

BRONCHOGENIC CARCINOMA WITH HAND METASTASES: A CASE REPORT

M Saad Ahmed*, Junaid Iqbal*, M Kashif Shazlee*,
Kamran Hamid*, Sumayya Kashif*, Saifullah*

* Dr. Ziauddin Hospital,
Karachi, Pakistan

Address for correspondence:

M. Saad Ahmed

Department of Radiology, Dr.
Ziauddin Hospital, Karachi,
Pakistan

ABSTRACT

Introduction: Metastatic lesions to the hand are very rare and represent 0.1% of all osseous metastases. Usually, hand metastasis is a sign of very advanced disease, with the presence of previous multiple metastases elsewhere. Only metastasis to the hand is extremely rare.

Case Presentation: We present a case report of a 70 years old man presented with pain and large mass on his right hand, he underwent an open biopsy. It revealed a metastasis from bronchogenic carcinoma. A whole-body scintigraphy and computed tomography of chest and abdomen scan were negative for other metastasis however a mass lesion was identified in left lung upper lobe. The patient underwent an amputation at the distal third of the forearm and he is on chemotherapy for primary lung mass.

Conclusion: Very few cases are described as hand metastases in the absence of other previous metastases, the purpose of this case report to draw the attention for the potential of such lesions to be developed in this region.

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INTRODUCTION

The incidence of bone metastases in post-mortem examination in lung cancer is about 30%.^{1,2} The sites most commonly involved, in order of frequency, are: spine, pelvis, ribs, skull and proximal long bones.^{1,3} Incidence of cancer metastases of the hand is low, accounting for 0.1% of

all bone metastases. In the order of occurrence, the metastatic sites are in distal phalanges (21%), metacarpals (16%), and proximal phalanges (7%); the primary tumors of these metastases are of the lung (34%), gastrointestinal tract (25%), kidney (10%), and breast (5%)^{4,5,6} Acrometastases may mimic benign tumors and other non-neoplastic conditions, thereby resulting in misdiagnosed and improper treatment.⁴

Figure 1



Figure 2

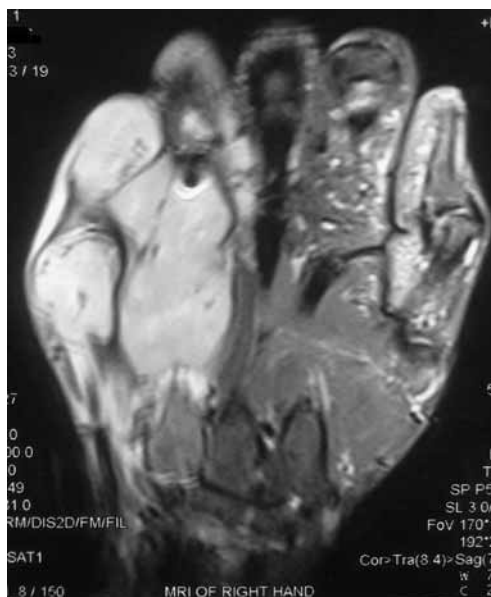


Figure 3

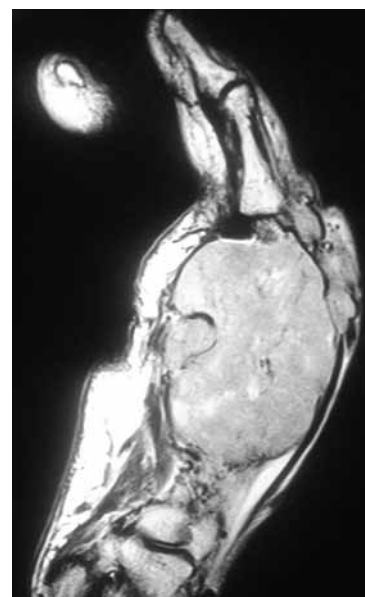


Figure 4



Metastases to terminal extremities are typically late manifestations of known malignancies. However, among patients with acrometastases, 16-30% of patients may have acrometastases as their first sign of malignancy.^{4,5,7}

