East Metropolitan Health Service

Royal Perth Hospital

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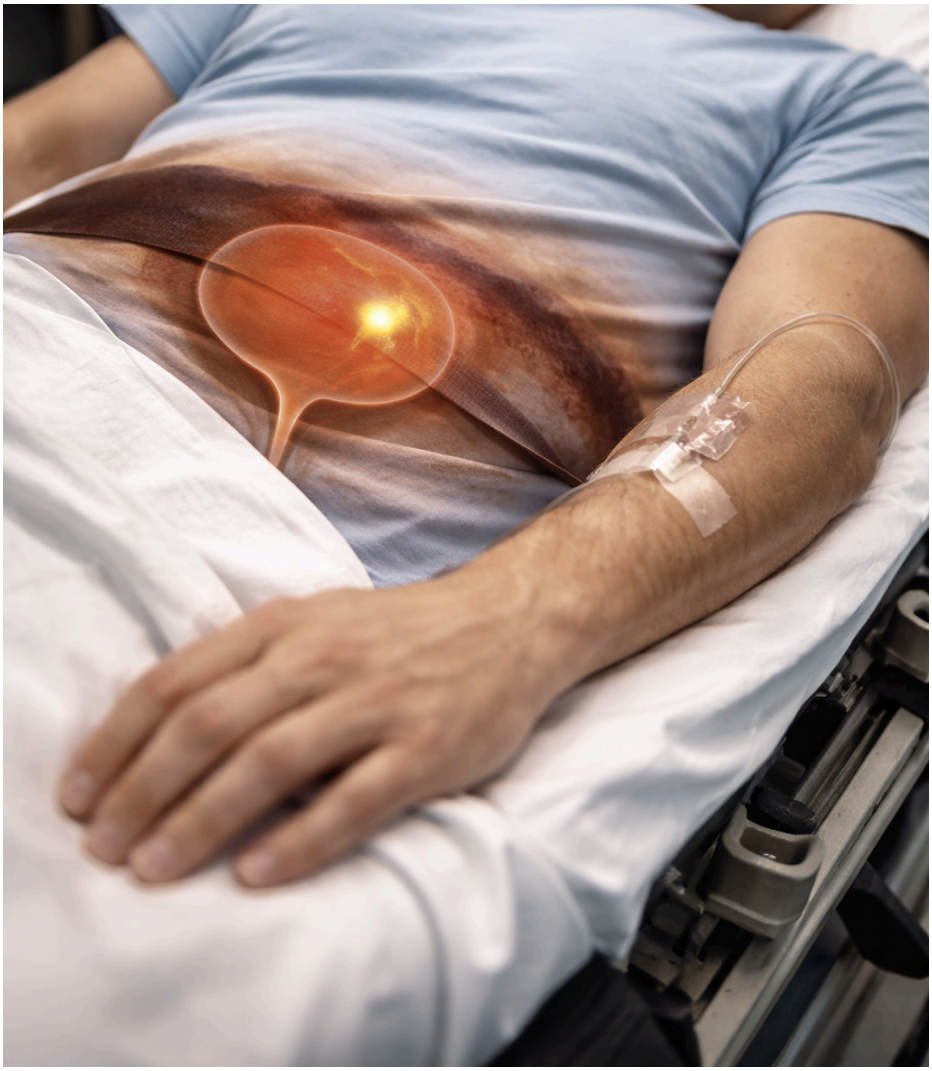
The Trauma Bulletin

