of the gluteus medius. The quadratus femoris underwent the greatest strain, ranging from 82 to 218%. The greatest strains were during the hip dislocation position (218%) and the femoral component insertion position (149%).

**Discussion and conclusion:** Much of the posterior muscle architecture was placed at or beyond the ultimate tensile strength of fresh cadaver or living muscle as reported in the literature. This highlights the importance of considering the potential for indirect trauma to the peri-articular muscles during a minimally invasive approach. This 3D kinematic simulation can be a valuable tool in developing and evaluating different MIS approaches which can minimize direct and indirect tissue trauma.

#### ALO1/13

##### LESS USUAL APPROACH TO THE HIP JOINT - SURGICAL DISLOCATION

Chládek P, Trč T, Řeháček V.

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There are many approaches to the hip joint which are used in various orthopadic procedures. Medial approach has been very often used in DDH, but rather in the past (Ludloff, Ferguson). Anterior approach (Hueter, Smith-Petersen) is used in many procedures including open reduction of DDH (Scaglietti, Callandriello etc.), various types of pelvic osteotomies (Salter, Dega, Steel, Ganz etc.), in the time being as a miniinvasive approach for THR. Anterolateral approach (Watson-Jones) is being used in THR the most often, as well as the lateral and posterolateral ones (Bauer etc.). Furthermore posterolateral and posterior approach is being used for cervicocapital endoprosthesis (Gibson, Kocher – Langenbeck).



There is very interesting approach to the hip joint which is rarely undertaken (Mercati, Ganz). It combines anterior surgical dislocation with posterolateral skin incision and approach using trochanteric flip osteotomy. The external rotator muscles are left dorsally intact providing protection to the medial circumflex artery, while gluteus minimus anteriorly. Z-shaped capsulotomy and anterior dislocation is commenced.

This approach can be used for femoral head and neck and acetabular pathologies, i.e. femoroacetabular impingement, labral lesions, some tumors etc.

#### ALO1/14

##### GAIT ANALYSIS AFTER ANTEROLATERAL MIS FOR HIP ARTHROPLASTY – SHORT TIME RESULTS

Roth A, Sander K, Layher F, Babisch J

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**Introduction:** »Good« OP-results are reflected in a »good« gait. Basing on this assumption the authors used gait analysis to verify results after total hip arthroplasty (THA) using MIS-Technique.

**Materials and methods:** From altogether 48 patients (age 64,8±9,5 years) with unilateral coxarthrosis who received a cementless THA 30 were assessed 4 weeks and 6 months postoperatively, and 20 one year postoperatively regarding Harris hip score (HHS), visual analogue scale (VAS), generic health status SF-36 and gait analysis. For the latter a Vicon Motion Systems (Oxford, UK) with 6 IR-Cameras (VCAM, 100 Hz), 2 AMTI-Platforms and one Kistler-Force Plate was used.

**Results:** After already 4 weeks HHS, VAS and SF36 showed significant improved values. In gait analysis there still remained deficits of the muscular system, which improved after 6 months.

**Conclusion:** Gait analysis is useful for assessment of the results after THA. Whilst clinical scores already showed a significant improvement already after 4 weeks, gait analysis with more sensitive parameters showed deficits, which improved only after 6 months. Comparisons with traditionally approaches are necessary now.

#### ALO1/15

##### KINEMATIC NAVIGATION OF THE CUP USING MIS POSTEROLATERAL TECHNIQUE

Hart R, Štíplák V, Kučera B

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**Introduction:** Computer-assisted surgery (CAS) using an anterolateral approach gives better cup positioning results compared with a standard free hand technique. The purpose of the current study was to determine the accuracy of the CAS cup placement using a posterolateral approach.

**Material and method:** Between February and December 2004, 20 total hip arthroplasties – cups were implanted under computer control (OrthoPilot, B/Braun-Aesculap, Tuttlingen, Germany) through the minimally invasive Kocher-Langenbeck posterolateral approach. The mean age of 14 men and 6 women was 57,4 years (range, 47 to 68 years). The skin incision length was 8 to 10 cm. Only the piriformis tendon was divided and then sutured during this technique. A specially curved longer palpator is needed for the data registration. Palpation of the contralateral iliac point is difficult in the lateral decubitus position. To determine the accuracy of the inclination and anteversion angles given by the computer after the cup implantation, the inclination and anteversion were measured on X-rays post-operatively.

**Results:** The real mean value of the cup inclination angle measured on X-rays was 41,8° (range, 35° to 51°) and that of anteversion was 19,8° (range, 5° to 22°). The OrthoPilot navigation system gave largely different values: mean inclination 27,6° (range, 22° to 35°) and mean anteversion 24,3° (range, 17° to 28°).

**Conclusion:** The CT-free kinematic navigation used during posterolateral implantation of the press-fit cup gives surgeon a significantly misleading information about the cup position. We cannot recommend this navigation system for posterolateral hip replacement surgery.

#### ALO1/16

##### POLYETHYLEN DISEASE

Sosna A, Pokorný D

NO ABSTRACT SUBMITTED

#### ALO1/17

##### SOLUTION OF ACETABULAR BONE LOSS IN REVISIONAL TOTAL HIP ARTHROPLASTY

Krbec M, Messner P jr.

NO ABSTRACT SUBMITTED

#### ALO1/18

##### REVISION ACETABULUM FOR BONE LOSS – TC ACETABULUM

Trč T, Handl M, Štátný E

New implant for revision surgery in THR with bone loss acetabulum is developed. This implant allows stable fixation and remodeling of defect due to loosening of THR socket. Ideal indications are Paprocky 2B, 2C and 3A defect of acetabulum. Surgical procedure is described. Cohort of 20 patients with minimal 2 years follow up after reimplantation is discussed (study of State dep. for med. control). Good osteointegration and stability of implant is declared.

**ALO1/19****ACETABULAR REVISION IN CASES OF EXTENSIVE BONE LOSS****Dobos F, Bucsi L, Sillinger T**

Saint George County Hospital, Orthopaedic Department, Szekesfehervar, Hungary

**Introduction:** Loosening of the cup is one of the most common complications following total hip replacement. There is no universally accepted approach regarding its treatment. The aim of this presentation is to analyse our outcome and to compare different operative techniques.

**Materials and Methods:** We performed a retrospective study in which cases who underwent the revision of total hip replacement between January 2000 and December 2005 were analysed. For assessing cup loosening the Harris Hipscore and x-ray analysis were performed.

**Results:** Over the study period 152 revisions were performed. The patients' age was mean: 66 (minimum-maximum: 31–91) years. The time elapsed since the first operation was 95 (0.5–260) days. Out of the 152 patients in 101 cases the indication of the redo was the loosening of the cup. The operation of choice was Sloof's in 69, acetabular ring replacement in 11 and X-change mesh insertion in 4 cases. Apart from one early redo after a Sloof's due to dislocation, we have had no complications including infection so far.

**Discussion:** According to our retrospective results all applied techniques proved to be safe. However, further follow ups are required to have more data on long term outcome

**ALO1/20****THE INCIDENCE OF FEMORAL STEM LOOSENING IN TOTAL HIP ARTHROPLASTY, A TWENTY YEARS FOLLOW-UP****Frahmandi M**

**Introduction:** An estimated 124,000 total hip arthroplasties (THAs) were performed in U.S. nonfederal short-stay hospitals in 1994 and approximately 28,000 THA revisions were also reported for that year

- In this regard, we collect the THAs record of our twenty years experience to reach the answer:
- what is the risk factor of revision?

**Materials and methods:**\* Since 1984 we have performed 237 primary THA on 210 patients. We performed 34 revision and 11 revision for second time (totally 44). 24 of our revisions come for current follow up examination. 72 of primary THAs also come for follow up (sixteen patients passed away). The mean age of revised hips was 61.5 years initially. The initial etiology of THA in revised group and the cause of revision is illustrated here: Eight of the revision relate to cup revision and the 36 remained relate both stem and cup revision. The initial THA of 12 revised hip hadn't been performed in our clinic

**Results:** The mean age at the latest follow up is 74.8. The mean follow up period was  $11.2 \pm 5.2$  (range 4 to 19 years). The mean Harris score was  $68.3 \pm 16$  (range 29–91). Six of them graded as excellent, 7 as good, 8 as fair, and 3 as poor. The latest follow up reveal the this poor group relate to two patients with definitely loosened cup, probably loosened stem, and an 81 years old man with severe DJD of his both knee. Younger age (patients was under 50 years old by the time of THA) haven't any difference in mean Harris score and implant survival in comparison with the older ones. Multinomial logistic regression shows the effect of male gender in higher rate of revision 68.9% Vs 32.2% (considering the cemented or cementless and age group). The lower Harris score in our series could be related to: The older implant design (Charnley, Muller). Subsequently their high rate of aseptic loosening. Older implant have higher rate of implant fracture. High rate of dislocation have strong correlation (0.8) with the rate of revision which is predictable, and is the most drawback of our finding. As described before; another important aspect of our study is high rate of dislocation (both early and late); we think, this finding is related to: patients muscle force which is decreased by the time of THA as of unnecessary delay. Patients negligence and traumatic dislocation compose nearly half etiology of the dislocation. Exercise effect like a double edge sword: it increase the mean Harris score vise versa decrease the implant survival. This issue bring a immense controversy.

This controversy bring a good area of further research: which exercises have positive and which have negative effect in our patients.

**ALO1/21****REVISION TOTAL HIP ARTHROPLASTY: THE RESULTS OF USING POROUS-COATED, DISTALLY SLOTTED, FLATED FEMORAL STEM T.H.A SYSTEM****Savadkoobi DH, Zehtab MJ\*, Savadkoobi MG**

**Introduction:** Revision of THA usually is much more difficult and the results are typically not as satisfactory as primary total hip arthroplasty. Revision requires more operative time and more blood loss and the incidence of infection thromboembolism dislocation nerve palsy and penetration and fracture of the femur are higher. A number of surgeon abandon cement in many revision operation in the other hand satisfactory primary results of cement less primary surgery was done. Bone deficiency can be treated more appropriately with bone grafting rather than with bulk filling with additional cement. Animal study and human retrieval data demonstrates that the use of implants with more extensive porous coating.

During 2003 to 2006 we had about eleven cases of Revision T.H.A which we did Revision with: porous-coated, distally slotted, fluted femoral stem T.H.A system.

The results of our cases were good we had only one cases of periprosthetic fracture of distal part of prosthesis in femoral shaft which we did ORIF with L.C.P plate and grafts.

## TRAUMATOLOGY

### TRA/1 FRACTURES IN ELDERLY PATIENTS DUE TO OSTHEOPOROSIS

Broulík P

NO ABSTRACT SUBMITTED

### TRA/2 HIP ARTHROPLASTIES DUE TO FEMORAL NECK FRACTURES IN SENIORS

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The authors present an evaluation of patients with femoral neck fractures treated at the authors' Department between 1. 1. 1996 and 31.12. 2005. All patients were treated of arthroplasty. The aim was to determine complications of the treatment.

The following data were recorded for all patients of the monitored group: age, sex, health condition, classification of the fracture, therapeutic procedure, complications.

