

# Superficial lymphangitis after arthropod bite: a warning against unnecessary antimicrobial use

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## DESCRIPTION

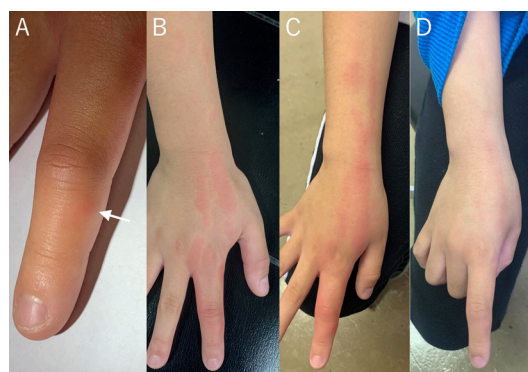
A boy in middle childhood noticed a painful, erythematous papule on his right index finger near the proximal interphalangeal joint (figure 1A) in the morning upon waking. He was unable to recollect being bitten by an insect. Later that afternoon, a red streak extending from the initial inflammatory papule gradually toward the dorsum of the right hand, wrist and forearm (figure 1B) appeared, prompting a visit to our clinic on the same day. The linear eruption was itchy but painless. He was receiving no medication, and his medical history was unremarkable. On examination, he was in excellent, general condition; he had no fever or lymphadenopathy. The tenderness was limited to the papule. Based on the patient's history and physical examination findings, superficial lymphangitis resulting from an arthropod bite was clinically diagnosed. He was treated with a topical steroid, but the rash deteriorated by the follow-up examination on the next day (figure 1C). Oral antihistamine was added to the treatment. The rash and other symptoms improved significantly by day 3 after the initial visit (figure 1D) and resolved by day 4.

Lymphangitis is an inflammation of the lymphatic channels manifesting highly characteristic, linear, erythematous streaks. Most cases of acute lymphangitis are caused by group A *Streptococcus* infection following skin damage.<sup>1</sup> Non-infectious causes are very rare, but secondary, superficial lymphangitis following an arthropod bite is recognised as a benign condition mimicking common bacterial

lymphangitis.<sup>2</sup> However, most cases of superficial lymphangitis resulting from an arthropod bite are thought to be misdiagnosed and treated as an infection.<sup>3</sup>

Important clinical features distinguishing superficial lymphangitis after an arthropod bite from a bacterial infection include the absence of pain, tenderness, fever, lymphadenopathy and a self-limiting clinical course.<sup>4</sup> Although most patients, including the present one, cannot recall having been bitten by an arthropod, the presence of a tender macule with a haemorrhagic centre is a useful clue to the correct diagnosis.<sup>2</sup>

The precise pathophysiology of superficial lymphangitis after an arthropod bite remains unknown but is thought to involve a hypersensitivity reaction to toxins contained in the secretion of arthropods.<sup>2</sup> The injected toxin and inflammatory cells are drained by the lymphatic vessels, causing a linear spread of the inflammation.<sup>2,5</sup> The treatment, including topical steroids, oral antihistamines and oral corticosteroids, only addresses the symptoms, but antimicrobials are unnecessary.<sup>2-6</sup> In this case, he was initially treated only with a topical steroid but needed additional oral antihistamines due to the deterioration of his condition, suggesting that early antihistamine administration may potentially be beneficial. Physicians should be aware of



**Figure 1** (A) Painful, erythematous papule on the right index finger suggestive of an arthropod bite. (B) Salmon-coloured, linear streaks with a white border developed in the afternoon of the same day. (C) Follow-up on the day after the initial visit demonstrated slight exacerbation of the inflammation and extension toward the forearm. (D) Follow-up on day 3 demonstrated improvement without antimicrobial use.

## Patient's perspective

(From his mother)

I did not notice anything unusual on the morning of the visit, but when he came home from elementary school, he was scratching his right index finger, and I noticed his index finger was red and swollen. I was worried that he might have gotten an infection in his finger. Where we live, there are many insects, including mosquitoes, and I wouldn't be surprised if he had been bitten without noticing it.

## Learning points

- ▶ Not all cases of acute lymphangitis require antimicrobial therapy.
- ▶ Superficial lymphangitis after an arthropod bite is a non-infectious condition mimicking common bacterial acute lymphangitis.
- ▶ Clinicians should be aware of the benign nature of this condition to avoid unnecessary antimicrobial use.



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this benign condition to avoid inappropriate antimicrobial use. History-taking and a physical examination are necessary to ascertain the presence or absence of bacterial infection and to diagnose this condition correctly.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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