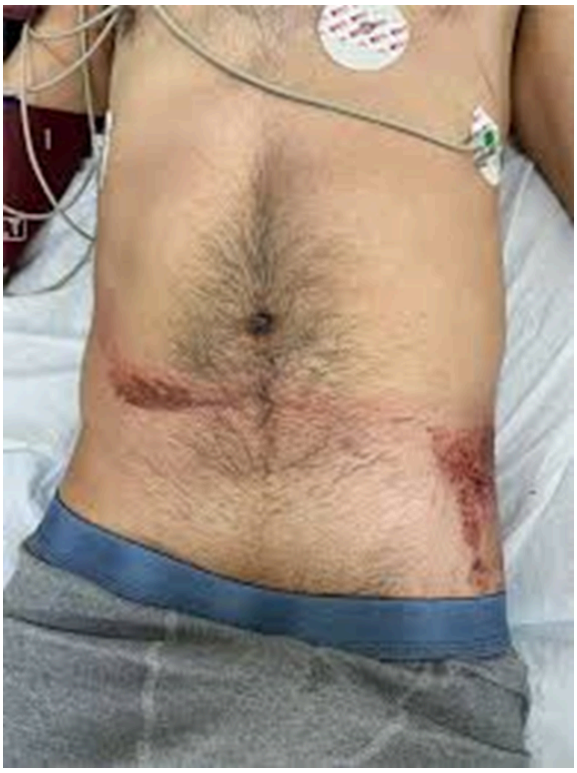


Seat Belt Sign Warnings: More Than Skin Deep

Issue twenty six

STATE ADULT TRAUMA SERVICE
WESTERN AUSTRALIA

Case summary

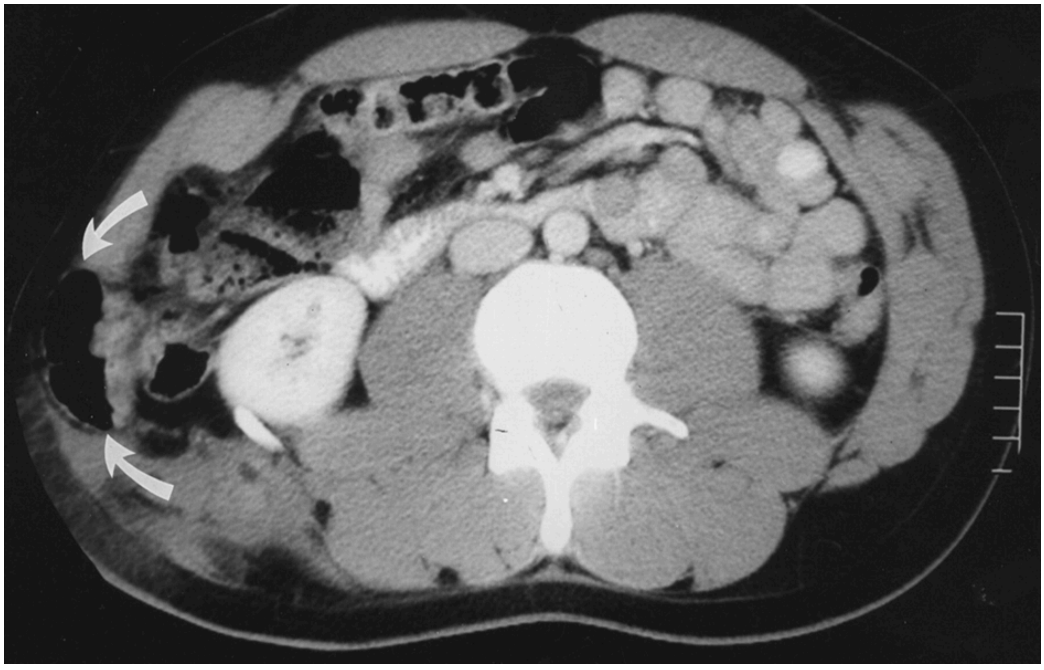


A patient arrives at the ED after a high speed MVC on his way home from the pub after a night of drinking. He complained of abdominal pain, and has a significant seatbelt injury.

He was obviously heavily under the influence of alcohol, and was difficult to assess, but he had a very clear seat belt sign.

As part of his work up, he had an abdominal and pelvic CT. It did show traumatic lumber hernia (an adequate explanation for his abdominal discomfort) but nothing else obvious.

