

An Epidemiological Study of Diaphyseal Tibial Fractures The Royal Victoria Hospital Experience

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Aim

- To identify reasons for re-admission and highlight any possible trends that would alter management.
- Outline the demographics and mechanisms of injury compared to published data.
- Compare management of tibial shaft fractures in RVH against published data.

Retrospective Look

- FORD
 - Fracture Outcome Research Database
- 2002-2009
- All tibial shaft fractures admitted to RVH
- Mechanism of Injury
- Compound Injuries
- Treatment Modality
- Reasons for re-admission



Background

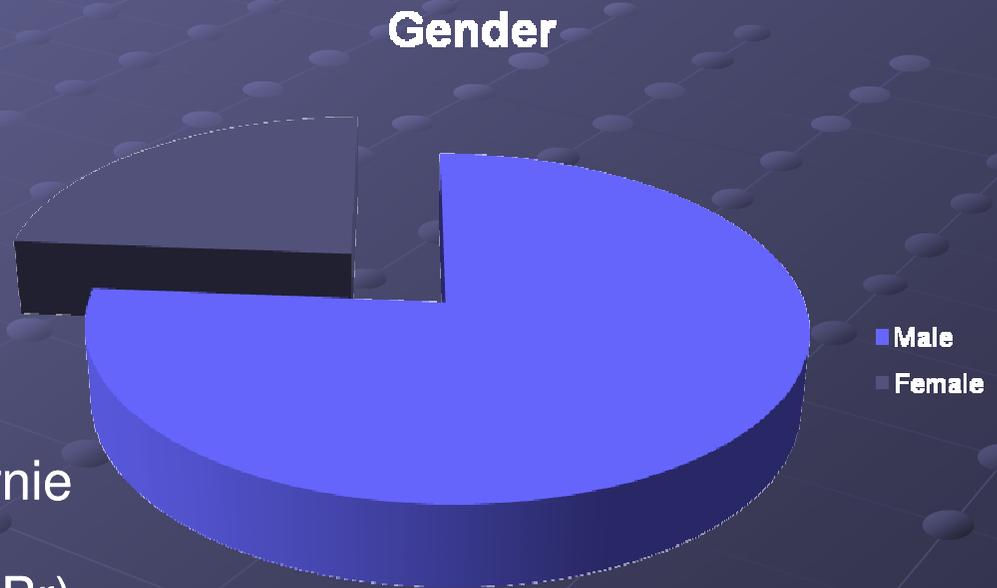
- most commonly fractured long bone
- 2/1000 individuals
- Commonly compound
- High energy and low energy injuries
- Several valid treatment modalities
- Problems associated with soft tissue coverage

Data Collection

- 2002-2009
- FORD Database
- All individuals coded as having a tibial shaft fracture
- Demographics recorded proforma
- Mechanism of injury FORD database
- Significant Complications
 - Identified patients through the database who required readmission.
 - Excluded: notes unavailable, incorrect coding
 - Charts 53 patients : charts explored for reasons for re-admission
- Primary Treatment Modality

