Nuchal-Type Fibroma of the Ankle: A Case Report

Shafic A. Sraj, MD,[1] Leila E. Lahoud, MD,[2] Ramzi Musharafieh, MD, FACS,[3] and Assad Taha, MD[4]

Nuchal-type fibroma is rare benign fibrous tumor that has the potential to recur. It is typically located in the subcutaneous tissues of the posterior aspect of the neck, although it can affect other anatomical sites. Extranuchal involvement occurs most commonly in the back, shoulder, and face, as well as other sites specified in single case reports. In this report, we describe the case of a patient presenting with a nuchal-type fibroma arising in the ankle. The lesion infiltrated the superior extensor retinaculum. Marginal resection was performed, and there was no evidence of recurrence after 12 months of follow-up. To our knowledge, this is the first report of a nuchal-type fibroma localized to the ankle. Level of Clinical Evidence: 4 (The Journal of Foot & Ankle Surgery 47(4):332–336, 2008)

Key Words: ankle, leg, nuchal-type fibroma, tumor

Nuchal-type fibroma (NTF) is a rare, benign fibrous tumor that has the potential to recur after excision of the original lesion (1). NTF is typically located in the subcutaneous tissue on the posterior aspect of the neck, although it can occur at other sites as well. In 1988, Enzinger and Weiss (1) authored the first published description of an NTF, and only a few clinicopathologic series of NTFs have been published since that time (2–4). NTF has been described as a rare, tumorous proliferation that occurs chiefly in the nuchal region. The average age at the time of clinical presentation is 40 to 50 years (2–4); the lesion has been reported in patients as young as 3 and as old as 74 years (2). It has a 4:1 male to female predilection (2–4).

Although most extranuchal tumors arise in the back, shoulder, and face (2), single cases have been reported to occur in other regions of the body, including the axilla, forearm, trunk, anterior neck, and the knee. To our knowledge, extranuchal NTF presenting below the knee has not been described in the peer-reviewed literature. In this report, we describe the case of an NTF arising in the ankle and infiltrating the superior extensor retinaculum of the lower extremity.

Case Report

A 20-year-old male presented to our foot and ankle surgical service with a chief complaint of a painless right ankle mass that came to his notice after sustaining a minor contusion at the site. At the time of presentation, the mass had been present for approximately 5 years. The lesion had gradually increased in size over time, and had lately become painful. Physical examination revealed a solid, immobile, nontender subcutaneous mass anterior to the lateral malleolus (Figure 1). Plain radiographs revealed a soft tissue shadow (increased soft tissue density and volume) with no calcification (Figure 2). Magnetic resonance imaging (MRI) revealed a 6.0 × 5.0 × 1.8 cm^3 mass with low signal intensity on T1-weighted, T2-weighted, and short TI inversion recovery (STIR) images. The lesion was located in the subcutaneous tissues of the anterior leg compartment, and displaced the extensor tendons medially (Figure 3). The clinical and radiographic picture was suggestive of a benign fibrous process.

An open incisional biopsy was performed, revealing tan-white, firm tissue with a homogeneous tan-white cut surface upon sectioning. On light microscopic examination, the mass was composed of thick bundles of dense collagen interspersed with hypocellular, bland spindle cells with small uniform nuclei. The preliminary pathology report described a benign fibrous lesion with dense collagen deposition.

Address correspondence to: Shafic A. Sraj, MD, Department of Surgery, Division of Orthopedic Surgery, American University of Beirut Medical Center, PO Box 11–0236, Riad El-Solh, Beirut 1107 2020, Lebanon. E-mail: shaficsrajmd@gmail.com.

[1]Chief Resident, Orthopedic Surgery, Department of Surgery, Division of Orthopedic Surgery, American University of Beirut Medical Center, Beirut, Lebanon.

[2]Chief Resident, Pathology and Laboratory Medicine, Department of Pathology, American University of Beirut Medical Center, Beirut, Lebanon.

[3]Professor, Department of Orthopedic Surgery, St. Georges University Hospital, Beirut, Lebanon.

[4]Clinical Associate Professor, Division of Orthopedic Surgery, American University of Beirut Medical Center, Beirut, Lebanon.

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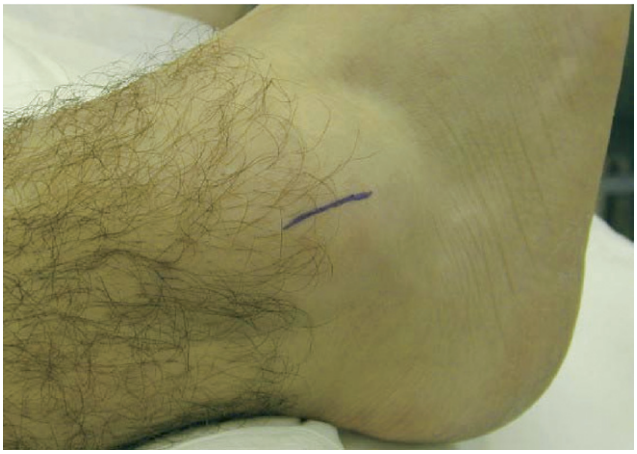

FIGURE 1 Clinical photograph showing a large subcutaneous mass over the anterolateral aspect of the ankle.

