

Acrometastasis

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Abstract

Introduction: Acrometastasis is a rare phenomenon accounting to only 0.1% of metastatic disease. Every age can be affected and it has a male predominance. Acrometastasis is a sign of poor prognosis as it appears in patients with widespread disease although rarely, it may be the first sign of occult malignancy in 10% of cases.

Case Report: A 54-year-old non-smoker female presented with swelling and pain right foot of 2-month duration with radiographic appearance of a radiolucent lesion involving the whole of calcaneum. Extended curettage and filling with bone cement were done. Biopsy showed metastatic adenocarcinoma. Computed tomography (CT) thorax showed primary lesion in the left lung and multiple secondaries involving dorsal vertebrae and thyroid confirmed by immuno histo-chemistry. Oncology consultation was done and the patient was started on palliative chemotherapy.

Discussion: Bone is a common site of metastasis occurring in up to 30% of people with malignancy, but acrometastasis is rare. Patients present with symptoms mimicking benign lesions like infection, and hence, diagnosis is challenging without a high index of clinical suspicion.

Conclusion: Although acrometastasis occurs in the late stage of malignancy, rarely, it can be the first sign of an occult malignancy and timely diagnosis and intervention may facilitate better long-term survival and symptomatic management.

Keywords: Acrometastasis, Calcaneum, Lung cancer.

Introduction

Metastatic bone tumors are much more common than primary bone tumors in a patient older than 40 years. However, metastasis distal to the knee or elbow, especially in the hand or foot (acrometastasis), is quite a rare finding. Acrometastasis can appear in patients of every age, with men being twice as likely as women to be affected [1].

Acrometastasis is a sign of poor prognosis as it appears in patients with widespread disease although rarely, it may be the first sign of occult malignancy in 10% of cases [2]. These cases usually present as inflammatory lesions, cysts, gout, ganglia, osteomyelitis, tuberculous dactylitis, pyogenic granuloma, and primary skin tumors [1, 2, 3]. A high index of suspicion is necessary so as not to be misdiagnosed or overlooked as a more benign condition.

Case Report

A 54-year-old previously healthy female, who is a non-smoker presented with a history of pain and swelling right foot of 2-month duration with an acute aggregation of symptoms and inability to bear weight on the right leg for 2 weeks. On examination, the patient had swelling and tenderness over calcaneum with painful ankle movements. The plain radiograph showed an eccentric radiolucent lesion involving the whole of the right calcaneum. Magnetic Resonance Imaging (MRI) reported diffuse bone marrow edema in calcaneum involving retrocalcaneal fat (fig. 1). The differential diagnosis included osteomyelitis, tuberculosis, primary bone, and metastatic carcinoma. Since our first differential diagnosis was an infection, we planned for exploration and debridement of the lesion. Intraoperatively, there was mucinous tissue with no signs of infection (fig. 2). Tissue was sent for frozen section examination which showed metastatic adenocarcinoma. Hence, we proceeded with extended curettage and bone



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Fig 1 - X Ray showing eccentric radiolucent lesion involving the whole of the right calcaneum. MRI shows diffuse bone marrow edema in calcaneum involving retrocalcaneal fat.



Fig 2 - Curated specimen showing mucinous tissue

Fig 3 - Extended curettage and bone cement application of calcaneum

cement application of calcaneum (fig. 3). On further evaluation, chest X-ray showed a mass lesion in the left lobe. CT thorax revealed the left lingular lobe spiculated mass measuring 40mm x40mm x41mm and multiple secondaries involving dorsal vertebrae and thyroid (fig. 4). Histopathological examination reported metastatic adenocarcinoma, immunoreactive to cytokeratin (CK)-7, thyroid transcription factor 1, and Napsin, non-reactive to CK-20—confirming a lung primary (fig. 5). The oncologist was consulted and the patient was started on palliative chemotherapy. The patient improved symptomatically and is able to do her daily activities.