Demographics

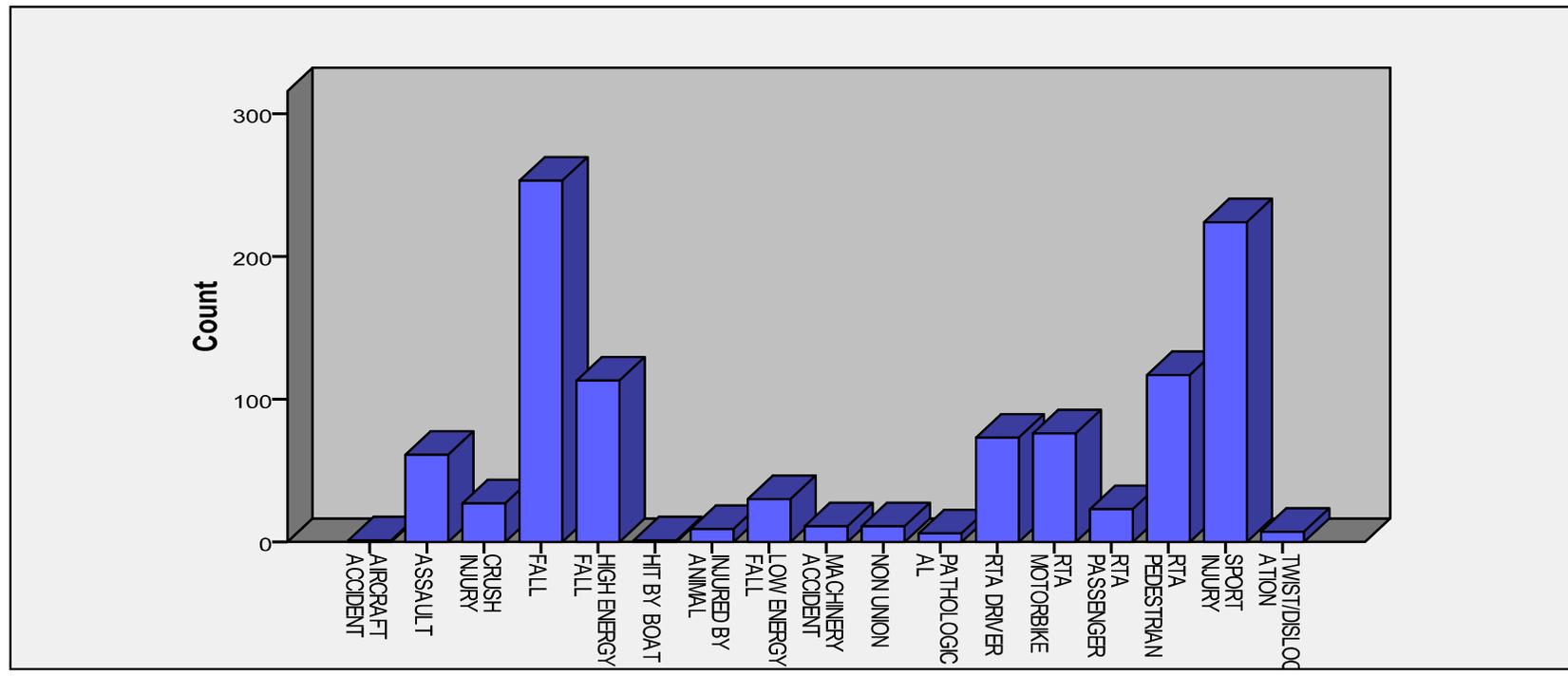
- 1043 coded Diaphyseal Tibial fractures
- 796 male: 247 female
- Average age male 34.2
- Female 49.5
- Correlates with published data
 - Court-Brown and McBirnie J. The Epidemiology of Tibial Fractures. JBJS (Br) Vol. 77-B. No. 3. May 1995.
- 109 compound Injuries



Mechanism of Injury	Numbers	Percentage
RTA (total)	289	27.7
Pedestrian	107	10.3
Motorcycle	76	7.3
Driver	73	7.0
Passenger	23	2.2
Low Energy Fall	253	24.3
High Energy Fall	58	5.6
Sports Injury	224	21.5
Football	191	20.4
Assault	44	4.2

