

P212

POSITIONING RADIAL AND/OR AXILLARY NERVE UNDERNEATH A MOLDED PLATE-OSTEOSYNTHESIS FOR TREATMENT OF HUMERAL SHAFT FRACTURES: IMPACT ON OUTCOME

N. Stevens¹, G. Putzeys²

¹Orthopedie, AZ Groeninge Kortrijk, Kortrijk/
BELGIUM, ²Orthopaedics And Trauma Surgery, AZ Groeninge
Kortrijk, Kortrijk/BELGIUM

Introduction: Our surgical management consists of osteosynthesis with a large molded plate. Our goal is to remove the plate safely afterwards by leaving the radial nerve and in some cases the axillary nerve underneath the molded plate. We studied also the impact on the nerve function postoperatively and we observed the impact on stability of the osteosynthesis due to molding the plate.

Material and methods: Since Dec 2013 we treated 20 patients. We identify the axillary and radial nerve. The fracture is reduced anatomically. A long anglestable plate, in some cases molded proximally and in all cases molded distally to bridge both nerves, is applied as a neutralization plate.

Results: No patient had preoperative radial nerve palsy. There were no observed cases of wound infection, IA screw penetration or AVN of the humeral head. 5 patients had temporarily radial nerve palsy postoperatively and none permanent paralyse. 2 patients had sensory loss on the dorsal side of the forearm due of manipulation or damage of the posterior antebrachial cutaneous nerve. 1 patient had a failure of the screws although a spontaneous union of the fracture. Average postoperative shoulder aROM was good to excellent. In 2 cases the plate was removed because of irritation of the hardware without nerve damage. We observed no breakage of the plate or other problems due to molding it.

Conclusion: The surgical technique presented here uses a technique to address all aspects of the fracture and provided mindful handling of the axillary and radial nerves. Furthermore with this technique we can safely remove the hardware without secondary complications.

References: Humeral Shaft Fracture Fixation; Incidence Rates and Complications as Reported by American Board of Orthopaedic Surgery Part II Candidates Michael B. Gottschalk, MD; William Carpenter, MD; Elise Hiza, MD; William Reisman, MD; James Roberson, MD J Bone Joint Surg Am, 2016 Sep 07; 98 (17): e71. <http://dx.doi.org/10.2106/JBJS.15.01049> Plate fixation of the humeral shaft for acute fractures, with and without radial nerve injuries. 1992;6(1):10-3.

Disclosure: No significant relationships.

P213

PRIMARY TIBIO-TALO-CALCANEAL FOR SEVERE PILON FRACTURES

D. Putineanu, N. Mansour, L. Thoreau, J. Coquay

Service D'orthopédie Et De Traumatologie De L'appareil
Locomoteur, Cliniques universitaires Saint-Luc, Brussels/BELGIUM

Introduction: Objectives: Review results after primary tibio-talar-calcaneal arthrodesis with Intramedullary nail for severely comminuted pilon fractures, non reconstructibles according to

articular fractures treatment principles. Assess time to heal and fuse (fracture and arthrodesis) and intra and postoperative complications.

Material and methods: The retrospective study was performed on 32 pilon fractures operated at UCL Hospital Brussels, (October 2011-June 2016) out of which 28 had open reduction and internal fixation and 4, with severe comminution of the articular surface, received primary tibio-talar-calcaneal arthrodesis with an intramedullary nail. These were reviewed, regarding age, sex, injury type, previous musculo skeletal conditions, need for temporary external fixation, time to second surgery (nailing), arthrodesis type (open / arthroscopic), bone grafting /additional soft tissue reconstruction, complications, time to bone healing, need for revision surgery, radiological alignment of the hindfoot. The average period of follow up was 10 months.

Results: Out of the 4 patients with primary arthrodesis, 1 had high energy (good bone stock) and 3 low energy trauma (poor bone quality). Provisional external fixation was needed in 3 cases. 1 case with severe posttraumatic soft tissue loss needed a free flap. 1 case had arthroscopic tibio talar arthrodesis, 3 were operated with an open technique. 1 autograft from iliac crest and 1 allograft were used. All fixations were performed with an intramedullary nail.

Conclusion: Primary tibio-talar-calcaneal arthrodesis with fracture reduction and stabilisation is a valuable option for selected cases (severe comminution of joint surface in pilon fractures, poor bone stock), when failure of anatomic reduction and stable internal fixation is highly predictable.

Disclosure: Speaker for DePuy Synthes, Stryker

P214

GRAVITY STRESS RADIOGRAPHS HAVE ADDITIONAL VALUE IN PREDICTING DEEP DELTOID LIGAMENT INTEGRITY IN SUPINATION EXTERNAL ROTATION ANKLE FRACTURES; THE WAXE-TRIAL

T. Haak, M.P.M. Kop, J.M. Hoogendoorn

Department Of Trauma Surgery, Haaglanden Medisch Centrum, The Hague/NETHERLANDS

Introduction: In SER-type ankle fractures without medial fracture, the medial clear space (MCS) at a mortise view is used to predict a deep deltoid ligament rupture. A MCS $\geq$ 4mm is considered to be an indication for operative treatment. However, presumably this leads to overtreatment of many patients. The goal of the current study was to investigate whether a gravity stress radiograph is beneficial in the judgement about stability in SER-type ankle fractures.

Material and methods: 39 patients with a SER-type ankle fracture without medial fracture and MCS $<$ 6mm on mortise view were included. Within a week after trauma a gravity stress radiograph and MRI-scan (used as reference standard to determine deep deltoid ligament integrity) were made. The MCS measurements were compared with the MRI findings to determine the sensitivity, specificity, and positive (PPV) and negative (NPV) predictive values as indication for a complete deltoid ligament rupture.

Results: The mean MCS at 'normal' mortise views was 3.11 (range:1.73-5.93) mm, compared to 4.54 (range: 2.33-10.40) mm at gravity stress radiographs. According to the MRI, in 20 cases the deltoid ligament was normal, in 13 edematous, in 1 partially ruptured, and in 3 completely ruptured. With MCS $\geq$ 4mm as threshold for predicting a complete rupture at 'normal' ankle mortise views the sensitivity was 66.7, specificity 91.7, PPV 40.0 and NPV 97.0.