

# Urological Injuries In Pelvic Fractures, Local Practice, Best Practice?

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# Renal Trauma

- Surgery for unstable patient with renal trauma is recommended (EAU Trauma Guidelines 2003)
- Inevitably nephrectomy
- However in Auckland surgery is rare (1 nephrectomy post trauma in 5 years)
- Preference for embolisation because:

# Renal Trauma

- High success rate in controlling the bleeding
- More likely to preserve renal function
- Less physiological distress than laparotomy
- Urothelial injuries can also be managed conservatively

# Ureteric Injuries

- 0!
- These are very rare with blunt trauma
- May be difficult to diagnose (need delayed CT runs) if suspicious
- More likely if abnormal renal or ureteric anatomy

# Bladder

- 11 bladder injuries (3.5%)
- 4 had simultaneous urethral injuries (36%)
- 3 haematoma/contusion
- 3 intraperitoneal
- 5 extraperitoneal
- 4 laparotomy
- 1 cystoscopy and diathermy

# Bladder

- Symptoms

- Gross haematuria 82%
- Abdominal tenderness 62%

- Investigations

- CT with contrast (150ml into bladder)

# Bladder Management

- Treat other life threatening injuries
- Intraperitoneal
  - Laparotomy and primary repair
- Extraperitoneal
  - Catheter
  - Laparotomy if extensive extravasation or haematuria or bone spicule





# Bladder Injuries

- **>85% of pts w/ bladder rupture have serious associated injuries w/ a mortality rate of 22-44%**
- **83% have pelvic fractures**
  - **Pubic rami 55%**
  - **Ant and post pelvic rings 12%**
  - **Comminuted 12%**
  - **Acetabulum 11%**
- **12% of pelvic fractures have a bladder rupture**

# Complications

- Abscess
- Fistula
- Incontinence +/- impotence secondary to bladder neck injury and/or pelvic fx
- Bladder outlet obstruction / neck contracture

# Urethral Injuries

- 11 urethral injuries (3.5%)
- 4 also had bladder rupture (36%)
- Signs
  - blood at urethral meatus
  - Unable to urinate
  - High riding prostate
- Retrograde urethrogram



# Mechanism

- 5-10% of all pelvic fractures
- 30% with associated bladder injury

Type of Fracture	Odds Ratio of Urethral Injury
Single Ramus	0.64
Ipsilateral rami	0.76
Malgaigne's	3.4
Straddle	3.85
Straddle +Sacroiliac	24.02

# Management

- A ruptured urethra is not life threatening
- Suprapubic and attend to other injuries
- Early rail-roading
- Delayed primary repair
- Suprapubic and come back at 3 months end to end anastomosis

# Management

- “Most patients are best treated by a suprapubic catheter for 3 months and then an end-to-end anastomotic urethroplasty in those who have developed urethral occlusions. There are roles for delayed primary repair and for endourological management in selected patients, but their exact roles have yet to be defined.”

# Local Results

- 11 injuries
  - 2 healed spontaneously
  - 1 rail roading – false passage
  - 1 delayed primary repair (leaking still when returned to Taiwan)
  - 1 urethral catheter (haematoma only)
- 6 end to end at 3 months



## Local Results: end to end urethroplasty

- 2 Reg Primary surgeon (re stenosed)
- 4+(1 Re-do) Urologist Specialising in Urethral Surgery (excellent results)

# Why Wait?

- Other injuries treated
- Erectile function declares itself higher rate erectile dysfunction with rail roading
- 50% will be impotent
- 20% avoid surgery
- Haematoma reduces significantly
- Excellent result with the right surgeon



## Pericatheter urethrogram at 4 weeks



Flow rate 33ml/sec    erectile dysfunction

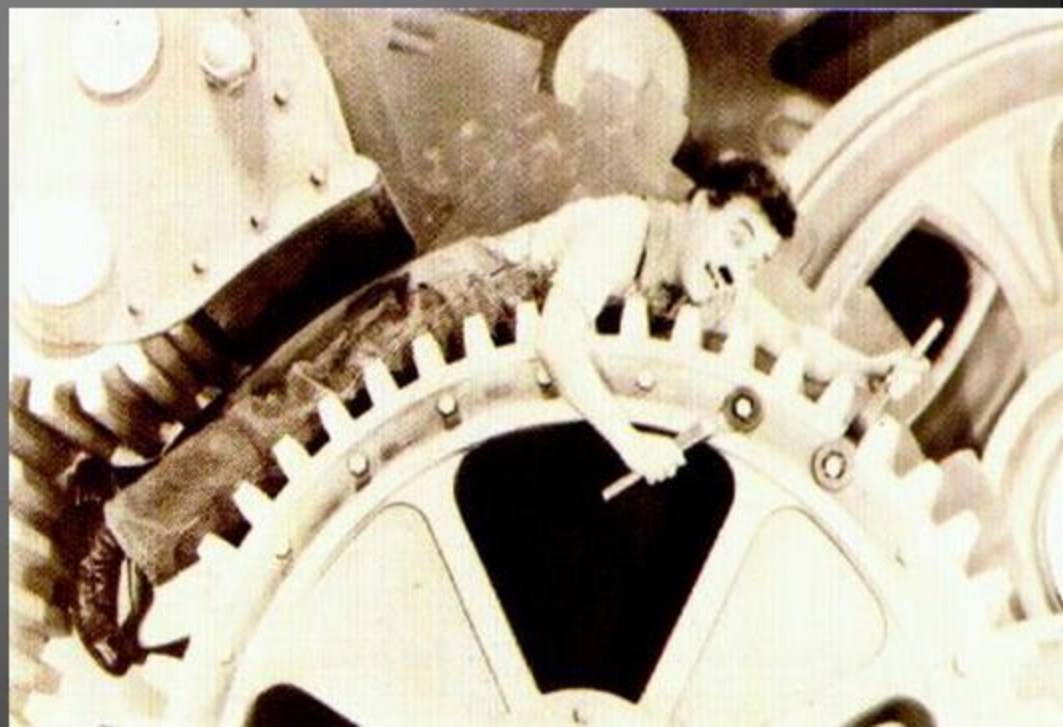
# Scrotal Injuries

- 3
- 1 required debridement for abscess

# Conclusions

- Kidney injuries are surprisingly common treat conservatively
- Repair intraperitoneal bladder rupture otherwise catheter
- Delayed end to end urethroplasty for urethral rupture

