



Low Grade Osteosarcoma - A Case Report

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Abstract:

Low-grade lesions of osteosarcoma are rare and represent less than 2% of those cases reported in the literature. Because of its rarity and well differentiation, it is usually misdiagnosed as a benign lesion. The clinical and radiographic presentation does not correlate well with the subtle histology picture of a low-grade osteosarcoma which makes the diagnosis a challenge for the oral pathologist. The vastness and varieties of the bony malignancies have added to unpredictable nature of the lesions; hence a precise and timely diagnosis is required for a better prognosis. Here, we report a case of low-grade osteosarcoma of the mandible in a 67-year-old male.

Keywords: *Low-Grade Osteosarcoma, Mandible, Alveolus*

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1. Introduction

Osteosarcoma (OS) is a rare malignant bone tumor. Bone or osteoid formation within the tumor is characteristic of an osteosarcoma. Osteosarcoma of the jaws most often located in the mandible or maxilla, accounts for only 5–13%¹ of all osteosarcomas and 1% of all head and neck malignancies². It typically occurs in the third or fourth decade of life. Presenting signs and symptoms include regional swelling, pain and paresthesia.²

In general, osteosarcomas of the jaw are high-grade lesions. Low-grade lesions are rare and include the Well-differentiated intraosseous osteosarcoma (low-grade central osteosarcoma) and parosteal osteosarcomas. Low-grade osteosarcoma (LOS), represents less than 2% of all osteosarcomas reported in the literature. Because of its rarity and well differentiation,

LOS is usually misdiagnosed as a benign lesion^{3,4} Here, we report a case of a LOS in a 67-year male.

2. Case Report

A 67-year old male patient reported to the outpatient department complaints of painless slowly growing swelling of the left side of the lower jaw since past one year. He had initially reported to a private practitioner with complaints of pain and swelling in her lower left posterior teeth for which molar teeth was removed. Though the pain subsided, there was no change in the size of the swelling. He then reported to our hospital.

On clinical examination, a painless slow growing ovoid shaped swelling was present on the left body of the mandible, approximately 4×3cm in size. The swelling extended anteriorly from the commissure of



the lip on the left side, and posteriorly to the angle of the mandible. Inferiorly the swelling extended up to the lower border of the mandible. On palpation the swelling was firm, non-tender, non-compressible, non-reducible and exhibited no fluctuation or crepitus. There was expansion and thinning of the buccal cortex with paresthesia on the left side of the lower lip. A single enlarged, mobile, non-tender lymph node was palpable in the left submandibular region.

Intraoral examination revealed a painless smooth nodular reddish mass in the lower right alveolar ridge extending from 35–38 region. The swelling was fixed to the underlying tissues and firm in consistency.

Based on the clinical findings a provisional diagnosis of fibro-osseous lesion of the left body of the mandible was established. Differential diagnosis included central giant cell granuloma, ossifying fibroma, fibrous dysplasia and mesenchymal malignancies of the jaw like osteosarcoma etc. The panoramic radiograph revealed an irregular radiolucent lesion with margins involving the left body of the mandible from the 35–38 region and radiolucency extending up to the lower border of mandible. There was no evidence of cortication in the margins.

Surgical resection of the lesion and associated mandible with adequate surgical margins was performed under general anesthesia. The surgical specimen consisted of the excised mandible that measured $3.5 \times 2.5 \times 2.2$ cm in greatest dimension. The cut surface showed a grey white tumor which is firm to hard in consistency. No necrosis or hemorrhage was seen.

Multiple representative sections of the tumor showed a variegated appearance with proliferation of stellate cells and spindle cells. The cells showed moderate nuclear pleomorphism and minimal mitotic activity.

A few areas of tumor osteoid and chondroblastic differentiation of the osteoid were also seen. The tumor tissue was seen infiltrating the mature woven bone. Foci of bone destruction were seen.

3. Discussion

Accurate diagnosis of LOS is based on the aggressive behavior of the lesion (poor margination, cortical bone destruction, and invasion of soft tissue) seen in the radiograph and not in the histologic characteristics of the lesion (cellularity, atypia, mitosis) ⁸.

LOS has a broad age range of 16-69 years with predilection for body of mandible and presents as a long-standing painless swelling.⁹ Our case presented in a 67-year-old male in the mandibular molar region and was a painless swelling.

