Early experience with transarterial embolization for chronic achilles tendinopathy and plantar fasciitis refractory to conservative management

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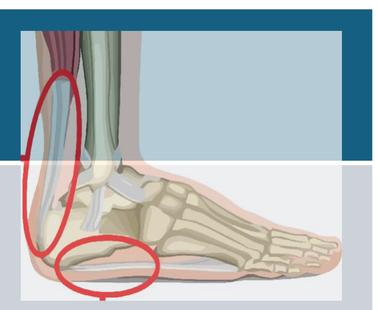


Introduction

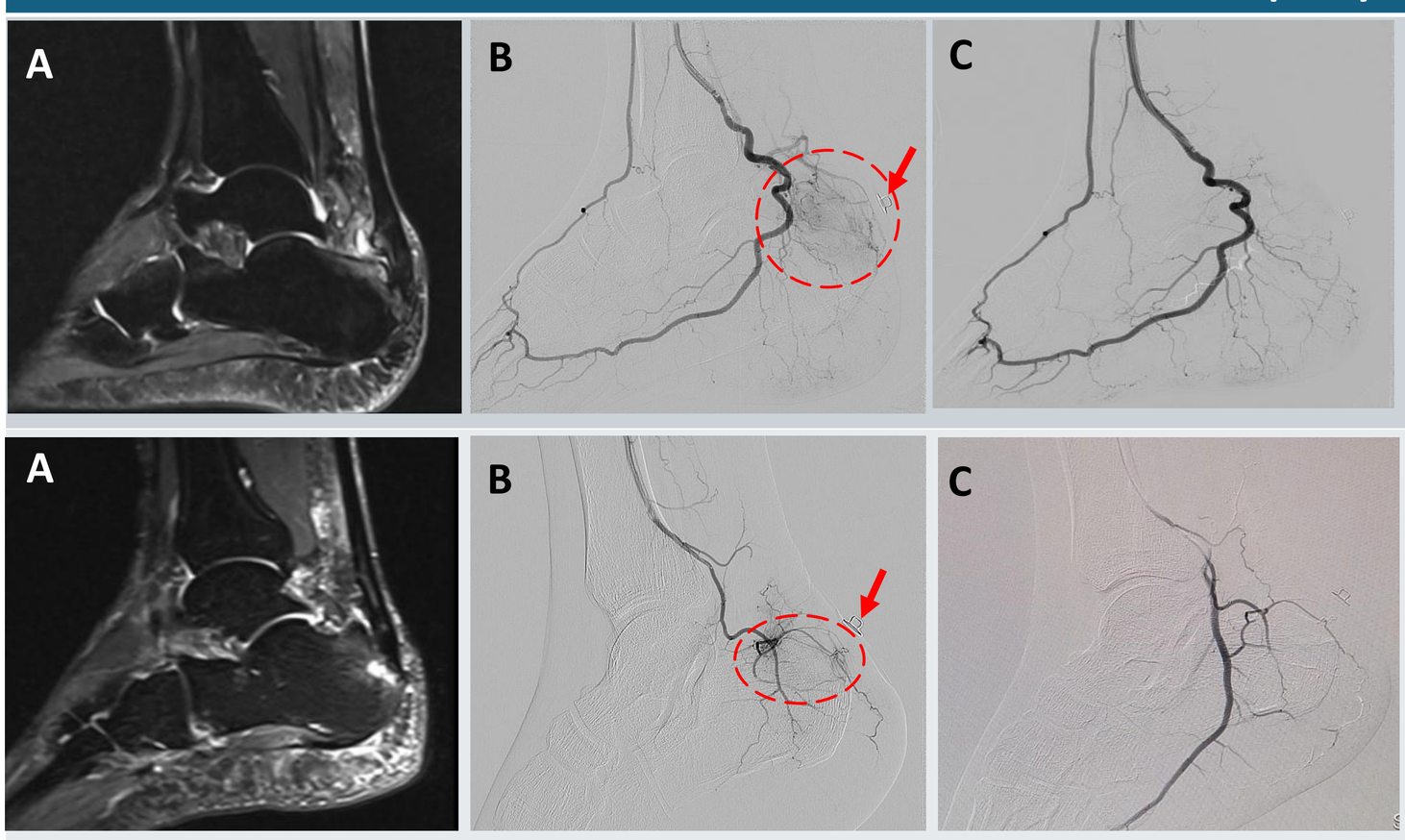
Transarterial embolization (TAE) has established role for treatment of tendinopathy and enthesopathy refractory to conservative management in adhesive capsulitis, medial and lateral epicondylitis and knee osteoarthritis. However, substantial evidence for transarterial embolization in Achilles tendinopathy and plantar fasciitis treatment are lacking.

