



Ciprofloxacin use may be Complicated by Achilles Tendon Rupture

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Abstract

An 85-year old lady was treated for acute diverticulitis with intravenous antibiotics. As she recovered, the antibiotic regimen was changed to oral Ciprofloxacin. Shortly after commencing the course, she experienced acute left heel pain. An ultrasound scan of the left Achilles tendon confirmed a partial thickness tear. She was managed conservatively with an Air Cast boot for 3 months, and made a full recovery.

Introduction

Ciprofloxacin is a commonly prescribed broad-spectrum antibiotic, and generally well tolerated. However, tendonitis and tendon rupture is a recognised complication. Herein we present a case of this rare complication and discuss risk factors, pathophysiology and management.

Case Presentation

An 85-year-old female presented with a 4-day history of progressive left iliac fossa abdominal pain. She had no prior medical history, and an allergy to penicillin. She was putatively diagnosed with acute sigmoid diverticulitis, admitted to hospital and commenced on IV gentamicin, tigecycline and metronidazole (as per our local protocol for patients allergic to penicillin). The diagnosis was confirmed with a CT scan of her abdomen and pelvis. A subsequent outpatient flexible sigmoidoscopy demonstrated multiple sigmoid diverticulae.

Her symptoms improved with the antibiotics; after 3 days, she was switched to oral ciprofloxacin and discharged home after a 5-day inpatient stay.

Within a few hours of her discharge, she experienced a sudden onset pain in her left heel, unrelated to trauma, overuse or ill-fitting or new footwear. She had been walking normally prior to the pain. She sought medical attention when the pain had failed to settle after two days. Examination revealed bilaterally equally swollen ankles (chronic, and normal for her), with tenderness over her left Achilles tendon. Simmonds' test was normal. Her left calf was pain free and not swollen.

A plain radiograph of the left ankle was performed, to exclude occult trauma; this was normal. The differentials at this stage included tendonitis and partial tendon rupture. An ultrasound scan of the left Achilles tendon demonstrated a partial thickness tear of the medial half of the tendon, close to the myotendinous junction.

She was managed conservatively with an Air Cast boot. Three wedges were placed under the heel within the boot, holding the ankle in partial planter flexion. The wedges were gradually removed over 3 months, until the tendon had healed, at which point the boot was removed.

Discussion

Ciprofloxacin is a fluoroquinolone antibiotic with both Gram-negative and Gram-positive cover. It is commonly used to treat urinary tract infections, respiratory tract infections and intra-abdominal inflammatory conditions including diverticulitis and cholecystitis.

Tendonitis often presents as pain overlying the affected tendon, worse on movement of the associated joint. Rupture of the tendon may be reported by the patient as a sudden increase in pain at the affected tendon as in this case, often associated with a snapping sensation and even a popping sound. When Achilles tendon rupture is suspected, clinical examination must include Simmond's test, in the case of tendon rupture, with the patient lying prone, squeezing of the patient's calf will not result in planter flexion of the foot. Diagnosis can be confirmed by ultrasonography, which may

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show increased vascularity in an inflamed tendon, or disruption of the tendon in the case of rupture, as demonstrated in this case.

There seems to be a wide timeframe of onset of symptoms following commencement of ciprofloxacin, ranging from 2 hours to 6 months (long after the course of antibiotic had finished) [1]. The incidence of tendonitis is 2.4 per 10,000 patients; the incidence of tendon rupture is half this [2].

Other comorbidity increasing the risk of tendonopathy complicating fluoroquinolone use includes renal impairment, diabetes, rheumatoid arthritis and hyperparathyroidism [1]. Synchronous steroid use is also a risk factor, and there seems to be a male preponderance [3]. Finally sporting activity places stress on the tendon increases the risk of tendonopathy [4].

A number of theories for the mechanism of tendonopathy have been proposed. Fluoroquinolone use decreases collagen synthesis and increases degradation of the extracellular matrix [5]. Acting as a chelating agent, interaction between the cells and extracellular matrix is disrupted [6], and finally there is increased apoptosis seen in within tendons due to fluoroquinolones [7].

Treatment depends on the tendonopathy and, if present, the degree of rupture. In all cases, when tendonopathy is suspected it is important to promptly cease the fluoroquinolone (if the patient has yet to finish the course) [8]. Tendonitis should then be managed with simple analgesia. Complete tendon rupture may require surgical tendon repair under the care of the orthopaedic surgeons; partial rupture may be successfully managed conservatively, as in our case.

Conclusion

Tendonopathy is a rare complication of fluoroquinolone use. Clinicians should be mindful of this and be ready to switch the antibiotic promptly if symptoms develop.

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