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Case Report

Osteoblastom of Sphenoid Sinus: A Very Rare Case Report

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Abstract

Objectives: The purpose of this study is to present a very rare case of sphenoid sinus osteoblastoma to discuss with similar cases in the literature and to show a rare case of osteoblastoma in sphenoid sinus masses.

Case presentation: Osteoblastoma is a rare, benign, bone-forming neoplasm that accounts for approximately 1% of primary bone tumors. It also originates from the mandible, lower-upper extremity bones, sacrum and posterior elements of the spine, in very rare cases; it may originate from the nasal cavity and paranasal sinus bones. In our study, we present a case of osteoblastoma originating from the sphenoid sinus of a 47-year-old female patient who applied to our clinic with the complaints of headache and pain in the left eye.

Conclusion: Osteoblastoma should be included in the preliminary diagnosis in patients presenting with headache and in patients with a mass in the sphenoid sinus.

Keywords: Nasal osteoblastoma; Sphenoid sinus osteoblastoma; Paranasal tumor; Headache

Introduction

Osteoblastoma is a benign bone tumor that occurs mostly in the posterior part of the spine, long bones of the extremities, and has the potential to occur in young patients [1]. It is infrequently seen in the skull and facial bones. It is usually detected incidentally. May cause different clinical, symptom and histopathological findings. Osteoblastomas originating from the paranasal sinuses are usually asymptomatic and may infrequently cause different symptoms depending on the sinus from which they originate [2]. Frontal osteoblastoma can cause pain in the front of the head, ethmoid osteoblastoma can cause pain around the eyes, maxillary osteoblastomas can cause pain the bony front part of the hard palate, can cause pain in the face, sphenoid osteoblastoma can cause pain in the middle part of the head. In the literature, there are 3 cases of osteoblastoma originating from the sphenoid sinus, and sphenoid sinus osteoblastoma is a very rarely condition [3-5].

Case Presentation

In the presentation of this case, written informed consent was obtained from the patient for the publication of radiological and pathological reports. A 47-year-old female patient was admitted to Adıyaman University Hospital with complaints of severe headache for almost 6 months and pain in both eyes that were more common in her left eye. There was no visual loss, nausea or vomiting. The female patient did not have nasal congestion or discharge at the time of medical examination. Endoscopic nasal examination revealed fullness in the posterior part of the nasal septum. Exophthalmos was not detected in the eye examination and the visual field was normal. Laboratory examination of the patient was normal, and the patient was evaluated radiologically with Paranasal Computed Tomography (PNCT) and cranial Magnetic Resonance Imaging (MRI). In PNCT images, the mass destroyed the surrounding bone structures (Figure 1). In MRI scan, in the posterior part of the nasal cavity, a central necrotic mass of 3.6 cm × 3.9 cm in diameter, filling the sphenoid sinus and extending towards the dorsum sellae, was detected. The mass was found to be highly suspicious for malignancy, causing suspicious invasion in the posterior medial walls of both orbits (Figure 2).

In order to diagnose the mass, a biopsy sample was taken from the mass filling the sphenoid sinus and reaching the nasal septum posterior. In histological examination, woven bone tissue and areas of fibrous tissue containing many osteoblasts were observed between them. Mature bone tissue surrounding the Woven bone tissue was observed. Pathological diagnosis was reported as osteoblastoma (Figure 3).

Surgery operation was planned for the patient. Endoscopically, the mucosa over the fullness observed in the posterior nasal septum was elevated and the mass was reached. The mass was followed and removed almost completely. The mass was surrounded by hard bone tissue and there was immature bone tissue in it. Blood circulation of the mass was very low. The mass extended laterally to the orbital and medial wall of the optic nerve. It was expanded posterior up to the clivus and anteriorly the posterior part of the nasal septum. The mass was removed almost completely. Bone particles weighing approximately 16 g, the largest of which was 2.5 cm × 1.5 cm × 1 cm, were removed and sent for pathological examination. The patient was discharged 1 day later. The pathological result was reported as osteoblastoma.

Discussion

Osteoblastomas are rare primary bone tumors that usually involve the vertebral and long bones [6]. Although it is usually seen in male patients younger than 30 years of ages, our patient was a 47-year-old female patient. Osteoblastomas are a slow-growing, painful tumor

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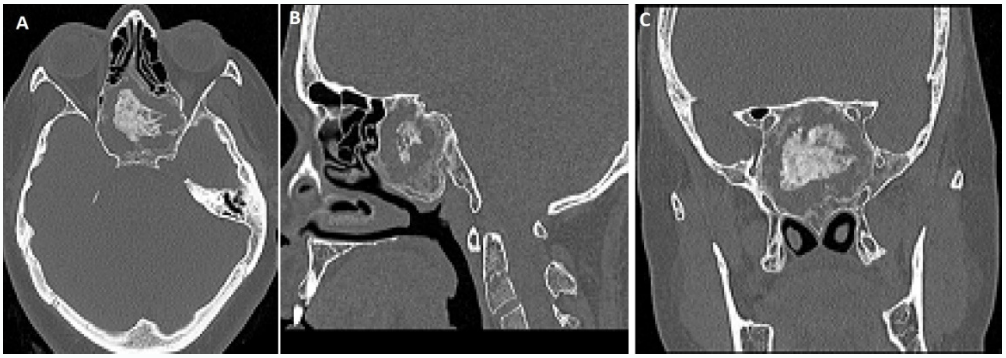

