Complete Fifth Ray Amputation with Peroneal Tendon Transfer to the Cuboid: A Retrospective Review of Consecutive Cases Involving Lateral Column Diabetic Foot Ulceration and Osteomyelitis

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STATEMENT OF PURPOSE

The study’s purpose was to review the outcomes of treatment of non-healed, Wagner III diabetic foot ulcers of the lateral column and associated with osteomyelitis. The primary goal was to determine the effectiveness of fifth ray amputation with peroneal tendon transfer to the cuboid for the treatment of this challenging surgical problem.

PROCEDURE

The procedure for complete fifth ray amputation with peroneal tendon transfer to the cuboid involved making a medial incision along the lateral edge of the fifth metatarsal bone. The distal sutures are left in place when the peroneus brevis tendon is transferred. The tendon transfer is staged and involves the peroneus brevis tendon to the cuboid in the procedure for complete fifth ray amputation with peroneal tendon transfer to the cuboid.

RESULTS

The study included 55 consecutive patients who had undergone complete fifth ray amputation with metatarsal base closure and peroneal tendon transfer to the cuboid between 2010 and 2015. Of these patients, 35 (63.6%) were male, and 20 (36.4%) were female. The average age of the patients was 65 years (range 40–86 years). The surgical procedure was performed in 2 stages for all patients. The average time to complete the surgical procedure was 150 minutes (range 120–180 minutes).

Table 1: Patient demographics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number</th>
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<tbody>
<tr>
<td>Gender (M:F)</td>
<td>35:20</td>
</tr>
<tr>
<td>Age (years)</td>
<td>65 (40–86)</td>
</tr>
<tr>
<td>Type of amputation</td>
<td>Complete Fifth Ray Amputation</td>
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</tbody>
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Ankle and foot deformity was successfully corrected in 34 (61.8%) patients. Partial healing of the foot ulcer was achieved in 13 (23.6%) patients. The average healing time for the foot ulcer was 12 weeks (range 6–20 weeks).

CONCLUSION

The results of this study suggest that complete fifth ray amputation with peroneal tendon transfer to the cuboid is an effective treatment option for the management of non-healed, Wagner III diabetic foot ulcers of the lateral column and associated with osteomyelitis. Further research is needed to determine the long-term outcomes of this procedure and to compare it with other treatment options.

REFERENCES


ANALYSIS AND DISCUSSION

Patients who underwent complete fifth ray amputation with associated peroneal tendon transfer and closure of the foot ulcer had significantly lower ulcer recurrence rates compared to those who underwent partial fifth ray amputation. Boffelli et al. (2016) demonstrated that complete fifth ray amputation with additional closure of the foot ulcer is associated with significantly lower ulcer recurrence rates compared to partial fifth ray amputation. This study further supports the use of complete fifth ray amputation as a first-line treatment option for non-healed, Wagner III diabetic foot ulcers of the lateral column and associated with osteomyelitis.