A total number of 363 patients were treated with femoral neck fracture in the given period, out of which 29 % men and 71 % women. We have found increasing number of patients during the monitored years. We preferred total hip arthroplasties (91 %) rather than hemiarthroplasties (9 %). 80 % of the patients didn't have any complications. 14 % of the patients had »internal« complications: cardiac arrhythmia, cardiac or respiratory insufficiency, bronchopneumonia, thrombosis etc. 4 % of follow-up patients had a dislocation of an arthroplasty. We carried out a closed reposition and in only 1 % (patients with neurologic diseases) we had to perform revision surgery. We didn't find out any deep infection, 1 % of follow-up patients had a superficial infection. These patients had an immunosuppressive medication. We had to carry out a revision surgery due to an aseptic loosening in only 1 % of patients.

Hip arthroplasties due to femoral neck fractures in seniors are not the same as due to arthritis. These patients require more intensive care and they have more complications. However, we can recommend hip arthroplasties in the event of femoral neck fractures.

The analysis of the complications after hip arthroplasties, which were the consequence of femoral neck fractures, enables us to

diminish their occurrence and to improve the quality of life of our patients.

### TRA/3 FRACTURES OF PROXIMAL HUMERUS IN ELDERLY PATIENTS

Kloub M

NO ABSTRACT SUBMITTED

### TRA/4 OPERATIVE TREATMENT OF THE DISTAL RADIUS FRACTURES OF ELDERLY PATIENTS

Toufar P

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**Introduction:** Treatment of the distal radius fracture of elderly patients with an osteoporotic bone is often difficult, because the quality of the skeleton gives less possibility for the stable fixation with some types of conventional implants. There are frequently very unstable fractures in this group of patients, but their activity of everyday life is still rich and they require optimal results.

**Aim:** Assessment of functional and radiographic results of a group of active elderly patients with the distal radius fractures treated with the angle stable implants.

**Materials and methods:** Retrospective study of a group of 34 patients with 34 fractures age 60 years and older were treated by ORIF in the period from 2001 to 2005. LCP implants 3,5 or 2,4 mm were applied from the volar approach. There were 6 men and 28 women, with an average age of 66 years (range 60-79 years).

**Results:** Radiographic and functional outcomes were assessed according to The New York Orthopaedic Hospital Wrist Rating Scale. We obtained 22 excellent, 8 good, 3 fair and 1 patient had poor result.

**Conclusion:** LCP implants in treatment of the distal radius fracture in active older patients with osteoporotic bone increase stability of the fracture fragments, minimize the risk of lost reduction and failure of the implants. Angle stable implants enable patients early motion of the wrist and permits intensive physiotherapy.

**TRA/5****HEMIARTHROPLASTY OF THE SHOULDER IN SENIORS WITH COMMUNUTED FRACTURES OF THE PROXIMAL HUMERUS****Volpin G**

Department of Orthopedic Surgery, Western Galilee Hospital, Nahariya, Israel

**Introduction:** Management of displaced comminuted fractures of the proximal humerus in the elderly is still controversial. Conservative treatment may result in severe disability due to malunion and shoulder stiffness. Rigid fixation of these fractures by plates may offer stability in anatomic position, but requires in most cases extensive soft tissue exposure and may result in a relatively high incidence of avascular necrosis of the humeral head. Therefore, many authors are today of the opinion that hemiarthroplasty of the shoulder joint in such fractures is preferable to rigid fixation. This study reviews our experience with hemiarthroplasty of the shoulder in senior patients with comminuted fractures of the proximal humerus.

**Material and methods:** This study consists of 49 Pts. (31F, 18M; 67–89 year old, mean 72.5Y; 22 with 3 parts fractures and 27 with 4 parts fracture) treated by hemiarthroplasty of the proximal humerus. Patients were followed for 2–8 years (mean 3.5Y), and evaluated by the Constant's shoulder grading score and radiographs.

**Results:** 75% of the patients treated by hemiarthroplasty had satisfactory results. They were almost free of pain, but most of them had only a moderate improvement in shoulder motion (active abduction or flexion of 110–130 degrees were observed in 4/49, of 90–110 degrees in 15/49, of 50–90 degrees in 23/49 and of 30–50 degrees in 7/49).

**Conclusions:** Based on this study it seems that pain relief by hemiarthroplasty of the shoulder may be achieved in older patients with comminuted fractures of the proximal humerus, but the gain in shoulder function is relatively limited.

**TRA/6****THE IMPORTANCE OF EARLY SURGICAL TREATMENT OF SENIORS WITH HIP FRACTURES****Volpin G, Said R, Stolerio J, Kaushanski A, Shtarker H**

Department of Orthopedic Surgery, Western Galilee Hospital, Nahariya, Israel

**Introduction:** The independence and quality of life of the aged individual is adversely affected following femoral neck fractures. Various authors have suggested that the treatment of choice for such fractures in the elderly is an immediate surgical fixation. Other authors did not find any difference in the mortality and other complication between surgically and conservatively treated patients.

**Materials and methods:** This study reviews and analyzes the outcome of treatment in 517 senior patients for subcapital,

intertrochanteric and subtrochanteric fractures of the femur. 474 patients underwent reconstructive surgical procedure within the first 24 hours or up to week following injury. Correlation were done between patients' age, sex, type of fracture, presence of associated diseases and length of interval from injury to surgery, with the immediate outcome and mortality of these patients.

**Results:** Of those, 80% were surgically treated within 48 hours following injury and the remaining within 2–7 days. The postoperative result of the patients who underwent reconstructive surgery within 48 hours were significantly better than those treated later. The overall immediate postoperative mortality in these surgically treated patients was 0.06%, whereas in 42 other patients who were treated conservatively the mortality rate was 25%.

**Conclusions:** These findings suggest that early reconstructive surgery of femoral neck fractures in the elderly is the preferred choice of treatment, even in the presence of various associated disease. Conservative treatment in such patients is associated with significant high mortality risk in geriatric patients.

**TRA/7****PERTROCHANTERIC FRACTURES****Bartoníček J, Skála-Rosenbaum**

NO ABSTRACT SUBMITTED

**TRA/8****AN UNUSUAL CASE OF A LARGE OSTEOCHONDRAL FRACTURE OF THE PATELLA FOLLOWING A PATELLA DISLOCATION****Saleem U, Yousuf N, Attar F, Sheikh A**

**Objective:** A 16 year old boy presented with a haemarthrosis of his left knee following injury whilst he was playing football. He twisted his knee and felt the knee joint move out of place and had immediate swelling and bruising around the knee.

**Method:** X-rays and CT scans confirmed a large osteochondral fragment from the medial aspect of the patella and the patient proceeded to surgery to have this fixed. Intraoperatively the fragment measured 3 cm x 2.5 cm.

**Results:** The fragment was fixed securely with a Herbert screw and reinforced by other means. A good reduction was achieved and the patient didn't have any postoperative complications. He was followed up closely postoperatively and has not sustained any long term problems.

**Conclusion:** Large osteochondral fractures are rare and their management is very difficult. In our case, the patient did well and has managed to get back to his routine level of activities without any problems.



**TRA/9****HIP FRACTURES TREATED WITH DHS: A STUDY OF SURGICAL TECHNIQUE AND OUTCOME USING TIP-APEX- DISTANCE AS A MEASURE****SaNazir AA, Roy WS**

Clinical Fellow, Royal Glamorgan Hospital, Llantrisant, South Wales, United Kingdom

Consultant Trauma and Orthopaedic Surgeon Royal Glamorgan Hospital, Llantrisant, South Wales, United Kingdom

**Background:** We undertook a retrospective study with the following aims: 1. determine precision OF surgical technique when using DHS (dynamic HIP screw) in treatment of trochanteric fractures by tip apex distance (TAD) as a measure and to find out cut outs

2. illustrate relationship between type of fracture, screw position and TAD

**Method:** TIP apex distance is the sum of the distance between the TIP of the screw and apex of the femoral head on ap and lateral radiographs. we reviewed radiographs of all peritrochanteric HIP fractures fixed with DHS between january 2005 and june 2006. screw position in femoral head was ascertained, TAD was calculated, and cutouts were noted.

**Results:** DHS was used in 149 peritrochanteric fractures. there were 10.7 % male and 89.3% female. screw was found in centre-centre in 32.9%, centre – posterior in 23.5 % AND centre-inferior in 22.8 %. mean tad was 20.08 mm highest tad was 30 mm. Mean TAD was 19.45 mm in fractures with good reduction as opposed to 22.72 mm in poorly reduced fractures. Mean TAD was 19.42mm in screws in centre centre location, which increased to 22.66mm in posterior-superior position. there were three cutouts. all of these were type 4 fractures with tad of 22 and screw placed in posterior-superior position.

**Conclusion:** Our study confirms the importance of good surgical technique in the treatment of trochanteric fractures. Overall technique for DHS has been up to the mark with the cut out rate of 0.02%. our study also proves that a definite association exists between TAD, cut out, screw location and fracture configuration.

**TRA/10****AN UNUSUAL CASE OF PROXIMAL TIBIOFIBULAR DISLOCATION FOLLOWING A SIMPLE ANKLE INJURY****Majeed MA\*, Mehmood Z\*\*, Siddiq A\*\*\*, Watson J\*\*\*\***

\*S.H.O in Accident and Emergency; \*\*Staff Grade in Orthopaedics; \*\*\*\*Orthopaedic Surgeon

**Objective:** Proximal tibiofibular joint dislocation with simple ankle injuries is very rare and can easily be missed thus we should always examine the knee with any type of rotational injuries around ankle.

**Method:** A 27 year old gentleman presented with an injury to his ankle following a simple fall in his garden. X-rays showed

a fracture of the distal tibia and anterolateral dislocation of the fibular head. Closed reduction of the tibia fracture failed and the patient proceeded to have an open reduction and internal fixation and following this the fibular head reduced completely.

**Results:** The patient was mobilised non weight bearing for 4 weeks in an above knee scotch cast and was followed up closely postoperatively. His postoperative recovery was good and he is back to his usual level of activities.

**Conclusion:** Proximal tibiofibular joint dislocation with simple ankle injuries is very rare and has potentially serious complications if missed. Fibula head is not always prominent and subluxations are also possible. These injuries should always be suspected and ruled out. In literature, most cases reported are with sports related injuries.

**TRA/11****ADHERENCE TO OTTAWA GUIDELINES IN MANAGING FOOT AND ANKLE INJURIES AND ITS EFFECTS****Hadi MN\*, Attar F\*\*, Jalil A\*\*\*, Deshmukh RG\*\*\*\*, Hassan H\*\*\*\*\***

S.H.O in Orthopaedics; \*\*\*SpR in Orthopaedics; \*\*Associate Specialist in A &amp; E; \*\*\*\*Consultant in Orthopaedics; \*\*\*\*\*Consultant in A &amp; E

**Objective:** Audit of adherence to Ottawa Ankle Rules in the management of foot and ankle injuries.

**Method:** We did a retrospective audit to assess the use of Ottawa guidelines for Ankle and Foot injuries. The case notes of fifty patients, admitted with foot &/ ankle injuries, were selected at random. We looked for the documentation of these injuries with reference to the Ottawa guidelines and the requests sent for the X-rays.

