

# A Rare Presentation of Cervical Spine Osteochondroma

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## What to Learn from this Article?

Meticulous clinical and radiological evaluation is essential in management of cervical spine osteochondromas.

## Abstract

**Introduction:** Cervical spine osteochondromas are rare tumors that usually involve the posterior spinal elements. Osteochondromas of the cervical spine presenting anteriorly as a mass over the supraclavicular region has not been reported in the literature.

**Case Report:** A 12-year-old boy presented with right sided supraclavicular swelling. Plain radiographs revealed a bony mass. Computerized tomography (CT) and magnetic resonance imaging scans of the cervical region showed a bony mass arising from pedicle and encroaching onto lamina of C6 vertebra. He underwent excision biopsy of the mass through an anterior approach. The histopathological diagnosis was osteochondroma. At 4-year follow-up, he was asymptomatic and CT scan revealed no recurrence.

**Conclusion:** Tumors arising from the posterior elements are difficult to diagnose by plain radiographs alone and require special imaging modalities to show their exact location, nature, and extent.

**Keywords:** Osteochondroma, supraclavicular, pedicle, anterior approach.

## Introduction

Cervical spine osteochondromas are uncommon and mostly involve the posterior elements [1, 2, 3, 4]. Apart from a bony swelling they are mostly asymptomatic. However, rarely they can cause nerve root compression, compressive myelopathy, and sometimes pressure over the trachea or esophagus [5, 6]. To the best of our knowledge, osteochondromas of the cervical spine presenting anteriorly as a mass over the supraclavicular region has not been reported in literature. Careful examination along with advanced imaging is essential to arrive at a definitive diagnosis and plan appropriate management.

## Case Report

A 12-year-old boy presented with complains of swelling over the right side of neck for last 1 year. The swelling was insidious in onset, gradually progressive, and painless. On clinical examination, a solitary 3 cm × 3 cm × 2 cm spherical bony hard swelling with well-defined margins was palpable in the right supraclavicular region (Fig. 1). The swelling was nontender and immobile. Neck movements were terminally restricted. Adson's test was positive. Roos and Wright's tests were negative. There was no distal neurovascular deficit.

Plain radiographs of cervical spine revealed a bony mass over right side of neck (Fig. 2). Computerized tomographic (CT) scans showed

## Author's Photo Gallery



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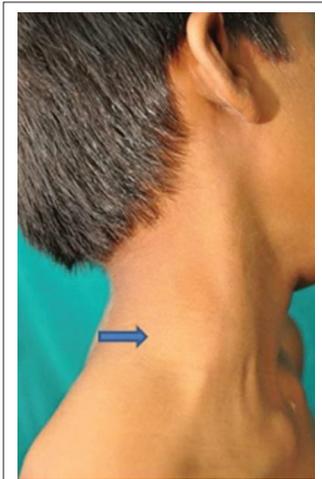
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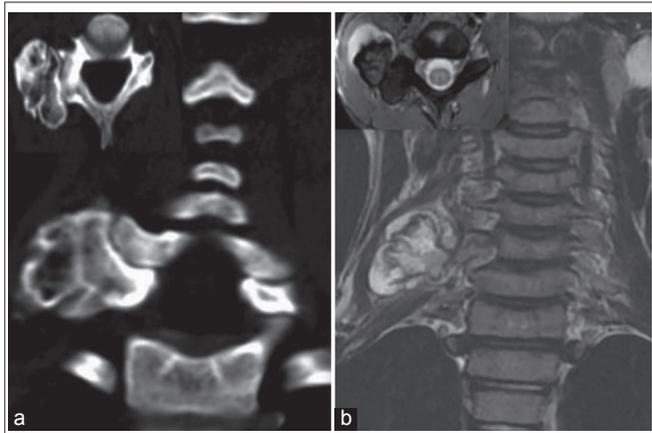
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**Figure 1:** Clinical photograph showing swelling over right supraclavicular region.



**Figure 3:** Pre-operative computerized tomography scan (a) and magnetic resonance imaging (b) of cervical spine showing bony mass arising from right pedicle of C6 vertebra.



