Case Report

Malignant behavior of a benign lesion

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Abstract:

Metastasis to lung is a term almost synonymous to malignant lesions with only very few exceptions being benign. Giant cell tumor of the bone is one such disease capable of causing benign pulmonary metastasis. We here report the case of a young female who presented to us with multiple lung lesions which turned out to be benign metastatic implants from an earlier resected giant cell tumor of the tibia. Planning resection of metastatic lesions may prove beneficial with good survival benefits in this rare situation. These lesions may even show the classical pattern of doubling time observed with malignant lesions.

Key words: Giant Cell tumor (GCT), benign implants, pulmonary metastasis

Case report

A twenty year old female presented to us with left sided chest pain of four months duration. She gave history of loss of appetite of three months duration. She did not have fever, cough, expectoration or haemoptysis. There was history of a major surgery done for pain and swelling of her left Knee joint two years back. At that time an X-Ray AP view of Left Knee Joint, (fig 1) and an MRI of the knee, (fig 2), revealed a well defined lesion in the upper end of the tibia in the medial epimetaphyseal region extending to subarticular region measuring nearly 5x3 cm size. Open biopsy was done and it turned out to be giant cell tumor.

Curettage of the lesion with cementing was done, (fig 3), as part of conservative local management of the tumor as the patient was an otherwise healthy unmarried young female.

She was asymptomatic for about one year following which she developed again pain and swelling at the same site. A repeat MRI of the Knee revealed hypo intense signals in the tibia close to the tibial tuberosity on T1 weighted images which was minimally hyper intense on T2 weighted images and the lesion showed minimal contrast enhancement, (fig 4). Hence the radiologist suggested repeat biopsy to rule out a recurrence. Biopsy proved the lesion to be that of local recurrence and hence an Enneking resection with arthrodesis, K wire fixation and fibular grafting was performed as a definitive procedure, (fig 5)and the patient was moving around in crutches and was leading a near normal life till she presented to us with trivial chest symptoms.

On examination her vitals were stable; she was not dyspnoeic and was maintaining 100 % saturation on room air. Her chest movements were reduced on the left side as compared to the right, trachea was deviated to right, vocal fremitus was decreased over the left interscapular, infrascapular areas .Dull note on percussion was observed in these areas. The intensity of breath sounds and vocal resonance were reduced in the above areas. There was no evidence of any bronchial breathing or added sounds. Her routine blood investigations showed Hb- 13.8 g/dl ;

TC - 7800 DC: P64 L 22 M 12 ; Plt - 2.8 L/ml ; ESR - 32 mm / 1st hr; RBS - 112 mg/dL ; renal function tests were normal,Liver function tests were normal; Sputum AFB - Negative; Sputum cytology showed no malignant cells. Her Chest X-ray revealed a large homogenous opacity involving the left upper and mid zone extending to the lower zone with well defined medial and lateral margins silhouetting the aortic knuckle and the lateral part of the opacity merging with the lateral chest wall. Nodular opacities were seen over the lower zones on both sides. There was no evidence of pleural effusion or mediastinal widening, (Fig 6).However a Chest X-ray taken seventeen months back showed an ill defined lesion over the same area with less than half the size of the present upper lobe mass,(fig 7).

Her CT chest, (fig 8), revealed a soft tissue density lesion of size 6.6x4.3x5 cm in the left upper lobe abutting the descending thoracic aorta and extending to the lateral chest wall. Multiple enhancing nodules of varying sizes were noted scattered in both lung fields of which some showed feeding vessels and the CT picture was consistent with Pulmonary metastasis.

CT guided FNAC was done and it came as Benign implants from Giant cell tumor. Our patient was hence planned for a resection of the left upper lobe mass and radiotherapy for tumorlets.

