

A Case Report – K Wire as Guide in Endoscopic Plantar Fascia Release for Beginners

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Learning Point of the Article:

Endoscopic plantar fascia release has a steep learning curve, a k wire as guide will help beginners in localization and avoids excess tissue dissection.

Abstract

Introduction: This case report is to emphasize the role of K wire in localizing the plantar fascia and calcaneum spur during endoscopic plantar fascia release (EPER). Plantar fasciitis is a very common problem in society. Most of the cases get good relief with physiotherapy, a change in footwear, and medication. Some cases might need steroid/platelet-rich plasma (PRP) injections. In a few refractory cases, pain remains even after extensive physiotherapy and plantar fascia injections. Such cases can be benefitted by plantar fascia release. Several techniques have been described for fascia release, including open, percutaneous, and endoscopic release.

Case Report: This is a 40-year-old female with severe pain in the heel while walking, particularly in the morning since 2 years. She was treated earlier with physiotherapy, a change in footwear, steroid and PRP injection. X-rays of the ankle show a calcaneum spur. Magnetic resonance imaging shows an 8 mm-thick plantar fascia.

Conclusion: A simple k wire is a useful tool in a procedure like EPER, which has a steep learning curve. The use of k wire alleviates the complications of excess soft tissue and fat pad dissection and reduces the radiographic assistance.

Keywords: Plantar fasciitis, endoscopy, k wire.

Introduction

Plantar fasciitis is a common condition of heel pain with an incidence of up to 10% in lifetime [1]. Plantar fasciitis is the most common cause of heel pain, accounting for 80% of cases having heel pain [2]. This condition tends to affect people between 40 and 60 years, showing a higher prevalence in women [1]. Risk factors associated are obesity, prolonged weight-bearing, and reduced ankle dorsiflexion, and it can occur bilaterally in one-third of cases [3,4].

Although plantar fascia pathology is not completely understood, it seems to be a non-inflammatory structural breakdown of fascia

secondary to myxoid degeneration with microtears within the fascia, collagen necrosis, and angiofibroblastic hyperplasia [5].

Conservative management is considered the gold standard in the treatment of plantar fasciitis, which includes non-steroidal anti-inflammatory drugs, plantar fascia stretches and changes in footwear, ice, and activity modifications [6]. If these methods do not give relief, steroid/platelet-rich plasma (PRP) injections can be performed. For patients with recalcitrant plantar fasciopathy, focal extracorporeal shockwave can be used with success rates between 50% and 65% [2].

Conservative treatment gives effective relief in 90% of patients.

Author's Photo Gallery



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Figure 1: Radiograph showing calcaneum spur.

When patients do not respond even after 6–12 months, surgical treatment is required in 5–10% of patients [7]. In this subset of patients, partial or total plantar fascia release has been the mainstay of treatment, with success rates of approximately 70–90% [7]. Different surgical treatments have been described to this purpose, including open fasciotomy or minimally invasive procedures that can be performed percutaneously or endoscopic [8].

Several clinical trials reported that endoscopic plantar fascia

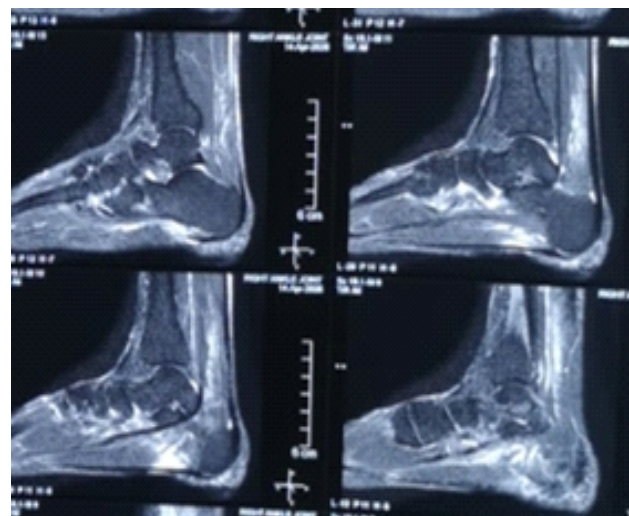


Figure 2: Magnetic resonance imaging showing thick plantar fascia.

release (EPFR) resulted in excellent relief of pain, with patient satisfaction ranges from 60% to 80% and low complication rates [9,10]. Endoscopic fascia release has a steep learning curve. Many times, the beginners face difficulty in localizing which part of the foot they are and dissect a lot of tissue/fat pad unnecessarily. This case report is about a technique where we place a k wire for localization and as a guide during the surgery.

Case Report

This is a 40-year-old female with severe pain in the heel while walking, particularly in the morning since 2 years. She was treated earlier with physiotherapy, a change in footwear, steroid and PRP injection. X-rays of the ankle show calcaneum spur as in Fig. 1. MRI shows 8 mm-thick plantar fascia as in Fig. 2. The procedure is performed with the patient under spinal



Figure 3: Position of limb (figure of four).



Figure 4: Medial portals.

