

POSTER 86

Clinical Analysis of Epiphyseal versus Non-Epiphyseal Chondroblastoma

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Abstract

Background: Chondroblastoma is a rare benign cartilaginous tumor that generally occurs in an epiphyseal location of skeletally immature individuals. They can also occur in non-epiphyseal locations, such in the apophyses. Few studies have reported on the epidemiology, diagnostic challenges, treatment, and clinical behavior of non-epiphyseal chondroblastoma compared to epiphyseal chondroblastoma.

Questions/Purposes: The aims of this study were to describe the epidemiology, clinical course, and management patterns of apophyseal chondroblastoma compared to epiphyseal chondroblastoma. We hypothesized that non-epiphyseal chondroblastoma would be associated with increased diagnostic uncertainty and different clinical behavior.

Patients and Methods: A retrospective analysis was performed. The records of a single tertiary institution from 2001-2021 were searched for cases of chondroblastoma. Of the 73 patients identified, 36 were excluded because of incomplete data or had definitive surgery at another institution. The remaining 37 patients comprised our study cohort. 16 patients were female. The median age was 16 years (range = 9 to 50y). Clinical characteristics of apophyseal versus epiphyseal chondroblastoma were compared. Specifically, need for staged biopsy, presence of secondary aneurysmal bone cyst, type of treatment, local recurrence, and metastasis were analyzed. Staged biopsy was used as a surrogate indicator for diagnostic uncertainty. Statistical analysis using Chi-square was performed to compare the clinical features between non-epiphyseal and epiphyseal chondroblastoma.

Results: 17 patients had non-epiphyseal chondroblastoma, while 20 patients had chondroblastoma in the epiphysis. Average length of follow up was 3.3 ± 0.5 years. In the non-epiphyseal group, 8 patients required staged biopsy, 5 patients had presence of secondary aneurysmal bone cyst. 2 patients had local recurrence, and no patient had metastasis. In the epiphyseal group, 10 patients required staged biopsy, 3 patients had presence of secondary aneurysmal bone cyst. 2 patients had local recurrence, and no patient had metastasis. There were no statistically significant differences in the studied clinical characteristics

between the non-epiphyseal and epiphyseal groups. The need for staged biopsy did not differ between groups.

In the non-epiphyseal group, most lesions occurred in greater trochanter (n = 4, 24%). While in the epiphyseal group, there was a higher occurrence of tumors in the distal femur (n = 7, 35%). Treatment modality included curettage alone, curettage and allograft, curettage with adjuvant and allograft.

Treatment algorithms did not demonstrate preference based on epiphyseal versus non-epiphyseal location.

Conclusion: There were no clinically significant differences between the non-epiphyseal and epiphyseal groups in terms of the need for staged biopsy, presence of secondary aneurysmal bone cyst, and local recurrence. Non-epiphyseal chondroblastoma tended to occur in the greater trochanter compared to epiphyseal chondroblastoma which were mostly found in the distal femur and femoral medial condyle.

Level of Evidence: III

Keywords: Apophyseal, chondroblastoma, benign bone tumors, orthopedic oncology

Table 1. Summary of patient characteristics

Clinical Characteristics	Non-Epiphyseal (n = 17)	Epiphyseal (n = 20)
Age, years (Mean ± SEM)	21.5 ± 2.4	18.4 ± 1.8
Sex		
Female	9	7
Male	8	13
Need for staged biopsy	8	10
Locations (n)		
Foot	Calcaneus	-
-	Cuboid (2)	-
-	Great Toe, Proximal Phalanx	-
-	Talus (2)	-
Femur	Greater Trochanter (4)	Femoral Head (4)
-	-	Medial Femoral Condyle (3)
-	-	Distal Femur (4)
Fibula	-	Fibular Head
Humerus	Proximal Humerus (2)	Proximal Humerus (4)
Pelvis	Iliac Crest	-
-	Supra-acetabular Region	-
Scapula	Glenoid (2)	-
-	Body	-
Tibia	-	Distal Tibia
-	-	Proximal Tibia (2)
Ulna	-	Distal Ulna
Secondary Aneurysmal Bone Cyst	5	3
Local recurrence	2	2
Metastasis	0	0