

## Delayed diagnosis and cultural barriers in pediatric osteosarcoma: A case report from a low-resource setting

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### Abstract

**Background:** Osteosarcoma is the most common primary malignant bone tumor in children and adolescents. Early diagnosis and treatment are critical for improving outcomes. In low-resource settings, delays in seeking appropriate medical care due to cultural beliefs and reliance on traditional medicine can contribute to disease progression and poor prognosis.

**Case Presentation:** We report the case of a 12-year-old girl with a six-month history of a painless, rapidly enlarging mass on her left shoulder. The patient initially sought treatment from multiple hospitals and traditional healers, receiving antibiotics, analgesics, and topical herbal treatments. The mass continued to grow, ulcerated, and was associated with systemic symptoms including fever, dizziness, and malaise. On presentation, the child was cachectic, pale, tachycardic, and unable to stand unassisted. Imaging showed findings consistent with osteosarcoma. Due to strong parental beliefs against surgical intervention, the decision for disarticulation was made only after the involvement of spiritual leaders. Surgery was successfully performed, and histopathology confirmed osteosarcoma. The patient was referred for chemotherapy; however, follow-up data remains unavailable.

**Conclusion:** This case highlights the impact of delayed presentation, cultural beliefs, and systemic healthcare gaps on the management of pediatric osteosarcoma. Early diagnosis, community education, and culturally sensitive care coordination are essential to improve outcomes in similar settings.

**Keywords:** Osteosarcoma; Pediatric bone tumor; Delayed diagnosis; Traditional medicine; Cultural beliefs

### 1. Introduction

Osteosarcoma is the most common primary bone malignancy among children and adolescents, with peak incidence during the growth spurt of adolescence [1]. It typically arises in the metaphyseal region of long bones, most commonly around the knee and proximal humerus [2]. Despite improved survival rates in high-income countries due to early diagnosis and multimodal treatment, outcomes in low-resource settings remain poor due to late presentation, limited access to care, and treatment abandonment [3,4]. Cultural beliefs and reliance on traditional medicine further contribute to diagnostic delays [5]. This report discusses the case of a young girl from a resource-limited setting whose osteosarcoma progressed significantly due to such challenges.

### 2. Case Presentation

A 12-year-old girl presented to our facility with a six-month history of a painless, rapidly enlarging mass on her left shoulder. The mass had grown steadily and later ulcerated. Prior to presentation, the child had visited multiple

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healthcare facilities and traditional healers. At hospitals, she received symptomatic treatment, including antibiotics and analgesics. At traditional healing centers, skin incisions were made over the mass, and various local herbs were applied.

This pattern of alternating between formal healthcare and traditional treatment reflects common practices in many low-resource settings, where traditional medicine is deeply rooted and more accessible [4,5]. Studies have shown that this often results in significant delays in cancer diagnosis, particularly in pediatric cases [6,7].

Over time, the patient developed fever, generalized weakness, dizziness, blurred vision, orthopnea, and cachexia. She became unable to stand without support, and clinical examination revealed pallor, tachycardia, and a large ulcerated, foul-smelling mass on the left shoulder. A plain radiograph showed a lytic lesion with periosteal reaction and soft tissue involvement, consistent with osteosarcoma [1,2].

Due to the parents' belief that surgical intervention would worsen the condition, the decision to proceed with surgery was delayed. The case illustrates the significant role cultural and spiritual beliefs play in medical decision-making in such environments [5,7]. Eventually, with the involvement of local spiritual leaders, consent was obtained, and a left shoulder disarticulation was successfully performed.

Histopathological analysis of the excised tissue confirmed the diagnosis of conventional osteosarcoma. The patient was referred to the Ocean Road National Cancer Institute for chemotherapy. However, no follow-up data has been received to date, reflecting a common issue of treatment abandonment or poor tracking post-referral in low-resource settings [4,8].

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### 3. Discussion

This case highlights how delayed diagnosis, reliance on traditional medicine, and cultural resistance to biomedical interventions can lead to late-stage presentation of pediatric malignancies. The initial painless mass was a warning sign of potential malignancy, but delays in seeking specialized care allowed the tumor to grow and ulcerate, reducing the likelihood of limb-salvage surgery and effective curative treatment.

Osteosarcoma requires timely diagnosis and a coordinated approach involving surgery and chemotherapy for optimal outcomes [2,7]. In this case, the delay not only led to amputation but may also have reduced the effectiveness of adjuvant therapy.

The involvement of spiritual leaders was crucial in bridging the gap between medical advice and family beliefs — a reminder that culturally sensitive, community-based strategies are essential in delivering effective care [5,6]. Additionally, the absence of follow-up data underscores the importance of improving referral and communication systems between hospitals and national cancer centers [8].

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### 4. Conclusion

This case underscores the critical role that early diagnosis and culturally sensitive interventions play in the management of pediatric osteosarcoma. Delays due to traditional medical practices and cultural beliefs can have devastating consequences. Strengthening healthcare infrastructure, community education, and interdisciplinary collaboration are essential for reducing treatment abandonment and improving outcomes in children with cancer in low-resource settings.

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### Compliance with ethical standards

#### *Disclosure of conflict of interest*

The authors declare no conflicts of interest.

#### *Statement of ethical approval*

Ethical approval was sought from the hospital ethical review board.

#### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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