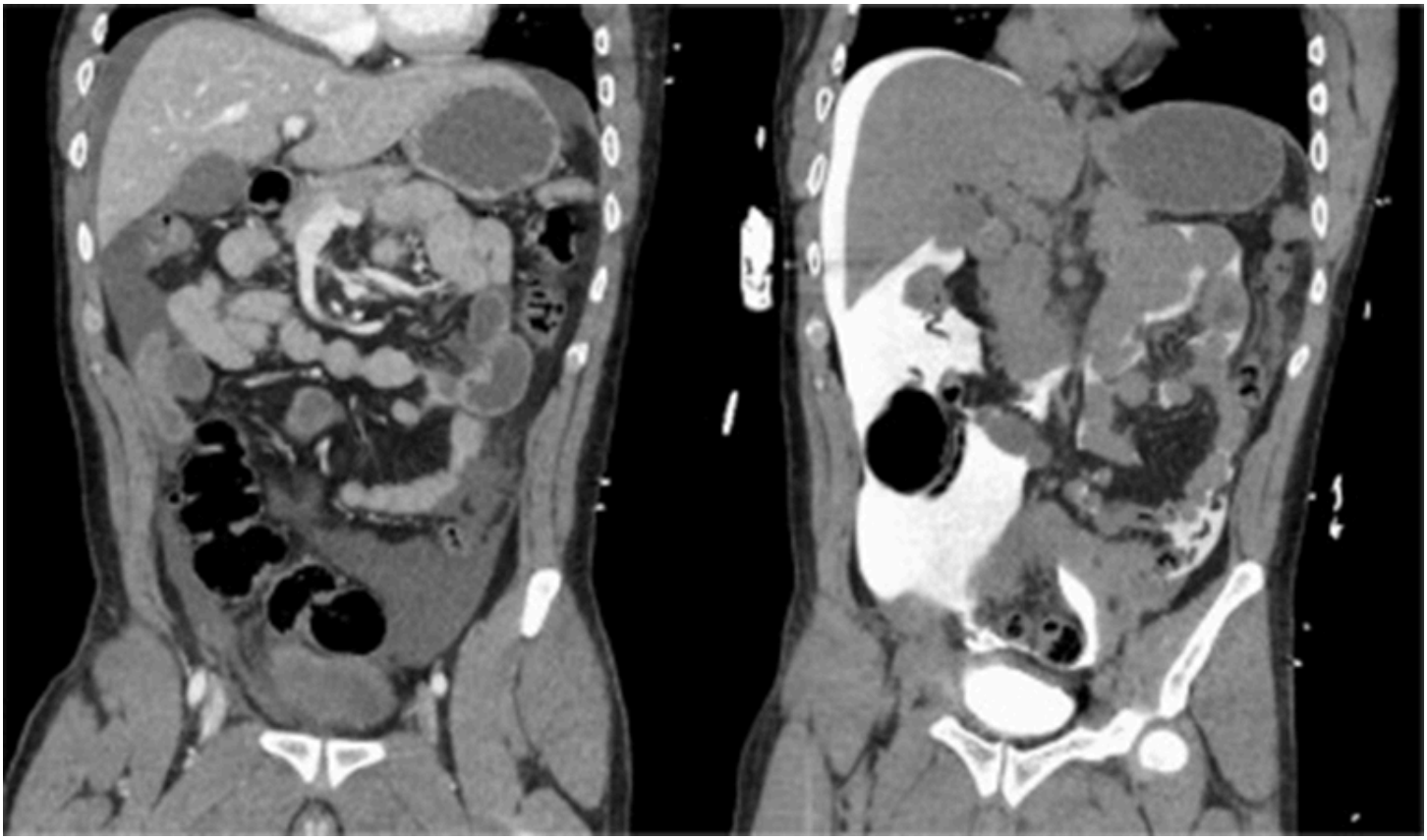
The CT scan



The trauma fellow thought the bladder ‘looked funny’ and asked the radiology registrar whether a formal cystogram was warranted… but this wasn’t followed up.

Sometime later, the patient was noted to have gross haematuria on his catheter drainage, and the request for a formal cystogram was repeated… and it showed this!

CT Cystogram



His images show contrast intraperitoneally, surrounding bowel loops.

He was taken to theatre to have a repair and did very well.

Learnings

It's worth reading the following article on bladder rupture. Bladder ruptures are not common injuries (less than 2% of blunt abdominal trauma), and most are extraperitoneal ruptures (60), which are generally manage conservatively with IDC drainage. Intraperitoneal ruptures are less common (30%) and occur when a full bladder is subject to compressive forces which essentially blow the top of the bladder.

The force doesn't have to be massive...there have certainly been cases when the injury was produced by a single punch.

Most patients will have gross haematuria, difficulty voiding and abdominal pain. Any pelvic fracture may be associated with a rupture, but anterior arch (pubic rami) fractures have the highest incidence.

Understanding why missed injuries happen

Bladder ruptures are **occasionally missed** on initial assessment, because:

1) They are a rare injury

2) The patient may have associated intoxication.

Imaging is not performed on a full bladder.

Traditionally, a retrograde cystogram was the imaging modality of choice, but currently most regard a CT as producing equivalent sensitivity... as long as the bladder is full. It there is any doubt on initial imaging, a CT retrograde cystogram should be performed.

So, the biggest learnings from the case are probably:

Respect seat belt sign

Consider CT cystogram in cases where there is diagnostic uncertainty.

Bladder Rupture

Leslie V. Simon; Hussain Sajjad; Richard A. Lopez; Bracken Burns.

SCAN

https://www.ncbi.nlm.nih.gov/books/NBK470226/

* No clinical photos are used in Trauma Bulletins *