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Case Report

Megaprosthetic replacement of knee in a young boy of 14 years

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ABSTRACT

Now a days, Total Knee Replacement (TKR) is a common for elderly patients but is an uncommon procedure in young individuals. Recently, limb conservation surgery for malignant bone tumours like osteosarcoma around the knee has become a common indication for TKR in young. We report, here a histologically confirmed osteosarcoma in right proximal tibia of a 14-year-old boy who was managed successfully by limb salvage surgery using Global Modular Replacement System (GMRS, Stryker).

1. Introduction

Osteosarcoma is an aggressive malignant neoplasm arising from primitive transformed cells of mesenchymal origin.[1] It is the most common histological form of primary bone cancer. This is largely a disease of youth with more than 75% of cases occurring in those less than 25 years of age.[2] The management of osteosarcoma in young patients remains a challenging problem and the treatment option may vary from non-operative treatment to operative treatments like amputation and limb conservation. We report a case of 14-year-old male, with grade IIB disease, who was successfully treated by limb conservative surgery. After three cycles neoadjuvant chemotherapy, the tumour was excised in toto and replacement was done by Global Modular Replacement System (GMRS Stryker).

2. Case report

A 14-year boy (NT) reported to us with a history of progressive increasing painful swelling in right proximal tibia of six months. It has been associated with restricted knee movement. The swelling was 6 cm × 4 cm in size, oval in shape (Fig. 1). It was moderately tender, stony hard and fixed to the bone but overlying skin was free. There was no distal neurovascular deficit. He was investigated with X-ray and MRI

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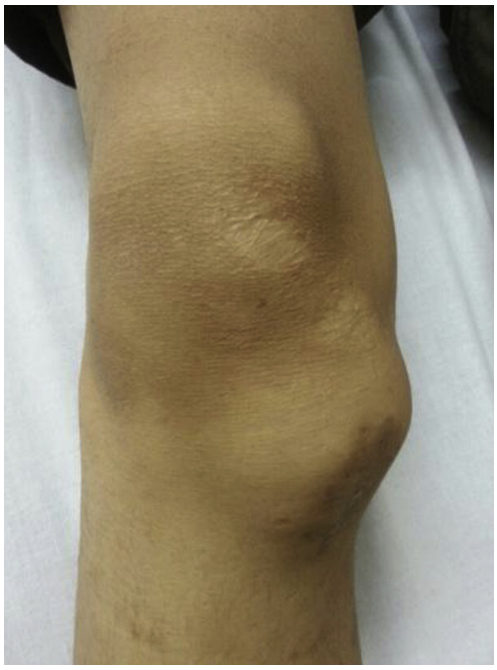

Fig. 1 – Pre operative photograph showing the tumour below the knee.

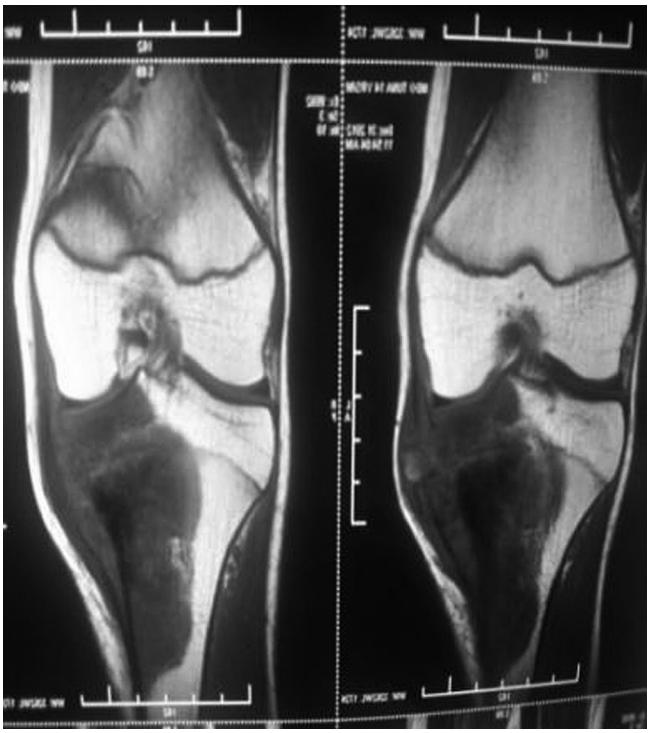

Fig. 3 – Pre op MRI image of the tumour.

which were suggestive of lytic mass in upper end of tibia (Figs. 2 and 3). Core biopsy confirmed the diagnosis of osteosarcoma. Haematological profile revealed anaemia with mild elevation of ESR. PET CT scan revealed FDG avid lytic sclerotic destruction in upper tibia with FDG avid soft tissue component and areas of punctuate calcification anteromedially in right upper leg – likely malignant primary bone tumour (Fig. 4). No evidence of FDG avid distant metastases seen.

This boy was treated, pre operatively, by three cycles neoadjuvant chemotherapy with Cisplatin and Adriamycin followed by tumour excision and replacement done by Global Modular Replacement System (GMRS). Post operative period was uneventful and he was discharged on 5th post operative day.

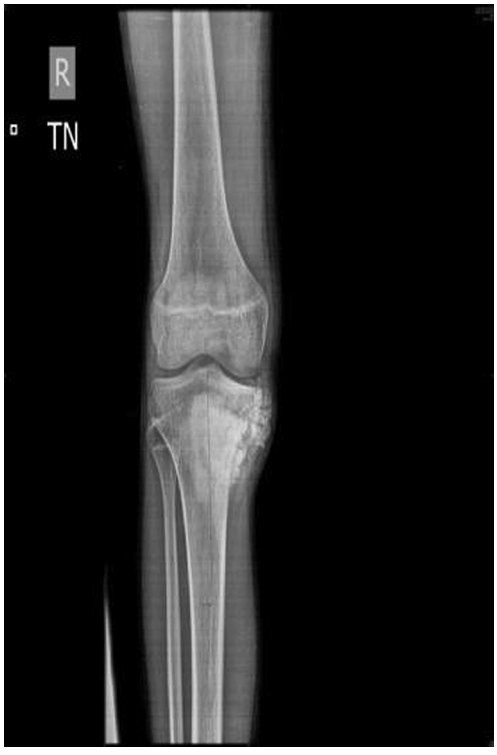

Fig. 2 – Pre operative X-ray of the knee showing tumour involving the upper tibia.

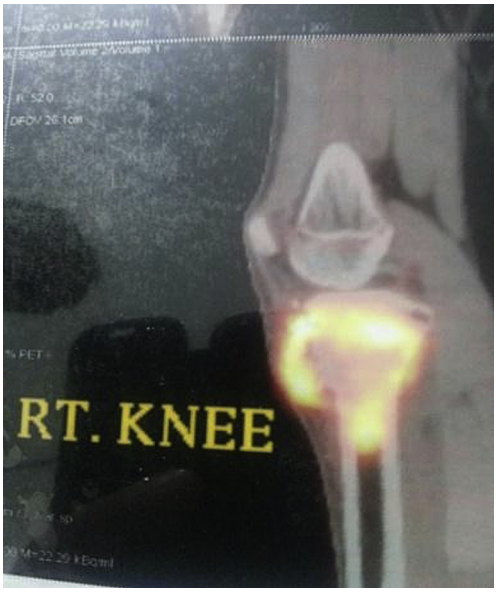

Fig. 4 – PET CT image of the tumour.