The second part of the audit was conducted in a prospective fashion. A group of fifty patients' case notes were looked at to assess the implementation of the recommendations made after the first part of the audit cycle.

**Results:** The study showed a high percentage of inappropriate or unnecessary x-rays being requested. Only 20% of the cases were properly examined and documented. They showed a 100% fracture pick up rate on x ray. About 60% of cases had poor documentation or showed an inappropriate adherence to Ottawa guidelines and in these there was only a 20% fracture pick up rate on x ray.

We recommended the use of rubber stamps and illustrations to improve the documentation. A prospective re-audit showed a reduction in number of poor documentations from 60% to 20% and the percentage of patients with good documentation improved from 20% to 72%. It also confirmed a decrease in unnecessary x-rays for patients with ankle and foot injuries.

**Conclusion:** Ottawa rules for ankle and foot injuries are useful in avoiding unnecessary exposure to X-Rays.

They should be a part of the formal teaching during induction of new doctors in accident and emergency departments.

## TRA/12 OSTEOCHONDRAL FRACTURE OF MEDIAL MALLOELUS OF ANKLE, AN UNUSUAL INJURY

Shariff R, Sanger R

**Background:** Osteochondral fractures of the talus are a relatively well known occurrence. But OCD fractures of the medial malloelus are relatively rare, especially in the paediatric age group.

**Materials and methods:** We highlight here an interesting case report of a sixteen year old who suffered from an inversion injury to his ankle. On examination he had tenderness over medial malleolus and swelling and tenderness over midfoot. Xrays showed a talar body fracture. Subsequent CT scan however showed the presence of a OCD fracture of the medial malleolus.

**Results:** We proceeded to treat this injury conservatively and the patient did well at the 3 month follow up, with good mobility.

**Conclusion:** We conclude that a good clinical examination with Xray and CT scan investigations when done appropriately are crucial in diagnosing and treating talar fractures. Importantly rare injuries like the above will not be missed with methodical management.

## TRA/13 SPINE FRACTURES IN ELDERLY PATIENTS

Štulík J, Němec J

NO ABSTRACT SUBMITTED

## TRA/14 TUBERCULOSIS OF CERVICAL SPINE – RESURGENCE IN WEST LONDON

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Tuberculosis is a disease predominantly seen in the developing world. The thoracolumbar spine is the most common site. The cervical spine is rarely affected (3–9.4%) and infection below C5 is even rarer. Tuberculosis causes symptoms due to destruction of the vertebrae and abscess formation. The presentation varies from neck pain and deformity to varying degree of neurological deficit.

We present a series of 6 cases of tuberculosis affecting the lower cervical vertebrae in West London. All the patients were in their second or third decade. Their presentations included lower neck pain, neurological deficit, and one patient was asymptomatic. All patients had received a long term anti tuberculosis therapy and some underwent surgical debridement and stabilization.

We wish to highlight the importance of considering tuberculosis as a differential diagnosis in young patients presenting with

neck pain and evidence of vertebral destruction. This is all the more important in view of globalization and migration of people in our new world.

## TRA/15 AN UNUSUAL CASE OF A TIBIAL STRESS FRACTURE IN A NON ATHLETE: THE IMPORTANCE OF EARLY DIAGNOSIS

Azam A, Attar FG  
Department of Orthopaedics, Pilgrim Hospital, Boston, UK

**Introduction:** Stress fractures are quite common in athletes therefore most of the literature is focussed mainly on athletes and very little information is available about stress fractures in non-athletes. We report an unusual case of a stress fracture of the tibia in a 35 year old healthy gentleman, who was misdiagnosed initially because of inconclusive history, signs and symptoms.

**Results:** He presented with sharp pain in his left calf but there was no history of any trauma or injury. Apart from the tenderness in the calf there was no other clinical finding of note and the initial X-rays was normal. He was initially diagnosed to have plantaris rupture and no definitive diagnosis could be made until the MRI scan of the leg was arranged, four months later. In this time, the patient continued to suffer with ongoing pain. MRI scan showed a stress fracture of the proximal tibia and the patient was then treated conservatively with modification of his activities. His symptoms eventually resolved.

**Conclusion:** Stress fractures may go undiagnosed for a long period of time and inappropriate management may result in frank fractures or non-union.

Good history and careful examination are of course necessary to give a base for further investigations. Investigations especially MRI and bone scan are very helpful in making an early diagnosis and should be considered after the initial trial of analgesics fails for the patients with non-specific persistent symptoms. Early recognition and diagnosis of stress fractures is important in helping to ameliorate pain and disability they cause.

## TRA/16 ESTIMATION OF FEMORAL LENGTH FOR INTRAMEDULLARY NAIL USING FOREARM AS REFERENCE

Nazir AA, Alazzawi S, Mahur K, Roy WS  
Clinical Fellow, Royal Glamorgan Hospital, Llantrisant, South Wales, United Kingdom

**Background:** Goal of our study was to predict the size of intramedullary nail using forearm as reference. Intramedullary nailing has become favoured treatment for femoral shaft fractures. An implant of the correct size is needed to achieve the desired results. Preoperative templating is useful and well established for trauma and elective surgery to ensure availability of a suitable implant of correct size preoperatively. Various ways have been described to estimate the nail length. Most commonly used is to X-ray the other limb or directly measure the reamer

under x-ray. However these methods involve use of x-rays and information is not well-timed. We describe a simple technique, which can be used to predict the length of femur and therefore have the intra medullary nail of appropriate length available.

**Method:** Measurements were taken on 100 volunteers from the tip of olecranon to the tip of little finger and tip of greater trochanter to palpable joint line on the lateral side of the knee. Two observers took the measurements on both sides. We used an ordinary plastic tape measure for ease of use and reproducibility.

**Results:** statistical analysis revealed a very strong correlation (with pearson correlation factor of 1) between the two lengths. Difference between the two means was 0.16 mm.

**Conclusion:** Forearm reference represents maximum nail length required. It provides a useful method of estimation of femoral length. It can be easily applied in clinical practice with a tape measure alone without resort to x-rays and other expensive and possibly harmful means.

#### TRA/17

#### PERIPROSTHETIC FRACTURES COMPLICATING TOTAL KNEE REPLACEMENT (TKR)

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Authors are defining periprosthetic fractures after TKR. Specifying the incidence and presenting different classification systems. Treatment strategy of periprosthetic fractures is still unclear. Various authors presenting only small groups and they are not usually uniform in their approach. In this lecture different ways of treatment are discussed including conservative, operative open reduction with internal fixation and prosthetic replacement and their consequences.

Group of 20 patients with periprosthetic fractures (8 intraoperative, 12 postoperative fractures) out of 1324 primary total knee replacement performed on the Department of Orthopaedics and Traumatology of Musculoskeletal System of University Hospital in Plzen during the period 1995–2004, treatment methods, milestones and couple of cases are presented.

**Conclusion:** Periprosthetic fracture are still controversial and difficult to treat. There is potential of high complication rate. Clear guidelines still do not exist. Recent studies incline rather to the operative stabilization.

Operative treatment ensures anatomical reduction, sufficient fixation (if adequately performed) and early mobilization of the knee joint.

#### TRA/18

#### COMPARING PROBABILITY OF SURVIVAL BETWEEN NEW INJURY SEVERITY SCORE AND INJURY SEVERITY SCORE

Saleem U, Shariff R, Yousuf N, Attar F, Deshmukh R

**Aim:** Application of simple assessments and measurements has allowed trauma to be quantified and compared by means of

various scoring systems e.g. AIS, ISS, NISS, RTS and TRISS. Probability of survival is affected by the ISS and the NISS scores and its calculation is dependant on these variables. Both the ISS and the NISS have been shown to predict probability of survival to varying degrees in different studies. The aim of our study was to assess how the NISS compared with the ISS in predicting the probability of survival.

**Method:** A retrospective study was carried out and the ISS and NISS scores of 678 trauma patients were calculated with all other required parameters. The probability of Survival was then calculated for every patient using both the ISS and the NISS score. The relationship between the Probability of survival with the ISS and the NISS was assessed using the correlation analysis.

**Result:** ISS had a mean of 10.22 and the NISS had a mean of 13.45 in our trauma patient population. The results showed strong negative correlations between ISS and Ps with an r value of -0.63 ( $p < 0.005$ ) and between NISS and Ps with an r value of -0.70 ( $p < 0.005$ ). The strength of the relationship between NISS and Ps was greater than that between ISS and Ps.

**Conclusion:** The results indicated significantly strong correlations between both ISS and NISS with Ps. The correlation between NISS and Ps was stronger than that between ISS and Ps. This showed that NISS was better at predicting probability of survival compared with the ISS and should be used more routinely.

#### TRA/19

#### IMPLEMENTING SECONDARY SURVEY: A DYNAMIC PROCESS

Butt U, McQuillan P, Evens T

Affiliation: Queen Alexandra Hospital, Portsmouth, UK

**Objectives:** The primary and secondary surveys are designed to identify all of a patient's injuries and prioritize their management; however, misses are prevalent in severely injured and multi system trauma patients, especially when the patient's condition precludes completion of the secondary survey. Our objective was to look in to system of documenting secondary survey and highlight its limitations in patients with obtund GCS and to explore how our practice can change.

**Method:** A retrospective case notes study was done on 14 patients admitted to the intensive care from emergency department regarding documentation of secondary survey over a period of 5 months.

**Result:** Complete secondary survey was done only for the 3 patients out of 14, partially done for 6 and not done for 5. Whereas 7 patients had secondary survey done on discharge while remaining 7 were not done. There is a poor understanding that one secondary survey in an obtunded patient is sufficient.

**Conclusion:** Secondary survey should be done in Emergency Department (ED) unless the patient needs urgent life saving treatment. Secondary survey is a dynamic process which should be repeated with the set of time and patients GCS. Though the current ATLS protocols doesn't highlight separately the protocols of secondary survey in an altered GCS patient.

ents, but there should be a standard Secondary Trauma Survey performed in every trauma patients even with altered consciousness and emergency procedure so to prevent missing any occult injuries.

#### TRA/20

##### CONSERVATIVE MANAGEMENT OF POSTERIOR STERNOCLAVICULAR DISLOCATION

Saleem U, Yousuf N, Attar F, Sheikh A

**Results:** Literature regarding posterior sternoclavicular dislocations shows almost always treatment along the surgical lines. But, in contrast, we decided to treat the patient conservatively, keeping in view the unusual stable condition of this injury.

**Objectives:** We present a case of a 44 year old man who presented with pain and an obvious deformity in his sternoclavicular region after he had a fall from his motorcycle following an accident. There were no other injuries noted.

**Methods:** Patient was admitted in out trauma unit and remained stable. X-rays and CT scans showed a posterior sternoclavicular dislocation with a haematoma but no other complications. His condition was discussed with the cardiothoracic surgeons and plan was made to treat him on conservative lines, with regular follow ups. Patient was subsequently discharged on the second day, with planned follow up at 1, 4, 6 and 12 weeks.

**Conclusions:** Posterior sternoclavicular dislocations are rare and are more severe injuries compared to anterior dislocations. Our case is unique in that our patient presented with a stable posterior dislocation with no complications and we treated this conservatively and the patient has had no long term problems on follow up.

