

Epidemiologic Characteristics Of Primary Giant Cell Tumor (GCT): A Retrospective Analysis

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INTRODUCTION:

Giant cell tumor (GCT), or osteoclastoma, is a neoplasm of indeterminate malignancy with locally aggressive behavior. GCT represents approximately 5% of primary bone tumors and about 23% of benign bone tumors¹. The aim of this study was to review the epidemiological characteristics of bone GCT based on the clinical data from tertiary care oncology hospital.

METHODS:

The medical electronic records of patients diagnosed with GCT of the bone from 2006-2016 were retrieved. The patient age at diagnosis, gender, ethnicity, tumor site, treatment, follow up, tumor recurrence, metastasis, and mortality characteristics were analyzed. The demographic profile was described as percentages, means, standard deviations, and minimum and maximum values. The Chi-Square test of Independence is used to determine if there is a significant relationship between categorical variables. A p-value of < 0.05 is statistically significant. The outcome of the patients included in this study were classified as favorable if the patient had no local recurrence or metastasis during follow-up. Patients who experienced these complications were considered in the unfavorable outcome group.

RESULTS:

A total of 63 GCT patients (28 males and 35 females) were identified. Majority of cases were diagnosed in the age group of 20-39 years (n=38, 60.3%). The predominant ethnicity is Malay (n=49, 77.8%) followed by Indians (n=8, 12.7%) and Chinese (n=6, 9.5%). The most common location of tumor is left lower limb (n=24, 38%), followed by left upper limb (n=14, 22.2%). The most common bone involvement is left distal radius (n=10, 15.9%), followed by left distal femur (n=9, 14.3%). The treatment was surgical with curettage and bone grafting in (n=41, 65.1%), followed by wide excision and endoprosthesis in (12, 19%). A favorable outcome was observed in (n=59, 93.7%) with unfavorable

outcome with tumor recurrence in (n=4, 6.3%), metastasis in (n=1) and mortality among 2 cases. There is statistically significant difference between age and site of tumor (p=0.021) and the gender with recurrence, (p=0.034) with increased recurrence as observed in females. The mean duration of follow up 5.5 years.

DISCUSSIONS:

The highest frequency of the tumors is in the third decade supporting that GCT occurred in skeletally matured tumors^{1,2}. The gender ratio showed a female predominance in our study which is similar in America while no gender predilection was identified in Italy and Sweden¹. The most common location of distal radius and distal femur as it mostly occurred in the epiphysis or metaepiphyseal location which is similar to other studies. Recurrences depend on the type of surgical interventions, localization of tumor and its extension to soft tissues. In our study recurrences in 4 cases occurred in females. There is one metastasis to lungs suggesting that GCT of bone is mostly in benign form and the probability of it to metastasize is very low.

CONCLUSION:

Giant cell tumor (GCT) has female preponderance in third decade with distal radius and femur as the common site of the tumor. There is an overall favorable outcome observed with fewer recurrence. Complete GCT resection via extended intralesional curettage is associated with lower recurrence rate.

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