

# Surgical Management of Symptomatic Os Vesalianum: A Case Series

Joshua Thun DPM AACFAS<sup>1</sup>, Piroska Schlesinger DPM, Cindy Lin DPM<sup>2</sup>

<sup>1</sup>Attending Foot and Ankle Surgeon, Northwest Podiatrists-Portland Foot and Ankle, Portland, OR

<sup>2</sup>Resident Physician, PGY-2, Legacy Health Podiatric Medicine and Surgery, Portland, OR

## Purpose and Literature Review

Lateral foot pain can be caused by several foot conditions, one of which is os vesalianum at the base of the fifth metatarsal, within the peroneus brevis tendon. This is an accessory bone which is often times seen on radiographic imaging as a fifth metatarsal base fracture, an apophysitis, a non-union fracture or simply os peroneum [1-5]. Previously recorded cases in the literature are mostly related to symptoms as a result of repetitive activities and trauma such as prolonged weight bearing, ankle sprain, a particular foot position after golf swing, and other seemingly insignificant events [6-9]. The unfamiliar occurrence of this ossicle can involve single or bilateral feet. Six cases with bilateral involvement have been reported in the literature, but only one of the six bilateral cases presented problems in both feet [4,8-11]. This rare anatomic variation typically doesn't depict manifestation of pain in most individuals [2]. Though commonly asymptomatic, there may be biomechanical or traumatic factors that predispose patients with os vesalianum to pain in their lateral column.

The purpose of this case series is to present three different etiologies of symptomatic os vesalianum and our surgical protocol in managing cases recalcitrant to conservative care.

## Materials and Methods

A retrospective chart review of three patients was performed. All symptomatic os vesalianum in our case series were left sided with a main complaint of pain at the base of the 5th metatarsal. All patients had recalcitrant pain after undergoing a conservative treatment course of protected weight bearing in a cast boot, activity modification, and physical therapy. Bilateral radiographs were taken and all patients had accessory ossicles in both feet. All patients underwent surgical treatment for removal of the symptomatic ossicle and reattachment of the peroneus brevis tendon using suture anchors. Patient three also had a concomitant Brostrom-Gould repair at the time of surgery.

## Operative Technique

All patients were placed on the surgical table in a lateral position. A longitudinal incision was made at the base of the 5th metatarsal. Blunt dissection was performed to the base of the 5th metatarsal. A longitudinal incision was made along the peroneus brevis tendon at its insertion to the metatarsal base. The os vesalianum was identified and excised sharply from the peroneal tendon. Care was taken to not disrupt the dorsal and plantar fibers of the peroneal tendon as it inserted onto the metatarsal base. Once the ossicle was removed, the brevis was inspected. If a significant amount of the tendon attachment to the metatarsal base was compromised during the excision, then a suture anchor was used to restore and reinforce its attachment. The patient was placed into a non-weightbearing cast for 4 weeks followed by protected cast weight bearing and physical therapy until proper healing and gait was restored.

## Case 1

Patient one was a 17-year old female who had previously sustained a snowboarding injury (Figures 1 and 2). There were no significant biomechanical deformities.



Figure 1. Pre-operative medial oblique image



Figure 2. Post-operative AP image

## Case 2

Patient two was a 35-year old male who had significant metadductus (Figures 3 and 4).



Figure 3. Pre-operative AP and lateral images



Figure 4. Post-operative AP image

## Case 3

Patient three was a 56-year old female who had history of a previous Watson-Jones procedure 35 years prior, chronic inversion ankle sprains, and continued lateral ankle instability with a positive talar tilt. The patient had a main complaint of pain at the base of the 5<sup>th</sup> metatarsal. (Figures 5 and 6).



Figure 5. Pre-operative lateral radiograph



Figure 6. Post-operative AP image

## Results

Our patients had favorable outcomes with surgical management of painful os vesalianum. Patient two with metadductus was the only one with post-operative complication of pain at the non-absorbable suture knot site. No other complications were noted and all patients are doing well post operatively with improved pain and function. Postoperatively, patient three is without residual talar tilt and has improved lateral ankle stability.

## Discussion

Our first patient had a traumatic snowboarding injury with forced inversion against her snowboarding boot, aggravating her lateral column and peroneal tendons. Our second patient had significant metadductus deformity and c-shaped curvature to the lateral aspect of his foot, thereby increasing biomechanical stresses to the lateral column.

## Discussion continued

Our third patient had history of chronic lateral ankle instability, inversion injuries, and previous lateral ankle ligament reconstruction that had failed. We hypothesize that conditions that contribute to lateral column overload or stress may be a factor in developing painful os vesalianum in an otherwise asymptomatic condition.

Although very few cases of os vesalianum have been reported in the literature, those that have been documented were treated surgically by excision of the accessory bone [1, 4-9]. Conservative treatment options include activity modification, immobilization, bracing, and physical therapy. Our case series, in addition to the previously reported cases of os vesalianum, supports surgical removal of the ossicle as a viable treatment option for recalcitrant and symptomatic os vesalianum [1, 4-9]. All three of our patients had large enough ossicles that were amenable to repair and reattachment via suture anchor fixation.

This case series suggests possible etiologies for symptomatic os vesalianum in addition to a surgical treatment of full excision with partial detachment and reattachment of the peroneus brevis tendon using suture anchors. There are currently no studies suggesting guidelines on when to use a suture anchor. In the future, further studies evaluating tendon strengths after partial detachment may provide more detailed recommendations on the use of suture anchors when tendon detachment and reattachment is required.

## Conclusion

In cases where os vesalianum is recalcitrant to conservative care, surgical management is indicated. Suture anchors may or may not be used depending on the size of the ossicle and amount of tendon which is required to detach from the base of the 5th metatarsal. Though there are different etiologies of symptomatic os vesalianum, our results show favorable outcomes with surgical management utilizing removal of the ossicle in toto and suture anchor reattachment of the peroneus brevis tendon.

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