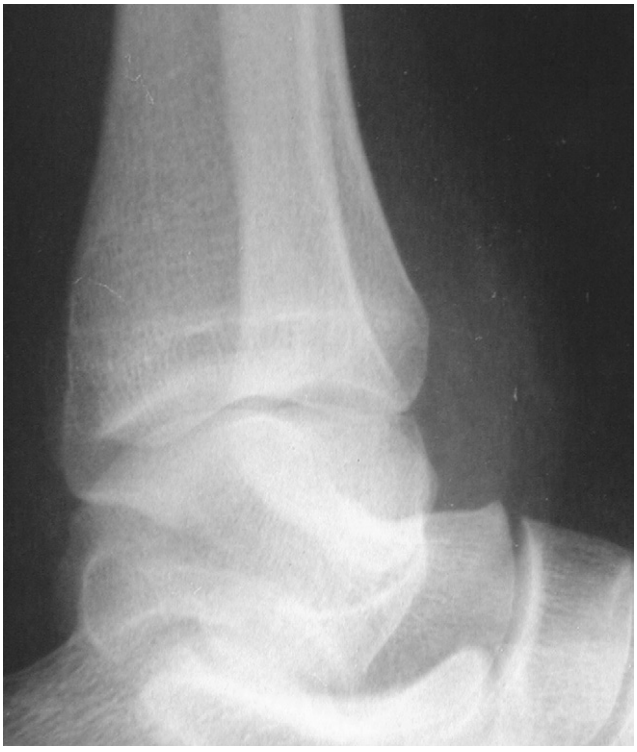

FIGURE 2 Plain radiograph showing an anterior soft tissue shadow with no calcification. No bony changes are seen.

Following histologic analysis, the mass was surgically resected through an anterolateral approach to the ankle (Figure 4, A). The tumor was found to involve the superior extensor retinaculum, where it had displaced the extensor digitorum communis medially without infiltration of the muscle belly (Figure 4, B). The lesion measured 7 cm in its greatest dimension, was not well demarcated, and did not display a definite capsule. The tumor was resected en bloc with a margin of grossly normal tissue, and the skin was closed over a drain.

Microscopic examination revealed that the tumor consisted of a hypocellular, dense collagenous matrix with entrapped vascularized adipocytic islands and scattered fibroblasts (Figure 5). The collagen fibers were haphazardly arranged, except in a few areas where they showed vague lobulation. The fibroblasts were bland with elongated nuclei and scant cytoplasm. Occasional entrapped nerve twigs were also noted (Figure 6). No mitotic figures or atypical cells were seen. Focal networks of thin elastic and longitudinal elastic fibers were highlighted by elastin stain. The final diagnosis was that of a benign fibrous lesion consistent with NTF.

At 12 months postexcision, follow-up examination showed the patient to be free of symptoms and there was no evidence of recurrence.

Discussion

NTF usually presents as an asymptomatic, slowly growing, superficial mass. Physical examination typically demonstrates a nontender, firm, subcutaneous mass that has been present for several years (2, 3, 5–7). When symptomatic, pain localized to the lesion is the usual complaint (3), and restricted range of motion has been described in 2 patients (8, 9). Only one patient has been described in the literature with a lesion that was noted for less than 1-year duration (10). Furthermore, extranuchal involvement has been documented in only 3 published reports. The more common locations include the back or scapular region, shoulder, or face (2, 6). Forearm, anterior neck, truncal region, buttock, and knee involvement were reported in a single patient each (2, 5). To our knowledge, there are no published reports of extranuchal NTF occurring distal to the knee. Macroscopically, NTFs are poorly circumscribed masses with a hard consistency and off-white color (2, 3). Extranuchal NTFs are morphologically and histologically indistinguishable from those that develop in the nuchal region (2). The largest NTF described in the literature was 16.5 × 15.0 × 6.5 cm (6). NTFs predominantly localize to the subcutis, superficial to the deep fascia (superficial fascia, subcutaneous fat layer) (2, 3). In a few instances, however, the dermis has been involved (2, 11). Other reports have demonstrated infiltration and entrapment of skeletal muscle, nerve, deep fascia, and periosteum (2, 5, 6). Thus, complete resection may not always be easy (6).

The microscopic features of NTFs have been described and confirmed by several authors (1–3). The NTF is hypocellular and composed of thick, haphazardly arranged collagen fibers interspersed with sparsely scattered fibroblasts. The fibroblasts display a scant cytoplasm and are elongated, and twisted with tapered nuclei. Entrapped islands of adi-