

Cervical Osteoblastoma: Case Report

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Abstract— Osteoblastoma is a rare benign primary bone tumor. It accounts for 3% of benign and 1% of all primary bone tumors. They typically involve the posterior elements, although extension through the pedicles into the vertebral body is not uncommon. These osseous neoplasms usually present in the 2nd decade of life with dull aching pain, which is difficult to localize. The treatment goal is complete surgical resection. This treatment limits the risk of recurrence. Adjuvant radiotherapy and chemotherapy are generally not undertaken, although some have advocated their use after less aggressive surgical maneuvers or with residual tumor.

Index Terms— Cervical, benign, bone tumors, Osteoblastoma .

I. INTRODUCTION

Osteoblastomas are rare and benign primary bone tumors. They may be locally aggressive and tend to affect the axial skeleton more often than their histologic relative, osteoid osteoma.

Patients typically present around the second to third decades of life. Cervical spine localization represents 9-39% of all spinal lesions [1].

Osteoblastomas can have a wide range of radiographic patterns. Lesions are typically larger than 2 cm in size although smaller lesions may occur [2] - [3].

Radical surgical excision is often the treatment of choice. Pre-operative embolization is commonly carried out to reduce bleeding risk although surgery needs to be performed at a very short time interval in order to avoid reconstitution of collateral blood supply. Percutaneous ablation is an emerging modality for treatment of these lesions (as well as osteoid osteoma) [4].

II. CASE REPORT

The patient, a 22-year-old man presented with left postero-lateral cervical pain of month duration. Pain was worse during the night and aggravated by neck movements. He had a spastic torticollis with tilt to the left side. Neurological examination was normal. CT scan showed a central nidus with the tumor encroaching the vertebral artery foramen anteriorly. Cervical MRI showed a process of C7's left pedicle which fills overlying end underlying foramens . It spreads in intracanalary, infiltrates left paravertebral muscle to supraclavicular fossa and in the endothoracic to the pulmonary apex.

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The patient received two incomplete surgical resections at 7 months apart. He then received 3-D conformational radiotherapy at the total dose of 44Gy in 22 fractions of 02Gy per fraction on 30days. The patient has been regularly reviewed in follow-up 26 months after the end of treatment and has no symptoms.

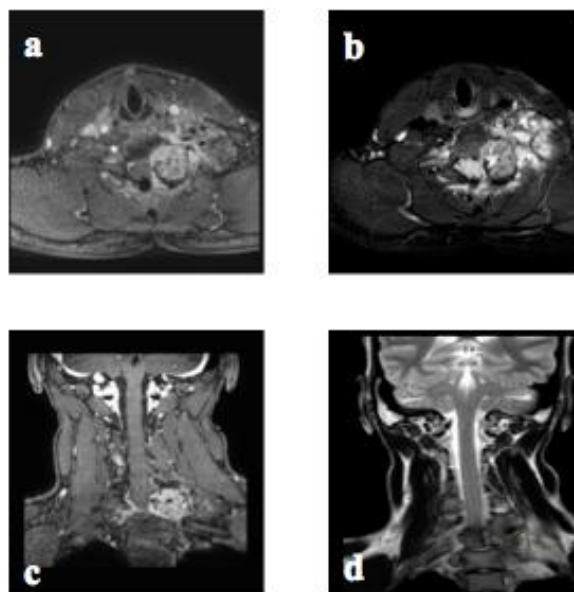


Figure : Cervical MRI showing a process of C7 a/ axial T1 weighted sequence with injection b/ axial T2 weighted sequence c/ coronal T1 weighted with injection sequence d/ coronal T2 weighted sequence

III. DISCUSSION

Osteoblastomas are relatively rare benign bone tumors, accounting for about 1% of all primary bone tumors and 3% of benign bone tumors [5] . About half of osteoblastomas have a spinal location; 20% are located in the cervical spine within the spinous and transverse processes, and another 17% of spinal osteoblastomas are found in the sacrum. Furthermore, it can undergo malignant transformation to osteosarcoma [6] - [7].

In any case, spinal osteoblastomas mostly involve the posterior spinal elements, including pedicles, spinous, and transverse processes and lamina, with the thoracolumbar spine being most frequently affected. [8]

Although it is consider a benign tumor, spinal lesions recurrence is not uncommon and have been reported in 9.7 -15% of series of spinal osteoblastomas [7].

Men are more frequently affected than women, with a ratio of 2–3/1, respectively. As such, male patients younger than 30 years are usually affected, with 20 years being the average age at presentation [9] .

Patients with osteoblastoma usually complain about neck

pain and stiffness. Other common complaints include neurological symptoms, torticollis, and scoliosis. Occasionally, patients with osteoblastoma present with severe neurological deficit due to a large tumor mass invading the spinal cord [10].

The diagnosis is usually made by CT scan [11]. It will delineate the location and osseous involvement of the mass [6]. Imaging with CT scan seems to be superior compared to MRI in terms of the further characterization of the lesion with regard to the presence of a nidus and matrix mineralization. On the other hand, MRI best defines the soft tissue extension and also aids in detection of non-specific reactive marrow and soft tissue edema [12].

A CT scan may reveal calcification and mineralization of the nidus. Another pattern, which is the most commonly seen, involves an expansible lesion with a multitude of small calcifications and a prominently sclerotic rim .

The most aggressive variant displays an expansible pattern, with matrix calcifications, cortical bone destruction, and paravertebral and epidural extension [13]. These more aggressive types of osteoblastomas may radiographically mimic aneurysmal bone cysts, osteosarcomas, or bone metastases [14] - [15].

Osteoblastomas display an intermediate to low signal on T1-weighted MRI, whereas T2-weighted MRI depicts an intermediate to high signal [16]. A variable enhancement pattern has been noted on MRI [12]- [17]. The reactive area surrounding the osteoblastoma often enhances on MRI, which may confound the interpreted boundaries of the lesion [13]. A “flare phenomenon » has been described in spinal osteoblastomas.

The aim of surgical treatment is to have a complete excision with free margins, decompression of neural tissue and fixation of the spine when deemed necessary [18].

Surgical excision is the treatment of choice for osteoblastoma. This treatment limits the risk of recurrence. The main reason for high rate of recurrence is incomplete resections [9] - [19]. Total excision of an osteoblastoma has been shown to have a more favorable outcome than subtotal excision (curettage) combined with radiation therapy. It has also been shown that total excision reduces relapse rates [10].

Despite complete surgical excision, recurrence occurs in around 10 % [20].

Radiation therapy for spinal osteoblastomas is a controversial topic among experts.

Radiotherapy is limited to tumors where complete excision is not possible or the tumor continues to grow despite excision. However, malignant transformation after radiation therapy is reported [20]. Radiotherapy and chemotherapy, either together or individually, have been used for patients with unresectable lesions or in cases of recurrent disease [21]. Recurrence-free survival of up to 25 years after adjuvant radiotherapy has been reported in the literature [21] - [22].

The optimal dose for radiation has been reported to be a fractionated dose of 50Gy, giving 2 Gy for 5 days per week, over the course of 5 weeks [22]. Radiation therapy usually causes either arrest of the tumor’s growth, or partial reduction in its size. Longitudinally, radiotherapy causes ossification of the tumor. It is rare that radiation can be successfully used as monotherapy.

IV. CONCLUSION

Persistent neck pain in a young patient can be because of spinal tumors. Proper investigation and surgery can lead to a successful outcome.

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