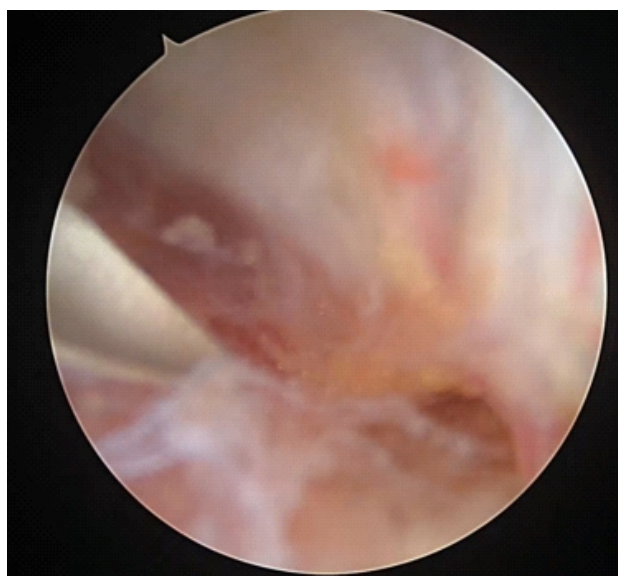


Figure 5: 2nd portal after confirming with k wire.

anesthesia, and a tourniquet is applied. The patient's leg is put in a figure of four as in Fig. 3, a point 5 mm from the tangential line of the posterior edge of the medial malleolus to the plantar fascia (skin junction) is marked, which is going to be used as the primary viewing portal. The anterior medial entry was established two centimeters anterior to the posterior entry site, as in Fig. 4. The nick and spread technique is used for making portals. The primary viewing portal was made, and 4 mm 300 scope is introduced. A needle is introduced through the marked anterior portal site, and only after visualizing the needle, the portal is made as in Fig. 5. For beginners, it is always better to make portals under vision as it decreases the chances of



Figure 6: C arm showing K wire at spur site.

damaging important structures. A k wire is put at the spur from plantar side under C arm guidance and left in situ as in Fig. 6. Following the trajectory of k wire, a shaver and Radiofrequency (RF) ablator are used alternatively to remove the excess fat tissue and localize the k wire as in Fig. 7. Once we localize the k wire work along the k wire until you reach its tip. Now remove the k wire and expose the spur and excise with a burr under C-arm guidance as in Fig. 8. Plantar fascia is released with RF as in Fig. 9. Confirm spur excision under C-arm as in Fig. 10. Portals are closed.

Partial weight-bearing with crutches is allowed immediately. Full weight-bearing is allowed after wound healing, and



Figure 7: K wire tip localized.



Figure 8: Burr at the spur site (*).

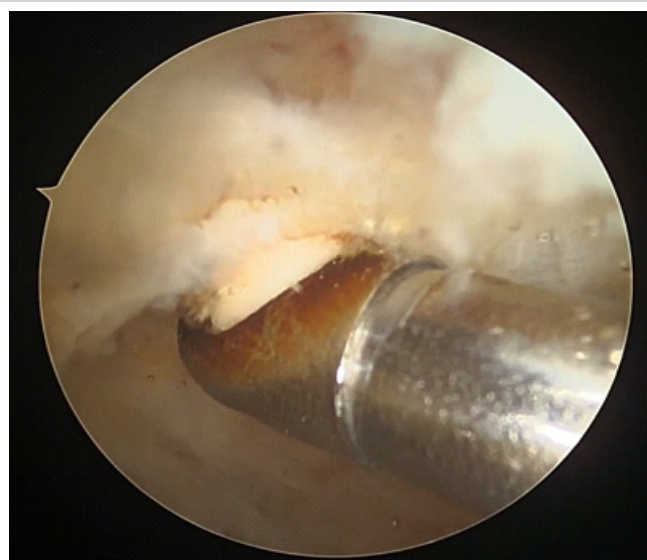


Figure 9: Plantar fascia release with ablator.

stretching exercises are recommended.

Discussion

EPER is a minimally invasive technique that decreases complications related to open surgery, such as plantar heel hypertrophic scar formation, infection, or wound dehiscence. As a result, a shorter recovery time and early post-operative mobilization therapy have been reported [11]. Nevertheless, the procedure has a steep learning curve. With experience, plantar fascia exposure and excision of the spur becomes easy with minimal dissection, but in the initial cases, one might dissect too much of soft tissue or fat pad without knowing where exactly we are anatomically. Using K wire as a guide is the solution to these hurdles. The moment we identify the k wire, all we have to do is follow the k wire and remove tissue as required; no more blind dissection is done. The use of radiographic assistance also decreases once the k wire is identified. In



Figure 10: C arm picture after spur excision.

particular, the identification of the spur is the most difficult part. One must release the entire fascia to visualize and excise the spur, which can lead to complications. With the help of k wire, once we reach the tip, remove the k wire and dissect that area from posterior to anterior (calcaneum undersurface), minimizing the damage to the plantar fascia.

Conclusion

A simple k wire is a useful tool in a procedure like EPER, which has a steep learning curve. The use of k wire alleviates the complications of excess soft tissue and fat pad dissection and reduces the radiographic assistance.

Clinical Message

Endoscopic plantar fascia release is a great solution to long standing and refractory plantar fasciitis. It has a steep learning curve. Use of a k wire for guidance is a simple and easily reproducible technique especially for beginners.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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