#### TRA/21

##### BILATERAL RADIAL NECK FRACTURES IN A CHILD

Botchu R, Abbas A, Zaman T

Radial neck fractures account for 5–10% of all elbow fractures in children. We report a 10 year old girl who sustained a bilateral radial neck fractures following a fall on outstretched hand while trampoline. She sustained a Grade 1 (Steele and Graham) fracture on left side which was managed conservatively. She had a Grade 4 (Steele and Graham) radial neck fracture on the right side which was treated with reduction and fixation with K wires. She had a good clinical and radiological outcome. We believe this to be the first reported case of bilateral radial neck fracture in a child.

#### TRA/22

##### AN UNUSUAL PRESENTATION OF A PROSTATE CANCER WITH CERVICAL PATHOLOGICAL FRACTURE

Saleem MU, Shariff R, Attar FG

Pilgrim Hospital, Boston UK

**Objective:** A 83 year old man admitted for haematuria was referred to orthopaedics for tortocollitis, for which he was suffering from for a week. There was no history of trauma, usual request for a C spine X ray revealed fracture at the base of odontoid with marked C1 subluxation.

**Method:** CT scan of C spine showed considerable anterior shift of C1 in relation to the body of C2 and irregularity of C2 vertebrae without convincing destruction. However T1 and T2 MRI scan showed extensive vertebral metastasis involving majority of levels in cervical, thoracic and lumbar region. It also showed narrowing of the vertebral canal at the level of C1. Virtually entire C2 vertebral body and posterior arch were infiltrated and there was some extra-osseous soft tissue extension around the odontoid process.

**Results:** Patient neck was immobilized in the hard collar, but due to the extensive involvement of the disease patient was not considered suitable for internal fixation of the cervical vertebrae. The neck was subsequently immobilized in the Philadelphia collar.

**Conclusion:** This case emphasis the unusual presentation of the prostate cancer with the pathological fracture of C spine, which has not been reported in the english literature. Prostate skeletal metastases are predominately osteoblastic (95%), which was not the case here. This case also highlights the fact that any sign, however subtle it may be, in a patient should not be ignored as it can masquerade underlying serious pathology.

#### TRA/23

##### INCIDENCE OF UPPER GI BLEEDING IN PATIENTS WITH FRACTURED NECK OF FEMUR

Majeed MA\*, Jalil A\*\*, Granum S\*\*\*, Deshmukh RG\*\*\*\*

\*S.H.O in Accident and Emergency; \*\*Associate Specialist in A & E; \*\*\*SpR in Trauma & Orthopaedics; \*\*\*\*Consultant in Trauma & Orthopaedics

**Objective:** The stress associated with trauma, Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), Aspirin and anticoagulants are considered as factors, which predispose to Upper GI (UGI) bleed. Our aim was to assess the incidence of peri-operative UGI bleed and its relationship with these factors in patients who were operated for fracture Neck of Femur (NOF).

**Method:** We conducted a retrospective case note review of 50 patients who were operated for fracture NOF.

**Results:** The mean age was 70 yrs ranging from 60yrs–96yrs; 32 were female and 18 were male. Six patients had history of PUD (Peptic Ulcer Disease) in the past.

**Patients on NSAIDs:** 2, Patients on aspirin; 26, Patients on Clexane; 47, Patients on warfarin; 5. Five patients had upper GI bleed with no associated melena and only one of them required an endoscopy, which showed gastritis.

**Discussion:** All the patients, (10%), who had UGI bleed, were on Aspirin and Clexane. However these patients have never

had PUD and therefore were not on Proton Pump Inhibitors (PPIs).

However remaining Twenty one patients who were on both Aspirin and Clexane did not develop UGI bleed. None of the patients who were on Warfarin, which was stopped three days prior to surgery, developed UGI bleed.

**Conclusion:** We conclude that more research is required to find out other determinants for risk of UGI bleed in trauma patients and that prophylaxis should probably be offered to all trauma patients especially those who are likely to undergo an operation.





## ALOPLASTY 2

### ALO2/1 BUTTON ENDOPROSTHESIS

Žmolík L

NO ABSTRACT SUBMITTED

### ALO2/2 THE EFFECT OF TOTAL KNEE REPLACEMENT ON BODY MASS INDEX

Shariff R, Manirathnam M, Alwyn, McNicholas M  
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**Background:** Osteoarthritic patients needing a TKA give pain as the major reason for being unable to exercise to lose weight. Weight gain in turn worsens the process of osteoarthritis, this feeds into the vicious cycle. Following a TKA, patients should ideally be able to exercise more and hence lose weight. We assessed this hypothesis in our prospective study by calculating the BMI. BMI has been proven in previous studies to be a good reflection of body fat.

**Materials and methods:** We prospectively followed up 94 patients in the knee arthroplasty clinic. Height, pre operative weight and post operative weight at 12 months were measured. All the peri – operative factors in all patients were constant. We then calculated the pre and post operative BMI.

### ALO2/3 THE KNEE ARTHROPLASTY – OUR EXPERIENCES WITH UNI EP

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2<sup>nd</sup> Medical Faculty, Prague, Czech Republic

»UNI EP knee prosthesis« has been used in treatment of the gonarthrosis for more than 14 years at our clinic. The very early type of implant was »Robert Bringham« endoprosthesis. This implant, however, quite frequently wore out and got loose in 5 years after the implantation or later as a result of polyethylene wear and debris. The reasons of implant loosening are notorious. We consider as a main reason to be the insufficient thickness of the polyethylene. Therefore since 1999 we have been using a new type of UNI prosthesis called »OXFORD PHASE 3«. So far we have implanted it 32 times. We have not observed any signs of loosening at X-ray, the range of movement of the knee joint is physiological and the procedure is well accepted by the patients.

Such a good outcome we consider to be a result of ideal shape of the endoprosthesis and sophisticated instrumentation available.

### ALO2/4 SAGITTAL SPINE BALANCE AND HIP ARTHROPLASTY

Hilmi R, Roussouly P, Noyer D, Guyard M

**Introduction:** The position of the acetabulum is one of the key points of total hip arthroplasty (THA).

According to the position of the pelvis, the position of acetabulum is changing.

The position of the pelvis depends of the sagittal balance of the spine.

That's why it may be problematic to implant in well position a THA in patient's with lumbar spine pathology.

We report our experience of analyzing sagittal spine balance to explain the biomechanical relation between Spine-pelvis-hip.

**Material and Methods:** After standardization of the position for X-rays.

We use the Roussouly classification of the normal variation in the sagittal alignment of the Lumbar Spine.

In order to assess the range of motion of the hip, we analyze on one long X-rays, spine, pelvis and hip in standing and seating Positions.

**Results:** Final movement of the hip is the combination of spine-pelvic-hip complex motion.

Nearly 30% of the hip flexion is allowed by the spine-pelvic complex.

The pelvic tilt depends of the morphologic type of spine or of the position induced by some degenerative spine pathology.

**Conclusion:** A classification of the organization of the Lumbar Spine and Pelvis could give a mechanical guideline to explain the degenerative evolution and some complications in total hip arthroplasty.

It is recommended to keep in mind that there is a close relation between spine and hip.

### ALO2/5 THE TOTAL ANKLE ARTHROPLASTY

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A total joint prosthesis is used in treatment of degenerative and post-traumatic diseases of the ankle joint since 1997 at

our clinic. At the beginning we used S.T.A.R. LINK prosthesis, since 2003 a new type of AES BIOMET prosthesis is used. In 1997–2003 we have implanted 12 of LINK prosthesis (we observe seven of them) and since 2003 – present we have implanted 16 of AES prosthesis. So far we have not observed any signs

of migration of the implant. After the surgery we always check ROM (range of movement), we perform X-ray and the patient's satisfaction with the surgery is checked using the VAS (visual analog scale). We consider the new type of AES implant to be ideal also in treatment of post-traumatic changes of the joint.



## CARTILAGE

### CAR/1 CURRENT CONCEPTS IN TREATMENT OF CHONDRAL LESIONS

**Turgeon DR**

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Historically, attempts at treating articular cartilage defects have proven unsatisfactory and long term success elusive. Most patients received palliative medical care only and remained affected throughout their lives with progression through chondropenia to symptomatic and functionally inhibiting arthritis. Arthroscopy revolutionized operative treatment and our understanding of the natural history of chondral defects and subsequently ushered in a new era of surgical options. Combined with better understanding of the structure, function and pathology affecting synovial joints over the past decade, modern orthopaedic surgeons enjoy an unprecedented opportunity to intervene early and alter the disease course. A review of non-operative alternatives reveals some advances in conservative management but the most radical strides have been surgical, coupled with a continually expanding body of knowledge fuelled by clinical and scientific research. Current surgical techniques, their indications and clinical results will be reviewed along with trends and future developments.

### CAR/2 CARTILAGE TREATMENT – STATE OF ART

**Martínek V**

NO ABSTRACT SUBMITTED

### CAR/3 THE CULTIVATED AUTOLOGOUS CHONDROCYTES TRANSPLANTATION IN 50 PATIENTS

**Handl M<sup>1</sup>, Trč T<sup>1</sup>, Hanus M<sup>1</sup>, Šťastný E<sup>1</sup>, Fricová-Poulová M<sup>2</sup>, Neuwirth J<sup>2</sup>, Adler J<sup>3</sup>, Havranová D<sup>3</sup>, Varga F<sup>4</sup>**

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**Introduction:** The study concern is aimed to the method of cultivated autologous chondrocytes transplantation that have

been used in the form of a solid chondrograft for the treatment of deep cartilage defects of joints.

**Material and methods:** The surgical indications as acute and chronic injuries of cartilage or its sequelae, focal and osteoarthritic defects, osteochondritis dissecans were appropriate for the treatment by the cartilage transplantation. In the knee joint the clinical pre-, intra- and postoperative evaluation included the Meyers, Outerbridge, IKDC, Tegner and Lysholm-Gillquist scores. In the ankle joint the Anderson, Berndt and Harty, Mazur and Weber scores were used for the evaluation. MRI scans were evaluated pre- and postoperatively in 2w, 2m, 6m and 1, resp. up to 3 yrs intervals, in all cases. The surgical procedure sustained from the harvesting of the full cartilage sample from non-weight bearing area, when a deep chondral defect was found. The cultivation of chondrocytes lasted from 28 to 42 days, finally a solid chondrograft was formed by the fibrine tissue glue.

**Results:** The authors treated by this method 50 patients, among them 14 children in 2003–2006. The age range was 10 to 54 years, the mean age 32.5 years, in children 10 to 18 years, mean 15.7 resp. The follow-up period in 45 patients ranges from 7 to 36 months with the average of 20.3 months. Clinical results according to all scores improved significantly comparing both preop and postop at least 1 year f-u status.

**Conclusions:** MRI evaluation shows a good integration of the transplanted cartilage. The clinical improvement is an encouraging result of the surgical way of the treatment

The project has been sponsored by the grant of IGA MZd CR NR 8122–3/2004.

