diagnosed as wedge compression fractures on the initial trauma radiographs. Associated fractures in the adjacent vertebrae are often missed in the presence of an obvious fracture. Computerised Tomograms (CT scan) has proven to be an important tool in diagnosing the true extent of spinal fractures. To understand the prevalence of these associated fractures following road traffic accidents, we retrospectively reviewed the plain radiographs and CT scans of 72 patients (49 males and 23 females) with diagnosed burst fractures of various vertebrae aged between 14 and 60 years presented to our spinal unit between March 1996 and July 2004. Forty-eight percent (N = 35) of these patients were diagnosed as simple wedge fractures.

Results: Thirty-four patients (47%) out of 72 patients had fractures in the adjacent vertebrae. Twenty-one patients (29%) had fractures in the adjacent vertebral bodies [3 patients (4%) had associated burst fractures, while 18 patients (25%) had associated anterior wedge fractures]. Nineteen patients (26%) had other associated fractures in the adjacent vertebrae, for example, [7 (9.7%) had transverse process fractures, 3 (4%) lamina fractures, 5 (7%) spinous process fractures, 2 (2.7%) facets fractures and 2 (2.7%) pedicle fractures]. Additional injuries include chest injuries in 9 patients (13%), abdominal injuries in 19 patients (27%) and extremity fractures in 12 patients (17%).

Conclusions: Patients with suspected burst fractures following a high-energy trauma would require careful evaluation to diagnose associated spinal fractures. Most of the adjacent fractures are missed on the initial plain radiographs as evidenced in this series. As the initial plain radiographs are often inadequate a CT scan of the involved region is essential to diagnose the true extent of these injuries.

doi: 10.1016/j.injury.2006.06.069

AmuArt
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On 5 March I sustained ‘multiple injuries’, with an ISS 24 as a result of a car crash. The injuries were all right sided and included nine rib fractures, haemopneumothorax, fracture sternum and scapula with AC joint disruption, small liver laceration and renal haematoma. The initial management followed ATLS guidelines, with insertion of a chest drain. This was removed at 6 days, by which time it was infected. Following a thoracotomy to drain 1.5 l of fluid from my chest, I made a slow but reasonable recovery. The AC joint was stabilised at 9 weeks post injury.

Considering the state of the car, the injuries were relatively light, but the disruption to a busy professional life was enormous and there is much to learn from the experience of trauma care from the wrong end (‘AmuArt’).

doi: 10.1016/j.injury.2006.06.070

Results of surgical treatment of unstable pelvic fractures in children
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Purpose: Pelvic fractures in children are rare. Historically these have been managed non-operatively but studies have shown poor results in up to 30% of patients. Purpose of this study was to show outcome following surgical treatment in unstable pelvic ring fractures.

Methods: A retrospective review was undertaken of unstable paediatric pelvic fractures between April 1992 and February 2002. Twenty-seven unstable paediatric pelvic fractures identified. There were 15 male patients and 12 female patients. Mean age was 13.3 (5—16) years with 6 immature and 21 mature pelvises. There were 20 motor vehicle accidents, three falls from height and four falls from horses. There were 24 Tile type B and 3 Tile type C fractures. Twenty-two (84%) patients had additional injuries. Twelve patients treated with external fixator alone, five with posterior internal fixation + external fixator, five with anterior + posterior internal fixation, three with anterior internal fixation, one with anterior internal fixation + external fixator and one with posterior internal fixation alone. Average follow up was 7.2 years (2—13 years).

Results: Twenty-four (92%) out of 27 patients had very good results with no disability. Twenty-three (88%) had satisfactory radiological outcome. There was no genitor-urinary dysfunction. One female had normal vaginal delivery while two others had LSCS. Four (15%) patients had superficial pin site infection. Three (11%) had limb length discrepancy (1—2 cm). One patient had Sacroiliac and pubic non-union that was treated with delayed fusion.