Mechanism of Injury

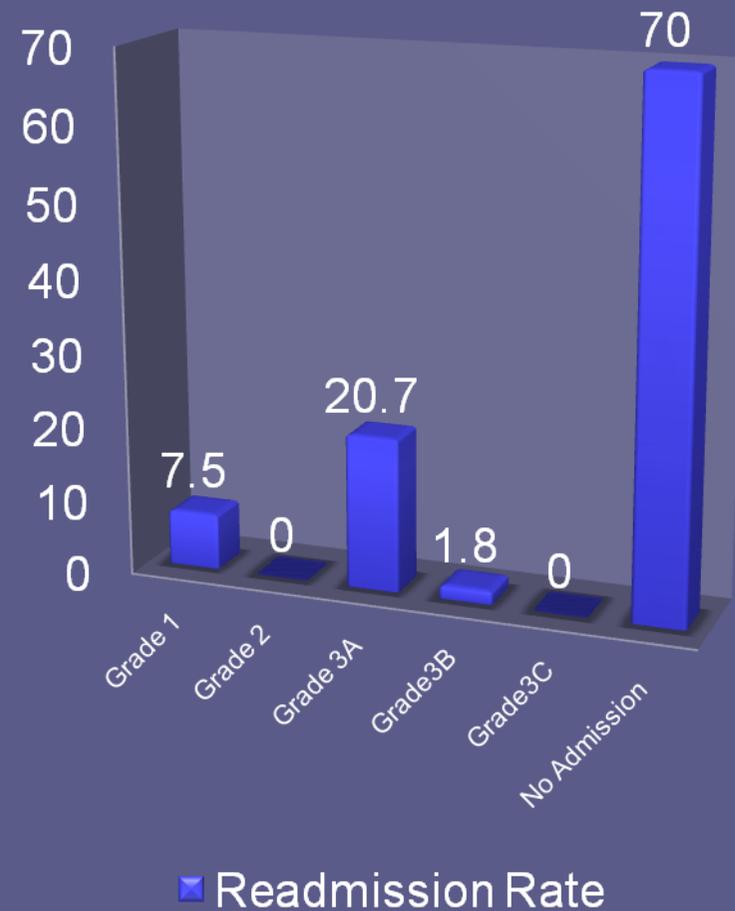
Mechanism of Injury



- Increase in low energy falls compared re: Edinburgh epidemiological study.

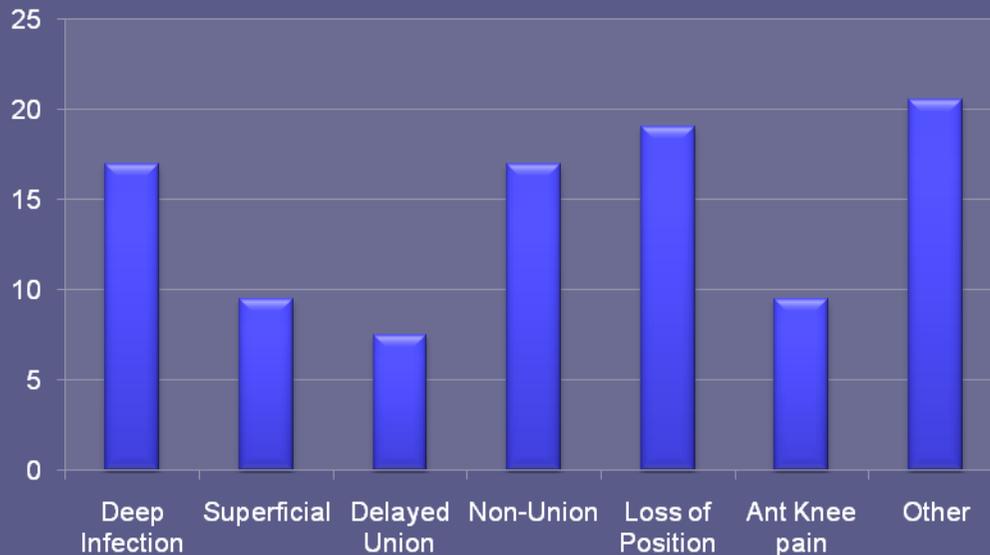
Compound Injuries

- There were 109 compound injuries, 16 of which required re-admission for subsequent operative procedures. The nature of the compound injuries requiring re-admission are outlined below.



