



## Case Report

# First metatarsophalangeal arthroscopy in patients with post-traumatic hallux valgus



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## HIGHLIGHTS

- Post-traumatic hallux valgus after medial collateral ligament injury has a high incidence of MTP-1 pathology.
- Post-traumatic hallux valgus can present as MTP-1 joint pain.
- First MTP arthroscopy has both diagnostic and therapeutic values in management of joint pain in post-traumatic hallux valgus.

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## ABSTRACT

Post-traumatic hallux valgus is relatively rare and has been reported after rupture of the medial collateral ligament of the first metatarsophalangeal (MTP-1) joint; Lisfranc joint injury; turf toe injury; medial plantar nerve entrapment secondary to tibial fracture or first metatarsal fracture. Post-traumatic hallux valgus after medial collateral ligament injury has a high incidence of MTP-1 pathology. Detailed history and clinical examination can facilitate differentiation of the source(s) of the patient's symptoms and assist accurate formulation of the surgical plan. First, MTP arthroscopy is a feasible diagnostic and therapeutic tool to manage the MTP-1 joint pain in hallux valgus following injury to the MTP-1 joint.

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## 1. Introduction

Hallux valgus is one of the commonest foot and ankle problems faced by orthopedic surgeon. It is characterized by lateral deviation of the first metatarsophalangeal (MTP-1) joint and metatarsus primus varus, dislocation of the metatarsal head from the hallux sesamoids, and pronation of the first metatarsal and hallux. Radiographically, there is increased hallux valgus angle and intermetatarsal angle with various degree of sesamoid subluxation [1]. Posttraumatic hallux valgus is relatively rare and has been reported after rupture of the medial collateral ligament of the first metatarsophalangeal joint [2,3]; Lisfranc joint injury [4]; turf toe injury [5]; medial plantar nerve entrapment secondary to tibial fracture [6] or first metatarsal fracture [7]. We reported three cases of post-traumatic hallux valgus after injury to the MTP-1 joint. The patients complained of MTP-1 joint pain due to various intra-articular pathologies.

## 2. Case report

### 2.1. Case 1

A 38-year-old transportation worker had his right foot rolled over by a 2-tons truck. The foot was swollen without any external wound. Touch sensation and capillary return of the toes was normal. His left second toe was deformed. Radiographs showed multiple metatarsal and phalangeal fractures, dislocation of the proximal interphalangeal (PIP) joint of the second toe and bone flakes at the medial side of the first metatarsal head (Fig. 1). The second toe PIP joint was reduced. He was treated with ankle foot orthosis, non-weight walking and ice therapy. The fractures healed but he complained of persistent pain and stiffness of the MTP-1 joint. He also noticed progressive right hallux valgus deformity after the injury. Clinically, there was right hallux valgus with tenderness over the medial, dorsolateral and plantar joint line of the MTP-1 joint. Valgus stress to the hallux caused pain over the first MTP joint. There was mild tenderness over the bunion. The MTP-1 joint motion was limited. Radiograph showed that all the fractures healed. The hallux valgus angle was 28° and intermetatarsal angle was 10° (Fig. 2). He was treated with toe spreader, analgesics

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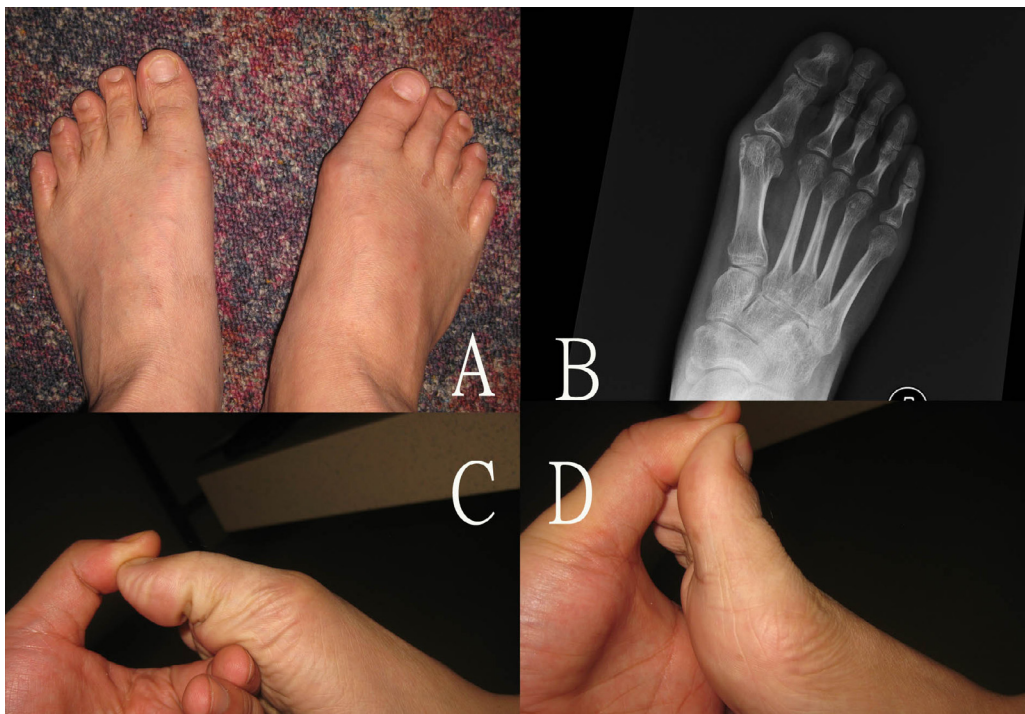
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**Fig. 1.** Radiographs of the right foot of Case 1 showed condylar fracture of proximal phalanges of the great and little toes; fracture of the third and fourth metatarsal necks; fracture of the distal phalanges of the fourth and little toes; dislocation of the proximal interphalangeal joint of the second toe and bone flakes at the medial side of the first metatarsal head.

and physiotherapy but the pain persisted. Right MTP-1 arthroscopy was performed 10 months after the injury. The patient was put in supine position with a pneumatic tourniquet to provide a bloodless surgical field. The standard medial and dorsolateral (at the lateral side of the extensor tendon) portals were used for the

MTP-1 arthroscopy. Intraoperative findings showed generalized capsular fibrosis and fibrous adhesions at the plantar half of the metatarsophalangeal compartment and the metatarso-sesamoid compartment (Fig. 3). There was synovitis at the dorsomedial and plantar lateral part of the joint. Arthroscopic synovectomy



**Fig. 2.** (A and B) Right hallux valgus deformity of Case 1. (C and D) Limited passive dorsiflexion and plantarflexion of the first metatarsophalangeal joint.

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