



Deep Peroneal Neurectomy for Painful Midfoot Arthritis

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Abstract

Arthrodesis is the gold standard for surgical treatment of midfoot arthritis. Not all patients are good candidates for arthrodesis and associated postoperative immobility. A Deep Peroneal Neurectomy (DPN) is a less demanding and viable option for patients with naviculocuneiform joint (NCJ) and/or tarsometatarsal joints (TMTJs) arthritis. In a preliminary study, Dr. Blacklidge and colleagues described DPN technique for the treatment TMTJ osteoarthritis for patients who were poor candidates for arthrodesis (1). In a similar manner, this study looks at a larger cohort with an average follow up of 33 months to determine patient satisfaction and functional outcomes utilizing a satisfaction survey and modified midfoot AOFAS score.

Literature

Arthritis of the midfoot is a complex and common pathology encountered frequently by foot and ankle specialist. It has been recognized that joint pain is neurologically mediated and that denervation of major joints such as the wrist, hip, knee, and shoulder is a good surgical alternative (2,3). A number of studies have focused on the course and distribution of the terminal branches of the deep peroneal nerve (1-4,5), which is divided into medial and lateral branches as it crosses the dorsal aspect of the foot. This nerve and its branches give sensory innervation to the midtarsal joints (MTJ) as well as the tarsometatarsal joints 1-3 (TMTJs) (5,6). Denervation of the deep peroneal nerve is a alternative to the more demanding arthrodesis procedures in poor surgical candidates. Nemec et al, reported on surgical complications of 104 feet with a midfoot arthrodesis for primary OA. They noted a nonunion rate of 8%, 11% of patients needing a secondary surgery, and 25% needing hardware removal (7). For these reasons a DPN can give relief to patients that are at greater risks for complications or are unwilling to undergo an arthrodesis.

Statement of Purpose

The aim of the study is to show that a DPN is a good option for patients with midfoot arthritis, that are poor candidates or unwilling to undergo an arthrodesis procedure.

