



Case Report

Cytological Diagnosis of Metastasis from Plasma Cell Myeloma Presented As Forehead Swellings- An Unusual Case Report

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Abstract

Multiple myeloma is a disease resulting from clonal proliferation of plasma cells. It often presents with bone pain, lytic bone lesions; spinal cord compression and peripheral neuropathy are less common presenting symptoms. Disease takes multiple forms that vary in treatment and prognosis and include multiple myeloma, solitary plasmacytoma, osteosclerotic myeloma.

We present here the case of a 54 year old female who presented with multiple swellings on the forehead, she is a known case of multiple myeloma which was diagnosed in 2015.

Aspirate from the swelling revealed immature plasma cells plasmablasts, flame cells, Dutcher body and Russell bodies. The cells could be easily identified as plasma cells with their characteristic morphological appearance and therefore, the need for immunohistochemical analysis did not arise. Based on the cytological picture and reports of ancillary investigations, a diagnosis of metastasis from multiple myeloma was established.

We are presenting this case because solitary lesions of multiple myeloma are rare in the head and neck area

Keywords: Forehead swelling, multiple myeloma, metastasis.

Introduction

Multiple myeloma is also known as Kahlers disease, myelomatosis and medullary plasmacytoma.¹ An intriguing feature of multiple myeloma is that the antibody forming cells (ie plasma cells) are malignant and therefore may cause unusual manifestations. It is considered to be the most common haematological malignancy after lymphoma, consisting about 10% of blood cancers and 1% of all cancers.²

Solitary lesions of multiple myeloma are rare in the head and neck area, and in most cases, multiple myeloma of head and neck is related to systemic symptoms. The most common manifestation is bone involvement secondary to bone marrow infiltration and results in osteolytic lesion, bone pain and pathological fractures. Frequently affected sites include the vertebrae, ribs, skull, femur, clavicle, pelvis and scapulae.³

As for its systemic symptoms, anemia, hypercalcemia, renal failure, increased risk of infection are the main clinical characteristics, and if head and neck area is involved, pain on the affected bones, paresthesia, edema, tooth mobility, pathological fracture of bones can occur.

Case Report

A 54 year old female resident of Kollam in southern Kerala presented to OPD with multiple swellings on forehead of 2 weeks duration. She is a known case of multiple myeloma since 2015, on chemotherapy and had evidence of renal failure. Local examination revealed multiple swellings on the forehead of all of which was 1.5 x 1cm size, soft in consistency, mobile, non tender, regular margins, smooth surface, no local rise in temperature.

FNAC of forehead swelling was done using 10 ml syringe and 22 gauge needle under aseptic precautions. Slides were fixed in alcohol, papanicolaou and Geimsa staining was done. Smear showed highly cellular aspirate with uniformly dispersed population of abnormal plasma cells having abundant basophilic cytoplasm, eccentric, hyperchromatic nuclei, prominent nucleoli with fine chromatin, loss of normal cartwheel chromatin; bi and multinucleated cells noted; flame cells, Dutcher body and Russell body.



Figure 1 Geimsa stained smear showing abnormal plasma cells, bi and multinucleate cells, Dutcher body.

Investigations

Hb-.8.9, ESR-142mm/hour, TC-10000, S.Calcium-10.4mg/dl

PCV-26.8%, RBS- 145 mg/dl, Bld Urea-50, S. Creat-1.45mg/dl, S Uric acid-8.2mg/dl

Kappa light chain-1.65 ug/,lambda light chain-1.5ug/ml

Peripheral blood smear-normocytic normochromic anemia with increase in rouleaux formation.

Bone marrow plasmacytosis-10%

On examination-No hepatosplenomegaly

All other systems within normal limits

Ultrasound abdomen-within normal limits

Electrophoresis- M band

Ferritin-1138.9 ng/ml

Radiological investigations- presence of punched out lesions in skull with generalized osteopenia, lytic lesions over L1,L2, Right iliac crest.



