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Case Report Open Access

# A Case Report on Bone Tumor: Osteosarcoma of the Maxilla of Mixed Type

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**Abstract**

Osteosarcoma (OS), which accounts for approximately 20% of all primary bone cancers, is the most prevalent primary malignant bone tumor. OS affects 2-4.8 out of 1,000,000 people annually and is more common in men (1.5:1) than in women. The femur (42%) is the most common site, followed by the tibia (19%), the humerus (10%), and the skull or jaw (8%) and the pelvis (8%) are other possible locations. We present a rare case involving a 48-year-old woman who presented with swelling of the left cheek and a palpable solid mass. A surgical biopsy confirmed the diagnosis of mixed type maxillary OS.

**Keywords:** Bone tumor; Osteosarcoma; Carcinogens

## Introduction

Osteosarcoma (OS), which accounts for approximately 20% of all primary bone cancers, is the most prevalent primary malignant bone tumor. OS affects 2-4.8 out of 1,000,000 people annually and is more common in men than in women. Although the cause of OS is still unknown, trauma, exposure to chemicals and carcinogens, and viruses are all potential risk factors [1]. Osteoid, or immature bone tissue, is produced by malignant mesenchymal cells in OS. OS can be classified according to the World Health Organization's histologic classification of bone tumors into central, intramedullary, and surface tumors, each of which contains a number of subtypes. The patient's history, physical examination, radiograph, and histopathology can all be used to make a diagnosis of OS [2].

## Case description

A female patient aged 48 presented with left cheek swelling. Initially presented a palpable mass on the left cheek that was as large as the tip of the fifth finger without pain three years ago. The patient did not undergo any further examination or treatment for three years. The mass became painful and grew to the size of an adult's thumb over the next three years. The patient also had left epiphora, exophthalmos, and blurry vision at this point; rhinitis; in just six months, and had shed 23 kilograms. No headaches or seizures were reported, and the patient was still able to eat and drink. There were no lymph nodes that could be felt in the neck or anywhere else on the body. There was no personal history of diabetes [3], hypertension, or any kind of cancer in the patient. It was denied that chemotherapy, radiotherapy, or surgery had been used in the past.

A single mass measuring 6 cm x 5 cm x 10 cm was discovered during a physical examination in the left maxillary-nasal-infraorbital region. The mass had a fixed, dense consistency, an irregular surface, indistinct boundaries, and pain. In the left maxillary gingiva, the mass with the ulcer was palpable intraorally. The patient's visus oculus dexter and sinister were 5/5 and 5/6, respectively, on visual examination, and the intraocular pressure was normal.

A broad transitional zone, chondroid-type matrix, and permeative type destruction of the maxillary sinus were visible on panoramic radiographs. The patient was found to have OS, chondrosarcoma, and sarcoma on a differential diagnosis based on the anamnesis, physical examination, and panoramic radiographs [4]. Then a figured tomography (CT) output and fine-needle goal biopsy (FNAB) examinations were completed. An aggressive primary malignant bone tumor (most likely of the chondrogenic type OS) was detected by CT. Sinusitis of the right and left maxilla; lymphadenopathy of the right submandibular; and bilateral submental, submandibular, and subcentimetric lymph nodes in the left posterior trigonum. On thoracic radiography, there were no pulmonary metastases observed. Anaplastic cells with oval-round pleomorphic nuclei were found in hypercellular specimens from a FNAB. With a decent cytoplasm and an eosinophilic matrix, some cells were binucleated and hyperchromatic. The case was discussed in a multidisciplinary setting with ophthalmology, head and neck surgery, oral surgery, radiology, and a pathology clinic that had previously performed FNAB and CT scans. The multidisciplinary discussion led the team to some conclusions, including the diagnosis of OS regio maxillaris sinistra T3N0M0 with exophtalmus OS complications and nasolacrimal duct OS obstruction [5]. The patient then underwent a reconstruction with titanium mesh, an extended exenteration OS, and a total maxillectomy sinistra. The re-moved tissue underwent an anatomic pathologic examination following the procedure, and the findings showed that the tumor was of mixed OS, chondroblastic, osteoblastic, and fibroblastic type. Consequently, the diagnosis yielded mixed type maxillary OS as the final outcome [6].

## Discussion

An uncommon malignant osseous neoplasm is OS. It develops in close proximity to the metaphyses of the appendicular skeleton's long bones. The femur, the tibia, and the humerus are the most common locations (42 percent), followed by the skull or jaw (8 percent) and the pelvis (8 percent). OS has an annual incidence of 3.4 cases per million people, with 8–11 cases per million people between the ages of 15 and 19. In the past, males have also been reported to have a higher incidence. Black people are more likely to be affected by OS, which has an annual incidence rate of 6.8 cases per million people. With an incidence rate of