Discussion

Secondary tumours are a common form of lung neoplasm. Lungs receive the most secondary tumours of any organ as it is the only organ to receive the entire blood and lymph flow and have the densest capillary network in the body. Metastasis to lung usually occur from primary in breast, colorectal, thyroid, head and neck, renal cell carcinoma, testicular tumors, prostate, Ewing's sarcoma, osteosarcoma and Wilm's tumor. Rarely, lung metastasis can occur from a benign primary such as Leiomyoma of uterus. Approximately 3% of Giant cell tumor (GCT) metastasizes to the lung[1]. The metastases appear as clusters of GCT located within the lung. GCT metastases generally appear at an average of 3-5 years after the initial diagnosis of the primary lesion as seen in our case[3]. The natural history of GCT varies widely and can range from local bony destruction to local metastasis, metastasis to the lung, metastasis to lymph nodes (rare), or malignant transformation (rare). GCT of the bone is a benign tumor which is locally invasive and can cause local recurrence despite wide excision and may even produce distal benign metastasis very rarely[4]. Benign histological features include absence of atypia, mitosis & necrosis. It may occasionally undergo malignant transformation as well. Lung metastasis is the cause of death in 20 - 25 % of cases.

GCT has been described as the most challenging benign bone tumor. Although benign, GCT shows a tendency for significant bone destruction, local recurrence, and occasionally metastasis[1]. The natural history of these lung metastases is unpredictable. Pulmonary metastases may spontaneously regress[2], remain stable, continues to grow slowly, or rapidly progress. In our case the size of the lesion has doubled in a manner as expected for malignant lesions with other newer lesions appearing in both lung fields. Early treatment is advocated because of the possibilities of hemorrhage, tissue necrosis and rarely, malignant transformation . These complications have been implicated as the cause of death in 16-25% of reported cases. Hence prompt detection and treatment of these metastases has been emphasized. Wide resection, chemotherapy, radiation therapy, and interferon alpha are the proposed modalities for management. Wherever possible, wide surgical resection or metastatectomy is the treatment of choice. Adjuvant treatment, such as chemotherapy or radiation therapy, has been advocated.

When the metastases are unresectable, both chemotherapy and radiation have been used as solitary agents. Interferon has been used with promising results. Malignant transformations may result in osteosarcoma, fibrosarcoma, or malignant histiocytoma.

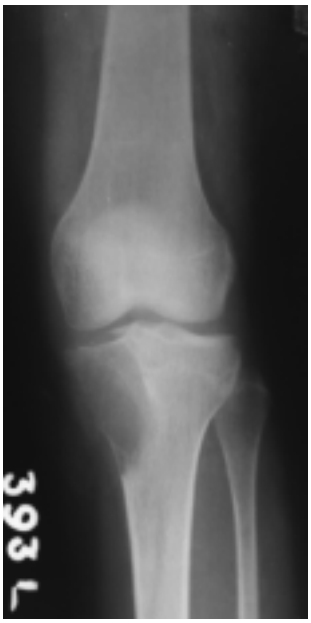
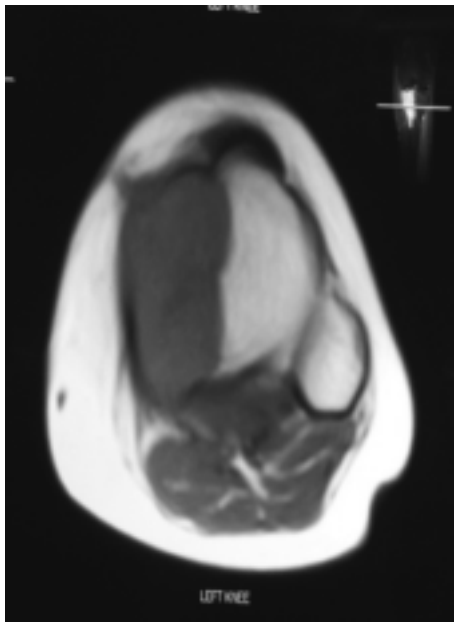


