

CALCIFIC ACHILLES TENDINITIS

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Retrocalcaneal exostosis with calcific Achilles tendinitis are often seen as incidental findings on lateral radiographs. On occasion these become symptomatic and may require surgical intervention. This paper explores the potential etiology and surgical options for retrocalcaneodynia.

CLINICAL DESCRIPTION

Morris et al. described three different patterns of calcifications in the posterior aspect of the heel.¹ Type I is a true retrocalcaneal exostosis at the insertion of the Achilles tendon. Type II are calcifications within the body of the tendon, but not attached to the calcaneus, typically .5 cm to 3 cm proximal to the insertion. These usually involve only a partial thickness of the tendon. Type III calcifications are more proximal in the tendon, sometimes approaching the myotendinous junction. Black and Kanat described numerous etiologies for soft tissue calcifications.² The majority of which can be attributed to constant and chronic microtrauma to the posterior heel.

Retrocalcaneal tendinitis is a distinct clinical entity that is not easily confused with Haglund's deformity. Palpatory tenderness is marked at the posterior heel at its most prominent point. Some tenderness is also evident on the medial and lateral sides of the posterior heel. Occasionally, the distal several centimeters of the tendon are inflamed. Pain can often be elicited by passive and active ankle joint dorsiflexion.

Conservative care is used to reduce the inflammatory process. The application of heat or ice, physical therapy, nonsteroidal anti-inflammatory therapy, stretching exercises, heel lifts and immobilization are commonly used. Corticosteroid injections are also helpful. Although there is anecdotal evidence of tendon rupture post injection, the author is unaware of any clear evidence documenting this association. Animal studies have shown some tendon weakening with intratendinous injections but normal tendon strength is returned in 2 weeks.^{3,4} No clear alteration in tendon strength is noted with peritendinous injections.

Failure to respond to conservative care justifies surgical intervention. Because surgery involves the partial or complete detachment of the Achilles tendon, it should be undertaken judiciously.

PREOPERATIVE FINDINGS

The author reviewed 9 surgical cases (3 males, 6 females) performed in the last three years. The average age of the patients was 43. The onset of pain in all individuals was fairly acute, and all sought treatment within several weeks following the initiation of symptoms. No direct trauma was reported by the patients.

Radiographic analysis showed two patients with exclusively a Type II calcification pattern. In both patients, the calcification appeared to be fractured. The remaining seven patients all showed Type I calcifications. Five of these seven also presented with Type II calcification. Type I calcifications were all well-formed, and clearly corticated with distinct trabeculation noted. The Type II calcifications were generally ill-defined and very closely associated with the retrocalcaneal exostosis (Figs 1-3).

SURGICAL TECHNIQUE AND FINDINGS

Close anatomic review shows that the Achilles tendon inserts into the posterior central third of the heel with significant medial and lateral expansions. The central third of the posterior heel is separated from the inferior third by a well-defined bone ridge. It is the enlargement of this ridge which forms a Type I calcification pattern. Therefore, the retrocalcaneal exostosis is mainly posterior to the body of the Achilles tendon (Fig. 4). The soft tissue posterior to the exostosis is primarily periosteum.

The Type II calcifications are generally just superior to the exostosis, again usually in the posterior portion of the tendon. Intra-operatively the Type II calcifications are intimately approximated to the retrocalcaneal exostosis. In all instances of Type I calcifications, a portion of the exostosis was not firmly attached to the calcaneus. It is therefore possible to perform the surgery with minimal

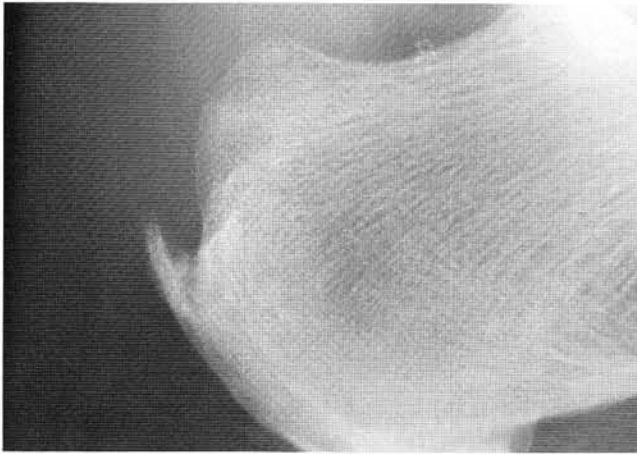


Figure 1. Type I calcification, a typical retrocalcaneal exostosis.

