

Ciprofloxacin-Induced Urticaria and Tenosynovitis: A Case Report

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Key Words

Tenosynovitis · Ciprofloxacin · Adverse drug reaction · Tendinopathy · Urticaria · Skin reaction · Fluoroquinolone

Abstract

Background: Tendon disorders are rare events associated with fluoroquinolone congestion. Skin reactions are more frequent than tendon disorders. We reported this case as the combination of ciprofloxacin-induced urticaria and tenosynovitis has been unreported in young women. **Case:** A 28-year-old woman without underlying disease developed urticarias and tendinopathy 4 days after the initiation of ciprofloxacin treatment for urinary infection. MRI of the left foot revealed increased synovial fluid surrounding the tendon of the flexor hallucis longus muscle representing tenosynovitis. Ciprofloxacin was ceased due to the possibility of ciprofloxacin-induced tendinopathy and urticaria. Complete resolution of her symptoms and findings occurred 3 days after discontinuation of ciprofloxacin without any additional treatment. **Conclusion:** Early discontinuation of fluoroquinolone therapy when tendinopathy is suspected is the basis of therapy. So, it should be kept in mind that fluoroquinolone-induced tendinopathy may occur in an otherwise healthy young patient with no risk factors and in a site other than the Achilles tendon.

Introduction

Ciprofloxacin is a second-generation fluoroquinolone antibiotic. The overall incidence of adverse events of ciprofloxacin is 5.8%. The most common adverse events associated with ciprofloxacin are gastrointestinal and central nervous system disorders as well as skin reactions. The rate of skin reactions including rash, urticaria and exfoliative dermatitis is 0.7%. [1–4]. Incidence of tendinitis and tendon rupture is rare [1, 4, 5].

This case report demonstrates that urticaria and tenosynovitis might appear together on the fourth day of ciprofloxacin treatment. These adverse events have not been reported yet in a healthy young female in the literature.

Case

A 28-year-old female patient without underlying disease presented with abdominal pain, nausea, vomiting, fever, chills, dysuria and urinary urgency. Physical examination showed increased breath rate, fever and bilateral flank tenderness. Laboratory findings which were not within normal limits, including blood count, liver and renal function tests, revealed hemoglobin level of 10.1 g/dl, platelet count of 116,000/mm³, erythrocyte sedimentation rate of 38 mm/h and C-reactive protein level of 171 mg/dl. Urinalysis revealed pyuria (500 leukocytes/mm³) and hematuria (250 erythrocytes/mm³). After urine and blood cultures were obtained, intravenous ciprofloxacin (400 mg twice daily) and fluid

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electrolyte replacement were merely commenced for the empirical treatment of urinary tract infection. Cultured urine grew *Escherichia coli* (10^5 CFU/ml). *E. coli* was sensitive to such antibiotics like ciprofloxacin and cephalosporin. Blood culture was negative for bacteria. At the third day of treatment, her body temperature started to decrease. Four days after commencement of ciprofloxacin, she developed erythematous, itchy swelling with irregular margins over the left elbow and another mild itchy, erythematous, edematous swelling with mild local temperature elevation at the dorsolateral aspect of the fifth toe representing urticarial lesions. She developed pain during joint movement on the thumb of the left foot on this day. Ciprofloxacin was ceased due to the possibility of ciprofloxacin-induced side effects and switched to ceftriaxone (2 g/day). On the MRI of the left foot, there was increased synovial fluid surrounding the tendon of the flexor hallucis longus muscle representing tenosynovitis (fig. 1a). No treatment was administered for tenosynovitis and urticaria. One day after ceasing ciprofloxacin, urticarial plaques totally resolved. The patient's subjective discomfort began to improve within 2 days after ciprofloxacin had been discontinued. All side effects were resolved within 3 days. Also, the MRI findings were improved following this discontinuation (fig. 1b). At the seventh day after hospitalization, she was discharged by treatment with oral cefuroxime axetil (500 mg twice a day) to complete 14 days of treatment.

Discussion

Fluoroquinolone-induced adverse events are generally mild and self-limiting, and rarely cause treatment ceasing [6]. The overall rate of dermatological adverse events, such as maculopapular or urticarial eruptions, and phototoxic reactions following fluoroquinolone use is 0.5–3% [1, 3, 6]. The presented patient developed urticarias. Urticaria plaques resolved spontaneously 1 day after ceasing ciprofloxacin.