Figure 2 Xray skull showing multiple punched out lytic lesions

Discussion

B-cell lymphoid tissue neoplasms with plasma cell differentiation can broadly be classified into three types Multiple myeloma, Solitary plasmacytoma and Extramedullary plasmacytoma. Multiple myeloma presents in the disseminated form, affecting several bones.⁴ Solitary plasmacytoma differs from multiple myeloma by being a solitary soft tissue or bone lesion with no systemic symptoms of multiple myeloma and less

than 10% plasma cells in the bone marrow.⁵ Extramedullary plasmacytomas arise in tissues other than bone. The most common bones affected by multiple myeloma are the vertebrae, ribs, skull, mandible, clavicles, scapula and the pelvis. The involvement of mandible is infrequent but is even rarer to be involved as the first bone affected. Plasmacytomas of bone constitute 5% of plasma cell neoplasms. Incidental discovery of lesions in the jaw may be the first evidence of this disease.

Multiple myeloma is a debilitating malignancy that is part of a spectrum of disease ranging from monoclonal gammopathy of unknown significance to plasma cell leukemia. They can affect a single bone, a condition called solitary plasmacytoma, or may involve only soft tissues, as extra medullary plasmacytoma. However in approximately in 95% of the cases, they involve several bones and hence the condition is called multiple myeloma.

Solitary lesions of multiple myeloma are rare in the head and neck area. In the head and neck area, it occurs at the maxilla and mandible rather than skull but more frequently at the mandible than in the maxilla.

Aspirate smears of plasmacytoma show sheets of plasma cells which have a morphologic spectrum ranging from well-differentiated to anaplastic or blastic.⁶ The microscopic appearance of multiple myeloma is highly characteristic, with a monoclonal proliferation of plasma cells of variable maturity.⁷ The well-differentiated plasma cells resemble normal plasma cells and have round to oval eccentric nuclei with a cartwheel chromatin, dense basophilic cytoplasm and perinuclear clear zone in Giemsa slides. Plasmablastic morphology is characterized by a high nucleocytoplasmic ratio, round nuclei, fine chromatin, and prominent nucleoli. The neoplastic plasma cells assuming the form of anaplastic large cells or signet ring cells can mimic metastatic carcinoma. However, the presence of a cartwheel chromatin and prominent Golgi zone in at least some of the tumor cells will help in the cytological diagnosis.⁸ Anaplastic myeloma is

characterized by the presence of pleomorphic and multinucleate plasma cells with brisk mitotic activity and atypical mitotic figures. When there is diagnostic difficulty a careful search will usually show that even in anaplastic myeloma some cells show clear signs of plasmacytic differentiation.

Usually, bone marrow biopsy is needed to evaluate the percentage of bone marrow occupied by plasma cells, and this percentage is used in the diagnostic criteria for myeloma.

Immunohistochemistry can detect plasma cells that express immunoglobulin in the cytoplasm and occasionally on the cell surface; myeloma cells are typically CD56, CD38, and CD138 positive as well as CD19 and CD45 negative⁹. In two cases, the histopathologic samples showed fragments of soft tissue with marked plasma cell infiltrate. In an immunohistochemical staining study, the cells showed lambda light chain positive in the plasma cells. This phenotype showed a monoclonal population, indicative of a diagnosis of plasma cell tumor.

Surgery is not recommended when Multiple myeloma is found at the head and neck area since it is a systemic disease. It seems reasonable to treat patients systemically in terms of existing therapy.

Conclusion

Though it rarely occurs in the head and neck area, Multiple myeloma is a disease that should be suspected for old patients who show a lot of osteoporotic lesions in the cortical bones and hematological abnormalities. In cases where Multiple myeloma is suspected clinically, M-protein tests including serum electrophoresis, and serum free light chain should be performed. Though plain X-ray scan can be helpful in its diagnosis, PET-CT and magnetic resonance imaging scans enable more precise diagnosis. At the same time, clinical systemic symptoms (osteoclastic lesions, anemia, and renal failure) are observed.

Conflicts of Interest: Nil

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