CASE REPORT

A 70-year-old smoker man came to our department for xray both hands with complains of painful mass over the dorsum of his right hand for 4 months, he also complained cough, chest pain and shortness of breath. The mass was hard and tender, and located on the dorsum of his right fourth and fifth metacarpals. Plain radiographs revealed an aggressive lytic lesion involving fourth and fifth metacarpal (Figure 1). According to the radiological features, we considered osteomyelitis vs neoplastic lesion. Mri of hand was done which showed large soft tissue mass involving fourth and fifth metacarpal bones with erosion and destruction (Figure 2), imaging features suggesting neoplastic lesion and advice open biopsy. The histopathology turned out to be metastatic bronchogenic carcinoma. For further workup xray chest was done which showed left upper lobe opacification suggesting underlying mass lesion. He then underwent contrast computed tomography (CT) of chest, badomen and pelvis. CT images of her chest showed a large 9.0 x 8.0cm enhancing soft tissue mass with areas of necrosis in left lung upper lobe abutting chest wall with left hilar lymphadenopathy (Figure 3). No other metastasis was found throughout examination. According to American Joint Committee on Cancer (AJCC) the final tumor staging was T3N1M1. The patient underwent an amputation at the distal third of the forearm and he is on adjuvant chemo radiotherapy for primary lung mass. He is on regular

follow up and he is stable. After 3months of adjuvant therapy currently he performed whole body scintigraphy and he has no signs of metastatic deposits.

DISCUSSION

Acrometastasis is a rare disease, most likely because the distal part of upper extremities contains little red marrow and sluggish venous flow.^{4,5} Acrometastases more frequently affect the dominant hand than the non-dominant.⁴

The lung is the most common source with 42% followed by the breast and kidney each of which account for 11%.⁸ Other sources include colon, prostate, thyroid, oesophageal and bone cancers.^{8,9} Men are more commonly involved than women. Metastases in the hand are the first clinical sign of an undiagnosed tumor in only 16% of all metastases.^{8,10}

The exact reason for this rarity of such metastases is not known. In 1889 Paget suggested the "seed and soil" theory for metastasis, which states that one needs to have both seed (i.e. tumor emboli) and good soil (or proper site) for this tumor emboli to settle down and grow. Prostaglandins have been implicated as possible chemotactic factors that influence cell migration and adherence to the skeleton. Tumor deposits occur mainly in the bones hematopoietically active and multiply to produce typical lytic lesions or, occasionally, formation of reactive bone. The infrequent development of metastases to the hand may be related to the smaller amount of red marrow present in these bones. Joll suggested that repeated trauma might play a role in reducing the local tissue resistance thus producing a fertile ground for "seed". Shinz pointed out that primary malignancies erode veins (systemic or portal) and tumor emboli are filtered by lung or liver. But in the case of bronchogenic carcinoma, the tumor erodes the pulmonary vein and thus has access to systemic circulation and, consequently, widespread metastasis.⁸

The patient usually presents with a painful, swollen, erythematous and warm hand.^{8,10} The x-rays show lytic bony lesion. The differential diagnosis includes gout, osteomyelitis, septic arthritis, rheumatoid arthritis, tenosynovitis and reflex sympathetic dystrophy.⁸

Prognoses of acrometastases are poor and the average life expectancy is approximately 7 months.^{4,5} This should be taken in account in the management of these patients. Radiotherapy and chemotherapy may be appropriate and amputation could be an option. Reconstructive surgery is not indicated due to poor prognosis.^{8,10}

CONCLUSION

Physicians should have a suspicion of bone metastasis when patient is old age presents with pain and swelling at any skeletal site. Biopsy should be performed with suspicious radiograph from the lesions located even at uncommon sites. Prompt radiation therapy may contribute to a higher quality of life. It is important to know that bone metastasis in distal parts of the extremities may occur in patients without extensive metastases.

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