

Case Reports and Series

Metastatic Pulmonary Adenocarcinoma of the Talus: A Case Report

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ABSTRACT

Tumors rarely metastasize to the foot bones; however, a misdiagnosis can lead to a poor outcome. These metastatic tumors can cause foot pain and other symptoms in patients who are asymptomatic for the primary tumor. To accurately diagnose acrometastases, the attending physician must have a high index of suspicion and conduct a thorough examination and appropriate diagnostic testing. We present a rare case of metastatic pulmonary adenocarcinoma of the talus, which was initially misdiagnosed as a benign bone cyst. After pulmonary adenocarcinoma was diagnosed, the patient received multidrug treatment for the primary and metastatic lesions and was still responding well at the 12-month follow-up visit.

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Metastases to the bone are much more common than primary bone tumors. However, reports of metastases to the foot (acrometastases) are rare (1–4). Bloodgood (5) reported the first case of metastasis to the foot in 1920. Leeson et al (6) reviewed the data from 827 patients with cancer from 1948 to 1983 and reported the incidence of metastases to the foot was 1.7%. Cancers of the colon and genitourinary tract are the most common primary cancers that metastasize to the foot (1,7). Other primary cancer sites for acrometastases include the lung (8,9), breast (10), kidney (11), prostate (12), rectum (13), melanoma (14), and esophagus (15). The mechanism by which tumor cells metastasize to the foot is still not fully understood.

Patients can present with symptoms caused by metastatic disease before the primary cancer has been diagnosed. Physicians encountering such cases can have difficulty diagnosing the metastatic tumor and knowing which tests to perform to find the primary tumor (16). Because a thorough and timely diagnosis is crucial for appropriate clinical management and improved outcomes, physicians, especially foot and ankle specialists, should be aware of the possibility of acrometastases. The misdiagnosis of acrometastases as benign conditions, such as a benign cyst, gout, infection, osteomyelitis, septic arthritis, or inflammatory arthritides, can negatively affect the outcome (8). We present a rare case of metastatic pulmonary adenocarcinoma of the talus that was initially misdiagnosed as a benign bone cyst.

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Case Report

A 66-year-old Chinese male presented in December 2014 with a 2-month history of pain, swelling, and redness surrounding his left ankle. Worsening pain and difficulty walking had led the patient to seek medical care. He had not experienced an injury before the symptoms started. Neither fever nor cough had occurred during the 2 months before his presentation. The patient denied a history of smoking.

The initial physical examination revealed redness, warmth, and edema surrounding the left ankle. The patient was noted to have obvious tenderness on palpation of both the medial and the lateral sides of the left ankle. No discrete masses surrounding the ankle or palpably enlarged lymph nodes in the left popliteal fossa or inguinal area were noted. The ankle range of motion was slightly restricted because of pain.

The initial radiographic examination of the ankle revealed a lesion of lower density than that of the normal bone tissue in the left talus and a soft tissue swelling surrounding the ankle (Fig. 1). Computed tomography (CT) with 3-dimensional reconstruction of the ankle showed a well-circumscribed lytic lesion (low density, 34 mm × 20 mm × 25 mm) occupying the proximal two thirds of the body of talus with a thin and partially disrupted cortex. No signs of a periosteal reaction were seen (Figs. 2 and 3). Contrast-enhanced magnetic resonance imaging (3.0 T) of the left ankle showed abnormal signal alteration in the left talus and a sign of synovitis in the ankle joint (Fig. 4). The differential diagnosis included an aneurysmal bone cyst, a giant cell tumor, a simple bone cyst, or osteomyelitis.

The clinical and radiographic features suggested a benign lesion. Therefore, the surgeon in charge recommended curettage and bone grafting of the left talus. The patient agreed to the operation and



Fig. 1. Plain (A) anteroposterior and (B) lateral radiographic views of standing left ankle before surgery.

underwent a preoperative examination. No abnormalities were found in the results of the routine blood tests or tests for C-reactive protein and tumor markers. A plain chest radiograph did not show a space-occupying lesion. In December 2014, curettage and bone grafting were performed with the patient under epidural anesthesia, and a thigh tourniquet was used for hemostasis. With the patient in the supine position, an anterolateral skin incision was made on the left ankle, and a cortical bone window of 2 cm × 1 cm was cut into the lateral wall of the talus to approach the lesion, which appeared as a yellowish-white mass of soft tissue surrounded by a friable cortex. After curettage of the lesion, the resulting defect in the talus was lavaged with dehydrated alcohol and then filled with allogeneic cancellous bone. The lesion was submitted for histologic evaluation.

After the operation, his ankle motion was restricted with a brace for the first 4 weeks, with gentle ankle motion without weightbearing as encouraged for the next 4 weeks. The patient began to walk with full weightbearing at 8 weeks postoperatively. The wound healed well.

The pathologists in our hospital diagnosed metastatic adenocarcinoma and suspected that the primary tumor was in the lungs or gastrointestinal organs based on the pathologic characteristics (Fig. 5). The pathologists recommended immunohistochemical staining of the pathologic specimen and CT scanning of the chest and abdomen.

The immunohistochemical staining revealed that the tumor cells were positive for TTF-1(+++), CK(pan)(+++), CK7(+), and EMA(+). These results strongly indicated that the lesion originated from pulmonary adenocarcinoma. CT of the chest showed an opaque mass

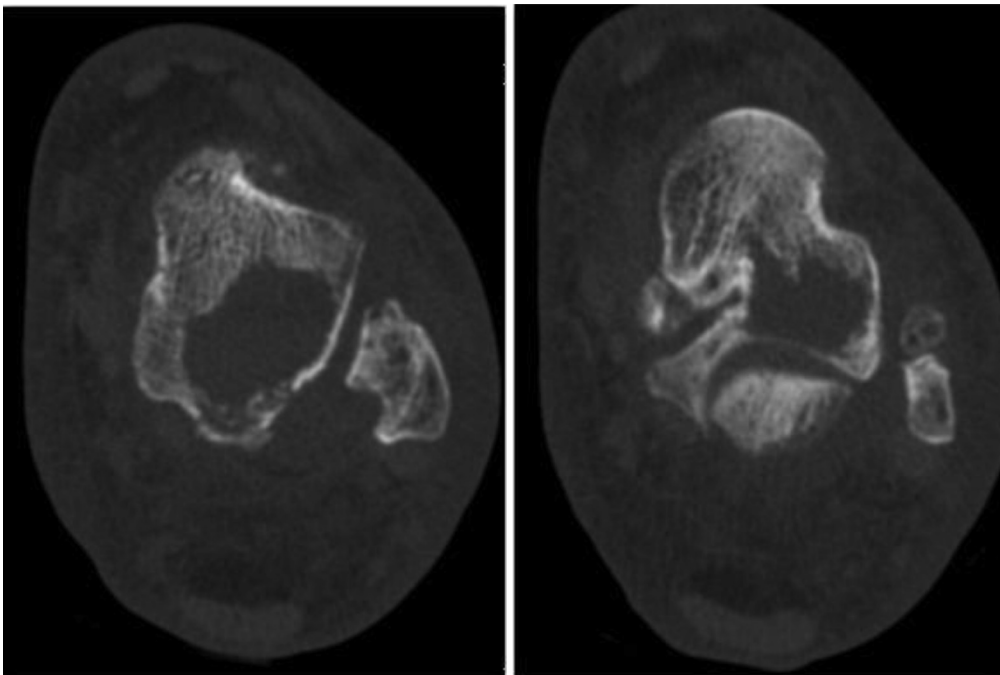


Fig. 2. Axial computed tomography image of the left ankle.

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