



Rare Case of Scapular Metastasis with Unknown Primary

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Abstract

Background: Secondary bone deposits is a common occurrence of malignancies in the body, and often the only finding pointing towards an unknown primary. However, the clinical features and histopathological evaluation may diagnose a de-novo bone malignancy, making it difficult to differentiate from the secondary deposits to bone. In cases of doubt, immunohistochemistry helps in localizing the primary causing secondary bone metastasis. Here we have the case report of a male patient aged 54 years that presented to the oncology OPD in Justice K. S. Hegde Charitable Hospital with complaints of pain with swelling over the left scapular region noticed 15 days back. After extensive clinical evaluation and radiological studies, patient was diagnosed to have metastatic adenocarcinoma deposits to the left scapula. However, even with extensive immunohistochemistry marker study being performed on the biopsy, a primary lesion couldn't be located.

Keywords: Immunohistochemistry, metastasis, scapula, unknown primary.

Introduction

The human skeletal system is a common site for secondary metastasis of malignancies from different parts of the body. Patients can present with a myriad of complaints, and they often present with pain over a bony point or fracture following a seemingly trivial injury. This often presents a dilemma in diagnosis, and it is important to differentiate between de-novo bone primary or secondary metastasis to the bone from a primary malignancy of any organ system. Extensive clinical examination, appropriate radiological studies can be correlated with pathological findings, either fine needle aspiration cytology or core needle biopsy, to come

to a diagnosis. Although, even with all the above, it may be difficult to delineate a primary lesion from metastasis, or to identify the primary site of malignancy.

Case Report

A male patient aged 54 years presented to the oncology OPD with chief complaints of pain with swelling over left scapular region since 15 days after trauma to the region. The pain was progressive with sudden increase in size of swelling. Patient gives history of intermittent bouts of fever associated with the pain, and significant, unquantifiable loss of weight. On thorough physical

examination, patient was found to have a firm swelling, tender to touch, measuring 10 × 8 cm seen overlying the left scapula, with a smooth surface, non-erythematous. Dilated veins were noted over the swelling, with raised local temperature. Multiple cervical and axillary lymph nodes were palpable, but there was no significant inguinal lymphadenopathy.

Investigations were done revealed haemoglobin to be 10.2 gm/dl with normal total counts 10,400 c/cumm, elevated platelet counts 6,08,000 cu.mm and ESR was 86 mm in the first hour. It was also found that patient had hyponatremia (129 mmol/L) with the rest of the renal function test within normal limits. Serum CEA, PSA, CA19.9 and AFP were all within normal limits.

Fine needle aspiration cytology of the left scapular mass (image 1) and right cervical lymph nodes was done, which revealed pleomorphic tumour cells arranged predominantly in singles, few clusters, sheets, and alveolar pattern. They display marked pleomorphism with wreath like tumour giant cells, suggestive of undifferentiated sarcoma (favouring clear cell sarcoma) with metastatic deposits to right cervical lymph nodes (image 2).

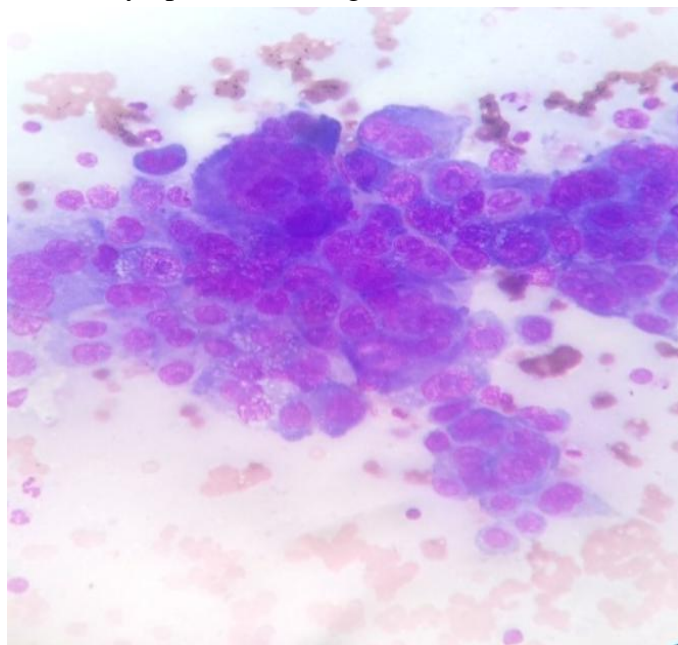


Image 1- FNAC of the Scapular Mass Showing Pleomorphic Cells In Clusters and Sheets

