

# Pelvic fracture urethral injury – The nature of the causative injury correlates strongly with surgical treatment and outcome

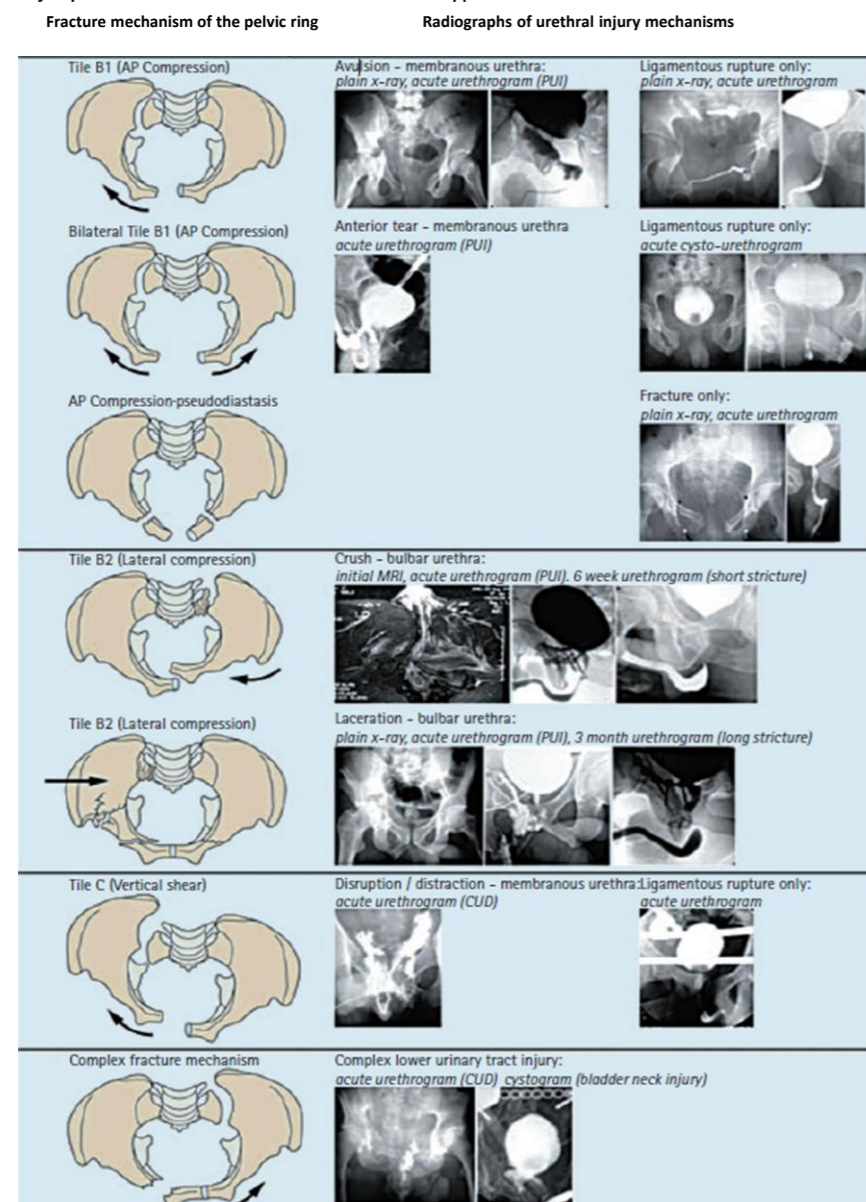
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## INTRODUCTION

It is well recognised that pelvic fracture urethral injury (PFUI) is related to pelvic ring disruption. The usual causes of disruption of the pelvic ring are a lateral compression, an antero-posterior compression or a vertical shear force. The lateral compression injury causes the pelvis to be crushed inwards; the antero-posterior compression tends to cause an “open book” which opens the pelvis up; and the vertical shear force causes upward displacement of one hemi-pelvis in relation to the other side.

We have assessed the specific nature of the causative injury and its correlation with the resulting type of pelvic ring disruption and consequent type of urethral injury, its surgical treatment and outcome.

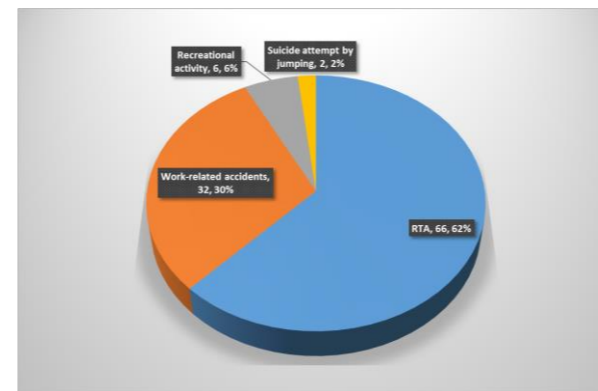
**Figure 1 - ‘Tile’ classification of pelvic ring fractures with radiographic demonstration of urethral injury mechanism associated with each type**