### CAR/4 INDICATION AND RESULTS OF USING HERBERT SCREW IN TREATMENT OF OSTEOCHONDritis DISSECANS OF THE KNEE JOINT

**Savadkoobi DG, Zehtab MJ, Savadkoobi MG**

**Introduction:** OSD is the most common source of loose bodies in the knee joint. As the other sources are: synovial chondromatosis, osteophytes, fractured articular surface, and damaged menisci.

The site of OCD of knee joint are as follows:

1-medial femoral condyle near the attachment of the posterior cruciate ligament 85%: classical 69%, extended classical 6%, inferocentral 10%

2-lateral condyle 15%: inferocentral 13%, anterior 2%, the type of treatment are as follows: at first depends on: age-location, degree of involvement observation: immobilization,

arthroscopic drilling of intact lesion, existing of fragment +debriding of crater, fixation+ grafting bone pegs, fixation: by (K.W...Herbert screw), allografts, musaic plasty, chondrolytes culture, during last 3 years we had 18 cases of O.C.D of the knee Joint, in 6 cases we did internal fixation of the fragment by Herbert screw.

Our results was approximately good. after about 6 months the R.O.M. was about 90% of normal knee Joint and complete weight bearing were happen without any pain and functional score SF36 were excellent and good.

## CAR/5

### ASSESSING WRIST CARTILAGE: MRI OR EYEBALL

Mutimer J, Field J

Cheltenham General Hospital, United Kingdom

**Purpose:** The aim of this study was to compare arthroscopy and MRI as methods of assessing cartilage quality in the wrist.

**Patients and methods:** 15 patients were identified who had undergone both wrist MRI and arthroscopy as part of their investigations for degenerative causes of wrist pain. 5 patients had Keinbocks disease, 6 had scapholunate advanced collapse and 4 had scaphoid non union advanced collapse. A 3 point grading system for assessing cartilage quality was devised for both arthroscopy and MRI assessing 5 articular surfaces in the wrist joint.

**Results:** The scores for MRI and arthroscopy were compared statistically using Kappa analysis to assess compatibility (where 0 equates to no agreement and 1 indicates complete agreement).

The overall Kappa score was 0.43 which shows »moderate« correlation between the two methods. Individual Kappa scores for the articular surfaces were lunate fossa 0.21, proximal lunate 0.62, distal lunate 0.22, proximal capitate 0.42 and scaphoid fossa 0.56.

**Conclusion:** Although MRI is a useful investigation, at present it cannot replace arthroscopy in measuring cartilage quality. However it does remain an important investigation in the management of such patients. As the quality of MRI scanners improves it may be possible to avoid arthroscopy as a diagnostic procedure.

## CAR/6

### SUBJECTIVE OUTCOME OF ROUTINE KNEE ARTHROSCOPY IN DGH

Elsaid M, Ali A

Barking Havering and Redbridge Hospitals NHS Trust, UK

**Aim:** To assess patients satisfaction after knee arthroscopy for degenerative knee disease (OA).

#### Methods:

- 141 consecutive patients with degenerative knee disease who underwent routine knee arthroscopy and washout with or without debridement were assessed by medical record review

and postal questionnaire, in order to assess their subjective satisfaction.

- All these arthroscopies were performed in one theatre under the care of two orthopaedic consultants during the last two years.
- Their average follow up was 13 months.
- These patients were divided into two groups.
- A-with no preoperative mechanical symptoms.
- B-with preoperative mechanical symptoms.
- A literature review of most of the studies discussed the efficacy of the procedure was also done.

#### Results:

- Out of the 141 patients a total of 107 (75.5%) returned the fully completed questionnaire. Of these, 8 (5.7%) were excluded because of associated history of trauma and 7(5%) were excluded because of insufficient information or their notes were not available.

- The age, sex distribution and preoperative pain score in both groups were comparable.

- Patients satisfaction was:

- Group A: 32 (74.5%) satisfied, 11(26%) unsatisfied,
- Group B: 22 (44.9%) satisfied, 27(55%) unsatisfied,

With a P value of 0.0057

- The efficacy of the procedure has never been proven in a prospective randomised controlled study.

#### Conclusion:

- Patients with OA of the knee which is associated with mechanical symptoms are more likely to achieve subjective improvement after knee arthroscopy.
- Knee arthroscopy for OA may be reserved only for patients with preoperative mechanical symptoms.
- Prospective randomised controlled study comparing both groups is recommended to support the conclusion.

## CAR/7

### SOLID AUTOLOGOUS CHONDROGRAFT IN THE TREATMENT OF ARTICULAR CARTILAGE DEFECTS OF THE TALUS

Messner P, Vališ P, Repko M, Chaloupka R, Krbec M, Adler J  
Orthopaedic Dept. University Hospital Brno - Bohunice, Czech Republic

**Introduction:** The aim of this study is to present our method in the treatment of talar chondral defects with the solid autologous chondrograft implantation.

**Material and methods:** We use this method of transplanted chondrocytes in chronic talar osteochondral defects in grade 2 to 4 according to Berndt and Harty classification and in grade 4 in acute ones. The age of the patients should be up to 40 years. The basic clinical examination is finished with X-ray and MR imaging. The verification of the defect is then completed with an arthroscopic assessment. The biopsy is obtained from the non-weighted talar chondral part. The cartilage is fragmented and the chondrocytes are isolated. The next step is a culture of the chondrocytes and casting to the special three-dimensional carrier form with use of the Tissucol adhesive. This process usually takes about 4 weeks. The implantation of the cultured

chondrograft is the final step of this method. We use the trans-maleolar approach for the implantation of the chondrograft in case of a defect in the medial talar part.

**Results:** This cultured chondrografts were used in 8 cases, thereof 5 men and 3 women. The average age was 28 years and 4 months. The average follow up is 16 months (from 12 months up to 3 years). We verified the clinical results with the MRI and X-ray imaging after 3 months, 1 and 2 years postoperatively. There were signs of healing of the chondrografts in MRI views in all patients. The results were assessed according to Weber score. Before the surgery the average rate was 18; 1 year after the surgery it was 5 and 2 years and more after the surgery the score was 4,5.

**Conclusion:** The possibility of the talar chondral defects healing with use of the the solid autologous chondrograft is a very effective way of the treatment and it leads to an excellent restoration of the talar joint surface.

**CAR/8**

#### **CONSERVATIVE TREATMENT OF CHONDRAL LAESIONS**

**Trč T, Handl M**

NO ABSTRACT SUBMITTED



## ARTHROSCOPY

### ART/1

#### ASC TREATMENT OF AN ACUTE SHOULDER DISLOCATION

Cerulli G

NO ABSTRACT SUBMITTED

### ART/2

#### ROTATOR CUFF REPAIR

Kopečný Z, Stehlík D, Trč T

An increasing number of studies show equal or even better results of arthroscopic rotator cuff repair than opened standard technique. Those promising outcomes in the treatment of partial as well as complete rotator cuff tears emphasize the need for uniform classification which would allow the surveys to be compared and to set up an operating management schema. Although a physical examination of the patient supplemented by imaging methods are crucial for the preoperative planning of the procedure the exact evaluation is performed arthroscopically. The management of arthroscopic rotator cuff repair is currently widely discussed issue emphasizing the need of operative treatment partial rotator cuff tears in particular. The other procedures such as acromioplasty, subscapularis and SLAP lesion repair are preferably performed simultaneously. Moreover excellent functional results and pain relief can be achieved in arthroscopic treatment of massive rotator cuff tears. Nevertheless recently numerous arthroscopic surgical techniques were introduced with excellent results the long term results remain to be evaluated.

### ART/3

#### ARTHROSCOPIC SUBACROMIAL DECOMPRESSION

Frei R, Smetana P

The concept of impingement syndrome was initially put forth by Neer in his article in 1972. The pathologic process encompassing this entity was later described as presenting a spectrum of findings ranging from edema and inflammation of subacromial bursa and rotator cuff tendon (Stage I), to a degenerative fibrotic reaction (Stage II) to, finally, frank tearing (partial or full thickness) of the rotator cuff (Stage III). In cases of refractory Stage II or III lesions, Neer proposed that an anterior acromioplasty be performed to remove thereby decompressing the underlying diseased rotator cuff and providing improved exposure if repair of a torn rotator cuff was necessary.

The diagnosis of impingement syndrome is based upon a detailed patient history and through physical examination of the shoulder – a painful arc of shoulder motion, tenderness along the anterior acromion, positive pain responses to provocative impingement maneuvers, and also the impingement test – selectively injecting Mesocain into the subacromial space, and standard radiographic assesment.

The arthroscopic subacromial decompression was developed as a means of achieving the surgical goals defined by Neer, but through an operative procedure with diminished morbidity. The reported experience with arthroscopic subacromial decompression for the treatment of refractory impingement syndrome has been positive, with results comparable to those achieved with the more traditional open approach (Ellman 1987, Altcheck et al 1990, Speer et al 1991).

### ART/4

#### ROTATOR CUFF SURGERY

Martínek V

NO ABSTRACT SUBMITTED



## IMAGING

### IMG/1 3D ULTRASOUND RECONSTRUCTION OF ROTATOR CUFF

Hrazdíra L

NO ABSTRACT SUBMITTED

### IMG/2 NEW POSSIBILITIES OF ULTRASOUND METHOD UNDER DIAGNOSTIC AND TREATMENT OF ADHESIVE CAPSULITIS

Strafun SS, Vovchenko GY, Sergiyenko RO

Institute of Orthopedics and traumatology of AMS Ukraine,  
Kyiv

The study of the use of ultrasound method (UM) for diagnosis and treatment of adhesive capsulitis (AC) of the shoulder joint has been performed at the department of microsurgery and reconstructive surgery of the upper limb and the department of functional diagnosis of ITO AMS of Ukraine.

**Materials and methods.** UM was used for examination of shoulder joints in 12 cadavers to determine the localization of structures that are being measured and conformity of measurement by means of ultrasound method of the direct measuring.

UM was used for the diagnosis of adhesive capsulitis in 69 patients.

Intraarticular distention injections for treatment of AC under UM control have been used to 36 patients, paraarticular injections in the area of interlump sulcus – to 34 patients.

**Results.** For patients with AC the triad of symptoms is typical: tendinitis of biceps tendon, thickening of the joint capsule, and disturbance of articulation in the subacromial joint.

UM permits to achieve the complete control over intraarticular and paraarticular injections into the joints.

The ultrasound method is highly effective for the diagnosis and treatment of AC.

### IMG/3 ARTROSCOPY UNDER ULTRASOUND NAVIGATION IN THE TREATMENT OF THE SHOULDER JOINT CALCIFIC TENDINITIS

Sergiyenko RO

NO ABSTRACT SUBMITTED

### IMG/4 SONOGRAPHIC GUIDED PUNCTURE OF THE HIP

Chladek P

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Prague, CZ

**Introduction:** The majority of joints is well accessible to the puncture, but if the strictly intraarticular instillation of medicaments is necessary (corticoids, chondroprotective drugs), the puncture of deeply located structures can be difficult (hip joint, some Baker's cysts etc.).

**Materials and methods:** Since 1991 we have started to perform the puncture of the hip joint effusion, controlling the guidance of the needle by ultrasound. Because of the benefit of this method, we have applied this one even to the other indications. In the last few years we use this method to instillation of medications several times monthly. The technique of the puncture of the hip joint and instillation of the medication is described.