Radiographs can show poor margination, cortical destruction along with a mottled radiolucency.⁹ Our case presented with irregular radiolucency without corticated borders extending up to the lower border of ramus and perforating the cortical plates. Histopathology of our case also matched with previous reported literature with a cellular stroma but minimal atypia or mitotic activity, formation of tumor osteoid and extension into nearby normal tissues. Common histologic features of LOS in general include a spindle cell proliferation with low cellularity, low mitotic rate, bland or minimal cytologic atypia, and variable osteoid production. Six patterns or subtypes of LOS ^{7,8} have been described based on the distribution of the osteoid, the amount of collagen and the presence of myxoid change.

LOS is a rare neoplasm that could be misdiagnosed as a benign, fibro-osseous lesion. Complete clinical examination, radiological investigation and careful histopathological assessment will help to



establish the correct diagnosis. Early diagnosis of LOS has a good prognosis with immediate surgical management.

4. Conclusion

In summary, we have presented an unusual case of LOS of the jaw in a 67-year-old man. Cortical destruction or invasion of soft tissue is the most important criteria for diagnosis. Such tumor should be considered in the differential diagnosis of bony destructive lesions of the jaw.

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Figures with Legends:

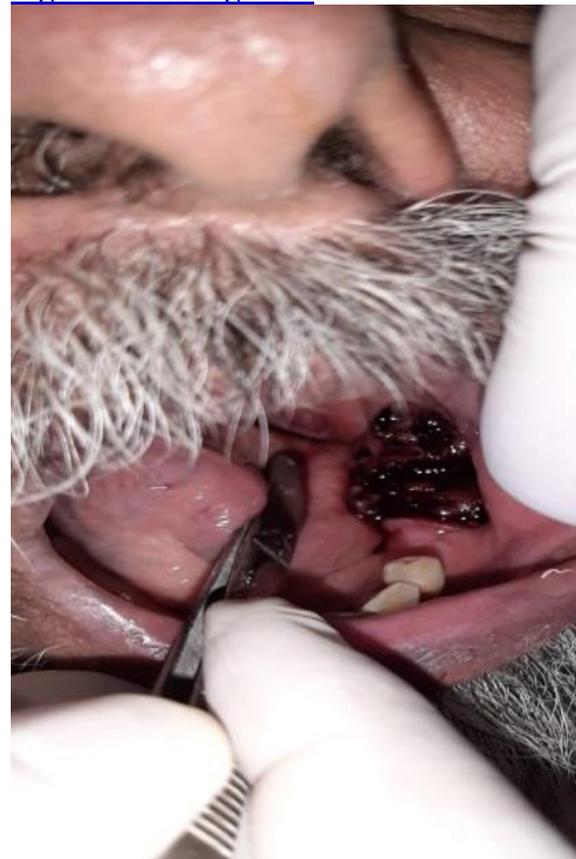


Figure 1 is the clinical picture showing the reddish expansile lesion in the left posterior region of the mandible



Figure 2 is the orthopantomogram showing the irregular radiolucency without cortication in the left molar region extending up to the lower border of the ramus

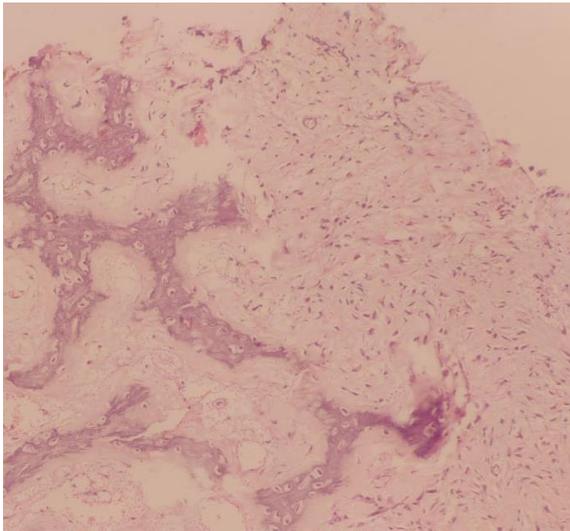


Figure 3 is the photomicrograph showing a cellular fibrous connective tissue stroma with minimal pleomorphism and tumor osteoid formation