Conclusion and significance: We conclude that anatomical alignment of pelvic ring by open or semi open methods produces good long-term clinical results. Orthopaedic management should be directed to restore pelvic symmetry to allow soft tissue healing. Our study confirmed that operative treatment of unstable pelvic fractures in children could
Accuracy of sacroiliac screws insertion using fluoroscopy: An experimental study comparing two (inlet/outlet) versus three (inlet/outlet/lateral) views

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Hypothesis: Percutaneous insertion of sacroiliac screws for stabilization of the posterior elements of the disrupted pelvic ring is often associated with a high rate of screw misplacement. Insertion of the screws is usually performed with fluoroscopic guidance using either two (inlet/outlet) or three (inlet/outlet/lateral) views. The aim of this study therefore was to evaluate and compare the accuracy and safety of this demanding procedure using either two or three views in a plastic pelvic model.

Materials: In a simulated surgical procedure, 26 covered plastic pelvic models were used for the insertion of 104 cannulated screws in the S1 and S2 vertebral bodies, using a 2.8 guide wire and a 5 mm cannulated drill. The placement of the screws was controlled with a conventional image intensifier using either three views for the right side S1 and S2 bodies (total of 52) and three views for the left, respectively. The time of exposure to radiation was recorded. All the screws were inserted by the Senior Author. After the screw insertions, each pelvis was inspected for screw perforation, and after screw removal, it was cut in the midsaggital and transforaminal plane for accurate evaluation of the position of the screw in the safe anatomical zone. Any deviations were documented and analysed.

Results: The mean radiation exposure time for the S1 screw placement was 14 ± 5.6 s when three views were used compared with 18.6 ± 8.3 s with the usage of two views, (p = 0.03). The mean exposure time for S2 screw placement was 12.2 ± 10 using three views and 16.1 ± 12 s for two views respectively (not statistically significant (p = 0.2). There were not statistically significant differences in the position of the screw (in terms of distance deviation) in the midsaggital and transforaminal plane from the various anatomical landmarks measured, using two or three views. There were in total 13 screw perforations (6/26 S1 screws and 7/26 S2 screws) when three views were used versus 20 (7 and 13, respectively) using two views. There was no screw perforation in the canal when the S1 screw was placed either with two or three views (there were however three cases of foramina perforations), whereas with the S2 screw placement, there were 5/52 canal perforations and 10/52 perforations of the foramina (7 with 2 views and 3 with 3 views), (p = 0.08).

Conclusion: There was a statistically significant reduced radiation exposure time for the S1 body screw insertion when three views were used compared with the two views method. There was a higher screw perforation rate of the S2 body using the two views. This study supports the view that fluoroscopic sacroiliac screw insertion should be performed using the three views method.

doi: 10.1016/j.injury.2006.06.072

Two level reconstruction of comminuted posterior wall acetabular fractures

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Purpose: Posterior wall fractures of the acetabulum associated with fragmentation are challenging cases and often difficulties are encountered intraoperatively to maintain reduction of the fragments until solid union takes place. The purpose of this study was to evaluate the efficacy of the two level reconstruction technique using 1.5 mm or 2 mm mini screws for the stabilization of comminuted posterior wall acetabular fractures.

Methods: Between January 1995 and January 2004, 29 (26 males) patients with comminuted posterior wall acetabular fractures were treated and prospectively followed up in our institutions. There were five (17.2%) cases of associated sciatic nerve injuries. In 27/29 patients there was a posterior fracture dislocation. All the dislocations except two were reduced within 6 h from injury. Seventeen patients had sustained other associated injuries, median ISS 10 (range 9—18). All patients underwent CT scanning prior, after surgery, and at 3 months follow up to evaluate the accuracy of reduction. The Kocher—Langebeck approach was used in all cases.

The operative procedure involved reduction and stable fixation of the fragments with the appropriate number of 2 mm mini screws inserted internally sparing the articular cartilage. Subsequently, the big posterior wall fragment was stabilised with 3.5 mm lag screws (wall to column) and neutralization of the whole construct using either reconstruction (AO) or Matta plates. Postoperative, all patients were mobilising toe touch weight bearing and all