Figure 1: Paranasal sinus computed tomography scans showing a smooth-circumscribed, expansive mass with ossification in the central, originating from the sphenoid bone, located in the upper-posterior of the nasal cavity in axial (A), saggital (B) and coronal (C) planes.

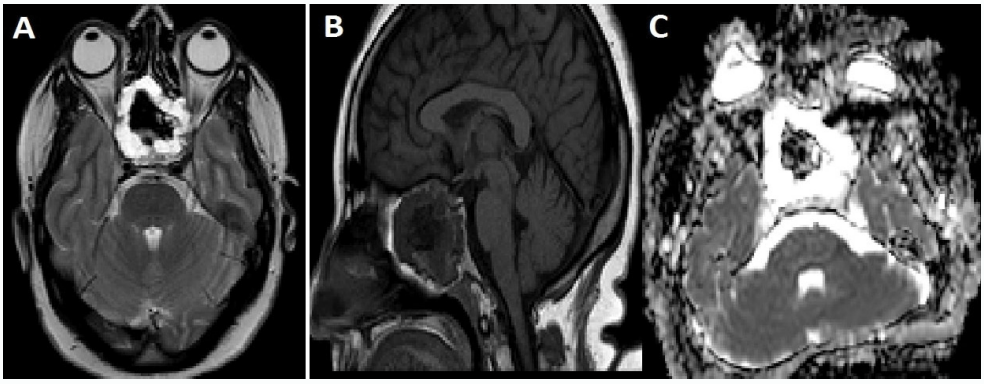

Figure 2: T2-weighted axial (A), T1-weighted sagittal (B) and diffusion-weighted ADC maps (C) MRI scans shown in a mass originating from the sphenoid bone, with signal void at all sequences in central areas, and without diffusion restriction.

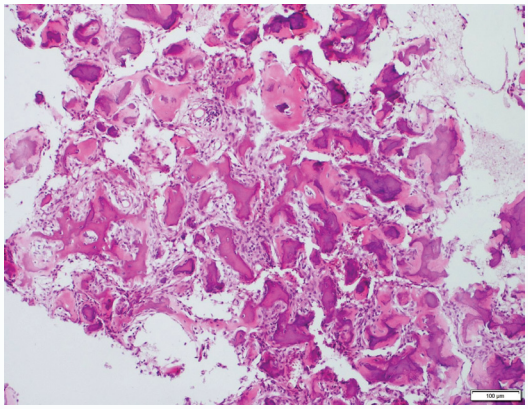

Figure 3: Hemotoksilen eozin x100. Histological examination of osteoblastoma. Fibrous stroma is observed between the anastomosing bone trabeculae.

that causes symptoms when it invades the cranial nerve foramen. Osteoblastomas observed in the paranasal sinuses are very rare and different symptoms have been detected in osteoblastomas seen in the literature. Paranasal osteoblasts tend to enlarge, causing remodeling of adjacent bones. The mass is usually well circumscribed. Due to their anatomical proximity to vital structures, they cause different symptoms (epiphora, proptosis, epistaxis, swelling of the face, exophthalmos, headache, etc.) when they are large [7].

The typical radiological appearance in osteoblastomas is dense bone formation surrounded by peripheral osteosclerotic bone. In the differential diagnosis, osteomas, osteoid osteomas, osteosarcoma, ossifying fibroma, calcified meningioma, giant cell tumor, aneurysmal bone cyst and fibrous dysplasia should be considered. Osteoblastoma may have radiological findings similar to fibrous dysplasia and histological appearance similar to osteoid osteoma. Lesions smaller than 1.5 cm can be evaluated in favor of osteoid osteoma, lesions larger than 1.5 cm in favor of osteoblastoma [8]. The definitive diagnosis is made by histopathological examination.

The primary treatment of paranasal osteoblasts is surgery. Although findings suggestive of malignancy such as osteoblastoma anaplasia, mitosis, atypia and necrosis have been observed, most authors advocate complete removal of the tumor [9]. Radiotherapy (RT) and Chemotherapy (CT) can be given to the patient after surgery in recurrent, aggressive tumors that cannot be completely removed by surgical operation [10].

Conclusion

In conclusion, osteoblasts should not be ignored in masses filling the paranasal sinuses and should be included in the differential diagnosis. Since it can reach large dimensions and is close to important anatomical structures, it should be surgically removed as soon as possible. Paranasal osteoblasts that cannot be completely resected should be given CT and/or RT after surgery.

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