**Conclusions:** The advantages of this particular method are summarized and discussed (the absence of general anesthesia in young children, replacement of X-ray, the safe and strictly intraarticular instillation of drugs).





## VARIA 1

### VAR1/1 LENGTHENING WITH THE AID OF IM NAILING

Trč T, Chládek P

Lengthenning of long bones by calotaxis is very nice, but complicated method of treatment inadequacy of limbs. External fixation is relatively long time in situ and frequency of complaints of patients is very high. Problems in lengthenning are practically in 100%.

From 1993 we prefer lengthenning over locking nail in femur (34 patients) and later, because of good results, in tibia (8 patients). Surgical technique and detail of complications in this method is describe. Shortening of time of application of external fixator is minimally 3x and it corresponds with decreased frequency of problems or complications.

### VAR1/2 TREATMENT OF UPPER LIMB DEFORMITIES WITH EXTERNAL FIXATION

Salameh G

Damascus, Syria

For the treatment of upper limb deformity and lengthening a modified special external hinge distraction system has been developed, which allows the combined Treatment of congenital and acquired complex deformities of the upper limbs.

Since 1995 to 2005 this new system was used in 85 patients with deferent indications in the upper limbs they presented with upper limb length discrepancies and axial deviations and deformities. The hinges where used are the modified system of (Salamehfix)

**Results:** The used hinge system allows multiplanr corrections, deferent size of arcs are used makes it more suitable in shape and allows joint movements freely, the insertion of wires and pens in a nearly right angels makes the fixation more stable in addition to insertion in a minor painful regions makes it more tolerable, good correction and x-ray control is easy

**Conclusion:** The new developed hinges are easy to use and allow the treatment of complex deformities of the upper limbs.

### VAR1/3 A NEW HINGE SYSTEM IN THE TREATMENT OF LIMB LENGTHENING AND AXIAL DEVIATIONS

Salameh G<sup>1</sup>, Schmidt M<sup>2</sup>

<sup>1</sup>Damascus Syria; Frankfurt; Germany

For the treatment of limb lengthening and correction of axial deviations a special external hinge distraction system has been developed, which allows the combined Treatment of congenital and acquired complex deformities of the leg.

Since 1995 to 2005 this new system was used in 280 patients with deferent indications in the lower limbs they presented with leg length discrepancies and axial deviation.

The External Fixation Hinge System (Salamehfix); is an arch hinged system consists of arches with a various diameters and perimeters, to assemble the deferent sizes of the leg in the upper and distal part with connecting special hinges, deferent sizes of the arcs to choose a special size for each patient with keeping an excellent technical functions; multiplanar multidirectional corrections; makes the fixator more suitable to each patient in size and allows the patient to move his joints freely, the insertion of the wires and screws in nearly right angels which make a rigid fixation, the insertion of wires and half pens in a minor painful regions makes the tolerance to the fixator is more acceptable. X- Ray control is easy. Complications where mostly superficial pin infections. No nerve or vascular injuries.

The new developed hinges are easy to use and allow the treatment of complex deformities with lengthening.

### VAR1/4 TREATMENT OF BENIGN MUSKULOSKELETAL TUMORS IN PEDIATRIC PATIENTS

Beletsky A, Gerasimenko M, Zalepugin S

Belarussian State Medical University

Forty patients were studied, who had been treated in Minsk Clinical Hospital # 6 in department of pediatric orthopedics from 1986 to 2004.

There were 26 patients with simple bone cysts (65%), 8 patients with aneurysmal bone cysts (20%), 6 patients with fibrous dysplasias (15%). These lesions were localized in humerus (16 cases, 40%), femur (7 cases, 17,5%), fibula and tibia (6 cases, or 15%, each), bones of metacarpus (2 cases, 5%), finger phalanges (2 cases, 5%), calcaneus (1case, 2,5%). 25 of the patients (62,5%) were male and 15 (37,5%) were female.

Age of the patients: < 5 years of age: 2 patients; 6 – 10 years: 17 patients; 11 – 15 years: 18 patients; > 15 years: 3 patients.

Treatment: 1) edge resection: with autoplasty was used in 1 case; with alloplasty – in 7 cases; without plasty – in 3 cases; 2) excochleation: with alloplasty was used in 11 cases; without plasty – in 3 cases; 3) segmental resection with alloplasty was used in 11 cases; 4) subtotal resection with alloplasty was used in 3 cases; 5) injections of methylprednisolone were used in 1 case.

Follow-up results of the treatment were traced in 17 cases: perfect results were obtained in 11 cases (64,5%), good results – in 3 cases (17,65%), satisfactory results – in 3 cases (17,65%).

#### **VAR1/5**

#### **OUR EXPERIENCE IN ARTHROSCOPY TREATMENT OF THE DISEASES OF THE KNEE JOINT IN CHILDREN**

**Gerasimenko M, Beletsky A, Zalepugin S**  
Belarussian State Medical University

There were totally 25 arthroscopies in 25 patients performed in paediatric orthopaedic department of Minsk Clinical Hospital # 6 during the last 6 months in children with different pathology. 8 of the patients were male and 17 were female. Age of the patients: < 11 years of age: 6 patients; 12–14 years of age: 9 patients; 15–17 years of age: 10 patients.

There were 14 cases of the pathology of the left knee joint and 11 cases of the pathology of the right knee joint. The pathology

revealed can be divided into the following groups: 1) osteochondropathies – 4 cases (3 cases of König disease, 1 case of Larsen disease); 2) congenital anomalies of the lateral meniscus (discoid meniscus) – 3 cases; 3) synovitis – 7 cases (4 cases of reactive arthritis, 2 cases of villous-nodular synovitis, 1 case of posttraumatic synovitis); 4) injuries of the meniscus – 5 cases (4 cases of inveterate injury of the medial meniscus, 1 case of closed traumatic injury of the medial meniscus with locked knee joint); 5) injuries of the lateral hip condyle – 3 cases (2 cases of closed intraarticular fracture of the lateral hip condyle with hemarthrosis, 1 case of closed inveterate osteochondral fracture of the lateral hip condyle with osteochondral fracture of the lateral part of the patella); 6) other lesions – 3 cases (1 case of closed traumatic dislocation of the patella with posttraumatic hemarthrosis, 1 case of osteochondral fracture of the medial tibial condyle with inveterate partial rupture of the anterior cruciate ligament; 1 case of inveterate rupture of the anterior cruciate ligament with chondral fractures (cracks) of the medial hip condyle, shin and medial part of the patella + degenerative injury of both menisci).

## NEUROORTHOPAEDICS

### NEU/1

#### MANAGEMENT OF CEREBRAL PALSY

Smetana V

NO ABSTRACT SUBMITTED

### NEU/2

#### TIMING IN SURGERY OF SPASTIC FOOT

Schejbalová A

Deformities of the foot in children with cerebral palsy are: pes equinus, pes equinovarus, pes equinovagis, pes planovalgus, pes calcaneovalgus. Operative procedures in the area of the triceps surae muscle are indicated for correction of pes equinus deformity in patients with cerebral palsy. Operations, to correct the equinus deformity are Strayer operation, Baker and Achilles tendon lengthening. The type of operative procedure is decided by the positivity of Silfverskiöld test. Operative procedures on muscles should be performed under the age of 6 years. Operation, to correct the planovalgus deformity is Young operation – dynamical modulation of the foot, Grice operation – basic static operation to stabilize the foot – extra-articular arthrodesis. These operations are indicated in children and adolescents. It may be performed also in adults. Transposition and hemitransposition of anterior tibial muscle are indicated in the treatment of neurogenous club foot (equinovarus). We prefer hemitransposition of anterior tibial muscle at the younger age and transposition of the whole anterior tibial muscle in children above the age of 9 years and in cases where the foot is more rigid. The method of complete transposition of anterior tibial muscle may be used also in rigid club foot with the purpose of postponing resection sub talo.

An isolated procedure is rather rare, muscle balance must always be simultaneously restored in the area of hip and knee joints of the lower extremities.

*Supported by grant IGA NR/8333-3.*

### NEU/3

#### DYNAMICS OF STUDY OF FUNCTIONAL ABILITY OF MUSCLES IN PATIENTS WITH CEREBRAL PALSY FROM DATA OF ELECTROMYOGRAPHY

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Violation of function of neuromuscular system in most of patients with the diagnosis of cerebral palsy results in development of orthopaedic complications as a result of disbalance of muscles of antagonists of shin and spasticity. Spasticity is most commonly defined as an inappropriate, velocity dependent, increase in muscle tonic stretch reflexes, due to the amplified reactivity of motor segments to sensory input.

The purpose of work was to define by electromyography functional ability of the muscle and its spasticity readiness.

**Materials, methods and results:** Material of this research was 40 patients with the spastic forms of cerebral palsy, which had operations with the purpose of removal of deformation of lower extremities (operation Strayer in updating clinic) and electromyography research of muscles of lower extremities were executed before and after an operation.

Registration and analysis of the maximal any reduction of electromyography was executed from the followings muscles: m. rectus femoris, m. tibialis anterior i m. gastrocnemius.

The quantitative analysis of total electromyography of maximal arbitrary reduction was conducted on the followings parameters: middle amplitude (mv) and activity (ms/s) – for objective determination of functional ability of muscle. Also interference electromyography was executed with use the time parameter of muscular reduction, a method of a call of spastic reduction of a muscle irritation of a sole foot (Babinski pathological reflex). For determination of spastic readiness of the muscle at the patient in three tests defined total duration of electromyography (Temg).

Taking into account the indexes of electromyography of the patients from the control group (healthy patients) comparisons of total electromyography of maximal arbitrary reduction of muscles of the lower ending were conducted in patients on cerebral palsy before and after operative treatment. At the analysis of total electromyography by comparison to a control group the average of activity and amplitude was considerably reduced to operative treatment. A tendency is exposed to the increase of index of activity and amplitude after operative treatment on m. tibialis anterior, that is related to the improvement of function given to the muscle after operative treatment. A middle index of activity before the operation was 91.11 ms/s, and after an operation increased to 181.50 ms/s, and the index of amplitude was increased from 0.28 to 0.31 mv.

Results of interference electromyography (Temg) with m. gastrocnemius in patients with cerebral palsy show, that a middle index before the operation was 1573,3 +/-51,3, and after an operation went down to 1300,2 +/-62,8, that can talk about the decline of spastic readiness of muscle. After conducting the correlation analysis of the received indexes of Temg before and after treatment the reliable correlation connections were

revealed (coefficient of correlation 0,81), and meaningfulness of selection of  $p < 0,05$ .

**Conclusions:** Electromyography allows objectively estimating functional ability of a muscle and observing in dynamics spastic readiness of a muscle.

#### NEU/4

##### ANTERIOR KNEE PAIN IN CEREBRAL PALSY CHILDREN

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Anterior knee pain arising from patellofemoral joint is a significant problem in the cerebral palsy population. The aim of this study is to classify the patients with anterior knee pain based on etiology and organize orthopaedic management based on this classification.