Methods

This study included 12 patients having clinically diagnosed Achilles tendinopathy (7 patients; mean age- 53.3 years) and plantar fasciitis (5 patients; mean age- 38.2 years) who had not responded to conservative treatment for at least 3 months.

- **Preprocedural MRI** for confirmation of diagnosis and to rule out other etiology.
- **DSA:** Super selective embolization of arterial branch showing hypervascularity or supplying area of tenderness (marked by radio-opaque marker) on DSA using imipenem as embolising agent.
- **Follow up**
  - Visual analogue scale (VAS)
  - Victorian institute of sports assessment –Achilles questionnaire (VISA-A)

Achilles Tendinopathy



Case 1

62-year-old female with chronic Achilles tendinopathy

A) T2 sag MRI showing Achilles tendinopathy
B) DSA (pre-embolization): Hyper-vascular staining(red circle) coinciding with area of maximum tenderness marked by radiopaque marker (red arrow)
C) DSA: Post embolization of branches of peroneal artery showing loss of hyper-vascular staining

Case 2

51-year-old female with chronic Achilles tendinopathy

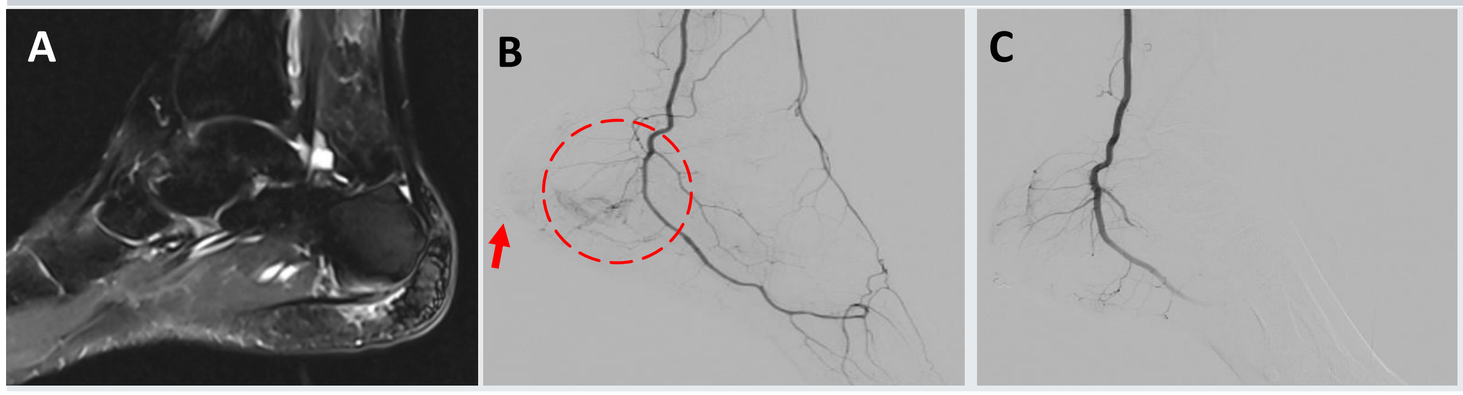
A) T2 sag MRI showing Achilles tendinopathy
B) DSA (pre-embolization): Hyper-vascular staining (red circle) coinciding with area of maximum tenderness marked by radiopaque marker (red arrow)
C) DSA: Post embolization of branches of peroneal artery showing loss of hyper-vascular staining

Plantar Fasciitis

Case 1

29-year-old male with plantar fasciitis

A) T2 sag MRI showing plantar fasciitis
B) DSA (pre-embolization): Hyper-vascular staining (red circle) coinciding with area of maximum tenderness marked by radiopaque marker (red arrow)
C) DSA: Post embolization of branches of posterior tibial artery showing loss of hyper-vascular staining



