

Florid Reactive Periostitis of the Toe

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A previously healthy, 33-year-old Japanese woman presented with a 4-month history of pain and a hard mass on the proximal-dorsal aspect of her right second toe. There was no history of trauma. Although she was diagnosed with an infection and received conservative treatment with antibiotics at a primary clinic, her pain both at rest and in motion became severe, and the mass gradually increased in size.

When she was referred to our hospital, an approx. 3.5 × 2.0 cm bony-hard and immobile mass was palpable on the mediodorsal surface of the second toe's proximal phalanx. Severe tenderness with swelling, erythema, and heat were observed around the mass. Both passive and active motions of the second toe were painful. Laboratory findings were normal, including the white blood cell count and C-reactive protein level. Plain radiographs showed an osseous lesion attached to the periosteum of the proximal phalanx without cortical or medullary destruction (Figure 1). Computed tomography revealed segmental new bone formation with internal bone trabecula attached to the periosteum's surface (Figure 2). There was no significant change in the cortex or bone marrow of the proximal phalanx, and medullary continuity between the proximal phalanx and bony mass was not observed.

Magnetic resonance imaging (MRI) visualized a focal high-intensity area of soft tissue surrounding the bony mass on T2-weighted imaging and a short-tau inversion recovery sequence; this was thought to reflect severe inflammation (Figure 3). From the clinical features and radiological findings, we suspected florid reactive periostitis (FRP) or bizarre parosteal osteochondromatous proliferation (BPOP). Because the patient was still in severe pain despite celecoxib treatment, we surgically resected the bony mass.

The mass was firmly adhered to the surface of the periosteum, and we thus scraped it off with a chisel. Grossly, the resected bony mass was solid and white. A cartilage cap was not observed. The histopathology examination revealed that the fibro-osseous lesion was composed of spindle-shaped fibroblasts and osteoblasts, without cartilage tissue. We diagnosed FRP. At 1 week post-surgery, all symptoms were completely resolved. The patient had no signs of recurrence during a 2-year follow-up.

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Cite this article as: Otaki H, Hakozaiki M, Hirai T, Matsumoto Y. Florid reactive periostitis of the toe. *Eur J Rheumatol*. 2024;11(4):420-421.

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Received: April 26, 2024
Accepted: August 14, 2024
Publication Date: October 7, 2024

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Figure 1. Plain radiograph of the patient's right foot showing the osseous lesion contacting the surface of the proximal phalanx of the second toe. There was no destruction within the cortical bone and marrow.



Figure 2. (A, B) Axial (A) and coronal (B) CT showed segmental lesions contacting the surface of the proximal phalanx of the patient's second toe. Internal bone trabecula in the largest segment and ossification of the periosteum was observed, but there were no significant changes in the cortex or bone marrow of the proximal phalanx, and there was no medullary continuity between the proximal phalanx and bony lesion.

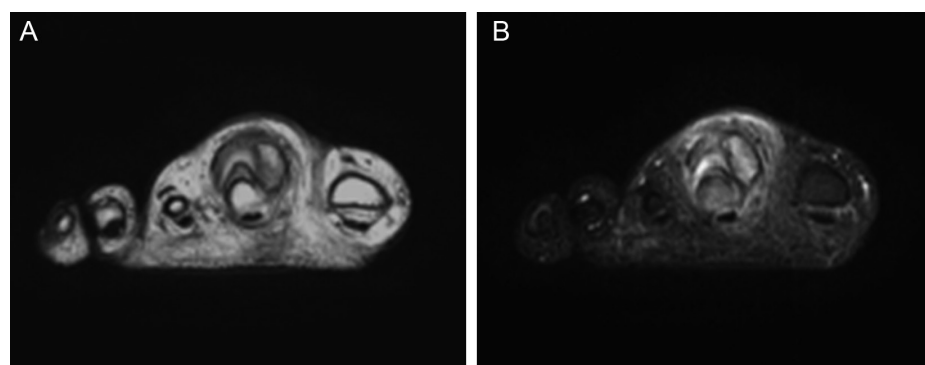


Figure 3. (A, B) Axial MRI showing focal high intensity in the soft tissue surrounding the bony lesion on T2-weighted imaging (A) and short-tau inversion recovery sequence imaging (B), indicating the presence of severe inflammation.

Main Points

- Florid reactive periostitis (FRP) may cause severe inflammation of a finger or toe.
- Periosteal reaction and extracortical ossification on plain radiographs are critical in the diagnosis of FRP.
- Surgical treatment should be considered when the disease resists conservative therapy.

Florid reactive periostitis is a rare, benign periosteal reactive lesion. Its predilection site is the short bones of the fingers and toes in young patients. The etiology of FRP is obscure, but prior trauma has been reported in approx. 40% of cases.¹ The clinical characteristics of FRP reflect inflammation, tenderness, spontaneous pain, and local swelling with erythema around the affected site.¹ The differential diagnoses include infection and other inflammatory

diseases. Our patient's plain radiographs showed periosteal reaction and ossification within the soft tissue without bone destruction.² Although MRI reflected inflammation in the surrounding soft tissue, these radiological findings can deny the possibility of infection and support the possibility of reactive lesions including FRP or neoplastic lesions such as BPOP. Surgical treatment should be considered when the disease resists conservative therapy, although FRP may heal spontaneously in some cases. When clinicians encounter inflammatory diseases of the fingers and toes, the possibility of FRP should be considered.

Informed Consent: Written informed consent was obtained from the patient who agreed to take part in the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – H.O., M.H.; Design – H.O., M.H.; Supervision – M.H., Y.M.; Resources – M.H.; Materials – M.H.; Data Collection and/or Processing – H.O., M.H.; Analysis and/or Interpretation – H.O., M.H., T.H.; Literature Search – H.O., M.H., T.H.; Writing – H.O., M.H.; Critical Review – T.H., Y.M.

Declaration of Interests: The authors have no conflict of interest to declare.

Funding: The authors declared that this study has received no financial support.

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