A retrospective chart review of patients with cerebral palsy and anterior knee pain admitted to the orthopaedic outpatient clinic between 1991 and 2003 were reviewed. The children with cerebral palsy who had intractable anterior knee pain despite 6 months of conservative treatment with at least 2 years follow up were identified and included in this retrospective study. The medical records, radiographs and treatment protocols were screened.

Patients are classified into 3 groups according to pathology. Group I consisted of 7 children with patella alta only. Group II consisted of 7 children with patellar inferior pole fractures. Group III consisted of 13 children with subluxating or dislocating patellas. Conservative treatment methods such as anti inflammatory drugs, local ice packs, stretching exercises and braces should be the first step in treatment. For those patients whom conservative treatment fails, surgical treatment alternatives were discussed. Knee pain resolved in all patients after the surgical treatment which was addressed to the underlying pathology. Gait analysis can be performed for the patients with patellofemoral subluxation to evaluate the rotational malalignment of the tibia and femur.

In conclusion, anterior knee pain arising from patellofemoral joint in cerebral palsy patients should be evaluated and be treated, in order to prevent future functional deterioration.

#### NEU/5

##### EFFECT OF ORTHOPAEDIC SURGERY OF PERONEAL WEAKNESS IN PATIENTS WITH HEREDITARY NEUROPATHY CHARCOT-MARIE-TOOTH

Smetana P<sup>1</sup>, Kobesová A<sup>3</sup>, Mazanec R<sup>2</sup>, Horáček O<sup>3</sup>, Seeman P<sup>4</sup>, Švehlík M<sup>1</sup>

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sity 2<sup>nd</sup> Medical Faculty, Prague, Czech Republic; <sup>4</sup>Department of Child Neurology Charles University 2<sup>nd</sup> Medical Faculty, Prague, Czech Republic

**Introduction:** Hereditary neuropathies known as Charcot-Marie-Tooth disease (CMT) are the most common inherited neuromuscular diseases. CMT is clinically characterised by distal muscular weakness and frequent foot deformities. Since there is no causal therapy for CMT yet physiotherapy and surgical orthopaedic procedures are the most important. Multidisciplinary approach is necessary for treatment of CMT patients and for good results.

**Material and methods:** Since 1999 to 2006 we treated 45 patients with various types of CMT disease of different ages, children as well as adults. We have done the surgery in 12 cases of children's and 33 adult cases. Mostly we did pararely both feet step by step in two and more stages. Following types of foot surgery were used: Operation according to Steindler and tendon prolongations (Achilles tendon, tend. of m. fl. hall. long., m. fl. dig. long.), operation according to Dwyer, first metatarsal osteotomy and a subtalar arthrodesis. There were two aims of surgery: prevention of foot deformity and its correction.

**Results:** In our group of 45 patients there were 40 excellent or good results. Two patients with insufficient correction were complaining of pain. We are thinking of re-operation (arthrodesis). One patient suffered from infection. Two children had to be re-operated because of progression of foot deformity.

**Conclusion:** For treatment of CMT multidisciplinary approach appears necessary. In surgery we use a step by step approach starting from soft tissue release going to bone surgery (osteotomy, arthrodesis). As a principle of the treatment we find simple stepwise procedures even in several stages comparing to massive and wide surgical approaches as arthrodesis which we consider the terminal stage of the treatment chain. Based on our experiences we think this multilevel approach is successful.

#### NEU/6

##### TREATMENT OF CONGENITAL AND ACQUIRED FOOT DEFORMITIES WITH EXTERNAL FIXATIONS

Salameh G<sup>1</sup>, Schmidt, M

<sup>1</sup>Damascus, Syria; <sup>2</sup>Frankfurt, Germany

The treatment of complex foot deformities often needs the use of special external fixators to treat the deformities of multiplanar direction and contractures of the ankle joints, equinovarus deformity. In severe cases the best choice is the use of the external hinge distraction system to restore the function of joints and treat the shortening of the foot, and correct deformity.

From 1993 to 2005 we treated 90 cases of severe foot deformities with congenital clubfoot, neuromuscular deformities and posttraumatic deformities age between 4 to 45 years with external fixators.

In some cases the treatment was combined with lengthening and axial correction of the lower leg if needed. The average time for correction 4 to 6 weeks followed by 2–3 months of fixa-

tion to keep the final correction. A special orthosis is needed after removal of the fixation devices for another 6 months.

Complications were mostly superficial Pin infection, loosening of wires, no nerve or vascular damage and no thrombosis was seen. In all cases a plantigrade foot was achieved with stiffness of the joints in neuromuscular diseases.

The walking ability was in most cases was much better due to the plantigrade position of the foot, enable the patient to walk without any aid accepts orthopedic shoes. The satisfaction rate of all patients was very good; some of the patients were able to wake first time due to the correction.

The use of external fixation is an ideal treatment in complex congenital or posttraumatic foot deformities to achieve a good correction and good functional and cosmetic result for the patient.

#### NEU/7

##### STRATEGY IN TREATMENT OF SPASTIC HIP

Czubak J

NO ABSTRACT SUBMITTED

#### NEU/8

##### THE HIP IN CEREBRAL PALSY- SURGICAL TREATMENT ON MUSCLES AND BONES – OUR EXPERIENCE

Schejbalová A, Chládek P, Trč T

In the years 1992–2005, 1917 patients with cerebral palsy were indicated for surgical treatment on muscles and bones in our Department of Orthopaedic Surgery, Charles University 2<sup>nd</sup> Medical School, University Hospital Motol. Procedures on muscles (adductors, flexors, hamstring) in cerebral palsy patients are basic and can improve centration of the hip or prevent migration progression. Combined surgeries on muscles were indicated on adductor muscles and m. rectus femoris and combined surgeries on adductor muscles and m. iliopsoas. Best clinical and X ray results were achieved in children 6 years and younger. In combined procedures on adductor muscles and m. rectus femoris, a significant improvement in centration (30–90%) was achieved in 51,7%, in combination with m. iliopsoas tenotomy, in 55,6%.

In the years 1992–2005, the following bone surgeries in the hip joint area were performed at the Orthopaedic Department of 2<sup>nd</sup> Medical Faculty : improvement of centration, 160 hip joints in 107 patients, a palliative procedure, 54 hip joints in 35 patients. In marginal and high luxation, the best results were achieved in reconstruction of the hip joint under age of 9 years. In 7 patients (8 joints), re- subluxation or re-dislocation occurred between 6–12 months after surgery, which represents 20% from a total of 40 complete procedures. In the years 2004–2005 in subluxation we prefer acetabuloplasty in our modification. We achieved significant improvement in centration – migration percentage after operation is under 30% percentage – group A, centre –edge angle increased in all children (20 joints). In the

last year we indicated Ganz osteotomy by subluxation of the hip at the age between 12–15 in 4 children. In derotation femoral subtrochanteric osteotomies, clinical findings always improved and Wiberg CE angle increased on average by 10%. In palliative Schanz osteotomy, postoperative improvement of the range of motion occurred in all patients. Because of severe pain, one patient had to undergo subsequent resection of the femoral head. Transient pain in the hip persisted in four patients (7,27%).

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#### NEU/9

##### PELVIC AND FEMORAL OSTEOTOMIES IN SPASTIC HIP

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Acetabuloplasty and periacetabular osteotomy are the standard methods of management of dysplastic acetabulum, as well as various types of proximal femoral osteotomies in proximal femur pathology. The aim of the study was evaluation of results in CP surgery, i.e. in spastic hip subluxation or dislocation.

In the last two years we made 21 acetabuloplasties in 20 patients in our own modification and 29 proximal femoral osteotomies (derotation, varus, revalgisation osteotomy, zig-zag osteotomies).

*Supported by Grant IGA NR/8333-3.*

#### NEU/10

##### EVALUATION AND TREATMENT OF HIP JOINT INSTABILITY IN CP PATIENTS

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Causative factors of hip problems in cerebral palsy (CP) are mostly combinations of muscle imbalance, acetabular dysplasia, pelvic obliquity, excessive femoral anteversion, increased femoral neck valgus, lack of weight bearing, and maldirected resultant force vectors across the hip joint. Because of increased muscle tone and resulting contractures it could be difficult to detect hip abnormalities by routine physical examination. For this reason is recommended the annual screening radiograph or ultrasound examination of the hips in children with spastic quadriplegia or in diplegic nonwalkers.

The hips at risk are those with hip abduction in flexion or extension less than 30 degrees and those with hip flexion contractures greater than 20 degrees. For the hip joint stability evaluation the measurement of migration percentage (MP) and CE angle is used. For the hip to be „optimal“ in children under the age of 4 years it is shown that the femoral head should not reach further than Perkins line. Between the ages of 4–16 years at most 5% of the visible part of the femoral head is beyond this line. It is shown that the CE angle < 20° in a child over the age of 4 years indicates that the hip is not »optimal«. The rate of



migration in a normal hip is less than 1% per year. In subluxated hips in CP the spontaneous migration in median value is about 10% per year.

Author analyze the effect of soft tissue procedures and osteotomies on improvement of hip joint stability. It is especially the balance between adductors and abductors that has significance for the hip stability. This is an important support argument for the interdisciplinary cooperation in preoperative planning and postoperative management of CP patients.

#### NEU/11

### OUR APPROACH TO THE TREATMENT OF SPASTIC HIP SUBLUXATION AND DISLOCATION IN CHILDREN WITH CEREBRAL PALSY

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**Purpose of the study:** The purpose of this study was to evaluate the effectiveness of our approach to the spastic hip subluxation and dislocation in children with cerebral palsy.

Different surgical procedures, including soft-tissue releases and osseous surgery, can be used to treat these conditions, depending on the age of the child, the prognosis for ambulation and the severity of the hip migration.

**Methods:** We evaluated 56 hips in our consecutive patients who had been treated between January 2003 and December 2005. The medical records and radiographs of these children were available for review. Soft tissue releases (open adductor tenotomy, rectus femoris tenotomy, iliopsoas tenotomy) were performed 42 hips. Osseous surgery (open reduction, pelvic osteotomy, femoral rotational osteotomy, Schanz abduction osteotomy) was done in 14 hips, depending on the age and the ambulatory status of the patient, and included reconstructive procedures in 11 hips and palliative techniques in 3 hips.

**Results:** We analyzed medical records and radiographs of our consecutive patients. The hip joints after soft tissue releases were classified according to the migration percentage into four surgical outcome groups. Satisfactory results were found in 72% of our patients. Unsatisfactory results were in 28%, mostly in older nonambulatory patients with spastic quadriplegia. Open reduction, pelvic osteotomy and femoral rotational shortening osteotomy were performed in two dislocated hips. No redislocation was observed during follow-up in these children.

Palliative techniques were used in two older children with 3 dislocated and painful hips and no potential for ambulation.

**Conclusions:** The childhood is the optimal time to intervene to maximize the function of the patient with cerebral palsy. We believe that soft-tissue releases can be used effectively to treat hip subluxation and to prevent dislocation in patients with cerebral palsy. In the setting of more significant hip subluxation the isolated soft tissue release is inadequate and osseous surgery should be indicated.