Fig 1 : X-ray Left Knee



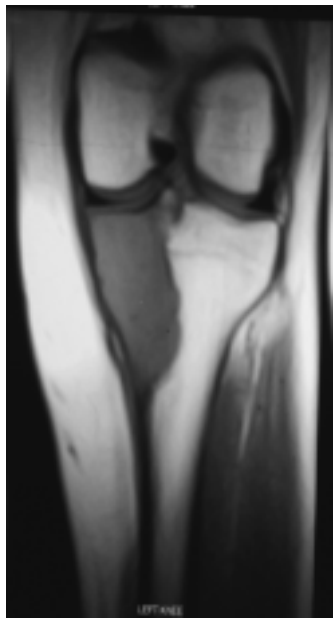


Fig 2 : MRI Left Knee

Lesion in the upper end of the left tibia in the medial epimetaphyseal region

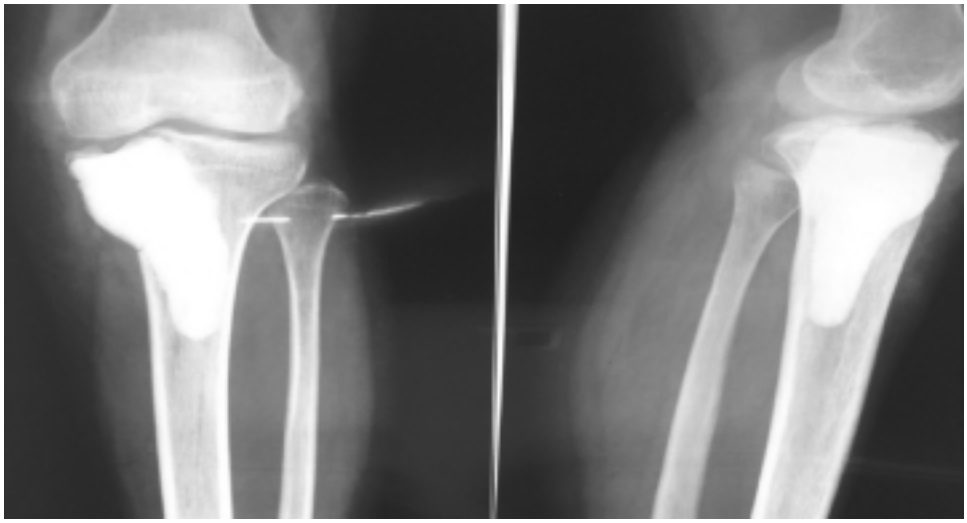


Fig 3 : Post Curettage and cementing

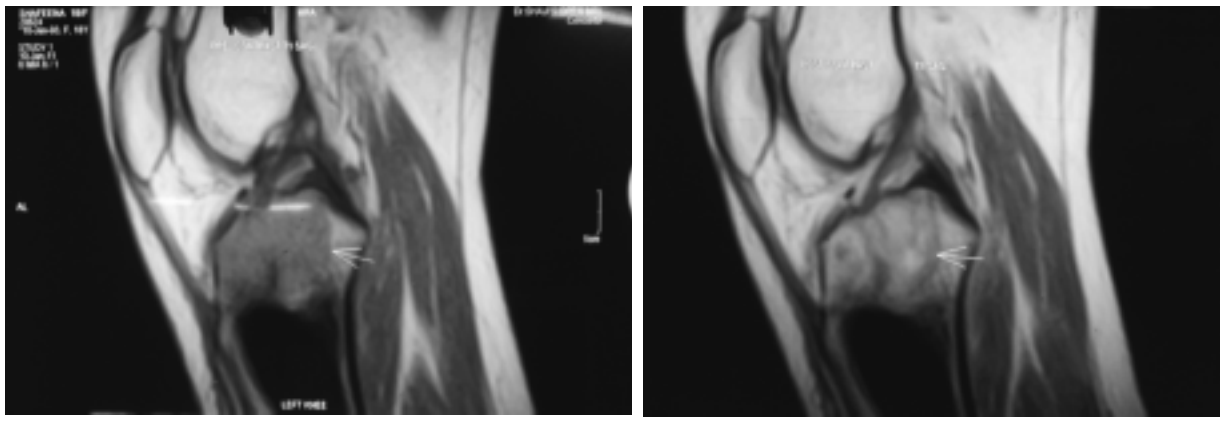


Fig 4 : Pre and Post Contrast sagittal T1 weighted Images of left Knee joint shows enhancing lesion (white arrow)

