Introduction

- Infection is a debilitating complication for patients receiving Open Reduction and Internal Fixation (ORIF) after traumatic tibial plateau fracture.
- Patients who suffer from compartment syndrome are often treated via emergent fasciotomy, which relieves pressure within the inflamed muscle compartment.
- Orthopedic surgeons lack clear guidance on the best way to manage ORIF and fasciotomy sites to minimize risk of surgical site infection.
- Previous studies have indicated that tibial plateau fractures with a concomitant ipsilateral compartment syndrome have significant increase in infection risk (2).

Research Question

- Is the timing of fasciotomy and ORIF a modifiable risk factor to decrease infection risk for tibial plateau patients?

Methods

- This study was a multicenter (18 trauma centers), retrospective study that aggregated data from patients who suffered from a tibial plateau fracture between 2009 and 2019.
- Patient charts were analyzed within the medical record to determine when fasciotomy wounds were closed in relation to when ORIF surgical sites were closed.
- The timing of the surgical intervention was organized into three different categories: ORIF prior to fasciotomy closure, ORIF during fasciotomy closure, and ORIF after fasciotomy closure.

Results

<table>
<thead>
<tr>
<th>Infection</th>
<th>Before ORIF</th>
<th>During ORIF</th>
<th>After ORIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection (%)</td>
<td>23</td>
<td>17</td>
<td>23</td>
</tr>
<tr>
<td>Infection (#)</td>
<td>36</td>
<td>30</td>
<td>61</td>
</tr>
</tbody>
</table>

Fasciotomy-ORIF Treatment Flow

- Of the 607 patients analyzed in the study, 127 patients (21%) suffered from a surgical site infection after fasciotomy and ORIF.
- Schatzker 6 fracture was associated with the highest risk of infection in comparison to all other Schatzker fracture types (24% vs 13%).
- There was no evidence to support that the timing of definitive fixation relative to fasciotomy site closure had any effect on mitigating infection risk in this patient population (p=0.21).

Conclusion

- The data showed that the risk of surgical site infection is relatively equal, regardless of the timing of the fasciotomy and surgical site closures.
- It is unclear whether timing of fasciotomy and ORIF site closures is a modifiable risk factor to improve outcomes in these patients.

References