

Utilization of the Youngs Tenosuspension as an Adjunctive Procedure for Flexible Pes Planovalgus Deformity: A Case Report

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PURPOSE

Lateral column lengthening is recognized as the most effective surgical intervention for flexible pes planovalgus deformity, typically achieved through an Evans osteotomy. However, this procedure alone does not address the residual forefoot supination that often persists after performing the Evans osteotomy alone. To correct forefoot supination, the Youngs tenosuspension procedure can be used. This case report aims to show the positive outcomes of using a modified Youngs tenosuspension as an adjunctive procedure for treating flexible flatfoot deformity. Additionally, we will discuss the surgical technique, and its advantages supported in current literature.

CASE STUDY

A 23-year-old male with an unremarkable past medical history presented with persistent bilateral arch pain despite using over-the-counter orthotics, custom orthotics, custom bracing, and physical therapy. Physical examination revealed pain with palpation to bilateral posterior tibial tendons along their course and at their insertion, with the right side worse than the left. Additionally, the patient had bilateral gastrocnemius equinus and displayed severe flexible collapse of bilateral medial arches with standing.

Radiographic images, along with an MRI, were obtained for pre-operative surgical planning. The MRI did not show signs of arthritis; however, there was fluid surrounding the posterior tibial tendon and an accessory navicular was detected. After exhausting conservative treatment options, the patient opted for surgical intervention. Consent was obtained for an open Strayer procedure, Evans osteotomy, Kidner procedure, spring ligament repair, and Young's tenosuspension.

The surgical procedure began with the open Strayer, followed by the Evans osteotomy, where an 8mm wedge was inserted without fixation. Subsequently, the accessory navicular was excised. The tibialis anterior tendon transfer was then performed along with the posterior tibial tendon repair. Lastly, the spring ligament was restored. Post-surgery, the patient was instructed to remain non-weight bearing for six weeks.

IMAGING



Radiographic Figures: Pre-operatively there is a decreased calcaneal inclination angle, meary's angle, talonavicular uncovering and increased calcaneal cuboid angle.



Intra-operative Figures: A 4.0 drill was utilized to create a groove on the proximal medial edge of the navicular tuberosity. The tibialis anterior tendon was rerouted through the groove to increase the height of the medial arch. Next, an anchor was placed into the navicular for the repair of the posterior tibial tendon. Ethibond suture was passed through posterior tibial tendon and tibialis anterior tendon. Vicryl was utilized to reinforce the repair.

CASE STUDY CONTINUED

He was then transitioned into a CAM boot and allowed to weight bear as tolerated for an additional four weeks. He then transitioned from a boot into a tennis shoe, using an ankle brace as needed. The patient has fully healed from his incisions, with restored arch height in his right foot. He has now expressed interest in pursuing the same surgical intervention for the left foot.

DISCUSSION

Historically, the Young's tenosuspension procedure involved rerouting the tibialis anterior tendon either through the navicular bone¹ or into the talus². However, recent literature by Sakr et al. described a modified Youngs tenosuspension technique with rerouting the tibialis anterior tendon beneath the navicular bone. This rerouting creates an "L"-shaped configuration of the tendon, where the horizontal segment functions as a strong plantar ligament, while the vertical segment provides support to the talonavicular joint. The study aimed to evaluate the functional and radiological outcomes of tibialis anterior tendon rerouting in conjunction with calcaneal lengthening osteotomy for symptomatic flexible flatfoot. Their prospective study included 16 patients and demonstrated significant postoperative improvements in AOFAS scores and radiographic parameters. Notably, the study reported only three superficial wound complications, all effectively managed with local wound care and antibiotics³.

CONCLUSION

Our case involving the modified Youngs tenosuspension as an adjunctive procedure presents an additional option for correcting flexible pes planovalgus deformity. This modified technique not only helps re-establishing the medial arch but also provides additional plantar support. Overall, the procedure provided positive patient outcomes and satisfactory post-operative results.

REFERENCES

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