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6.5 cases per million people per year, people of Hispanic descent come in second, followed by Caucasians with an incidence rate of 4.6 cases per million people per year. For patients with OS, the overall survival rate ranges from 10% to 20%. However, the introduction of adjuvant chemotherapy for OS in the 1970s significantly increased survival rates to 60%-70% for patients without metastases and 20%-30% for recurrent or metastatic diseases. Although the causes of OS are unknown, trauma, extrinsic chemicals and carcinogens, and viruses are known to be risk factors. This occurred in our instance with a 48-year-old female who had a very uncommon mass in her maxilla. In addition, no risk factors were found in this instance, but ethnicity may have an impact on OS development. are unusual. Extensive lung involvement is indicated by respiratory symptoms. Due to the extremely low rate of metastasis to other sites, additional symptoms are uncommon. The primary tumor's location is the focus of the physical examination findings. They are a palpable mass that may be warm and tender, with or without pulsation or noise; Nevertheless, these symptoms are not specific. It is possible to observe joint involvement with decreased range of motion, unusual local or regional lymphadenopathy, and respiratory findings associated with metastatic involvement. In our instance, the patient presented with pain, swelling of the left cheek, a palpable solid mass, and pain that had grown in size over the previous three years. There were no other symptoms that might suggest metastasis to a different site. Left epiphora, exophthalmos, and blurry vision are indications of complications; rhinitis, and A single mass measuring 6 cm x 5 cm x 10 cm was discovered during a physical examination in the left maxillary-nasal-infraorbital region. The mass had a fixed, dense consistency, an irregular surface, distinct boundaries, and pain.

Orthogonal radiographs of the affected limb are taken to begin the examination. The bone will typically appear poorly marginated or moth-eaten on radiographs, with varying amounts of cloudy mineralized matrix and bone resorption areas. Alternatively, depending on the subtype, there might be cartilage or a fibrous matrix, or there might be a lot of bone resorption. Although laboratory tests are not diagnostic, it has been demonstrated that elevated levels of alkaline phosphatase and lactate dehydrogenase indicate a worse outcome.

The cortical integrity, for example, can be better defined by a CT scan, which also identifies pathology fractures and is helpful in providing a more precise evaluation of the ossification and calfication (condroid component). An MRI will clearly show the extent of the bone marrow invasion, the presence of any soft tissue masses, their size, and their relationship to the vital structures in the surrounding area. Unless additional information is required regarding the integrity of the cortex or the presence of a fracture, a CT scan generally performs better than an MRI. For tissue confirmation, a biopsy is required when a diagnosis of cancer is suspected. Typically, this can be accomplished with either ultrasound or CT guidance during a core needle biopsy. On panoramic radiographs, our patient's maxillary sinuses were destroyed of the permeative type, with a sunburst periosteal reaction, a broad transitional zone, and a chondroid-type matrix. The results of the CT scan suggested that there was an aggressive primary malignant bone tumor, probably of the chondrogenic type OS; Sinusitis of the right and left maxillae; lymphadenopathy of the right submandibular; and lymph nodes in the sub centimeter of the left submandibular, submental, and bilateral posterior trigonum. On thoracic radiographs, there were no signs of pulmonary metastases.

Anaplastic cells with oval-round nuclei were found in hypercellular specimens as revealed by FNAB. A few cells were binucleated and hyperchromatic, with good cytoplasm and eosinophilic matrix. Due to the modalities we had performed and discussions with the multidisciplinary team, we were able to decide to immediately begin treatment for this patient. In our case, we did not conduct any additional MRI examinations. Through the use of multidisciplinary treatment, surgery, and chemotherapy, modern therapy focuses on the local and systemic manifestations of disease. In our case, the maxilla was completely removed; Extended exenteration OS was also performed on the orbital floor, medial wall, and ethmoid sinus. In the end, we used titanium mesh to close and reconstruct the wound and installed an external obturator. Fortunately, our patient had no postoperative complications and was released from treatment five days later.

## Conclusion

We discuss the case of a 48-year-old woman who presented with left cheek swelling. An aggressive primary malignant bone tumor (most likely of the chondrogenic type OS) was detected by CT scan; both right and left maxillary swelling; lymphadenopathy of the right submandibular; and bilateral posterior trigonum lymph nodes on the left submandibular, submental, and subcentimetric side. The diagnosis of mixed type maxillary OS was confirmed by a biopsy taken during surgery.

### References

1. Flint A, Weiss SW (1995) CD-34 and keratin expression distinguishes solitary fibrous tumor (fibrous mesothelioma) of the pleura from desmoplastic mesothelioma. Hum Pathol 26: 428-431.
2. Witkin GB, Rosai J (1989) Solitary fibrous tumor of the mediastinum: a report of 14 cases. Am J Surg Pathol 13: 547-557?
3. Babar Kayani, Aadhar Sharma, Mathew D Sewell, Johnson Platinum, Andre Olivier, et al. (2018) A Review of the Surgical Management of Extrathoracic Solitary Fibrous Tumors. Am J Clin Oncol (7): 687-694?
4. Little PJ, Drennon KD, Tannock LR (2008) Glucosamine inhibits the synthesis of glycosaminoglycan chains on vascular smooth muscle cell proteoglycans by depletion of ATP. Arch Physiol Biochem 114: 120-6.
5. Imagawa K, de Andrés MC, Hashimoto K, Goldring MB, Roach HI, et al. (2011) The epigenetic effect of glucosamine and a nuclear factor-kappa B (NF-kB) inhibitor on primary human chondrocytes-implications for osteoarthritis. Biochem Biophys Res Commun 405: 362-7.
6. Reginster JY, Neuprez A, Lecart MP, Sarlet N, Bruyere O, et al. (2012) Role of glucosamine in the treatment for osteoarthritis. Rheumatol Int 32: 2959-2967.