

TARSAL TUNNEL LACERATION – A CASE REPORT

Dr. Junaid Khan¹, Dr. Rizwan Haroon Rasheed¹, Dr. Shazaf Masood Sidhu^{*1}, Dr. Fareed A. Shaikh²

Aga Khan University Hospital.

***Corresponding Author: Dr. Shazaf Masood Sidhu**

Aga Khan University Hospital.

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ABSTRACT

In general we know that Injuries and laceration of the tendons around the ankle and particularly tarsal tunnel laceration are very rare. And a case report with tarsal tunnel laceration plus achilles tendon injury has never been reported in the literature. As there are important structures transmitting through tarsal tunnel, the injury of which have devastating effects on soft tissue on the medial aspect of the ankle and hence on its functional outcome. We report a rare case of tarsal tunnel laceration at a tertiary care setup (Aga Khan University Hospital, Karachi Pakistan)

KEYWORDS: Tarsal tunnel laceration, early exploration and repair, rare injuries.

Patient information: 52 years old male, religion: Muslim, no known comorbid, no past surgical history. Occupation: construction worker.

Clinical findings

Our patient presented in Emergency room with deep laceration on medial aspect of his left ankle with significant bleeding. The patient works as a construction worker and sustained an injury at work due to fall of grinder on his medial aspect of ankle.

On examination in Emergency Room (ER) there was a transverse incision of about 8 cm starting from the medial malleolus to medial edge of the Achilles tendon of the left foot. Tendons, vessels and posterior tibial nerve were severed, due to pain individual tendon examination was not done in ER. Dorsalis pedis artery was palpable but no posterior tibial pulse was palpable nor was it audible on Doppler distal to injury. The foot was noted to be pink and viable with a capillary refill of 1 sec and diminished ankle function because of injury. There was no other injury.

Timeline

Dec 2019 – Jan 2020

Diagnostic assessment

Initial: examination in ER; a transverse incision of about 8 cm starting from the medial malleolus to medial edge of the Achilles tendon of the left foot. Tendons, vessels and posterior tibial nerve were severed, due to pain individual tendon examination was not done in ER.

Radiographic imaging was done to rule out fracture xray reported no fracture but soft tissue injury was appreciated.

Ultrasound doppler was done: Dorsalis pedis artery was palpable, with no posterior tibial pulse neither was picked on doppler.

Therapeutic intervention

Wound irrigation and decontamination was done. Along with broad spectrum antibiotics cover was given. Laceration was surgically repaired along with vascular team onboard.

Introduction

Tarsal tunnel is a fibro-osseous canal located on the medial aspect of the ankle, deep to flexor retinaculum.^[1] It is also known as porta pedis.^[2] It transmits following important structures:

- Tendon of Tibialis posterior (TP)
- Flexor Digitorum longus (FDL)
- Flexor Hallucis longus (FHL)
- Posterior tibial nerve and their bifurcations
- Posterior tibial vessels.^[2]

Tarsal tunnel laceration have devastating effects on soft tissue on the medial aspect of the ankle, so prompt exploration, assessment and repair of the involved tissues in the operating room is necessary due to the contaminated nature of these injuries.^[3] The foot and ankle surgeon should be aware of the imaging modalities, have sound knowledge of the surgical anatomy and surgical techniques to deal with such kind of injuries, and multidisciplinary approach is mandatory

to deal with vascular, nerve injury and plastic surgery intervention if there is skin and soft tissue loss.

CASE REPORT

A 52 year old gentleman no prior known co morbidity presented to the Emergency room with deep laceration

on medial aspect of his left ankle with significant bleeding. The patient works as a construction worker and sustained an injury at work due to fall of grinder on his medial aspect of ankle. (Fig .1)



Fig 1: (A) About 8 cm laceration on the medial aspect of the left ankle (B) zoomed view of the same wound showing deep laceration of severed tendons and vessels.

On examination in Emergency Room (ER) there was a transverse incision of about 8 cm starting from the medial malleolus to medial edge of the Achilles tendon of the left foot. Tendons, vessels and posterior tibial nerve were severed, due to pain individual tendon examination was not done in ER. Dorsalis pedis artery was palpable but no posteriortibial pulse was palpable nor was it audible on Doppler distal to injury. The foot was noted to be pink and viable with a capillary refill of 1 sec and diminished ankle function because of injury. There was no other injury. Radiographs showed no fracture and lucency at the posteriomedial aspect of the ankle were noted because of soft tissue injury. Wound was irrigated with 3L saline in ER and sterile dressing done and was started on Antibiotics, fluids and tetanus toxoid given.