Reason for Re-Admission

Reasons Re-Admission

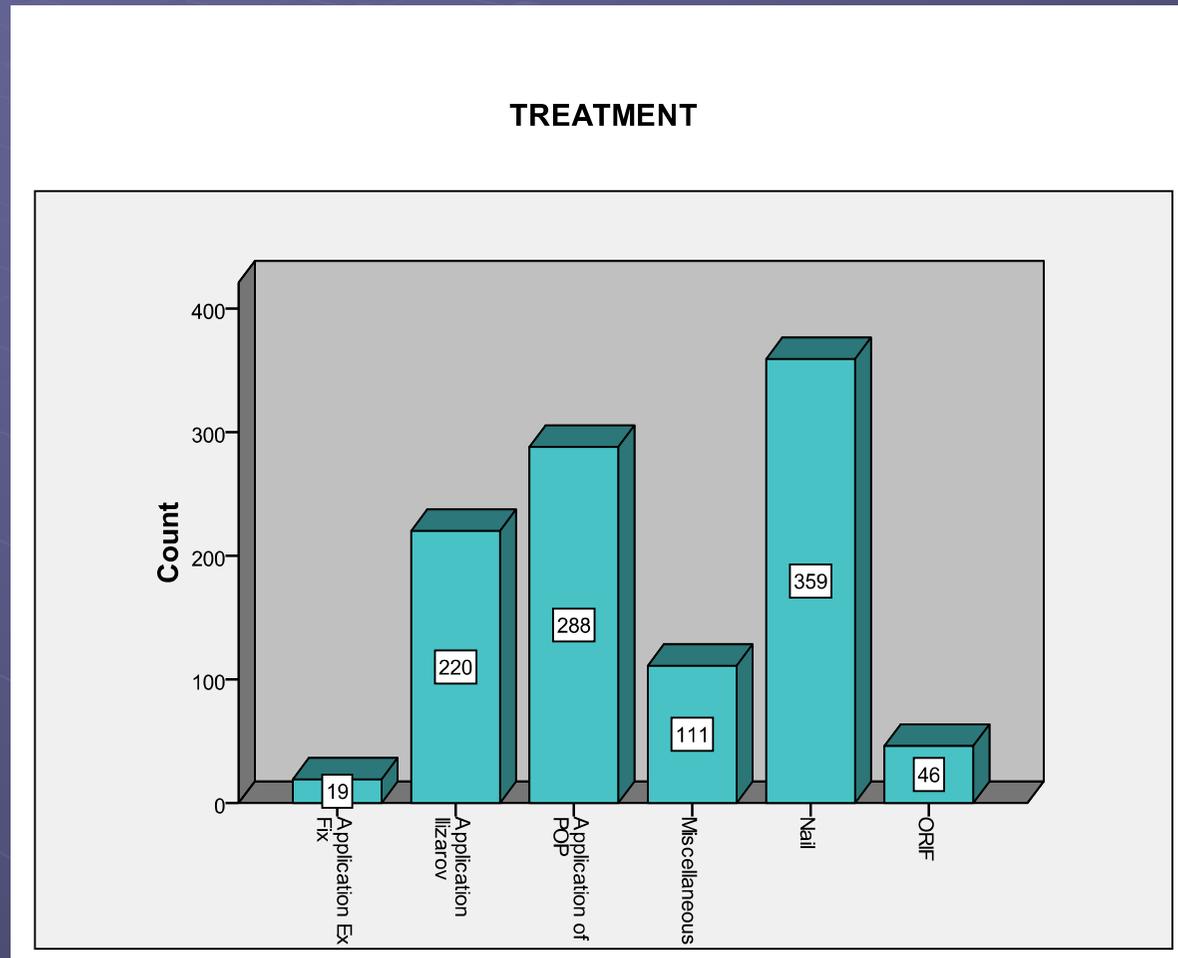


● All complication rates were less than 1%.

15 % re-admission rate for compound injuries. Primarily for deep infection.

The infection rate for closed tibial shaft treated with intra-medullary nailing is quoted at approximately 1% [2]. Compound injuries have a much higher infection rate quoted at > 15% for Gustilo and Anderson 3a. Rate of aseptic non-union for closed fractures is around 3%. (American Academy)

Preferred Treatment Option



Conclusion

- Large number of patients
- Demographics very similar to other westernised nations (without high numbers of gunshots)
- Low significant complication rate
 - ? Managed in other hospitals
 - Superior to published evidence
- Increase in the percentage of low energy injuries
- ? Significance of lower complication rate with use of Ilizarov frames.
 - ?excludes diabetics/alcoholics
 - Pin site infections under estimated
- Role of less invasive precontoured tibial plates
 - Patient selection
- Treatment options similar to the Northern American experience.