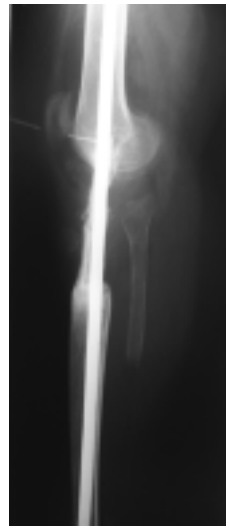


Fig 5 : X-Ray Left Knee

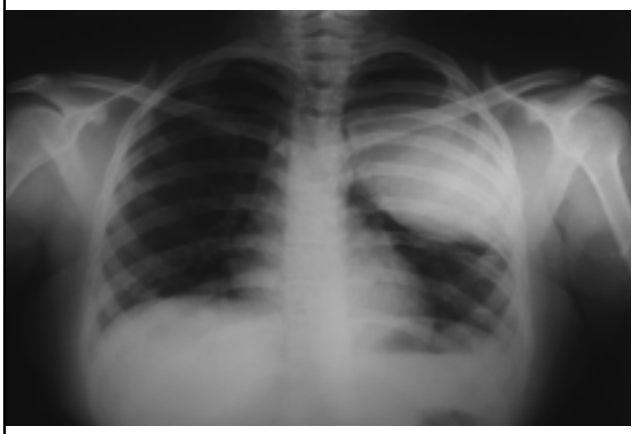


Fig 6 : Present Chest X-ray Pa view showing homogenous mass left upper lobe

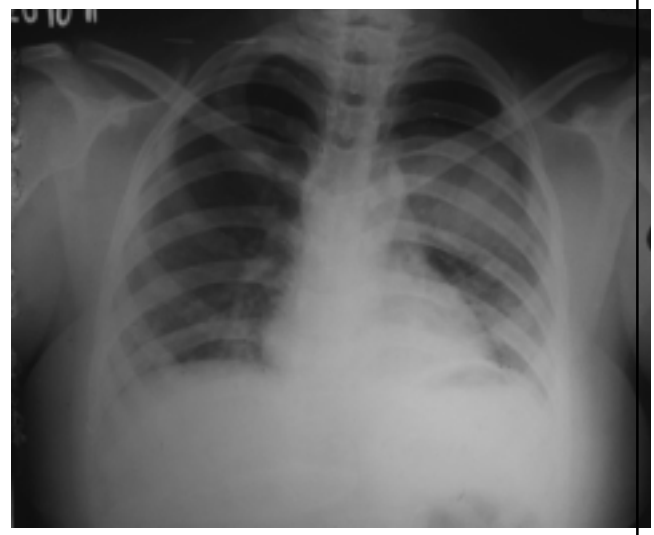


Fig 7 : Chest X-ray taken seventeen months back showed ill defined lesion left upper zone

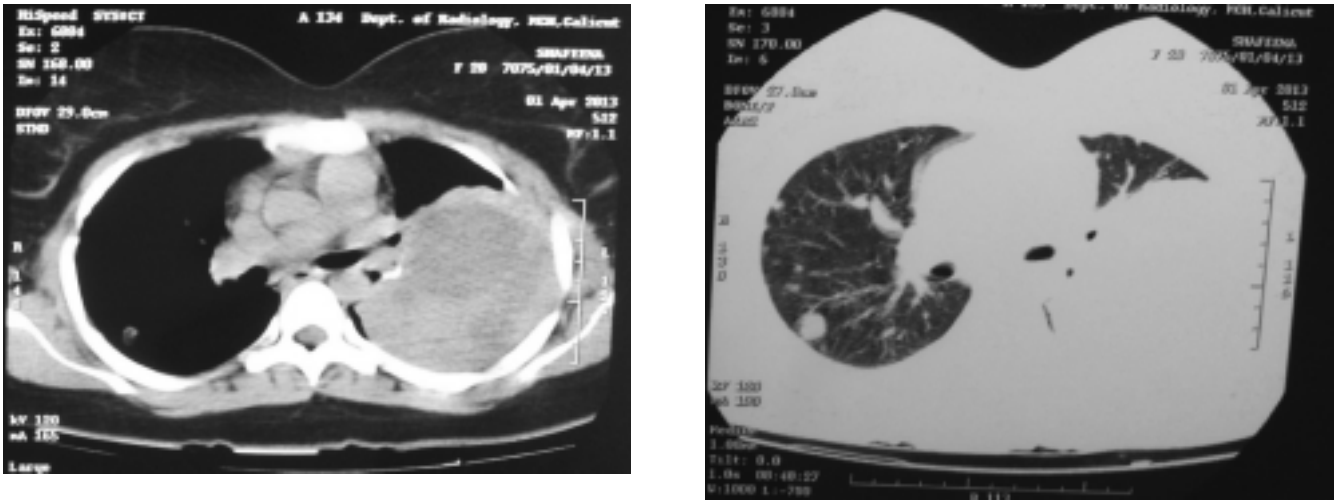


Fig 8 : CT-Chest showing metastatic lesions of varying sizes

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