Anterior Plating with Retention of Nail for Salvage Ankle Arthrodesis after Failed Tibiotalocalcaneal Arthrodesis

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Ankle Plating with TTC Nail Retention

Tibiotalocalcaneal (TTC) arthrodesis with retrograde intramedullary nail (RIMN) is common

In the event of failure (4-48%), techniques for salvage ankle arthrodesis are not well described

Anterior plating is effective for primary ankle arthrodesis

Aim:
1. Establish viability and safety of this technique
2. Report clinical and radiographic outcomes
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Methods:

Retrospective case series

6 consecutive patients with ankle nonunion following failed TTC RIMN

Subtalar fusion

Underwent anterior plating with nail retention
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Methods:

Outcomes

- Numeric pain scale (NPS) rating
- Foot and Ankle Activity Measure (FAAM) score
- Radiographic Union
- Satisfaction
# Ankle Plating with TTC Nail Retention

## Patients

<table>
<thead>
<tr>
<th></th>
<th>Age, y</th>
<th>Sex</th>
<th>BMI (kg/m²)</th>
<th>Diagnosis</th>
<th>Medical History</th>
<th>Delay from 1º fusion, m</th>
<th>Concomitant Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>45.1</td>
<td>M</td>
<td>31.5</td>
<td>AVN</td>
<td>CAD, DM, AF, chronic pain, tobacco use</td>
<td>14.3</td>
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<tr>
<td>2</td>
<td>51.6</td>
<td>F</td>
<td>53.7</td>
<td>DJD</td>
<td>Anxiety, chronic pain, DM, tobacco use</td>
<td>25.7</td>
<td>ROH</td>
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<tr>
<td>3</td>
<td>54.5</td>
<td>M</td>
<td>34.4</td>
<td>DJD</td>
<td>GERD, HTN</td>
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<tr>
<td>4</td>
<td>56.0</td>
<td>F</td>
<td>34.4</td>
<td>DJD</td>
<td>HTN, chronic pain</td>
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<td>5</td>
<td>76.4</td>
<td>F</td>
<td>33.2</td>
<td>DJD</td>
<td>GERD, RA</td>
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<tr>
<td>6</td>
<td>68.2</td>
<td>F</td>
<td>19.9</td>
<td>AVN</td>
<td>Pulm HTN, s/p heart transplant</td>
<td>15.4</td>
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</tr>
</tbody>
</table>

**Mean** 58.6  34.5  15.8
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Techique

A

B
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Technique
## Ankle Plating with TTC Nail Retention

### Results

<table>
<thead>
<tr>
<th>Patient</th>
<th>Follow-up, m</th>
<th>Complications</th>
<th>Preop NPS</th>
<th>Postop NPS</th>
<th>Satisfaction</th>
<th>FAAM Score</th>
<th>Time to fusion, wk</th>
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<tr>
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<tr>
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<td>7.8</td>
<td>5.3</td>
<td></td>
<td>50.9</td>
<td>9.3</td>
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</tbody>
</table>
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Discussion:

Failure of TTCA with RIMN is a complex clinical problem

Advantages of anterior plate
- Minimal soft tissue dissection
- Avoid scar from previous surgery

Radiographic union and acceptable clinical outcomes

Complications should be considered
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Limitations:
- Retrospective biases
- No consistent postop CT
- Functional comparison

Future directions:
- Long term outcomes
- Comparative studies
References


