



Chronic Venous Insufficiency: An Unusual Cause of Ankle Pain Presenting with Periosteal Reaction

Chun-Hsien Huang^{1,2}, Ming-Tung Huang^{2,3} and Cheng-Li Lin^{2,3*}

¹Department of Orthopedic Surgery, Show Chwan Memorial Hospital, Taiwan

²Department of Orthopedics, National Cheng Kung University Hospital, Taiwan

³Medical Device R&D Core Laboratory, National Cheng Kung University Hospital, Taiwan

Abstract

This is an uncommon case of ankle pain caused by chronic venous insufficiency which presented with periosteal reaction. The case is a 70-year-old woman with a medical history of hypertension and lung cancer. She came to our clinic for right ankle pain. X-rays revealed a periosteal reaction along the right distal tibia and fibula region. MRI showed non-specific infiltration and edema in the soft tissue around the ankle. Multiple lamellar depositions on the periosteum as an onion-feature were also found. Considering the clinical symptoms and the image findings, it was agreed that venous insufficiency induced the periosteal reaction. The causes of the periosteal reaction are broad and include tumors, trauma, infections, arthritis, drugs, or vascular problems. It is also known to be associated with CVI, but the exact pathophysiology is still unknown. This report aims to remind clinical physicians to be aware of such a rare cause and presentation of ankle pain.

Keywords: Chronic venous insufficiency; Venous insufficiency; Periosteal reaction; Ankle pain; Periosteum

Introduction

Ankle pain is frequently encountered in out-patient clinics with various aetiologies. Chronic Venous Insufficiency (CVI) is a rare cause of ankle pain, the most common manifestation of which is dilated cutaneous veins [1]. CVI can induce periosteal reaction, which may be identifiable by X-ray. In this brief, we present an uncommon case of ankle pain caused by CVI which presented with periosteal reaction. This report aims to remind clinical physicians to be aware of such a rare cause and presentation of ankle pain.

Case Presentation

A 70-year-old woman with a medical history of hypertension and lung cancer was referred to our clinic from the oncologist for right ankle pain. The pain had progressed over the past 3 months. She was under neoadjuvant chemotherapy for lung adenocarcinoma. Tracing back her history, she came to our hospital 6 years ago for management of a chronic wound in her right leg. She received hyperbaric oxygen therapy, wound debridement, a split-thickness skin graft, and low-level laser therapy for the unhealed wound. Upon physical examination, the patient's bilateral lower legs were pigmented and healing scars were noted (Figure 1a). The pain, located at the lateral aspect of the right ankle, was exacerbated by leg elevation. There was no sensory deficit, and the ambulation was independent. We arranged right ankle X-rays, which revealed a periosteal reaction along the right distal tibia and fibula region (Figure 1b, 1c). An MRI was further arranged to search for the causes of the right ankle pain and periosteal reaction. Non-specific infiltration and edema were found in the soft tissue around the ankle. Multiple lamellar depositions on the periosteum as an onion-feature were found. Varicose veins were also seen (Figure 1d, 1f). Considering the clinical symptoms and the image findings, it was agreed that venous insufficiency induced the periosteal reaction. In response, she received conservative treatment and the pain improved gradually.

Discussion

The causes of the periosteal reaction are broad and include tumors, trauma, infections, arthritis, drugs, or vascular problems. It is also known to be associated with CVI, but the exact pathophysiology is still unknown. The pathogenesis may be related to hypoxia [2,3], increased mean interstitial fluid pressure [4], or infection. The appearance of the periosteal reaction in the image was determined by

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*Correspondence:

Cheng-Li Lin, Department of Orthopedics, National Cheng Kung University Hospital, No.138, Sheng-Li Road, Tainan City, 70428, Taiwan, Tel: +886-6-2766689; Fax: +886-6-2766189; E-mail: jengli94@gmail.com

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Figure 1: (a) Bilateral lower legs with pigmentation and healing scars. Right ankle plain film (b) AP view and (c) lateral view: Periosteal reaction at lower tibia and fibula region (arrows). Multiple lamellar deposition on periosteum as onion-feature (arrow heads) on (d) Sagittal MRI T1-weighted and (e) Axial MRI T1-weighted. (f) Sagittal MRI T1-weighted STIR contrast enhanced: Varicose vein (Red arrows).

the intensity, aggressiveness, and duration of the underlying cause. It takes about 3 weeks to achieve mineralization, which could be seen on plain film [5]. Periosteal ossification may be lamellated, lacy, or undulating and eventually blends imperceptibly into the underlying cortex. Venous insufficiency, especially in the lower extremities, can result in a generalized solid undulating periosteal reaction that initially can be separated from the cortex. We screened this patient for all possible causes and venous insufficiency was the most possible aetiology to cause limb pain and periosteal reaction. Although the condition is rare, clinical physicians should keep this in mind as a possible differential diagnosis.

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