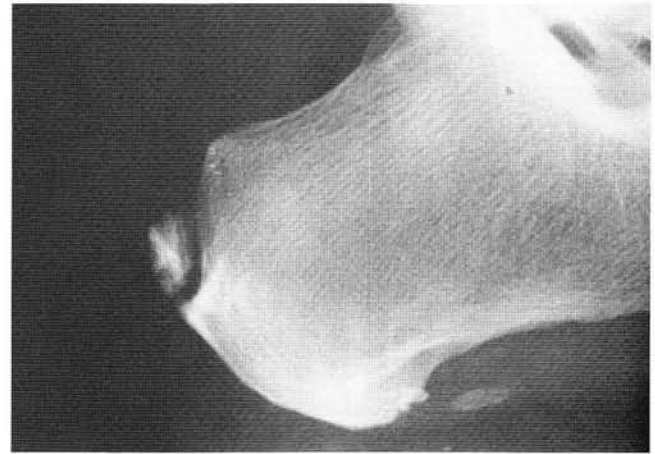


Figure 2. Type II calcification located in the distal Achilles.

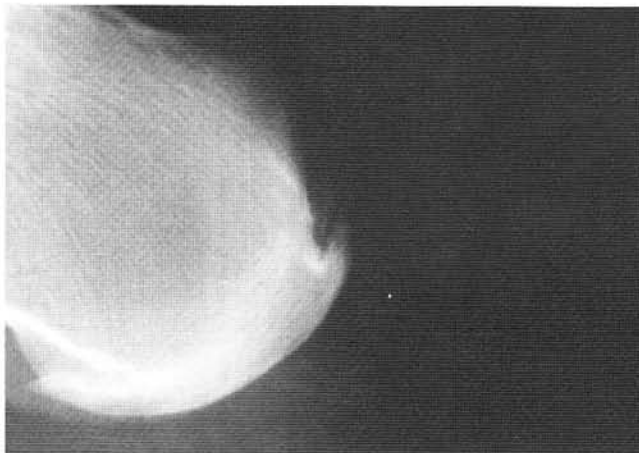


Figure 3. An apparent retrocalcaneal exostosis (Type I) with tenocalcinosis (Type II).

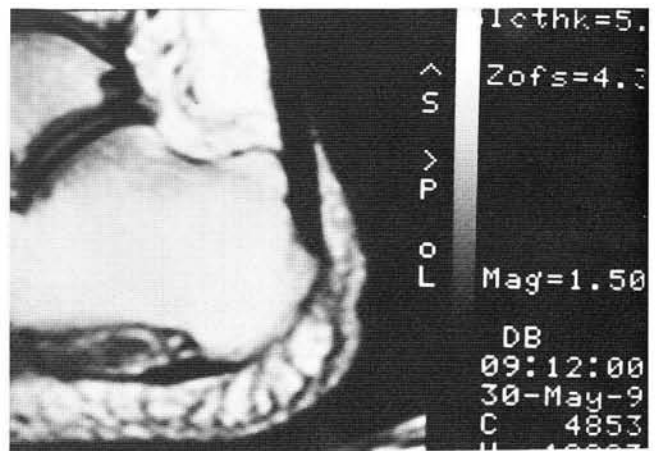


Figure 4. MRI of the heel. Note the Achilles tendon attaches above the retrocalcaneal exostosis. There is no tendon posterior to the exostosis.

disruption to the Achilles tendon. Only on rare occasions is it necessary to detach the Achilles tendon.

