

harvesting and intramedullary debridement (septic and oncology cases). Further evidence from prospective randomised clinical trials is anticipated to elicit its safety and efficacy to the impressive variety of its indications.

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Patients in an unstable/extremis physiological state with femoral shaft fractures: an analysis of outcomes

Peter V. Giannoudis*, Ashish Soni, Hiang Boon Tan, Nikoloas K. Kanakaris

Academic Department of Trauma and Orthopaedics. Leeds Teaching Hospitals NHS Trust, University of Leeds, UK

Hypothesis: Polytrauma patients with femoral shaft fractures presenting in an unstable/extremis physiological state pose great difficulties to the trauma surgeon in terms of decision-making and selection of either the DCO/ETC surgical strategy. The purpose of this study was to evaluate the clinical results of patients presenting in an unstable/extremis physiological state with femoral shaft fractures treated with the DCO principle.

Patients and methods: Over a 7-year period all polytrauma patients were eligible to participate in this study. Inclusion criteria were the presence of femoral shaft fracture, ISS greater/equal to 40 and an unstable/extremis physiological state. Exclusion criteria were children, stable/borderline patients. Retrospective analysis was performed of prospectively documented data. Demographics, physiological parameters, ISS, AIS, blood transfusion requirements, operation details, clinical course, complications and outcomes were recorded and analysed.

Results: Out of 255 cases with an ISS greater than 40, 38 patients (33 males) met the inclusion criteria. The most frequent mechanism of injury (77%) was motor vehicle accidents. The mean age was 36.6 (16–73) and the mean ISS was 48.8 (40–66). The mean AIS per anatomical region was: head 3.7 (3–5), chest 3.1 (0–5), abdomen 1.2 (0–5), face/neck 1.5 (0–5) and extremities 3.2 (2–5). On arrival the mean GCS was 7 (3–15). Systolic blood pressure and heart rate were 100 (70–108 mmHg) and 114 (85–151). The mean number of blood units, FFPs, cryoprecipitate and platelets transfused was 7 (1–46), 3.6 (1–48), 0.3 (0–2) and 0.7 (0–7) respectively. Initial life saving procedures included chest and abdominal decompression and craniotomies. Femoral shaft fractures were temporarily stabilised initially with external fixator (DCO). The length of intensive care unit and hospital stay was 11 days (1–36) and 26 days (1–121) respectively. The overall peri-operative mortality rate was 47.3%.

Conclusion/significance: Utilising the damage control principle, a high mortality rate was observed. This cohort of patients has an inherited high risk of mortality due to the increased injury severity in all body regions. Further studies should now present similar data on similar cohort of patients treated with early total care in order to assess whether better survival rates can be achieved.

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Judet osteo-periosteal decortication for treatment of non- and mal-union: the Cornwall experience

K. Naik*, P.M. Guyver, C. Wakeling, M. Norton

Royal Cornwall Hospital, Truro, United Kingdom

Introduction: The treatment of non-union is a challenging orthopaedic situation providing the surgeon with the dilemma to choose from a variety of different surgical options in order to encourage and achieve bone consolidation. These include internal and external fixation, bone grafting, bone transport and distraction osteo-modelling and decortication techniques. Robert Judet first described his method of osteo-periosteal decortication in 1963. He stated that through elevation of cortical chips that remain attached to the periosteum and overlying soft tissues surrounding the site of non-union, an “in situ vascularised autogenous bone graft” then would stimulate bone consolidation when accompanied by mechanical support. Despite his excellent results presented in 2008 of 99% union rates with a mean delay of 8 months, this technique does not seem to be popular at present with bone grafting and distraction osteo-modelling being the favoured option.

Aim: We aim to show that Judet’s method of osteoperiosteal decortication can achieve comparable good results in the management of failure of union within a United Kingdom hospital.

Methods: Retrospective analysis was performed from December 2002 to December 2008 of 47 cases of osteoperiosteal decortication for failure of fracture union. Concurrent stabilisation was with internal fixation only. All procedures were performed by one surgeon using the Judet technique. A non-union scoring system was also used to assess its usefulness as a tool in predicting persistent non union.

Results: Union was successfully achieved in 40 of the 46 patients (87%) after a mean delay of 10.7 months (range 3–39 months). Thirty-two patients (70%) achieved union following the decortication procedure without subsequent operations. The mean number of procedures following decortication was 0.6 (range 0–4) mostly being performed for metalwork failure. Metal work failure occurred in 13 cases (23%) with the majority occurring in decortications of the femur ($n = 11.85\%$). The femur was the location of all persistent non-unions in the series. Three patients had superficial infections (6%) and two (4%) had deep infections. One patient (2%) died of pancreatic cancer whilst under review. The non-union scoring system (0–100) means were noticeably worse for the persistent non-union group (40, range 28–46) compared to the union group (27.5, range 4–52).

Conclusions: Osteoperiosteal decortication remains a highly effective surgical technique in the management of failed fracture union. The non-Union Scoring system seems to work well as predictor of persistent non-union after this type of surgery.

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