

## Case Report

# C2 Osteoblastoma: Rare Presentation and Management Review

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### To cite this article:

Uday Singh Raswan, Aishwarya Aditya Mehra. C2 Osteoblastoma: Rare Presentation and Management Review. *American Journal of Pediatrics*. Vol. 5, No. 3, 2019, pp. 175-177. doi: 10.11648/j.ajp.20190503.26

**Received:** December 26, 2018; **Accepted:** January 21, 2019; **Published:** September 3, 2019

**Abstract:** Osteoblastoma is a rare and benign osteoid producing primary bone tumor that affect mainly the long bones. Spine account for thirty-six percent of these tumor. The mean age of presentation was 20 years, with a range of 6 months to 75 years. We report about a 12-year-old male child who presented with neck pain. Radiology revealed C2 osteoblastoma. Whole mass was removed in to No recurrence was seen at 1 year follow up. In conclusion, case delineates the difficulty of delayed diagnosis, the challenges and surgical management and also the favourable prognosis.

**Keywords:** Osteoblastoma, Neck Pain, Cervical

## 1. Introduction

Osteoblastoma is a rare and benign osteoid producing primary bone tumor that affect mainly the long bones. Spine account for thirty-six percent of these tumor. The mean age of presentation was 20 years, with a range of 6 months to 75 years. [1] Several cases of osteoblastoma of the cervical spine have been reported but cases occurring at C2 are rare. A case of C2 osteoblastoma occurring in a 12-year-old child is reported here and its management discussed.

## 2. Case Report

A 12-year-old male child complained of neck pain in the midline posteriorly for 2 years. There was no history of trauma and no neurologic sign or symptom were present. Cervical spine CT (Figures 1, 2) revealed an expansile lesion in the posterior arch of the C2 vertebrae.

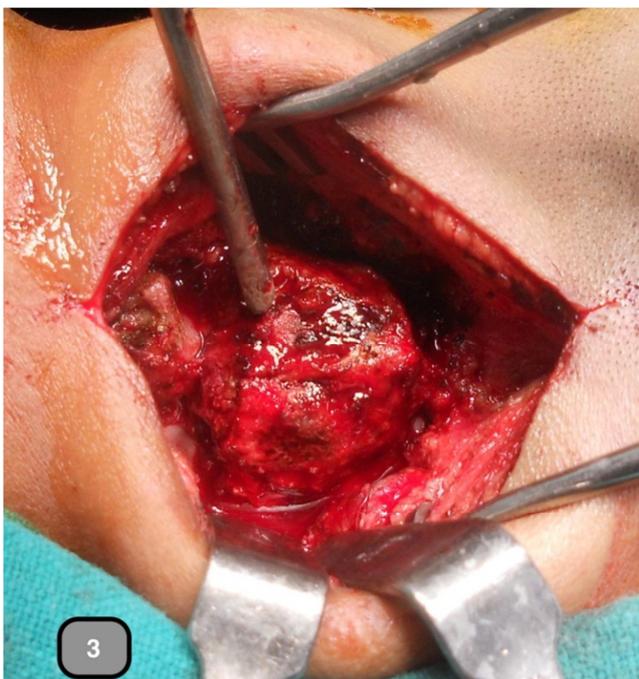


**Figure 1.** Cervical spine CT revealed an expansile lesion in the posterior arch of the C2 vertebrae.



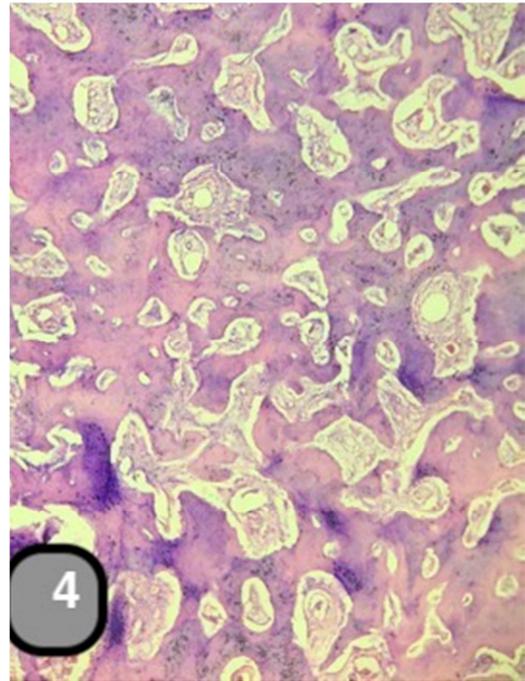
**Figure 2.** Cervical spine CT revealed an expansile lesion in the posterior arch of the C2 vertebrae.

During the operation, posterior approach was chosen and resection of the mass was done by making vertical cuts with a high speed electric drill at pars -lamina junction bilaterally. The whole tumor mass (Figure 3) was lifted with a curette and removed.