Case 2

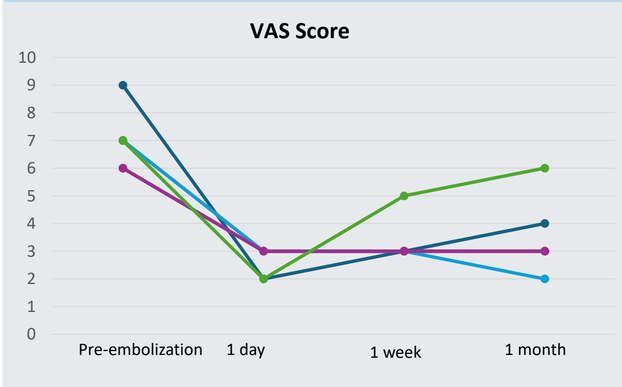
32-year-old female with plantar fasciitis

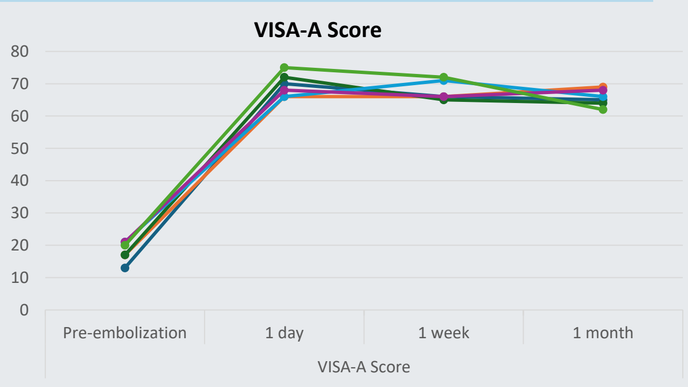
A) T2 sag MRI showing plantar fasciitis
B) DSA (pre-embolization): Hyper-vascular staining (red circle) coinciding with area of maximum tenderness marked by radiopaque marker (red arrow)
C) DSA: Post embolization of branches of posterior tibial artery showing loss of hyper-vascular staining

Results

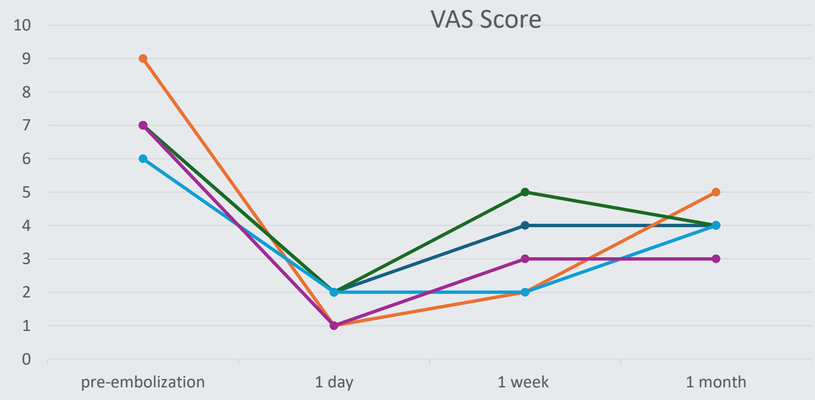
Technical success rate of 87.5% (6/7) in Achilles tendinopathy and 100% (5/5) in plantar fasciitis.
Significant decrease in pain scores at 1 day, 1 week and 1 month as compared to pre-embolization scores.
Complication: Access site hematoma in one patient.

Achilles Tendinopathy





Plantar Fasciitis



Discussion

Musculoskeletal pain in osteoarthritis, enthesopathy and tendinopathies including plantar fasciitis are associated with neovascularity and development of neonerves. Hence, trans arterial embolization reduces vascular hyperaemia leading to inhibition of recruitment of proinflammatory mediators producing pain relief.
Results in accordance with Park et al (1) for Achilles tendinopathy (29 limbs) and Gandhi et al (2) for plantar fasciitis (10 patients) which showed significant reduction in pain after embolization with imipenem/ cilastatin.

Conclusion

Trans-arterial embolization can be offered for patients with chronic Achilles tendinopathy and plantar fasciitis refractory to the conservative treatment with a low risk of adverse events

References

1. Park J, Lee SH, Seo BS, Kim DH, So YH, Kim M, et al. Clinical Outcomes of Transcatheter Arterial Embolization for Chronic Achilles Tendinopathy Refractory to Conservative Treatment: A Pilot Study. Journal of Vascular and Interventional Radiology. 2022 Oct;S1051044322012441.

2. Gandhi R, Banker M. Early outcomes of transcatheter arterial embolization using imipenem/cilastatin for plantar fasciitis refractory to conservative therapy. British Journal of Radiology. 2024 Mar 1;97(1155):544–8.