



Achilles Tendon Complication Following Corticosteroid Injection for Retrocalcaneal Bursitis: A Case Report

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ABSTRACT:

Background: Retrocalcaneal bursitis is usually managed non-operatively with activity modification, physiotherapy, NSAIDs and footwear changes. Corticosteroid injections may be used in refractory cases but carry a risk of Achilles tendon weakening or rupture when administered close to the tendon.

Case Report: A 48-year-old man presented with chronic posterior heel pain due to retrocalcaneal bursitis, unresponsive to conservative treatment. He received a single corticosteroid injection into the retrocalcaneal bursa and experienced short-term relief. Four weeks later, he developed sudden posterior heel pain while walking. Clinical assessment and ultrasound confirmed a partial tear involving approximately one-quarter of the distal Achilles tendon fibers adjacent to the prior



report

injection site. The patient was managed non-operatively with a controlled ankle-motion boot, heel lifts, protected weight-bearing, and structured rehabilitation. He achieved near-complete functional recovery by 10 weeks and returned to normal activities without pain at 4 months.

Conclusion: Corticosteroid injection for retrocalcaneal bursitis must be used with caution, as even a single dose may compromise Achilles tendon integrity. Image-guided technique, judicious indications, and thorough patient counselling are essential to minimize the risk of tendon complications and to facilitate early recognition and management if they occur.

INTRODUCTION

Retrocalcaneal bursitis is a common cause of posterior heel pain and may occur in isolation or in association with Haglund deformity, overuse, or altered foot biomechanics. Standard management includes activity modification, physiotherapy, NSAIDs, ice, heel lifts, and footwear modification. In patients with persistent symptoms, corticosteroid injection into the retrocalcaneal bursa is sometimes considered as a second-line intervention.

However, corticosteroids administered near the Achilles tendon have been associated with tendon degeneration and an increased risk of partial or complete rupture. Proposed mechanisms include disruption of collagen architecture, reduced tensile strength, and impaired tendon healing. Although the retrocalcaneal bursa is anatomically distinct from the Achilles tendon, inaccurate needle placement or steroid diffusion can still expose tendon fibers to deleterious steroid effects.

We present a case of partial distal Achilles tendon rupture following a single corticosteroid injection for retrocalcaneal bursitis, managed successfully with non-operative treatment. The case underscores the need for caution, optimal technique, and detailed patient counselling when using corticosteroid injections around the Achilles tendon.

CASE REPORT

A 48-year-old male, engaged in light recreational walking and with no significant systemic comorbidities, presented with a 3-month history of posterior heel pain on the right side. The pain was insidious in onset, aggravated by walking and climbing stairs, and partially relieved by rest. There was no history of trauma, fluoroquinolone use, or prior steroid exposure.

Clinical examination revealed localized tenderness over the retrocalcaneal region with mild swelling. The Achilles tendon contour was intact, and there was no palpable defect. Ankle range of motion was full and painless at rest, and the Thompson squeeze test was negative. There were no signs of infection or systemic illness.

Plain radiographs of the ankle and hindfoot (anteroposterior and lateral views) were unremarkable, without obvious calcaneal spur or Haglund deformity. Ultrasound examination demonstrated fluid collection in the retrocalcaneal bursa with preserved continuity and normal echotexture of the Achilles tendon fibers.

The patient underwent a course of non-operative management, including physiotherapy (stretching and eccentric strengthening), NSAIDs, heel lifts, and footwear modification for several weeks, with only minimal symptomatic improvement. After discussion of risks and benefits, a single corticosteroid injection was planned.

Under aseptic precautions, 1 mL of triamcinolone acetonide (40 mg/mL) mixed with local anesthetic was injected into the retrocalcaneal bursa via a medial approach using a landmark-guided technique. Immediate post-injection course was uneventful, and the patient reported substantial pain relief for approximately 2 weeks, allowing normal ambulation.

Approximately 4 weeks after the injection, the patient experienced a sudden, sharp pain at the posterior heel while taking a routine step, followed by difficulty in pushing off during gait. He denied any fall, misstep, or major trauma.

On re-examination, there was focal tenderness and swelling near the Achilles tendon insertion, with reduced plantarflexion strength compared to the contralateral



side. The Thompson test remained negative, and a complete rupture was not suspected clinically.

Follow-up ultrasound of the ankle revealed a partial tear involving roughly one-quarter of the distal Achilles tendon fibers adjacent to the retrocalcaneal bursa, with surrounding edema but preserved continuity of the remaining tendon.