A 6 cm, transverse incision is placed directly over the high point on the posterior aspect of the heel. The incision needs to be of sufficient length to allow for superior-inferior retraction. Because the subcutaneous tissue is so dense inferiorly, and retraction is difficult, it is best to keep the incision close to the inferior heel. The incision is deepened until the tendon is visualized.

The tendon/periosteum is transversely incised directly to bone. Fluoroscopic exam may be required to assist in accurately placing the incision. At this point, it is clear that the exostosis is "retro"

to the Achilles tendon. If Type II calcifications are present, the periosteum and posterior 1 mm to 3 mm of tendon are reflected superiorly. The calcifications are identified and removed. The tendon is repaired with 2-0 or 3-0 absorbable suture (Figs. 5-6). Tendon anchors are usually not required.

Postoperatively, the patient is placed in a removable walking cast with a rocker sole. The patient is kept non-weight bearing for the first two weeks, with progressive weight bearing then initiated. The bandage and sutures are removed at 7 to 10 days at which time bathing and sleeping without the cast is permitted. Most patients are completely out of the cast by the end of six weeks.

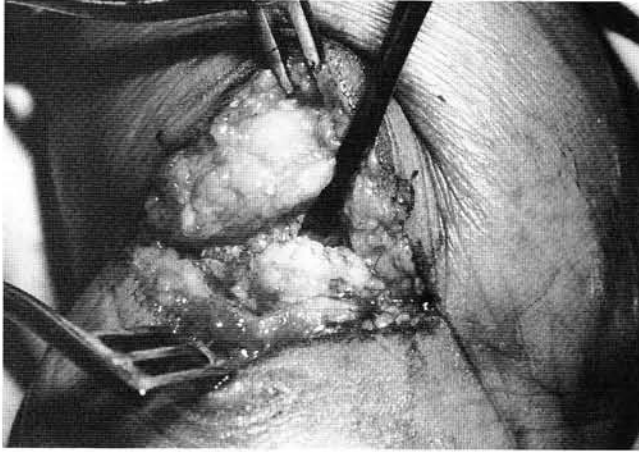


Figure 5. Intraoperative view of the posterior heel. A transverse incision was made over the exostosis. The periosteum is reflected inferiorly, and minimal tendon is reflected superiorly.

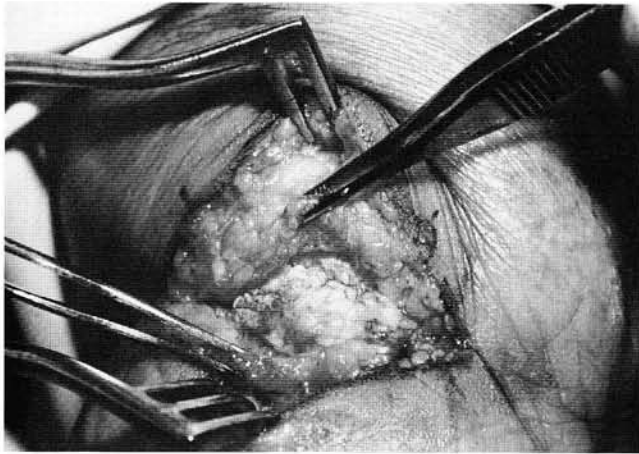


Figure 6. The exostosis is identified.

CONCLUSION

Most patients with retrocalcaneal exostosis/Achilles calcific tendinitis have a rather acute onset of pain despite the presence of a mature exostosis. This fact plus the intra-operative findings discussed, lead the author to believe the detachment or fracture of these calcifications leads to the onset of pain.

The surgical approach should be directed at removing these "loose" pieces of bone. This will preserve the insertion of the Achilles tendon leading to faster rehabilitation and fewer post-operative complications. Complete detachment of the Achilles tendon with aggressive posterior exostectomy is rarely required.

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