Posterior Tibial Artery Pseudoaneurysm Identified Subsequent to Surgical Wound Dehiscence

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The development of a pseudoaneurysm of the posterior tibial artery is a rare event. In this article, we describe the case of a 63-year-old female with rheumatoid arthritis, who initially presented with a symptomatic subcutaneous nodule localized to the medial aspect of the right ankle. After excision of the subcutaneous nodule, she failed to heal the surgical wound and, eventually, the pseudoaneurysm of the posterior tibial artery was identified. It was not until after the posterior tibial artery was ligated and the pseudoaneurysm excised, that the wound finally healed. Level of Clinical Evidence: 4 (The Journal of Foot & Ankle Surgery 48(1):56–60, 2009)

Key Words: posterior tibial artery, pseudoaneurysm, wound dehiscence, ultrasonography

Arterial pseudoaneurysm in the lower extremity is a rare entity that is, perhaps, most often associated with either anastomotic vascular repair or secondary to a localized arterial injury associated with fracture or surgery (1–19). By definition, a true aneurysm displays a permanent widening of the vessel, having at least a 50% increase in diameter relative to the normal expected diameter. A true aneurysm represents a dilation of all of the layers of the arterial wall including the tunica intima, tunica media, and the adventitia. Pseudoaneurysms, also referred to as false aneurysms, on the other hand, have the gross appearance of an aneurysm but, in fact, are devoid of the arterial wall constituents indicative of a true aneurysm (20, 21). Since pseudoaneurysms often occur secondary to disruption of the vascular wall, extravasation of blood into the perivascular connective tissues leads to the development of a hematoma contained within the surrounding tissues, without dilation of the intima or media. In cases involving chronic, persistent hematoma, the reaction may become well organized and a fibrous capsule resembling that of a true aneurysm can be created (20, 21). Traditionally, pseudoaneurysms have been associated with penetrating vessel trauma, iatrogenic defects inflicted at the time of adjacent osteotomy, endoscopy, arthroscopy, placement of external or internal fixation devices, endovascular surgery, and graft anastomosis. Other causes such as chronic, repetitive degeneration secondary to impingement by an adjacent anatomical structure, and arterial wall degeneration related to connective tissue disorders, have also been associated with the production of these malformations (1–21).

Case Report

A 63-year-old woman presented to the clinic of the senior author (D.J.N.) with a complaint of multiple painful subcutaneous nodules localized to the medial aspect of her right ankle (Figure 1). She had a secondary complaint of a painful bunion involving her right foot. Her past medical history included an approximately 26-year history of rheumatoid arthritis (RA) that was controlled with methotrexate and over-the-counter nonsteroidal anti-inflammatory drugs. Her surgical history included excision of rheumatoid nodules from her contralateral foot 10 years prior to her current visit. She had no known allergies, and she admitted to more than a 20-pack-year history of cigarette smoking, although she had quit smoking approximately 20 years before her current presentation. The initial clinical diagnosis for the subcutaneous lesions was that of rheumatoid nodules. Past treatments included the aforementioned medications as well as custom-molded shoes, and she was strongly considering a surgical course of treatment. Standard radiographs revealed an increased soft tissue density and volume localized to the area of the painful nodules (Figure 2).

After consideration of the treatment options, the patient was taken to the operating room where she underwent excision of the subcutaneous nodules, along with repair of

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FIGURE 1 Clinical photograph of the foot preoperatively.

FIGURE 2 Plain anteroposterior radiograph of the foot preoperatively.

the hallux valgus deformity by means of phalangeal osteotomy with metatarsophalangeal joint debridement. The large subcutaneous nodule localized to the medial aspect of the ankle was approached using a longitudinal incision centralized over the lesion, and was observed to be well encapsulated and confined to the superficial fascia and subcutaneous

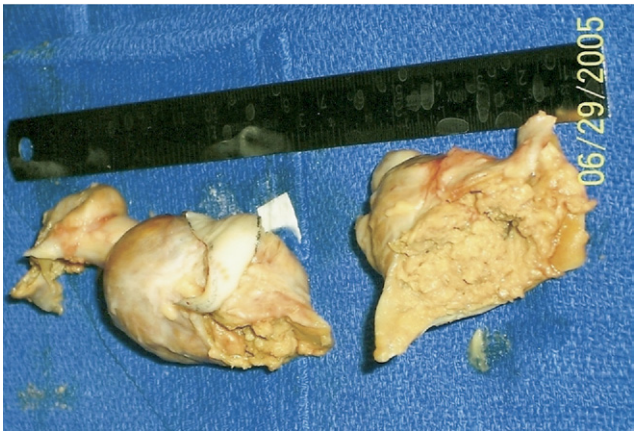

FIGURE 3 Gross specimen; mass obtained from medial ankle.

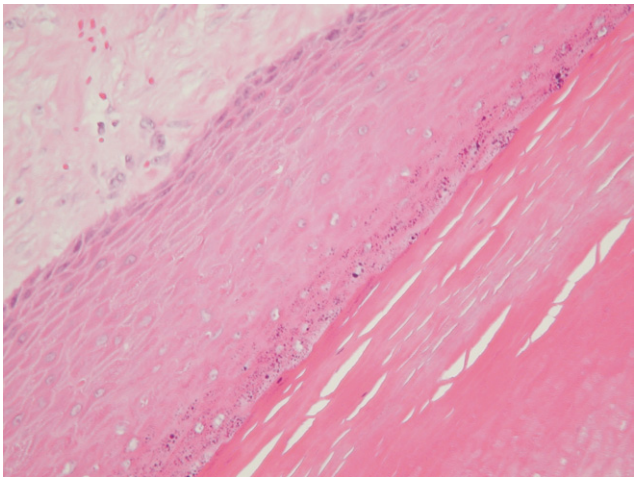

FIGURE 4 Wall of a keratinous cyst (magnification ×200; hematoxylin and eosin stain).

fat layer, without visible violation of the deep fascia containment of the tarsal tunnel. There was no evidence of arterial involvement, and the deep fascia (laciniate ligament) was normal in its appearance. The mass was presumed to be a rheumatoid nodule, and the specimen was sent to pathology for histological evaluation (Figure 3). The wound was closed in layers, and her first postoperative week was uneventful. The mass was pathologically identified as a squamous-lined keratinous epidermoid cyst that demonstrated a foreign body giant cell response, with no indication of being a rheumatoid nodule (Figures 4 and 5). On the seventh postoperative day, the patient related increased pain localized to the medial arch of the right foot, with a corresponding increase in "bloody" drainage from the medial ankle incision site. A diagnosis of postoperative hematoma was made and, on the ninth postoperative day, she was taken back to the operating room for evacuation of a hematoma localized to the medial ankle postsurgical incision site. Surgical inspection revealed a partially coagulated hema-