**Figure 2:** Plain radiographs showing bony mass arising from posterior elements of C6 vertebra.

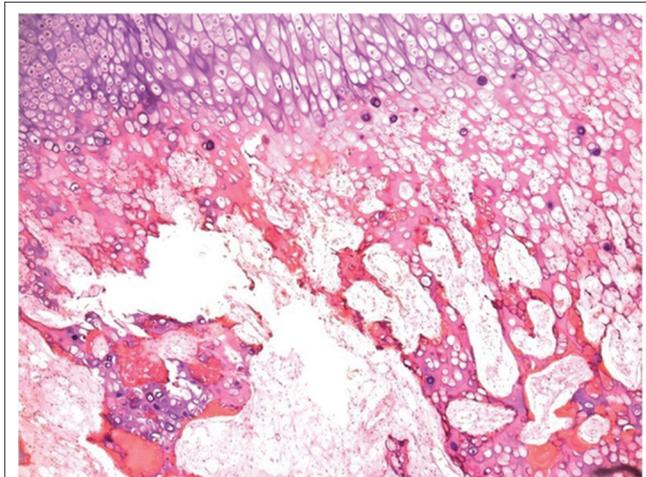


**Figure 4:** Intraoperative photograph showing osteochondroma being excised from right pedicle of C6 vertebra.

a well-defined broad-based lobulated bony outgrowth measuring 2.8 cm × 2.4 cm arising from the right pedicle and encroaching onto lamina and transverse process of C6 vertebra. The cortex and medulla of the lesion was in continuity with the host bone (Fig. 3a). Magnetic resonance imaging (MRI) was done to evaluate the degree of soft tissue involvement. It revealed altered signal intensity of 11 mm thickness which was hyperintense on T2W and short tau inversion recovery (STIR) images. After gadolinium administration, there was peripheral enhancement surrounding the bony outgrowth which was suggestive of a cartilage cap. The scalene muscles showed no signs of infiltration; however, the roots and trunks of the brachial plexus were hyperintense on STIR which was suggestive of some compression (Fig. 3b).

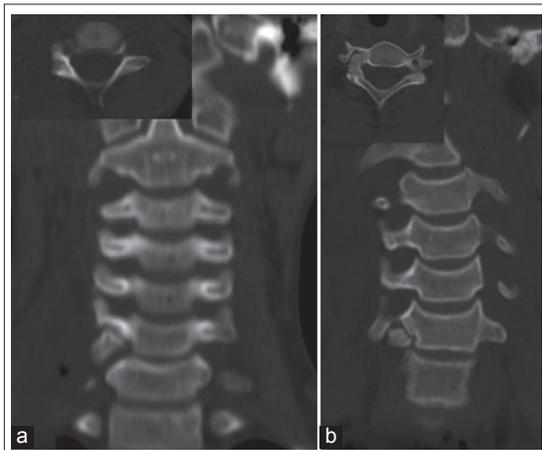
The bony swelling arising from the right pedicle and encroaching onto lamina and transverse process of C6 vertebra was excised extraperiosteally through an anterior spinal approach (Fig. 4).

Histopathological examination showed thick cartilage cap overlying endochondral ossification and lamellar bony trabeculae encasing fatty



**Figure 5:** Histopathological examination showing thick cartilage cap overlying endochondral ossification.

and cellular marrow which was consistent with osteochondroma (Fig. 5). At 4-year follow-up, the patient was asymptomatic, and CT scan did not show recurrence (Fig. 6).



**Figure 6:** Post-operative computerized tomography scans at 1 year (a) and 4 years (b) follow-up showing no recurrence.

### Discussion

Solitary osteochondromas of the spine are rare with an incidence of 1.3-4.1% [1, 2]. Cervical spine involvement is relatively more common with C2 vertebra most frequently affected [3]. It classically involves the posterior spinal elements especially the lamina and transverse processes [3, 4]. They are usually asymptomatic but can rarely cause compressive myelopathy, nerve root involvement or torticollis [5, 6, 7]. Cervical spine osteochondromas arising from the vertebral body can also cause dysphagia [8], sleep apnea [9], and hoarseness of voice [10]. They can present as a pharyngeal mass and even compress adjacent neurovascular structures like vertebral and carotid arteries [1, 11]. Osteochondromas arising from the spine are difficult to diagnose by plain radiography and clinical features alone [12].

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Our patient presented with a painless mass in the supraclavicular region. Plain radiographs revealed a bony mass over the right side of neck. However, its exact origin was difficult to interpret. CT and MRI scans showed a bony mass arising from pedicle of C6 vertebra. To the best of our knowledge, an osteochondroma of the cervical spine involving posterior elements and presenting anteriorly in the supraclavicular region has not been reported in the literature.

Different approaches have been described in literature for excision of tumors arising from posterior elements [8]. In our case, we excised the mass through an anterior spinal approach even though it was arising from posterior elements of the spine. This is because of anterior extension of the mass. Careful surgical planning is essential for complete excision of the tumor and thereby prevents recurrence. Our patient was asymptomatic at 4-year follow-up without recurrence (Fig. 5).

### Conclusion

Cervical spinal osteochondromas can present anteriorly as a supraclavicular swelling. Tumors arising from the posterior elements are difficult to diagnose by plain radiographs alone and require special imaging modalities to show their exact location, nature, and extent. Careful surgical planning in the form of choice of approach, knowing the size and origin of the lesion is required for safe and complete excision of the tumor.

### Clinical Message

Tumors arising from the posterior spinal elements usually require special imaging modalities like CT and MRI to better understand their exact location. This will aid in deciding the surgical approach. Osteochondroma can also present as a supraclavicular swelling.

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