After counselling regarding operative and non-operative options, the patient opted for conservative management. Treatment consisted of:

- Controlled ankle-motion (CAM) boot with heel lifts
- Protected weight-bearing with crutches initially, progressing as tolerated
- Gradual weaning of immobilization over several weeks
- A structured rehabilitation protocol emphasizing progressive loading, eccentric strengthening of the gastrocnemius–soleus complex, flexibility exercises, and proprioceptive training

The patient showed steady improvement. By 10 weeks from diagnosis of the tear, he had regained nearly full plantarflexion strength and reported minimal residual discomfort. At 4-month follow-up, he had resumed normal daily activities and light recreational walking without pain or functional limitation. Repeat ultrasound demonstrated satisfactory healing and continuity of the Achilles tendon with no progression of the tear.

DISCUSSION

Corticosteroid injections for peri-tendinous conditions are widely used due to their potent anti-inflammatory and analgesic effects. However, when administered near load-bearing tendons such as the Achilles, they may predispose to tendon degeneration and rupture. Histopathological studies have demonstrated altered collagen organization, decreased cellularity, and reduced tensile strength in steroid-exposed tendons.^{3,4}

The Achilles tendon is particularly vulnerable because of its relatively hypovascular zones and high mechanical loading. Although retrocalcaneal bursa injections are intended to remain extra-tendinous, the close anatomic

relationship between the bursa and the distal Achilles tendon means that inadvertent intra-tendinous injection or diffusion of steroid into tendon tissue can occur, especially without ultrasound guidance.

Several reports have documented partial or complete Achilles tendon ruptures temporally related to local corticosteroid administration.^{5,6} In the present case, the sequence of events—a pain-free interval after injection followed by acute posterior heel pain and imaging-confirmed partial tear within weeks—supports a causal relationship between the steroid injection and tendon pathology, in the absence of other major risk factors.

Importantly, this case also illustrates that not all steroid-related Achilles tendon injuries require surgical intervention. Partial tears involving a limited proportion of tendon fibers may be managed successfully with functional bracing and a structured rehabilitation program. Non-operative protocols emphasizing early protected mobilization and gradual increase in tendon loading can yield favorable outcomes, as seen in our patient.

To minimize the risk of complications, several measures are recommended:

- Restrict corticosteroid injections around the Achilles tendon to carefully selected refractory cases after failure of conservative measures.
- Use ultrasound guidance to confirm accurate needle placement within the bursal space and avoid intra-tendinous injection.
- Employ the lowest effective steroid dose and limit the number of injections.
- Provide explicit counselling regarding the potential risk of tendon injury and the need to avoid sudden high-load activities in the early post-injection period.
- Maintain a high index of suspicion for tendon tears in any patient presenting with new or worsening pain, weakness, or functional loss after injection.

CONCLUSION

Corticosteroid injection for retrocalcaneal bursitis can provide short-term symptomatic relief but carries a real



risk of Achilles tendon compromise, even after a single dose. This case report highlights:

- The potential for partial Achilles tendon rupture following extra-tendinous steroid injection in the retrocalcaneal region.
- The importance of cautious patient selection, meticulous technique—preferably ultrasound-guided—and comprehensive risk counselling.
- That early recognition of post-injection complications allows timely initiation of appropriate treatment, including successful non-operative management in selected partial tears.

Clinicians should prioritize non-steroidal treatment options whenever possible and reserve steroid injections for carefully considered indications.

CLINICAL MESSAGE

Even a correctly intended steroid injection into the retrocalcaneal bursa may jeopardize Achilles tendon integrity. Steroid use in this region should be highly judicious, image-guided where possible, and accompanied by clear patient counselling. Any new posterior heel pain after injection should prompt immediate evaluation for potential tendon injury.

PATIENT CONSENT

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the journal editor on request.

CONFLICT OF INTEREST

The authors declare no conflict of interest related to this work.

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Figure 3



Figure 1

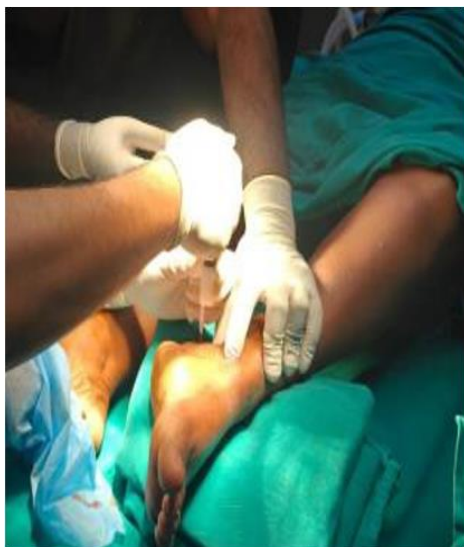


Figure 2