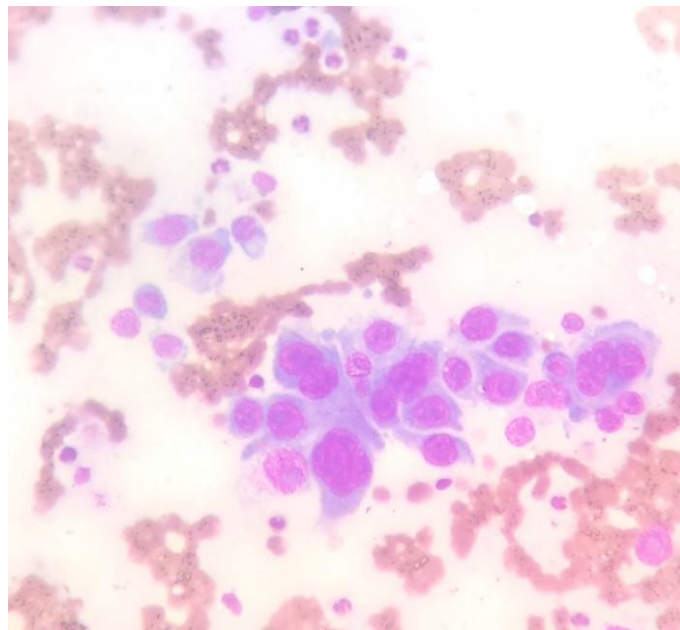


Image 2- FNAC of Right Cervical Lymph Nodes Showing Pleomorphic Cells

Core needle biopsy of the scapular swelling was done which revealed metastatic deposits of adenocarcinoma (image 3).

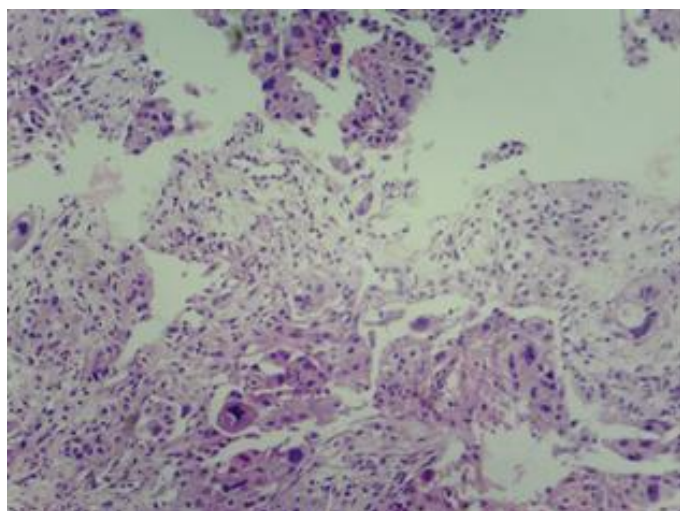


Image 3- Core Needle Biopsy Showing Metastatic Deposits of Adenocarcinoma

Radiological investigations were performed to identify the possible site of the primary lesion. MRI spine revealed multiple lytic lesions in the thoracic and lumbar vertebrae suggestive of metastases. CECT abdomen, pelvis and thorax revealed grade I prostatomegaly with no other identifiable primary lesion. MRI brain was suggestive of neuroparenchymal atrophy, but showed no

identifiable primary. Therefore, despite extensive radiological evaluation, there was no feature suggestive of a primary in lung, brain, and intestines or prostate.

Due to the ambiguity in the diagnosis, Immunohistochemistry was performed, with PAN CK positive and Ki 67 was 20% (image 4, table 1). However the rest of the markers were found to be negative. The final impression of the immunohistochemistry was poorly differentiated epithelial malignancy with primary not Identifiable on IHC.

