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CASE REPORT

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# Spontaneous resolution of proximal humerus sessile osteochondroma: A report of case and literature review

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**Key Clinical Message**

In managing a child with a solitary osteochondroma, the most advisable course of action involves vigilant observation and regular follow-up, given the potential for spontaneous resolution.

**Abstract**

The most frequent benign cartilage tumors in children are osteochondromas, which develop when the growth plate herniates during bone development. Treatment depends on the symptoms, with asymptomatic cases requiring monitoring and symptomatic patients requiring surgical intervention. Rarely, an asymptomatic osteochondroma may spontaneously disappear. We report the case of a 3-year-old male who presented with left arm swelling and pain due to trauma while playing football. X-rays revealed a proximal humerus posterolateral sessile osteochondroma. After 6 months of observation, the boy tolerated activity and had no pain. Five years later, the osteochondroma was resolved spontaneously both clinically and radiologically. Our study suggests that annual observation of child patients with osteochondroma is more effective than surgical intervention due to the possibility of spontaneous resolution.

**KEYWORDS**

osteochondroma, pediatric, spontaneous resolution, x-ray

## 1 | INTRODUCTION

### 1.1 | Background

Osteochondromas, which belong to the cartilaginous histogenesis tumor family, are among the most prevalent tumors in adults. Osteochondromas are caused by the endochondral ossification process during the formation of bone and are created when a portion of the growth plate herniates.[1,2] Solitary osteochondromas, which are benign bone cancers, are most commonly found in the metaphysis of long bones. They make up 35% of all primary benign bone tumors and 8% of all bone tumors, despite the fact that many are misdiagnosed. Thus, it is unknown how common solitary osteochondromas actually are. Excision is regularly recommended, as solitary osteochondromas frequently cause a variety of symptoms, including pain. Slow, gradual osteochondroma

growth is common in skeletally immature patients and may call for surgical removal. It is generally believed that a lesion is malignant when it significantly expands past the stage of skeletal maturity. A single osteochondroma has a <1% chance of developing into anything cancerous.[3,4]

### 1.2 | Rationale

Most people do not normally think of osteochondromas as malignant processes despite the fact that they are rather common bone lesions brought on by the herniation of a part of the growth plate. Although there have been a few rare accounts of these lesions spontaneously regressing, the majority of medical experts believe that this is exceedingly unlikely to occur in an existing single osteochondroma.[1,3,4]

### 1.3 | Guideline and literature

Benign surface lesions most often develop as a result of abnormal cartilage on the surfaces of bones, where a painless lump may present itself incidentally around the knee, proximal femur, or proximal humerus.[1,2] A surface lesion, with the medullary canal confluent with both the lesion's cortex and the underlying cortex, has a distinctive appearance on x-ray imaging. The osteochondroma may be sessile or pedunculated.[5] The damaged bone is excessively broad; the lesion typically develops at the point where a tendon inserts, and a thin cartilage cap covers the underlying cortex.

When a tumor is asymptomatic, observation is the sole course of action. When a patient complains of discomfort brought on by strained muscles, mechanical injury, or an irritated bursa over the lesion, surgery may be an option.[3–5] Malignant development may lead to a "secondary chondrosarcoma" in 1% of cases. These low-grade cancers have a favorable prognosis, as they rarely spread.

## 2 | CASE PRESENTATION

We report a 3-year-old male who presented to our clinic complaining of left upper arm swelling and pain. His parents noticed these complaints after a vacancy trip during which the child played roughly with his friends. He had no history of fever, weight loss, loss of appetite, nor atopy. On further questioning, the parents told us the patient was born resulting from a normal spontaneous vaginal delivery with an uneventful pregnancy period and postnatal period. He had a good nutritional history and was fully vaccinated for his age according to the vaccination program.