Discussion

Although bone metastasis is common, occurring in 30% of malignancies, acrometastasis is rare accounting for only

0.1% of all bone metastases [2,4]. Libsonet al. studied 43 cases of metastasis to the hands and feet and found that cases of the hand outnumbered those to the foot 2:1 [5]. The rarity of incidence is believed to be due to the lack of red marrow in these bones and a further distance from the primary cancer site [6]. The most common primary site, in general, is the lung (50%), followed by the colon, breast, and genitourinary tract [1], whereas the most common sources for acrometastasis to the foot are the colon and genitourinary tract, both of which are sub diaphragmatic [6]. Tumor cells dissemination to acral regions occurs through circulation and not through the lymphatic system [1,2]. This would explain the high prevalence of lung cancer metastases because they have direct access to the systemic circulation through the left atrium and ventricle [7]. Supra diaphragmatic tumors reach the systemic arterial circulation and, therefore, the hands, while infra diaphragmatic neoplasms metastasize to the feet in a retrograde manner through the valveless Batson’s vertebral venous plexus which allow retrograde tumor cell embolization through the iliofemoral venous system [8].

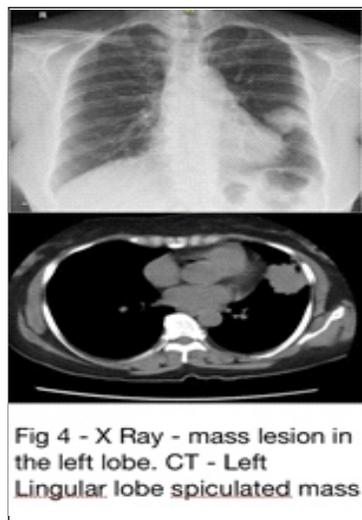


Fig 4 - X Ray - mass lesion in the left lobe. CT - Left Lingular lobe spiculated mass

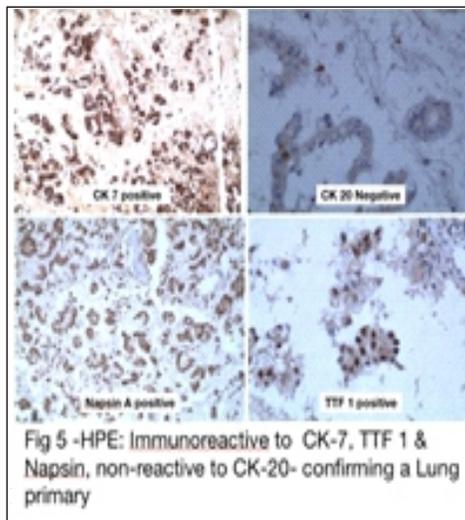


Fig 5 -HPE: Immunoreactive to CK-7, TTF 1 & Napsin A positive, non-reactive to CK-20- confirming a Lung primary

Acrometastases are generally diagnosed in patients with a well-known tumor history, but in 10% of cases, they may be the first sign of an occult malignancy as in our patient. They present with pain, palpable mass, erythema, or a mechanical dysfunction causing impairment of daily activities. Radiograph usually shows solitary destructive permeative lesion involving single bone in case of lung, renal carcinomas, and multiple sclerotic, lytic, or mixed lesions in case of breast secondaries. MRI is the gold standard; it helps to evaluate bone marrow disease and extra osseous extension of the tumor [1,2,9]. Prognosis of the patients with acrometastatic cancer is

poor; the mean survival time after diagnosis is <6 months [10].

Complete staging of the disease is required in patients with acrometastasis to determine the primary lesion, its extension, and prognosis. This should include radiograph and MRI of the affected region, CT of chest and abdomen, and bone scan [1,2]. Acrometastasis to the foot is rare; there are no specific treatment protocols. Treatment is mainly palliative with adequate tumor

resection, pain relief, rapid recovery, and preservation of maximal foot function [1,2].

Conclusion

Although acrometastasis occurs in the late stage of malignancy, rarely, it can be the first sign of an occult malignancy and timely diagnosis and intervention may facilitate the improvement of long-term survival and symptomatic management.

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