Giant Cell Tumor Of Bones: A Systemic Review Of Literature

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Abstract

Giant cell tumour (GCT) of bone, or osteoclastoma, is classically described as a locally invasive tumour that occurs close to the joint of a mature bone. It makes 5 to 7% of primary bone tumours according to western literature\(^1\). It occurs around the knee joint and distal radius with incidence of about 75%. It is generally considered to be a benign tumour. The incidence of bone GCT also varies depending on the reporting centre. It involves predominately males in age group of 20 to 40 years after physeal closure. Treatment options include curettage of tumour through a bone window with autologous bone grafting or cementing to fill the gap wherever possible. The reconstruction of the bone defect following wide excision is done depending on site of lesion.

Review

Giant cell tumor is described as neoplasm of undifferentiated mesenchymal stromal cells with presence of abundant, multi-nucleated giant cells. It is basically a benign aggressive tumor which involves the epiphyseometaphyseal end of long bones. Giant cell tumour is a benign tumour with a tendency for local aggressiveness and high chances of recurrence. Giant cell tumors are named for the way they look under the microscope. Many "giant cells" are seen. They are formed by fusion of several individual cells into a single, larger complex. Many bone tumors and other conditions (including normal bone) contain giant cells. Giant cell tumor of bone is given its characteristic appearance by the constant finding of a large number of these cells existing in a typical background.

Most bone tumors occur in the flared portion near the ends of long bone (metaphysis), but giant cell tumor of bone occurs almost exclusively in the end portion of long bones next to the joints (epiphysis). Giant cell tumors of bone most frequently occur around the knee joint in the lower end of the thighbone (femur) or the upper end of the shinbone (tibia). Other common locations include the wrist (lower end of the lower arm bone), the hip (upper end of the thighbone), the shoulder (upper end of the upper arm bone), and lower back (connection of the spine and pelvis).

The most common sites are distal end of femur, upper end of tibia and lower end of radius. The clinical picture is that of insidious onset pain. A history of preceding trivial trauma may be present. Other features are non specific. Radiologically, the tumour appears as an eccentric lytic lesion with cortical thinning and expansion. There is absence of reactive new bone formation. The tumour may erode the cortex and invade the joint. Pathological fracture may also be seen. CT scanning permits accurate delineation of the tumour extent and helps in deciding the line of management. General treatment regimens have not changed much in the past 30 years, in part due to the lack of randomized clinical trials\(^4\). Surgery is the treatment of choice if the tumour is determined to be resectable. Curettage is a commonly used technique. The situation is complicated in a patient with a pathological fracture. It may be best to immobilize the affected limb and wait for the fracture to heal before performing surgery. Many authors have reported satisfactory results with intralesional curettage and bone grafting. However, curettage alone has a high rate of recurrence and adjuvants like Methylmethacrylate (bone cement), Cryotherapy and Phenol have been suggested. Various reconstructive procedures have been mentioned in literature. Arthrodesis of the joint is also an alternative option, but considering the young age and level of activity, allograft reconstruction is attractive option.

References


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