## MATERIALS & METHODS

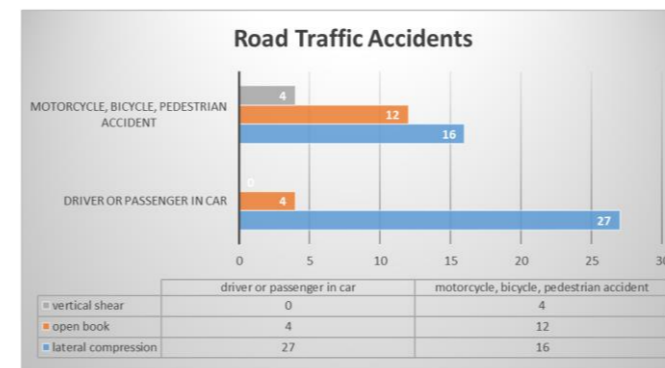
- 106 consecutive patients with pelvic fracture-related urethral injury and no previous open reduction and fixation of pelvic ring
- All patients had assessable pelvic CT at the time of injury and urethrogram
- Minimum of 2 year follow-up
- Mean follow-up 124.8 months (range 12.4 – 243.7 months)

**Figure 2 - Cause of the injury – number of cases and percentage**

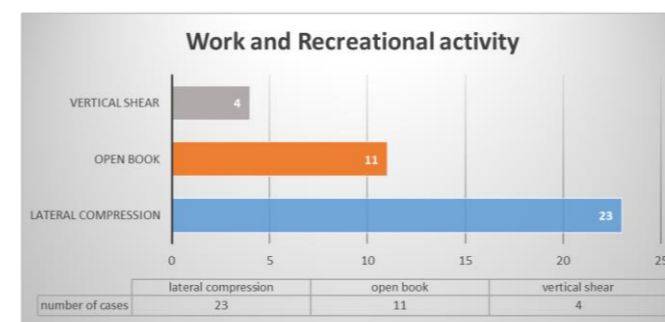


\*50% of RTA were drivers or passengers in vehicle

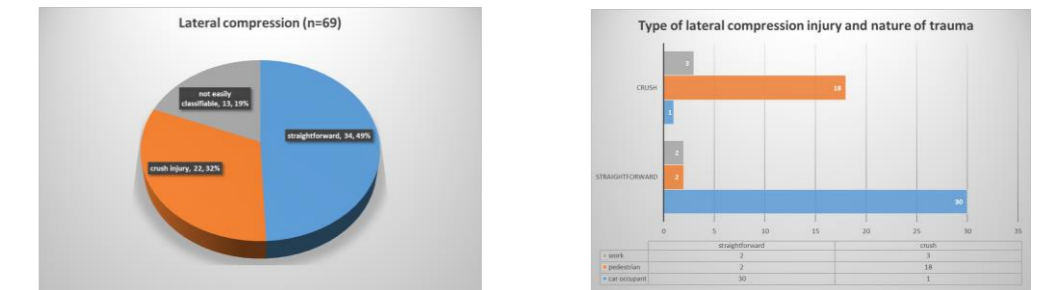
## Correlation between mechanism of injury and type of pelvic ring disruption



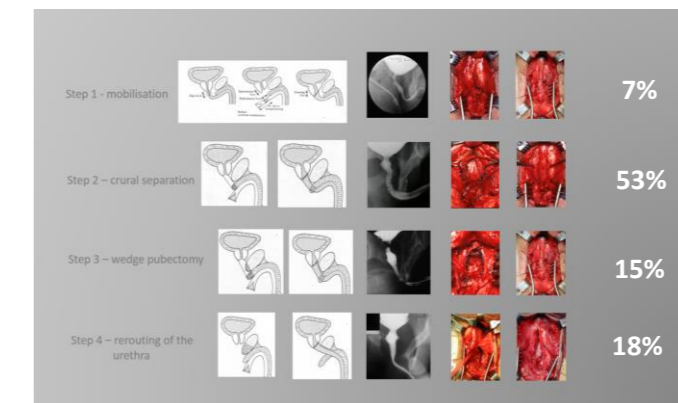
\*4 patients were not classifiable in this simple manner



## Lateral Compression Injuries



## Nature of the reconstruction



- Other procedures e.g AP approach; entero-urethroplasty necessary in 8% of cases
- 60% of Step 3 and 67% of Step 4 repairs were due to crush injuries
- Success rate of surgery deteriorated from 95% for step 1 to 84% for Step 4 with each successive step

## SUMMARY / CONCLUSION

- Car drivers and passengers in accidents with other similar-sized vehicles tended to have a preponderance of lateral compression fractures. Because lateral compression fractures seemed to cause less local trauma in the pelvis and were associated with shorter defects to bridge, these patients tended to have less serious injuries and a better outcome than the other groups.
- In a car driver or passenger, there was an 88% chance that the injury would be a “straightforward” lateral compression injury causing an incomplete rupture with a 92% chance that it can be treated by a step 1 or step 2 BPA with a success rate of 93% - 96%.
- This interrelationship between the causative injury and the degree of trauma and the scale of surgery and the outcome might explain why the results of surgery in different areas of the world may give different results.

