



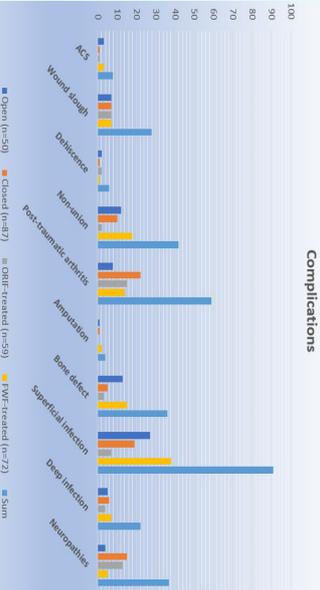
Introduction

- Pilon fractures, or tibial plafond fractures, make up 1-5% of lower limb fractures, and 7-10% of tibial fractures (1).
- Due to their high-impact nature, they are difficult to treat, and are associated with a multitude of complications (2).
- Main methods of management are open reduction and internal fixation (ORIF), and external fixation (EF), without either having a definitive advantage (3).

- Our aim was to assess the clinical, functional, and radiological outcomes of patients treated for open and closed pilon fractures, and degree of complications.

Methods

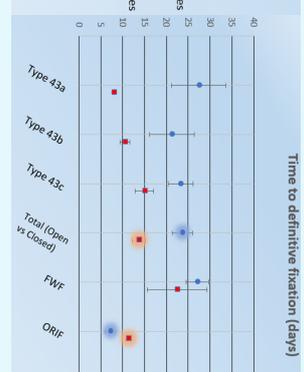
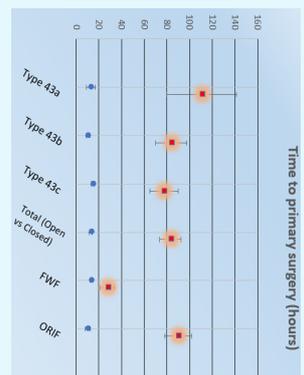
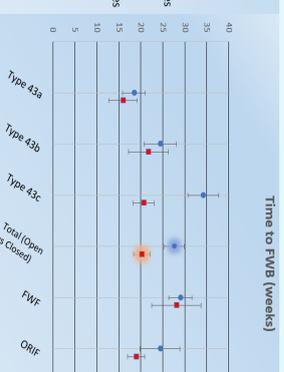
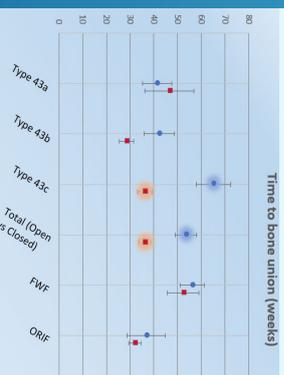
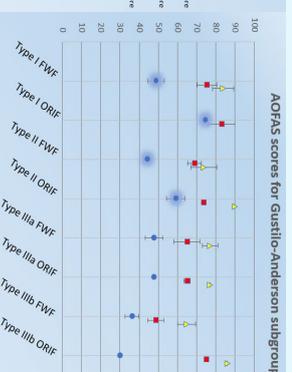
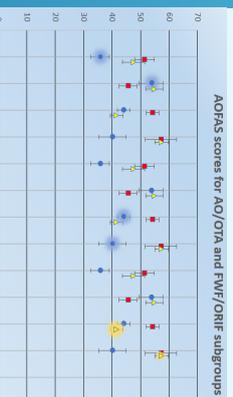
- We carried out a retrospective analysis of all pilon fractures treated from August 2014 to December 2020.
- In total, 87 closed fractures and 50 open fractures were included.
- Primary outcome was American Orthopaedic Foot and Ankle Society (AOFAS) score at 3,6 and 12-months post-injury.
- Secondary outcomes include time to partial weight-bear (PWB) and full weight-bear (FWB), bone union time, follow-up time. Early and late complications were recorded.
- One-way ANOVA and independent T-tests were performed. A significance value of p<0.05 was used for all analyses.



Results

Category	Total	Open	Closed
Gender			
Male	93	34	59
Female	44	16	28
Average Age (V/o)	47.81	51.62	45.62
side			
Right	74	30	44
Left	57	19	38
Bilateral	6	1	5

AO/OIA	Gustilo-Anderson (GA)					
	Type 1	Type 2	Type 3			
43A	43B	43C	Type 1	Type 2	Type 3	
Open	11	12	27	8	10	12
Closed	12	18	57	-	-	-



Discussion

- ORIF groups in either closed or open pilon fractures showed better AOFAS scores.
- 43C open fractures and 43B closed fractures treated with ORIF score statistically significantly higher than their fine wire frame (FWF)-treated counterparts for AOFAS scores 3, 6, 12 months post-injury.
- This agrees with a meta-analysis, whereby EF-treated patients had increased stiffness and reduced ankle range of motion (4).

- The overall rate of complication stands at 58% (78 patients), which is comparable to that seen in the literature; McFerran reported 54% (5), whilst Teeny and Wiss reported 50% (6).

- Overall, FWF-treated patients have higher rates of complications than ORIF-treated patients. Increased rate of malunion in FWF-treated patients agrees with several studies (4)(7).

- Statistically significant differences were found for AOFAS scores between those that were active smokers at time of injury and those that weren't. No significant difference was found in bone union time.

Conclusion

- Our results showed that compared to FWF groups, ORIF groups for either closed or open pilon fractures showed better primary and secondary outcomes.
- The use of two-staged approach involving temporary external fixation, followed with ORIF or FWF achieved low complication rates and good functional recovery.

References

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