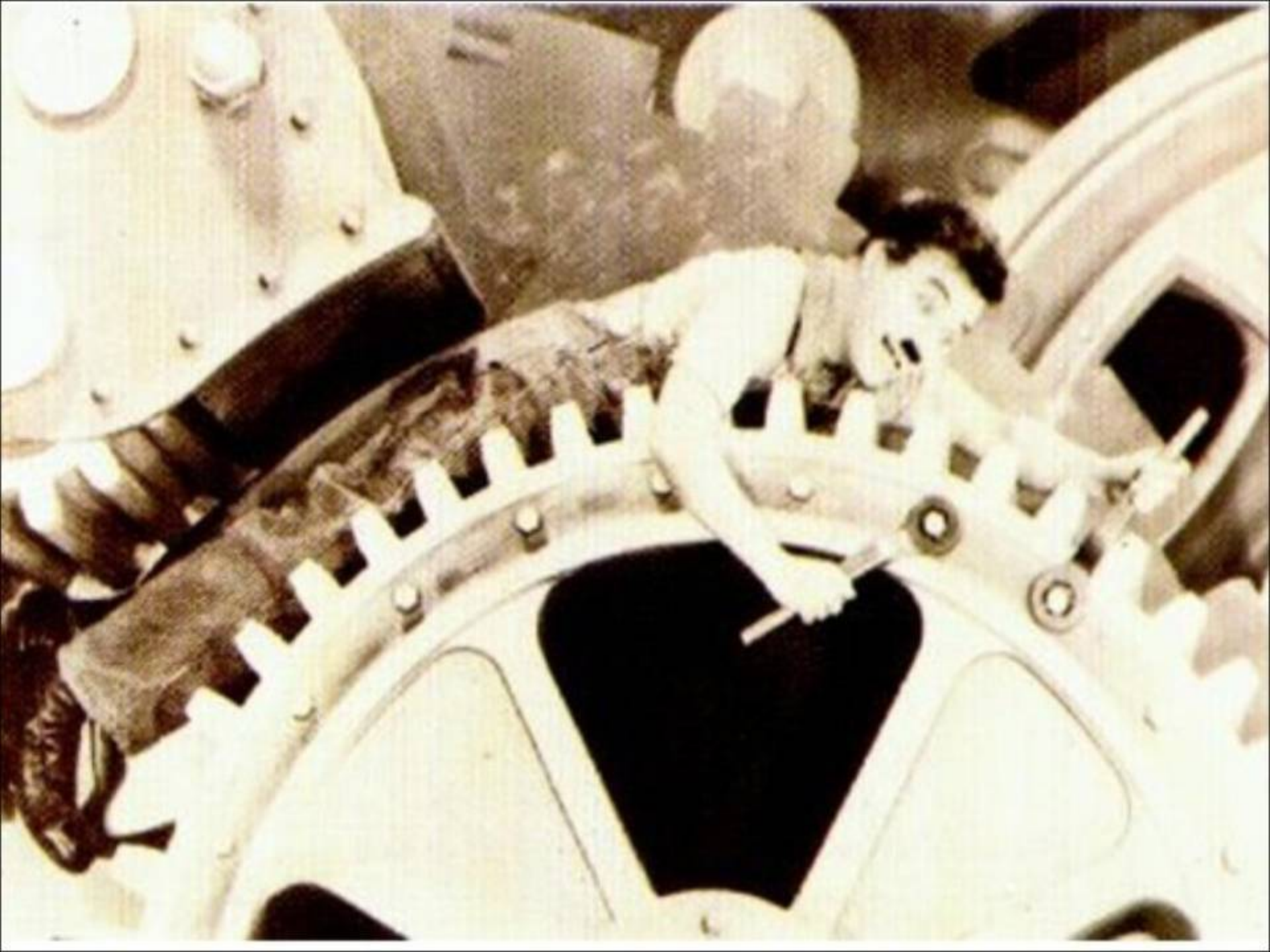




# Thanks

- Thomas Masters
- Lynn Tucker
- You for your invitation





# Urological Injuries – Local Database

- 2001-2005
- 316 patients with pelvic fractures
- 40 urological injuries in 35 patients (11%)

# Pelvic Fracture and Other Injuries

<b>Musculoskeletal</b>	<b>89%</b>
Respiratory	60%
CNS	40%
Gastro-intestinal	30%
Urogenital	12%
Cardiovascular	6%

Mundy A, 1997

The Commonest Urological Injury Is .....

# The kidney!

- 14 patients had renal injuries (4.4%)
- 13 treated conservatively of whom 3 had laparotomies for associated injuries
- 1 patient had lower pole vessels embolised
- Diagnose with CT with contrast need delayed run if suspicious for ureteric injury
- 2 of 14 died (14%)



Renal laceration