

## Attention to Pain in the Lower Extremities: Chondroblastoma

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### Abstract

Lower extremity pain is frequent in children, and it is usually caused by growth pain. Besides this, a variety of situations including infections, inflammation, trauma and also malignancies can result in swelling, pain, or restriction of movement in the knee during childhood period. When we faced with knee swelling especially in a boy, it is absolutely necessary to take a detailed history of the patient and careful physical examination must be done. Here, a 15-year-old case is presented with complaints of pain and swelling in the knee region. This case received accurate diagnosis and treatment through radiologic and pathologic cooperation after clinical examination.

**Key words:** Chondroblastoma, lower extremity, pain.

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### Introduction

Musculo-skeletal system complaints are very common in the development period, especially in children (1). The incidence varies from 4-30% (2). Pain complaints may be divided in two as those in the joints and outside the joints (widespread pain) (1). Differential diagnosis for musculo-skeletal system pain is broad; however, generally it is observed with mechanical causes more than inflammatory causes. However, topics that should not be missed include trauma or malignancy. For this reason, detailed clinical assessment, and radiological assessment in necessary situations, are important.

Here, we report a case who presented with pain and swelling in his knee and later diagnosed with chondroblastoma, to draw attention tumoral diseases in the differential diagnosis of lower extremity pain especially in boys.

### Case

A 15-year-old male patient attended hospital with complaint of pain in the knee. Examination noted pain and additional swelling distal of the right femur. Movement limitation was present. As a result of assessment, routine biochemical tests were requested in addition to magnetic resonance (MR) imaging. MR results provided preliminary diagnosis of osteomyelitis or malignancy or chondroblastoma and biopsy was recommended. Biopsy was sent to the pathology department for diagnostic assessment.

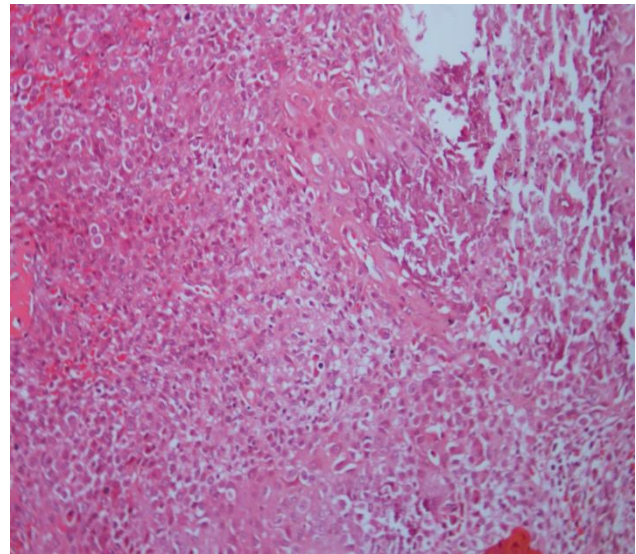
Histopathological assessment observed cellularity adjacent to fibro-collagenized tissue and areas rich in terms of matrix. Cellular areas observed chondroblasts as round or polygonal cells with oval or circular nuclei and well-defined eosinophilic cytoplasm, in addition to calcification with chicken-wire appearance and many osteoclastic-type giant cells. Additionally, osteoid and chondroid areas were occasionally observed. Necrosis and mitosis were not observed.

The results of histopathologic assessment reported the case as chondroblastoma.

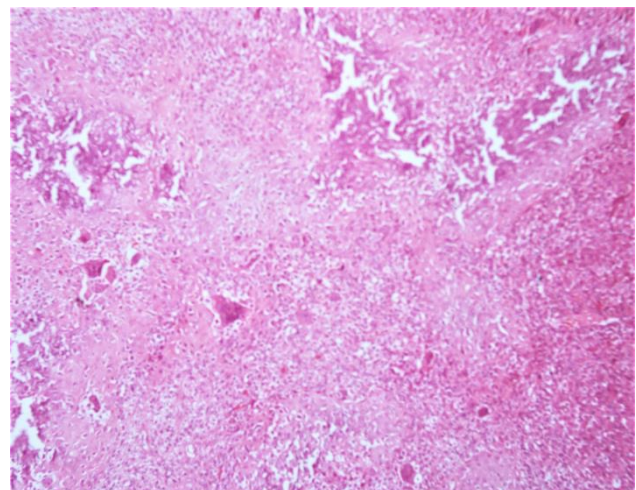
### Discussion

Muscle and joint complaints are frequently encountered in children during growth and development, especially, when considered separately from the geriatric period. When general complaints are examined, pain, swelling, and movement limitation in addition to fever and redness in inflammatory situations are notable. For this reason, detailed assessment is necessary. Radiological imaging and histopathological assessment

complement each other, especially in cases with swelling observed.



**Picture 1.** Large mononuclear cells with oval nucleus buried within immature chondroid material (h&ex200)



**Picture 2.** Calcification with chicken wire appearance and many osteoclastic-type giant cells (h&ex200)

In this case, biochemical tests did not observe data in relation to inflammation. Radiological assessment recommended differential diagnosis for osteomyelitis, chondroblastoma and malignancy primarily. Chronic inflammation findings involving plasma cells or fibrosis as in osteomyelitis were not observed. In terms of malignancy, osteosarcoma comes to mind initially when the knee region is mentioned. From this aspect, microscopic assessment did not observe osteoid construction or atypical osteocytes.

In the case, microscopic cellularity was notable. Additionally, chondroblasts in the form of polygonal cells with round or oval nuclei and giant cells with

osteoclastic-type calcification were observed. The important microscopic image for chondroblastoma especially of a chicken-wire matrix appearance around chondroblasts was observed.

Chondroblastoma is a rarely-observed primary bone tumor comprising less than 1% of bone tumors. Generally, these patients are males in the adolescent period with open growth plates. They may be painful and frequently cause joint effusion. Additionally, they limit joint movement (3). In this case, some of these findings were observed to a mild degree. It is more frequent in males, with mean age of incidence from 10 to 25 years. Sometimes it may be encountered at older ages (4). This case was 15 years old, in the frequently observed group. Chondroblastoma may be confused with aneurysmal bone cyst, fibrosarcoma or metastatic situations (5).

Here again, clinical, radiological, and pathologic assessment are important for differential diagnosis. Chondroblastoma generally have epiphyseal localization. In 2% and 82% of cases they have a tendency to localize in the tubular long bones. The most common is proximal tibia localization, but they may be encountered in different localizations (6). One of the rare localizations in the literature was a case with acromion localization presented by Arıkan et al. (7). Ozkurt et al. reported a case with talus localization (8). In our reported case, localization was in the distal region of the femur, which aroused clinical and radiological suspicion in terms of inflammatory situations and malignancy.

Metastasis is generally don't expected in chondroblastoma cases. Additionally, rare metastasis may occur as invasion of soft tissue around the bone and aggressive behavior like malignant transformation (9,10). For chondroblastoma treatment, surgery is at the forefront, with techniques like cryosurgery and phenol administration mentioned in the literature to reduce the chance of recurrence (8). Chemotherapy has no place in terms of treatment and radiotherapy is reported to be controversial (8). This case was operated on and is still in follow-up. This case was operated on and is still being followed up.

### Conclusion

In conclusion, attention should definitely be paid to complaints about the musculoskeletal system at any age. Findings obtained after clinical examination are valuable. In required situations, clinical, radiological, and pathologic assessment results will further increase this value.

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**Peer-review:** Externally peer-reviewed.

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