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CASE REPORT

Iatrogenic Transfer Metatarsalgia managed by the Lapidus Procedure: A Report of Two Cases

[1]Inderjeet Singh Rikhraj, [2]Harmeet Singh

ABSTRACT

Corrective surgery for Hallux Valgus requires that we balance the 1st metatarsal head with those of the lesser metatarsals. Failure of achieving this balance would result in a transfer metatarsalgia to the lesser metatarsal heads, frequently the 2nd metatarsal. We report of 2 such cases that presented with a transfer metatarsalgia to the head of the 2nd metatarsal. The Lapidus procedure was done to achieve the balance of the 1st metatarsal head with the rest of the lesser metatarsals in both cases. Both patients reported complete relief of pain and improvement in the AOFAS MTP-IP scores.

Keywords: Balance, 1st metatarsal head, Lapidus.

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INTRODUCTION

Most of the popular procedures for correction of hallux valgus involve osteotomy of the first metatarsal with lateral shift of the distal articular fragment. However, any such procedure performed without careful attention to detail may result in poorly balanced metatarsal heads. An inappropriately positioned first metatarsal head may result in excess transfer of load to the second metatarsal, thus causing transfer metatarsalgia. We report on two such cases of hallux valgus with corrective Mitchell osteotomies performed earlier, who now presented with iatrogenic transfer metatarsalgia in the second toe. We managed the two cases with the Lapidus procedure to balance the metatarsal heads.

CASE REPORT

Two case of previous Mitchell osteotomies performed elsewhere for correction of hallux valgus presented in our clinic with forefoot pain. Both the patients were female, with one aged 54 and the other 57. The presentation in both the cases was identical, with pain present on weight-bearing and localized to the second metatarsal head. There was a callosity underneath the second metatarsal head in both cases, indicating overloading of the second metatarsals. A careful clinical examination revealed that the first metatarsal head was elevated relative to the second metatarsal. In addition, there was prominent clawing of the second toe in one of the cases. Weight-bearing radiographs of the foot were obtained to confirm the clinical diagnoses (Figs 1 to 4).

Both the cases were managed by the Lapidus procedure. In each case, the first tarsometatarsal joint was accessed through a dorsomedial incision. The articular surfaces were

Fig. 1: Anteroposterior view of foot (case 1)

Fig. 2: Lateral view of foot (case 1)

[1]Associate Professor, Senior Consultant, [2]Consultant

[1]Nanyang Technological University; Department of Orthopedic Surgery, Singapore General Hospital, Singapore

[2]Department of Orthopedic Surgery, Columbia Asia Hospital Patiala, Punjab, India

Corresponding Author: Inderjeet Singh Rikhraj, Associate Professor, Nanyang Technological University (NTU); Senior Consultant, Department of Orthopedic Surgery, Singapore General Hospital, Singapore, e-mail: inderjeet.rikhraj@sgh.com.sg

taken down using an oscillating saw, with slightly more bone being taken down from the plantar aspect of the joint. The freshened joint surfaces were provisionally fixed with a K-wire after repositioning, so as to achieve a more balanced configuration of the metatarsal heads. This was assessed clinically by intraoperative simulated weight-bearing of the involved foot against the surgeon's hand. Bone graft harvested from the ipsilateral calcaneum was placed at the fusion site. The repositioned joints were then definitely fixed with an X-plate. In one of the cases, an additional shortening Weil osteotomy of the second metatarsal was performed, along with correction of the clawing of the second toe by a Girdlestone-Taylor procedure. Postoperative radiographs are shown in Figures 5 to 8.[5-8]

Postoperatively, the patients were put on an offload cam walker, and partial weight-bearing was allowed for 6 weeks. At 6 weeks, radiographs of the feet were obtained to confirm the union, and patients were then allowed full weight-bearing walking, with referral to rehabilitative services.

RESULTS

In both the cases, clinical and radiological union was achieved at 6 weeks. In the first case, the preoperative AOFAS hallux MTP-IP score was 60 and the lesser toe MTP-IP score was 20. At 6 months follow-up, both these scores were noted to have improved to 95. Similarly, in the second case, the preoperative AOFAS hallux MTP-IP score was 70 and the lesser toe MTP-IP score was 30. These scores, at 6 months follow-up, were noted to have improved to 90 and 95 respectively. Also, both the patients claimed complete relief of pain when evaluated at 6 months post-operatively.

There was no infection or any other complication noted in either of the patients.

DISCUSSION

In 1958, Leslie Mitchell described an osteotomy of the distal first metatarsal for the correction of hallux valgus.[1] Ever since, it has been one of the most popular procedures for the correction of hallux valgus. However, it has been reported that conventional Mitchell osteotomy does not restore the load bearing function of the foot to normal, and has been noted to be associated with a high rate of transfer metatarsalgia.[2,3]

Some modifications to this osteotomy, such as the planter displacement of the metatarsal head, have been shown to be important.[4,5] Good outcomes have been reported with this Modified Mitchell's osteotomy.[6] However, a large number of surgeons still perform conventional Mitchell's osteotomy, and resultant transfer metatarsalgias are sometimes seen.

Paul Lapidus, an orthopedic surgeon from New York, believed that the metatarsus primus varus deformity was a result of instability at the first tarsometatarsal joint.[7,8] He, therefore, advocated correction of the deformity by fusion at the tarsometatarsal joint, and described a procedure for the same.

Fig. 3: Anteroposterior view of foot, postoperative (case 1)

Fig. 4: Lateral view of foot, postoperative (case 1)

Fig. 5: Anteroposterior view of foot (case 2)

Fig. 6: Lateral view of foot (case 2)

Fig. 7: Anteroposterior view of foot, postoperative (case 2)

This Lapidus procedure has previously been used for the treatment of recurrent hallux valgus deformity, and has been reliable and effective operation for the same.[9] We believe that the same procedure can be used to correct the deformity in a dorsoplantar plane as well, and hence transfer metatarsalgia caused by a distal metatarsal osteotomy can be corrected with a well-planned Lapidus procedure. The same has been demonstrated in the two cases reported here, but longer term prospective studies involving larger samples would be needed to provide conclusive evidence.

Fig. 8: Lateral view of foot, postoperative (case 2)

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