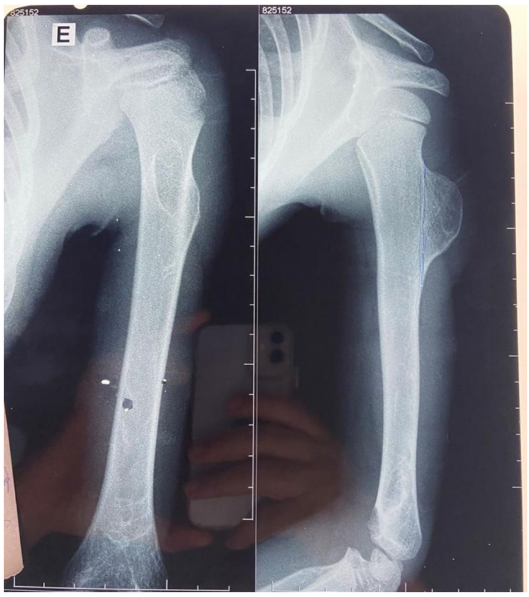


**FIGURE 1** Proximal humerus posterolateral sessile osteochondroma.

On presentation, the patient looked well, not pale, jaundiced, or cyanosed, his vitals were stable, and he was of average weight and height. All systems examinations were normal. During a local examination of the left upper limb, a mass approximately 5 × 5 cm in diameter was discovered on the proximal posterolateral upper arm with some tenderness, which was hard in consistency and attached to the bone but not to the skin. The skin over the mass was healthy. No axillary or cervical lymph node was involved. Distal neurovascular examination, as well as elbow and shoulder joint examination, were normal, and no other mass was found in his body. Anteroposterior x-ray of the left humerus and lateral from the shoulder to the elbow showed left humerus posterolateral sessile osteochondroma (Figure 1).

We counseled the patient's parents about the lesion, as it was a benign osseocartilaginous lesion amenable to conservative treatment and follow-up. The patient came to follow-up annually for the first 2 years, and the mass remained static both clinically and radiologically. The patient missed follow-up for five years due to his family moving from one state to another, but he came back at 10 years of age for follow-up. We were surprised when we did not find the mass clinically nor radiologically, which confirmed its disappearance (Figure 2).

## 3 | DISCUSSION

Although Hunter noted a few instances of this unusual condition, the first case of osteochondroma that was

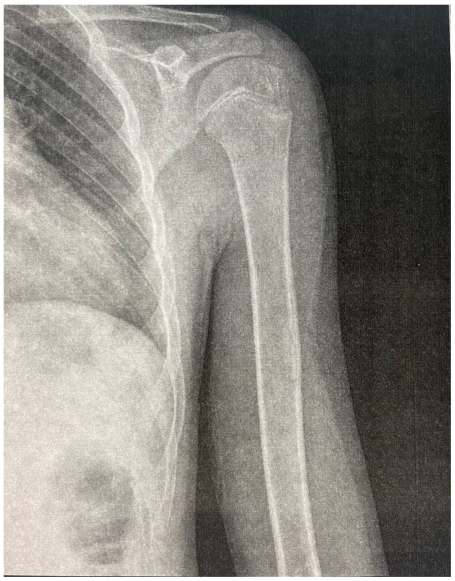

**FIGURE 2** Resolution of the proximal humerus posterolateral sessile osteochondroma.

spontaneously cured was identified in 1835.[6,7] Due to the asymptomatic nature of this illness, there are few documented cases, which results in a lack of knowledge and treatment choices. Additionally, osteochondroma might present with painful symptoms that might necessitate surgical intervention.[8–10]

Studies have shown that osteochondromas account for 35% of benign tumors and 10% of primitive bone cancers, making them the most common benign tumors.[2–4] Additionally, Kitsoul et al. found that isolated osteochondroma formed at the humerus 26%, femur 30%, and tibia 43%.[11]

In a study by Stitzman-Wengrowicz, the age range of patients with osteochondroma was 5–15 years, with an average age of 8.8 years. In our study, the patient received a diagnosis at age three.[9] The osteochondroma extend from the underlying bone and have a cartilaginous cap; this is typically at the metaphysis.[12,13] Treatment for osteochondromas often involves nonoperative means. Osteochondromas that are painful, mechanically difficult, or visually problematic can be removed surgically.[8]

Despite prior findings suggesting the natural history of an osteochondroma depends on the timing of its growth relative to the host bone, the retreat of the tumor was caused by the growth of the osteochondroma stopping before the patient reached skeletal maturation and the lesion being absorbed into the developing bony metaphysis. Radiological methods, particularly x-ray, are the most reliable for diagnosing this condition. In a few reported cases, magnetic resonance imaging and computed tomography have also been used to aid in the diagnosis of osteochondroma.[2,14]

## 4 | CONCLUSION

According to the literature and the findings of our study, yearly follow-up is the recommended course of treatment for children with solitary osteochondromas. This approach is superior to surgery, as it offers the chance of spontaneous resolution.

## AUTHOR CONTRIBUTIONS

**André Luis De Siqueira:** Conceptualization; project administration; resources. **Hozifa Mohammed Ali Abd-Elmaged:** Conceptualization; supervision. **Dafaalla Salih:** Writing – original draft. **Mustafa Elghazali Abuelgassim E. Mustafa:** Writing – original draft; writing – review and editing.

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## CONFLICT OF INTEREST STATEMENT

All authors declare no conflicts of interest and have received no funding.

## DATA AVAILABILITY STATEMENT

Data available on request from the authors.

## ETHICS STATEMENT

This study was performed in accordance with the ethical standards of the of the Ethics Review Board of the hospital.

## CONSENT

Written informed consent was obtained from the patient's parents to publish this report in accordance with the journal's patient consent policy.

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