Due to the contaminated nature of the wound debridement was done under GA. Tourniquet was applied at thigh level and proper prepping and draping done. Wound was

extended both proximally and distally. Tibialis posterior, flexor hallucis longus (FHL), flexor digitorum longus (FDL), posterior tibial artery (PTA), posterior tibial nerve and tendoachilles were completely severed. Vascular surgery team was taken onboard. Both the posterior tibial artery and veins were transected with a segment loss of around 4-5 cm. Distal end of artery had good back bleeding and audible signals in the medial and lateral tarsal branches were also present and the foot was completely viable. Considering the dirty wound with soft tissue loss and viable status of foot, vessels were ligated. Edges of all the tendon refreshed and tagged with sutures, wound irrigated with 10 L saline and tagging suture on skin applied with an intension of second stage repair. Patient was kept on IV antibiotics and was taking for second stage of surgery 3 days after the 1st surgery.

Keeping in supine position and GA, thigh level tourniquet applied and prepping draping done, skin tag suture removed and wound explored (Fig.2).

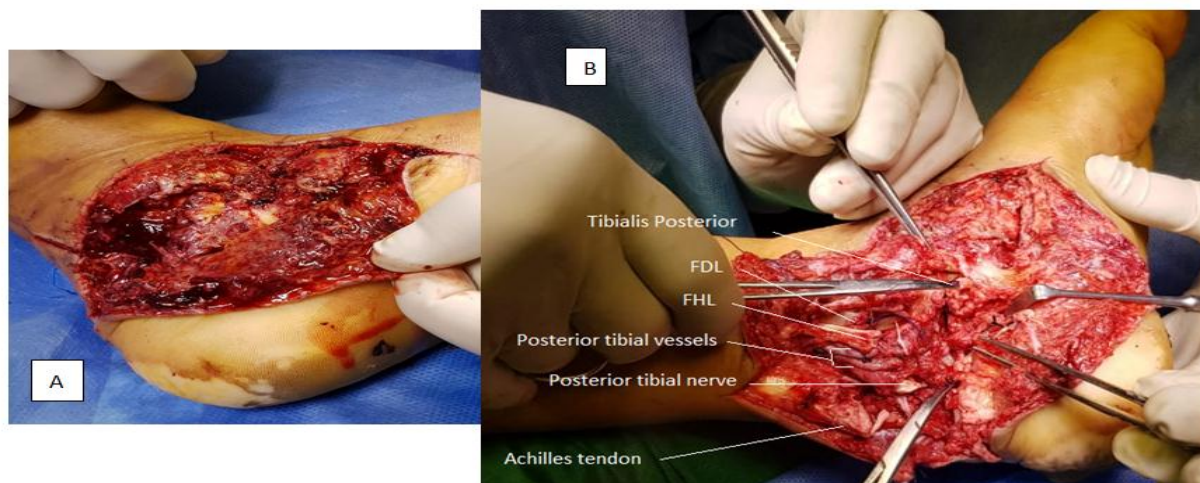


Fig. 2: (A) wound after removing of skin tag sutures (B)after irrigation of wound. Tibialis posterior tendon, FDL, FHL, Posterior tibial vessels and Achilles tendon can be seen severed and tagged with sutures.

The edges of the achilles tendon were freshened and then repaired with suture anchor ,no.2 fiber wire and round body needle using modified bunnel technique. Tibialis

posterior tendon and FDL were repaired with 2/0 prolene using krachow stiches and FHL was repiared with 2/0 prolene usind modified kissler technique. Fig. 3



Fig. 3: After TP (tibialis posterior), FDL (flexor digitorum longus), FHL (flexor hallucis longus), posterior tibial nerve, and Achilles tendon repair.

Posterior tibial nerve was repaired with 8/0 prolene and Beriplast® after irrigation with 4L saline. Torniquette released and heamostasis secured. The skin flaps were approximated using 2/0 vicryl sutures and skin were closed with 3/0 ethilone. Wound covered with sterile dressing and post operatively cast was applied in slight planterflexion and inverted position. Patient was kept on non weight bearing ambulation with walker, and was discharged 3 days postoperatively after making window in the cast and changing dressing.

DISCUSSION

Injuries and laceration of the tendons around the ankle and particularly tarsal tunnel lacertion are very rare.^[4] and case report with tarsal tunnel laceration plus achilles tendon injury has never been reported in the literature. As there are important structures transmitting through tarsal tunnel, the injury of which have devastating effects on soft tissue on the medial aspect of the ankle and hence on its functional outcome. So foot and ankle surgeon must have a sound knowledge and skills to deal with such kind of injuries. Complete recovery and good

functional outcome needs early exploration and repair of these injuries particularly in labourers.^[4] the utilization of multidisciplinary approach is an ideal approach to deal such injuries.^[5]

CONCLUSION

The surgeons must have good clinical practice to deal with rare injuries and must detect these early as complications can cause great life time trouble to the patient.

Followup and outcomes

The patient was well evaluated post-operatively and properly followed up over a month. Post-operatively he remained vitally and haemodynamically stable with all pulses intact.

Responded well to antibiotics and wound healing was well-appreciated.

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