Case Report

Nasopharyngeal cancer with solitary femoral bone recurrence after 7 years

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ABSTRACT

The skeleton is the most common site of distant metastasis from nasopharyngeal carcinoma. The commonly affected sites are the spine, and the pelvis and lesions are multifocal. However, solitary bone involvement with no evidence of loco-regional failure nor any other metastasis, 7 years after achieving a complete response to initial definitive chemoradiotherapy, is rare. We report the case of a 41-year-old man who developed a solitary femoral bone recurrence. He received local radiotherapy to the femur followed by cisplatin-based chemotherapy. He presently enjoys good functional status.

Key words: Femur, metastasis, nasopharyngeal carcinoma, solitary

INTRODUCTION

Though India has a high incidence of head and neck cancers, nasopharyngeal carcinoma (NPC) is uncommon in most regions of the country.[1] NPC patients frequently have involvement of regional lymph nodes. 85–90% of cases present with ipsilateral lymph node involvement and approximately 50% show spread to bilateral lymph nodes.[2,3] 3–6% patients may have distant metastasis at presentation, which may increase to 18–50% during disease. Bone is the most common site of distant metastasis followed by lungs and liver.[4] Skeleton metastases are usually multifocal and most commonly involve the spine and pelvis. Although bone is established as a site of distant metastasis, solitary bone involvement is rare in NPC.[5] We report a case of NPC who developed solitary femoral metastasis without evidence of loco-regional/distant recurrence more than 7 years after initial treatment.

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CASE REPORT

A 41-year-old man presented with pain in the left thigh and walked with a limp. The pain was moderate, continuous, and some relief was afforded by routine analgesics. He had been suffering from this pain for the last 4 months. He had no other complaints, and his general condition was fair. X-ray left femur showed expansile lesion with cortical thickening near the junction of the upper and middle third portions of the left femur [Figure 1a]. A magnetic resonance imaging revealed abnormal intramedullary signal involving upper and middle 1/3rd of left femur shaft and upper meta/diaphysis region with T1W hypointense and STIR hyperintense marrow signals. There was diffuse hyperostosis of involved cortex with diffuse periosteal reaction. Our patient had history of NPC (undifferentiated lymphoepithelial carcinoma), T2N1M0 at the time of diagnosis, for which he had taken concurrent chemo-radiation (completed February 2008). Hence, it was decided to perform a computed tomography (CT) scan guided biopsy [Figure 1b] of the lesion which subsequently revealed it to be metastatic NPC [Figure 2]. Immunohistochemistry was positive for cytokeratin, and

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negative for desmin, neuron-specific enolase, CD20 and CD3 indicating nasopharyngeal origin. ENT examination of the primary site and clinical examination of lymph nodes did not reveal any abnormality. A positron emission tomography CT [Figure 3a] also validated our findings by reporting no metabolically active disease at the primary site (nasopharynx), bilateral neck or elsewhere in the body except for a hypermetabolic lesion involving mid-shaft of the femur [Figure 3b].

Our patient completed local radiotherapy to the metastatic site, 30 Gy in ten fractions with complete improvement in pain and significant improvement in his limp. He is presently on cisplatin-based systemic chemotherapy and enjoys good functional status.

DISCUSSION

Bone is the most commonly involved organ by metastasis among patients with NPC. The metastatic sites frequently involved are the spine, pelvis, and ribs. In a descending frequency of involvement, it would be lumbar spine (28.4%), then dorsal spine (27.7%), sacrum and pelvis (16.3%), femur (9.9%), and rib and sternum (7.8%). On X-ray, lesions are mostly lytic (66%), sclerotic (21%), and mixed lytic and sclerotic (12.8%). Distant metastases usually develop within a 3-year period.[5] The prognosis of patients with NPC and bone metastasis varies, with occasional long-term survivors.[6,7]

A study of 312 patients diagnosed with bone-only metastasis at Sun Yat-Sen University Cancer Center concluded that metastasis to the spine and having more than three bone metastatic sites were independent unfavorable predictors for overall survival in NPC patients with bone-only metastasis. The authors suggested combined chemoradiotherapy for patients with single bone metastasis.[8] In one series of long-term survivors, patients with bone metastases were treated with combination chemotherapy followed by consolidation low-dose radiotherapy to the bone lesions.[7]