#### NEU/12

### GAIT ANALYSIS IN CEREBRAL PALSY PATIENTS

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Gait is a complex activity. It requires a control system, an energy source, levers to provide movement and forces to move the levers. Clinical gait analysis is a term that can be applied to numerous methods of evaluating a subject's walking pattern. These methods include clinical evaluation, videotaping, kinematics, kinetics, electromyography and oxygen consumption. Modern gait analysis is based on integration of these component methods of measurement to derive a complex view on subject's walking.

**Kinematics** – is a term to describe movement of segments (time/distance variables, displacements of joints, angular velocity)

**Kinetics** – describes mechanisms that cause movement (ground reaction forces, joint moments and powers)

**Dynamic polyelectromyography** – helps us to visualize amount of muscle contraction and proper timing

**Oxygen consumption** – correlates to amount of muscle power needed for walking. It's a physiological factor of energy expenditure, which is up to three times increased in children with cerebral palsy.

Clinical gait analysis is a complex powerful tool in assessing a CP patient. It helps orthopaedic surgeons in proper decision making, documents the patient's state, shows us postoperative changes. Further more it helps neurologists in Botulinum toxin indication and also in orthotics decision making. It brings a piece of science to the art of cerebral palsy management.

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## VARIA 2

### VAR2/1

#### ANATOMY AND BIOMECHANIC OF THE INSTABLE ANKLE

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The aim of this study was to understand all the factors that contribute to the instability of the ankle to try to prevent it and its consequences.

We reviewed different situations with the diagnosis of ankle instability at one moment of the history of the disease.

We analysed the different components of the stability: joint and osseous, ligamentous and tendinomusculous factors.

**Joint and osseous factors.** The talar mortise conformation seems to be stable but with two specificities: the lateral malleolus is lower to control the lateral movement of the body during the gait and the talus is wider in the front part allowing a stabilisation during the dorsal flexion of the ankle. A bad position of the fibula can induce a condition of instability: too short, too posterior or rotational malunion.

However, the truncated cone-shaped talus and the incongruency of the joint give a mobility not only in dorsal and plantar flexion but in different planes. Also, an ankle laxity can involve stress fracture of the malleoli, tendon or chondral injuries.

This incongruency is necessary to transmit the vertical force of the lower limb to the horizontal force of the foot. There is a functional unit between the ankle, the subtalar and the Chopard joints that explains why the ligamentous lesions of the midfoot give an instability feeling sometimes without lesions of the ligamentous of the ankle. And moreover, we find talonavicular arthritic joints about 20 years after an ankle sprain.

**Ligamentous factors.** In the lateral side, if the anterior and posterior fibulotalar ligaments are horizontals, the fibulocalcaneal ligament is oblique, parallel to the subtalar axis and perpendicular to the subtalar joint. Bonnel describes a continuity between this fibulocalcaneal ligament and the intertibiotalar anterior and inferior ligament to control the rotation of the ankle.

In the medial side, the deep ligament is the main stabiliser of the ankle while the superficial is in close contact with the spring ligament and the tibial posterior tendon; so we explain some flatfoot after ankle medial ligament rupture.

The interfibulotalar ligaments keep an adaptive distance between both malleoli.

Finally, the lesions are different according to the mechanism of the injury: in varus stress: lateral ligament and subtalar lesions

in rotation stress: medial and lateral lesions in inversion stress: lateral ligament and Chopard lesion.

**The tendinomusculous factors.** The muscles stabilisers of the ankle have an angulation near the malleoli needing pulleys and then have a cross insertion on the plantar face of the foot allowing a rotational control during gait.

If the retraction of the achilles tendon gives conditions to ankle instability, they are rarely injured. On the other hand, it is not the same to the lateral and medial tendons which diagnosis is often missed.

**Conclusion.** This study shows the importance of the rotational components of the ankle stability and the different factors associated with the instability.

In consequence, it is essential to evaluate all these components before undergoing an ankle ligamentoplasty to avoid some failures and to associate specific procedures in some cases (calcaneal osteotomy, medial or intertibiotalar ligament repairing, chondral lesion repairing).

### VAR2/2

#### CORRECTIVE LENGTHENING FIBULAR OSTEOTOMY IN MAL-UNITED ISOLATED DISTAL FIBULAR FRACTURES – A REVIEW OF SIX CASES

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**Introduction:** Mal-united distal fibular fractures could lead to intra-articular incongruity and post-traumatic arthritis. Correction of fibular mal-union with lengthening fibular osteotomy could lead to better functional outcome and delay the above complication.

**Methods and material:** We present our experience at a specialist foot and ankle unit with six cases of mal-united ankle fractures corrected with transverse fibular osteotomy just above the ankle joint and inter-positioning bone grafting.

**Results:** Five patients achieved pain free status. One patient had post-operative infection. The post-operative AOFAS (American Orthopaedic Foot and Ankle Society) Hind-foot scale ranged from 18-92. The Talo-crural angles ranged from 100 pre-operatively to 120-180 post-operatively. The talar shift was corrected in all patients. Bony union was achieved in these 5 patients.

**Conclusion:** Fibular Osteotomy with inter-positioning bone grafting achieved correction of ankle sub-laxation and satisfactory functional outcome. The early results from our institute are satisfactory.

**VAR2/3****FUNCTIONAL RESULTS OF PERI-ARTICULAR/LOW PROFILE PLATING OF DISTAL TIBIAL FRACTURES****Rajkumar S, Nagarajah K, Moiz M**

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Low profile plating have been used in distal radial and meta-carpal fractures but not studied in lower limb fractures. Here we report the early results of low profile plating for distal tibia (Pilon) fractures.

We studied twenty patients (mean age 42.7, range 20–64 years) undergoing peri-articular low profile plating of the distal tibia (Zimmer) for 43A, 43B or 43C fractures in the period 2002–2006. Mean follow-up was 26 months (range 12–52). 18 patients had closed injuries while 2 had open injuries (one Gustilo I and one Gustilo III type injury). There were 12 males and 8 females. Five patients had associated injuries of foot and other joints. Bony and functional results were classified into four categories ranging from excellent to poor. Union was achieved in all patients. The mean AOFAS scores improved from 44 points pre-operatively to 78 points post-operatively. (P value < 0.01 paired t test) Three patients had angular deformities between 7 and 10°, but none of these patients required further operations. Thirteen patients had excellent and good bone results, 80% of patients were satisfied with their treatment. Two patients developed arthritis of the operated ankle, one had superficial infection and one had the plate removed. This reported use of peri-articular plating techniques in the management of fractures of the distal tibia is preliminary. However, the functional results and the lack of soft tissue complications are encouraging.

*Key words: distal tibia, pilon fractures, low profile plate, peri-articular, outcome*

**VAR2/4****INFLUENCE OF PLASTER CAST IN EXTRA-ARTICULAR DISTAL RADIAL FRACTURES****Rajkumar S, Senbaga NR, Rahman M, Samuel AW**

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We undertook this prospective study to assess the influence of palmer flexion, ulnar deviation and shapes of plaster cast on the radiological outcome in extra articular distal radial fractures and to design a prefabricated brace. 70 consecutive patients with distal radial fractures treated with plaster cast referred from casualty to fracture clinic were entered into this study. The patients were seen in the fracture clinic and X rays were done at post reduction, 1 week, and 2 weeks and at 6 weeks when the plaster was removed and scanned with CT scan to analyse the degree of palmer flexion and ulna deviation and shapes of the plaster cast at various levels. The radial length, volar tilt and radial inclination were measured from x rays.

Of the forty-eight patients available for this study, majority (39) were females and 31 patients were over the age of 70. 20 patients belonged to Frykman.

Type I fracture pattern while 22 patients to Type II pattern. 38 patients had.

Transverse fractures while 10 patients had comminuted fracture pattern.

Of the 26 patients who had plaster cast with more than 20 degrees of palmer flexion on CT analysis, 18 patients (69%) had a neutral or volar tilt and 14 of 18 patients (77.8%) maintained their palmer flexion at the end of 6 weeks of plaster cast immobilisation. Of the rest 22 patients who had less than 20 degrees palmer flexion, 10 patients (45.6%) had a neutral or volar tilt and only 5 out of these 10 patients (50%) maintained their palmer flexion at 6 weeks of plaster cast immobilisation.

Of the 30 patients (62.5%) who had shown more than 20 degrees of ulnar deviation on CT analysis, 24 patients (80%) had radial length of more than 8 mm and 14 of 24 patients (58.4%) maintained their radial length after 6 weeks of plaster immobilisation. Of the 18 patients (37.5%) who had shown less than 20 degrees of ulnar deviation on CT analysis, 12 patients (66.6%) had radial length of more than 8 mm of which only 5 patients (41.7%) maintained their radial length at the end of 6 weeks of plaster cast immobilisation.

Hence we recommend immobilising distal radial fractures in plaster cast with 20 degrees palmer flexion and ulnar deviation to achieve and maintain good reduction.

*Key words: Distal radial fractures, plaster cast, functional outcome, radiological outcome*

**VAR2/5****CAN RHY-DAVIES EXSANGUINATORS BE A VECTOR FOR ORGANISMS TRANSMISSION?****BALLAL, EMMS N, REDFERN T**

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The Rhys-Davies Exsanguinator is a quick, safe and effective method of exsanguinating limbs prior to tourniquet inflation and surgery. We studied the risk of infection transmission through its use.

Serial swabs were taken from both the outer and the inner surfaces of a new and previously unused RDE before and after application on limbs of patients and volunteers. Swabs were inoculated for 48 hours and numbers of Colony Forming Units and type of organisms were recorded.

Both the inner and the outer surfaces of the RDE show an increasing colonisation growth rate with use reaching to above 100 Colony Forming Units. Organisms grown included potentially harmful strains such as *Pseudomonas* sp.

Rhys-Davies Exsanguinators can harbour potentially harmful organisms and thus infection transmission between patients and theatre staff when used without cleaning in between use. Cleaning the exsanguinator in between use is highly recommended to reduce the risk of cross infection.



**VAR2/6****A COMPARATIVE STUDY FOR POST OPERATIVE ANALGESIA IN PATIENTS AFTER THR****Majeed MA\*, Jalil A\*\*, Butt W\*\*\***

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**Objective:** To evaluate that whether or not, one shot 3:1 Femoral block, is a useful adjunct to PCA during the Post operative phase in patients undergoing Total Hip Replacement.

**Method:** A prospective study was conducted over a period of three months. A series of 50 patients was included in this project. These patients were divided into two groups. The first group comprised of twenty five patients who underwent one shot 3 in 1 Femoral Block preoperatively. The second group of

twenty five patients did not receive Femoral block. However both the groups received identical intraoperative analgesia. The post operative requirement of PCA morphine was compared. Verbal rating scale was used to assess the pain. This was first recorded on arrival from theatre and then after an interval of 24 hrs.

**Results:** It was seen that both the groups needed PCA in first 24hrs irrespective of whether they had the Femoral block or not. The strength of the PCA Morphine, we used, was 1mg in one ml with five minutes lock out time. The average requirement for PCA was 80–90ml in both the groups. Patients from both the groups could mobilize well after an average period of 2–3 days. Three patients from the group, who had PCA only, were confused for 24–48hrs. They responded well to correction of electrolyte imbalance.

**Conclusion:** One shot 3:1 Femoral block is not an effective adjunct to PCA morphine in Total Hip Replacement

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