Level of Evidence

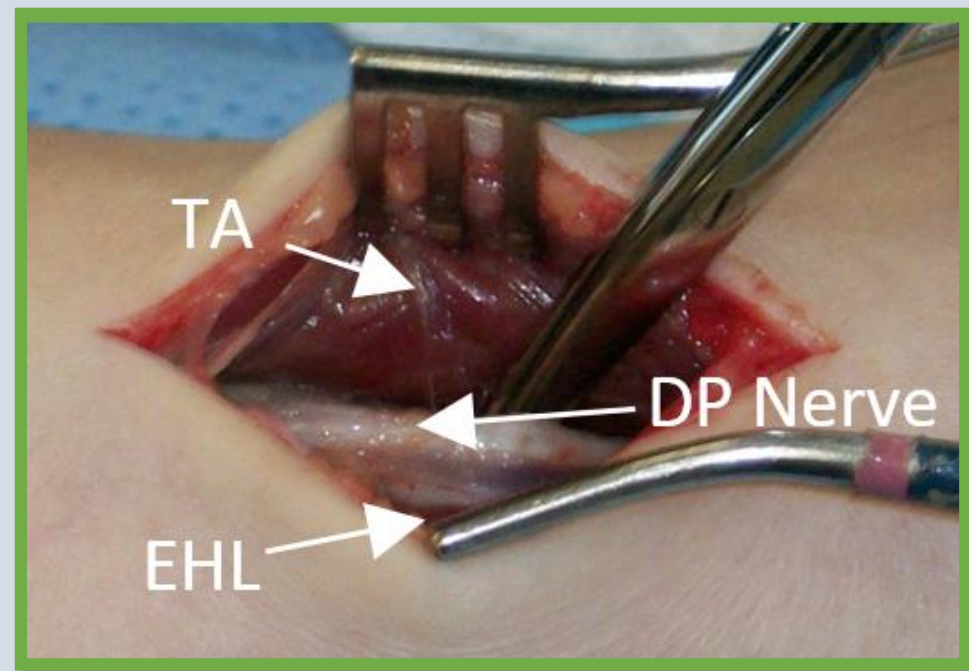
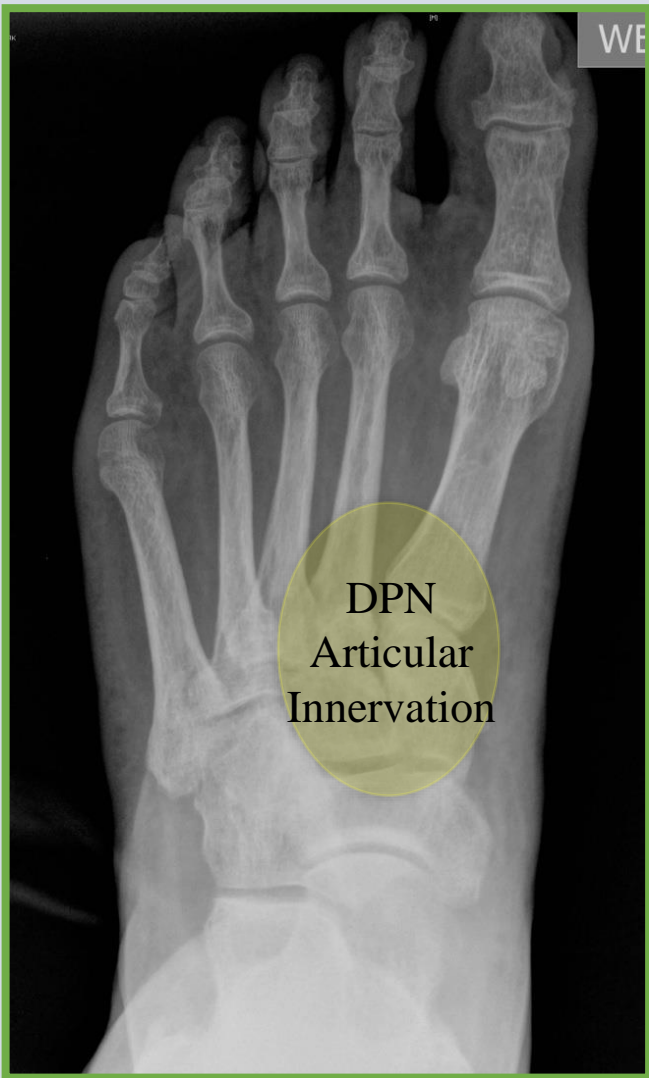
Level IV, Retrospective Therapeutic Case Series

Methods

- Retrospectively, 26 patients and 32 feet with midfoot arthritis at the TMT and/or NC joints that received a DPN procedure at a minimum follow-up time of 12 months were identified.
- DPN procedures were discussed with patients who were of advanced age, poor bone quality, obese, smokers or who had numerous joints affected by arthritis.
- Each patient received an ultrasound guided diagnostic block prior to the surgical procedure to determine the level of symptom relief over the next 24 hours.
- Surgical Procedure: The deep peroneal nerve was transected distal to the Extensor Hullucis Longus (EHL) muscular branch, approximately 3 cm proximal to the ankle joint and then secured into the EHL muscle belly with 4-0 monocryl.
- Functional outcomes were measured using a Modified midfoot AOFAS score (foot alignment and gait abnormalities were removed because it was a phone survey).
- Patient satisfaction was measured with two questions:
 - Would you have the procedure again knowing what you know now about the relief?
 - Are you satisfied with the outcome?