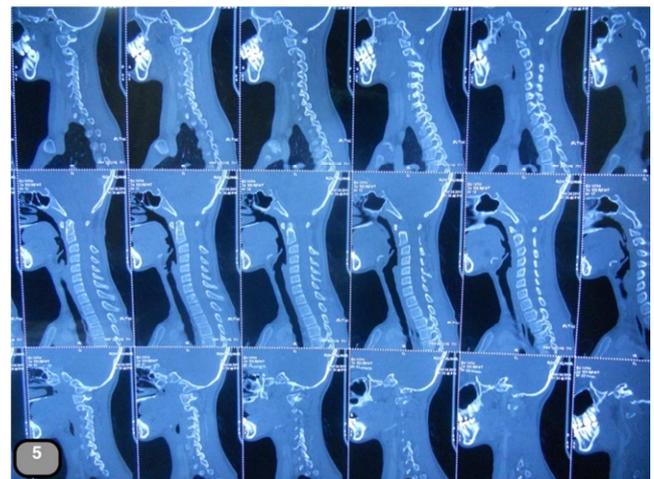


**Figure 3.** Intra-operative tumor mass arising from posterior arch of C2 vertebrae.

The pathologic examination of the surgical specimen showed anastomosing trabeculae of osteoid and woven bone and loose fibrovascular stroma between bony trabeculae containing multinucleated osteoclast-like giant cells, indicated osteoblastoma. (Figure 4) Neck pain was relieved significantly post operatively. At 1 year follow up, the patient presented with no evidence of recurrence on CT scan. (Figure 5).



**Figure 4.** Histopathology revealed anastomosing trabeculae of osteoid and woven bone, and loose fibrovascular stroma between bony trabeculae containing multinucleated osteoclast-like giant cells.



**Figure 5.** No recurrence seen after 1 year.

### 3. Discussion

Symptoms of patients with osteoblastoma of spine usually include dull, localised and gradually increasing pain. However, these symptoms are non-specific and probably neglected by physicians in our case which lead to 2-year delay in the diagnosis.

**Table 1.** Literature review of paediatric C2 osteoblastoma.

|                  |            |                    |   |                                  |
|------------------|------------|--------------------|---|----------------------------------|
| Yilmaz et al [2] | 9 years/M  | C2 corpus          | Anterior approach, Complete resection                 | 4 year follow up - No recurrence |
| Zileli et al [3] | 10 years/M | C2 Body            | Anterior approach, occipitocervical fixation          | 45 months follow upon recurrence |
| Koc et al [4]    | 14 years/F | Entire C2 vertebra | Complete resection with vertebral artery mobilisation | 4 year follow up- No recurrence  |

Local recurrences have been reported in 9.8% to 15% in other series of spinal osteoblastomas. [2] Incomplete resections is the major reason for the same. Therefore, meticulous and

safe tumor curettage should be primary goal of surgery. Some authors recommend pre-operative embolization to reduce vascularity while others advocate multiple biopsies to

determine the exact extension of the tumor. Neither of the two things were done in present case as pre-surgical planning was to remove the bony piece in toto and avoid entering the tumor directly. Literature review of paediatric C2 osteoblastomas is shown in Table 1.

Also, no spinal fusion was done in present case because it decreases the mobility of the cervical spine and predispose the discs above and below the fusion to degeneration. However, stabilisation has been advocated by some to prevent kyphotic deformity. [5, 6] Since facet joints were preserved in our case, we did not instrument. A long term follow up is needed in our case to determine whether tumor recurrence or spinal deformity will occur or not.

Osteoblastoma can even undergo malignant transformation to osteosarcomas, although this is rare. [7-9]

#### 4. Conclusion

In conclusion, case delineates the difficulty of delayed diagnosis, the challenges and surgical management and also the favourable prognosis. Complete resection of the lesion allowed complete regression of complaints and decreases the likelihood of recurrence. [10]

#### Conflict of Interest

All authors do not have any conflict of interest.

#### Consent

Written informed consent was obtained from the parents of the young patient for the publication of this case report and any accompanying images.

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#### References

- [1] Amirjamshidi A, Abbassioun K: Osteoblastoma of the third cervical vertebra in a 16-year-old boy: case report and review of the literature. *Pediatr Neurosurg* 2010, 46 (5): 396–401.
- [2] Yilmaz C, Civelek E, Caner H, Aydin AE, Gerilmez A, Altinors N. Osteoblastoma of C2 corpus: 4 year follow up. *Asian spine journal*. 6: 2012; 136-139.
- [3] Zileli M, Cagli S, Basdemir G, Ersahin Y. Osteoid osteomas and osteoblastomas of the spine. *Neurosurg Focus* 2003; 15: E5.
- [4] Koc K, Ilik MK. Surgical management of an osteoblastoma involving the entire C2 vertebra and review of literature. *Eur Spine J*. 2016 May; 25 Suppl 1: 220-3.
- [5] Deutsch H, Haid RW, Rodts GE, Mummaneni PV: Post laminectomy cervical deformity. *Neurosurg Focus* 2003; 15 (3): E5.
- [6] Albert TJ, Vacarro A. Postlaminectomy kyphosis. *Spine (Phila Pa 1976)* 1998; 23 (24): 2738-2745. Zileli M, Cagli S, Basdemir G, Ersahin Y. Osteoid osteomas and osteoblastomas of the spine. *Neurosurgical Focus*. 2003; 15: E5.
- [7] Combalia Aleu A, Popescu D, Pomes J, Palacin A. Long standing pain in a 25- year old patient with a non-diagnosed cervical osteoblastoma: a case report. *Arch Orthopaedic Trauma Surg* 2008; 128: 567-71.
- [8] Camitta B, Wells R, Segura A, Unni KK, Murray K, Dunn D. Osteoblastoma response to chemotherapy. *Cancer* 1991; 68: 999-1003.
- [9] Bhargava P, Singh R, Garg BB. Dorsal spine osteoblastoma. *Asian J Neurosurg*. 2016; 11 (2): 180-182.
- [10] Rajasekaran S, Kama RM, Kamath V, Shetty AP. Computer navigation-guided excision of cervical osteoblastoma. *Eur Spine J*. 2010; 19: 1046-1047.