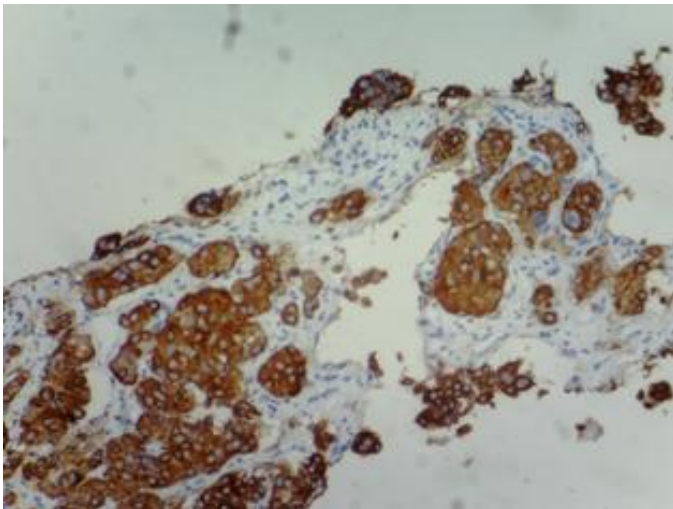


Image 4 PAN CK Marker Positivity on Immunohistochemistry

Hence thorough clinical examination, extensive radiological evaluation and IHC could not confirm the primary lesion of the metastasis.

Patient was then planned for molecular and genetic analysis on the core biopsy. However, due to the financial constraints and progressive nature of the disease, it was decided against. Due to the lack of evidence of primary on radiology and immunohistochemistry, it was treated as a poorly differentiated carcinoma of unknown primary. Patient was treated with palliative radiotherapy to the scapular mass followed by palliative chemotherapy (one cycle of Paclitaxel and Carboplatin) and discharged. When patient was called for follow-up, it was informed that he chose to seek alternative therapies and subsequently, succumbed to the disease.

Discussion

Primary of unknown origin is when there is visible metastasis without an obvious primary malignant lesion on initial presentation, and is found in 2-5% of individuals with malignancy⁽¹⁾. Even with the advent of various diagnostic and histopathological techniques to isolate the primary, primary is identified in less than 20%, making it further challenging for the diagnosing physician⁽¹⁾. Metastatic deposits are mostly commonly found to be adenocarcinomas on histology (50-60%) and, carcinomas and poorly differentiated malignancies (30-40%)⁽²⁾. However, based on this, identifying the underlying primary is difficult using the routine methods of histopathologic examination. With recent advances in development novel immunohistochemical markers, these methods, thus, aid in further work-up, diagnosis and management of the patient.

Bony metastasis from different malignancies in the body is a relatively common occurrence. In those patients presenting with persistent bony pain or pathological fractures, imaging studies often reveal a lytic lesion suggestive of a primary bone tumour. Incidence of solitary bony metastasis is 64 %.⁽³⁾ Most of these cases are secondary to malignancies originating from the parenchyma of lung or breast, thyroid malignancy, prostate or renal cell carcinoma, and they are usually found to deposit in the long bones, vertebrae and skull etc.⁽⁴⁾ Vertebrae are most frequently involved in metastatic disease.⁽⁵⁾ Those with metastatic deposits to bone usually present with pain, fractures to trivial trauma, or features suggestive of other causes of arthritis.⁽⁵⁾

Histopathological examination supported by imaging studies usually reveals the primary site of the malignancy. In those cases where primary is not revealed, immunohistochemistry helps confirm the diagnosis. However, in our case, several immunohistochemistry markers were negative, creating a diagnostic dilemma. This not only makes diagnosis a challenge, it also is a deterrent to appropriate treatment to the patient. In such cases, where radiological evaluation and IHC doesn't

clarify the diagnoses, molecular studies and genetic studies can be further performed.

In case of clinical suspicion of sarcoma, molecular studies like ECUS-FL1 gene for Ewing's sarcoma and SSYT-SSX1 gene for Synovial sarcoma would have helped in confirmation of the diagnoses.

Conclusions

Primary cancers in case of bone metastasis are not often picked up on routine histopathological examination or radiologic studies. Immunohistochemistry can help identify the primary lesion. However, there are rare cases where even these markers cannot isolate the primary. This may indicate the need for newer, more specific markers to identify such primary lesions. Also, with the advent of several molecular and gene studies, those can be routinely done on core biopsies to hasten the diagnostic process and help initiate appropriate treatment at the earliest.

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