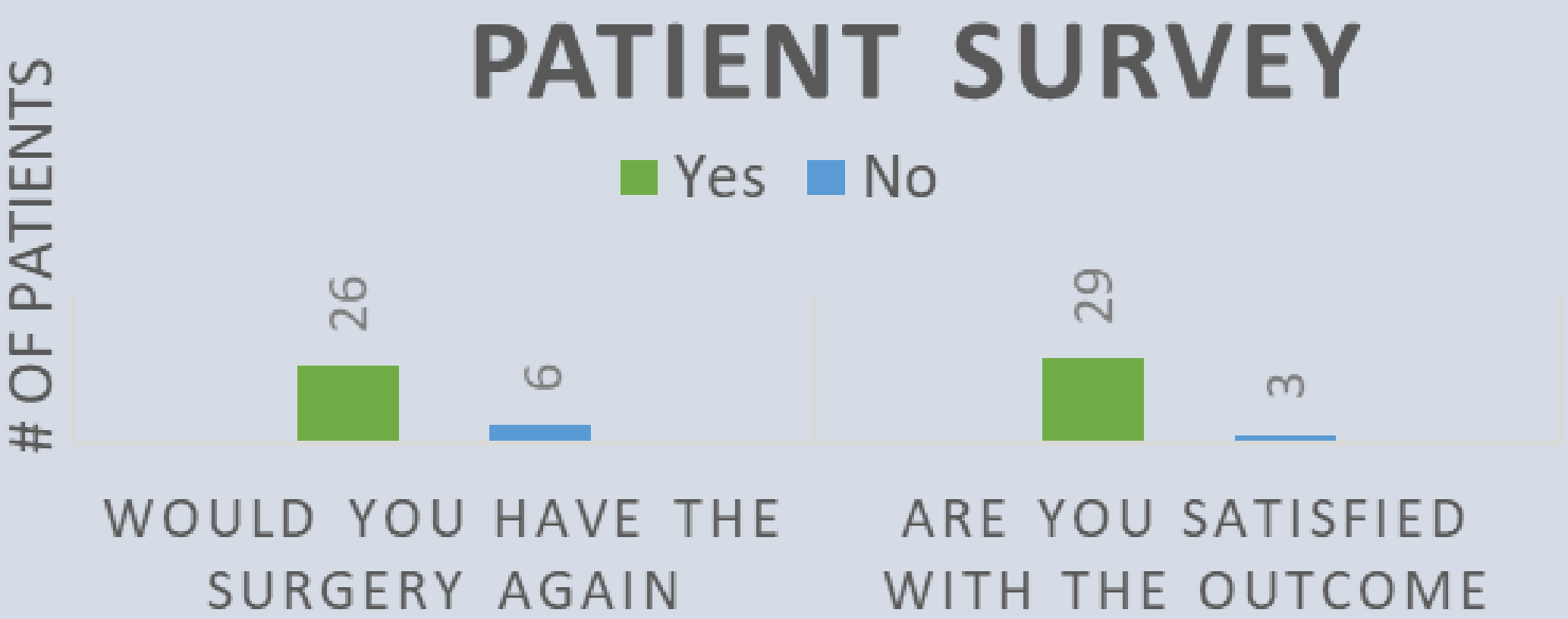
Demographics N=26 (32 Feet)

Age	Mean 61.9 Range 43-81
Sex	Female 18
Follow Up	Mean 33.1 Months Range 12-95 Months



Results

- 84% of patients had excellent to satisfactory modified midfoot scores.
- 81% of the patients at the final follow up said they would have the procedure again.
- 90.6% of patients said they were satisfied with the outcome of the procedure.
- Mean modified midfoot AOFAS score was 49.5 out of 75.



AOFAS MIDFOOT SCORE	n (%)	
Excellent (75-60)	10 (31.25)	84.38%
Good (59-45)	10 (31.25)	
Satisfactory (44-30)	7 (21.88)	
Unsatisfactory (29-0)	5 (15.62)	15.62%
Mean AOFAS Score 49.5 out of 75, Range 75-16		

Conclusion

- DPN has shown to have high patient satisfaction and good AOFAS for patients with 1-3 TMT and/or NC pain due to OA.
- Patients who were not satisfied, had only temporary relief due to advancing OA in surrounding joints or because of continued osteophyte pain.
- Extreme medial or lateral midfoot pain persisted despite neurectomy.
- DPN worked well in younger patients with post traumatic arthritis. If a patient is young and has a deformity/instability that will cause advancing OA to surrounding joints, an arthrodesis is recommended.

References

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