A case similar to ours was reported by De Felice *et al*. although the solitary rib metastasis had developed within a year. The case was managed by local radiotherapy (total dose of 60 Gy, 200 cGy/fr) followed by chemotherapy (platinum-based).[9] Khot *et al*. treated another similar case of NPC by hypofractionated radiotherapy (30 Gy in ten fractions) to the bone lesions (left sacrum and right hip), followed by chemotherapy (gemcitabine/carboplatin).[10]

CONCLUSION

Solitary femoral bone metastasis 7 years after definitive treatment of the primary is encountered rarely in NPC. Our patient was treated with local radiotherapy followed by chemotherapy. Longer follow-up of this patient would add to the literature of the subset of solitary/oligo bone-only metastasis of NPC.

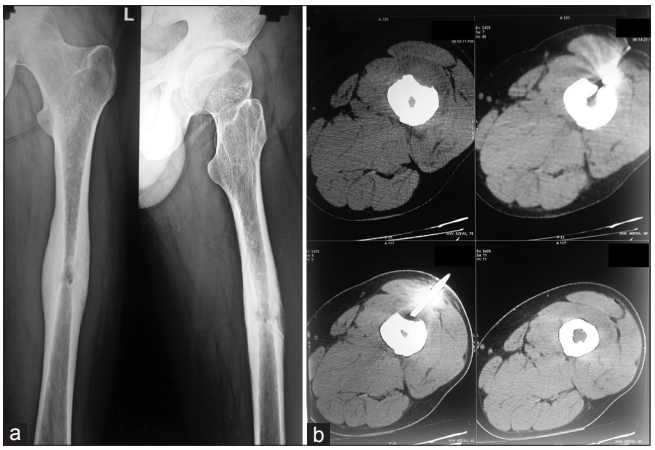

Figure 1: (a) X-ray left femur showed expansile lesion with cortical thickening, (b) computed tomography scan guided biopsy of the lesion

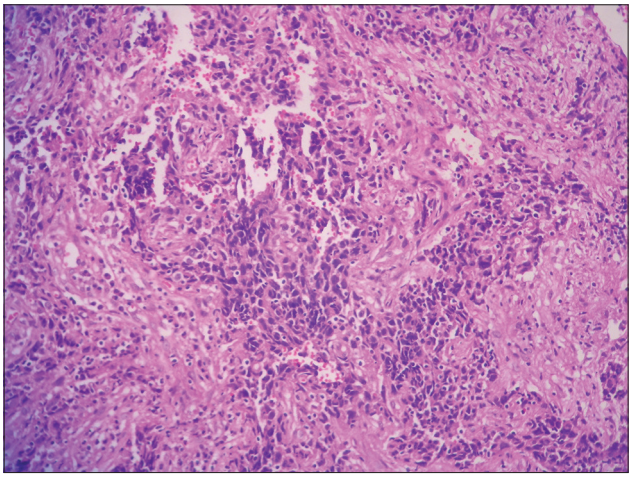

Figure 2: Bone tissue infiltrated by a tumor composed of syncytial clusters of plump to polygonal cells with vesicular nuclei, prominent nucleoli and moderate cytoplasm

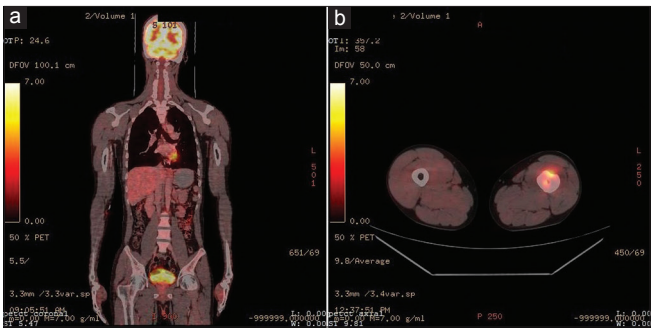

Figure 3: (a) Positron emission tomography computed tomography of the patient, (b) fluorodeoxyglucose avid enlarged irregular lesion with cortical defect involving mid-shaft of left femur (maximum standardized uptake value: 5.6)

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Conflicts of interest

There are no conflicts of interest.

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