The mechanism of tendinopathy as a class-related side effect of fluoroquinolones is unclear and its incidence rare [1, 6–9]. Ciprofloxacin inhibits tenocyte metabolism and decreases cell proliferation, collagen and matrix synthesis, a mechanism that may induce tendinopathy [9, 10]. The frequency of fluoroquinolone-induced tendinopathy in the healthy population is estimated to be 7.7 cases per 100,000 days [7, 11]. The most important risk factors for fluoroquinolone-induced tendinopathy are old age, corticosteroid use, renal disease, hemodialysis and transplantation [5–8]. Fluoroquinolone-induced tendon disorders are more common in men. The Achilles tendon is the tendon mostly affected [6–8, 10, 11]. The mean time of onset of symptoms after the initiation of fluoroquinolone therapy was about 17 days (range 2–180) [7, 8]. The presented patient was a healthy young woman and tenosynovitis was diagnosed at the fourth day of cip-

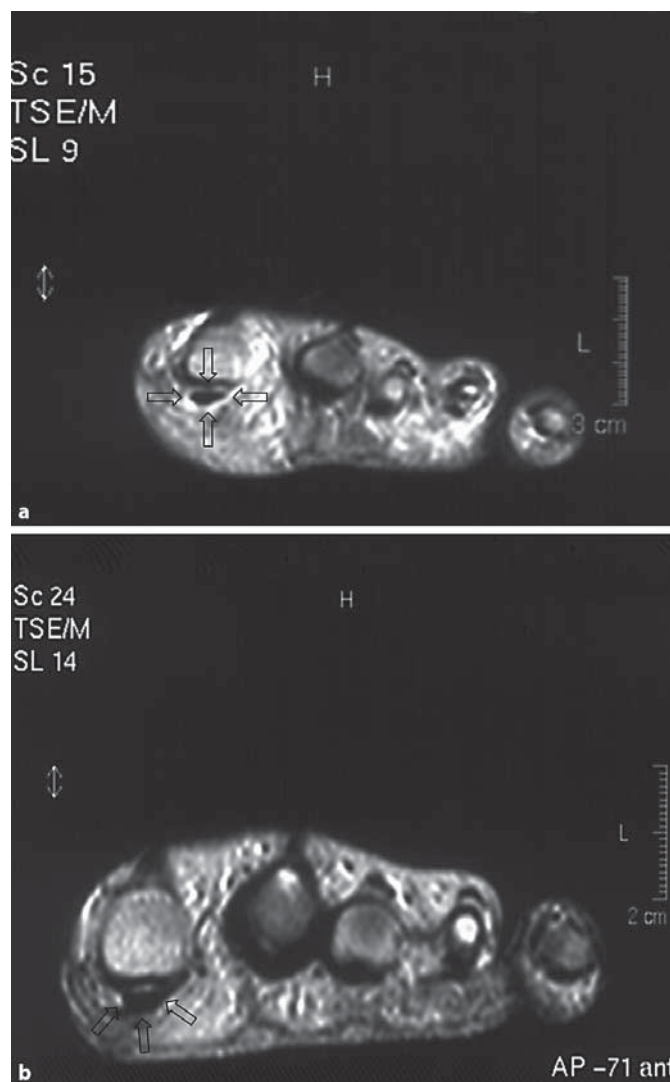


Fig. 1. T2-weighted MRI of tenosynovitis due to ciprofloxacin treatment. **a** Following ciprofloxacin therapy, hyperintense synovial fluid was noted surrounding the flexor hallucis longus tendon (arrows). **b** T2 hyperintensity representing synovial fluid elevation disappeared following discontinuation of ciprofloxacin (arrows).

rofloxacin therapy. Involvement of the flexor hallucis longus muscle tendon due to ciprofloxacin has never been reported in the literature, as shown by conducting a Medline search.

Diagnosis of tendon disorders is made primarily by physical examination, while radiography, ultrasonography, nuclear scanning and MRI are used additionally [7]. The diagnosis of the current patient was made by physical examination and MRI findings.

Interventions include discontinuation of the implicated fluoroquinolone in the majority of cases with tendon disorders [6, 7]. It has been reported that recovery occurred in a mean of about 59 days (range 2–600) [7]. After ceasing ciprofloxacin treatment and switching to cephalosporin, the tenosynovitis of our patient was rapidly improved within 3 days.

In conclusion, early discontinuation of fluoroquinolone therapy in the suspicion of tendinopathy is the basis of therapy. So, it should be kept in mind that fluoroquinolone-induced tendinopathy may occur in an otherwise healthy young patient with no risk factors and in a site other than the Achilles tendon.

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