Case Report

Sphenoid Sinus Osteoma: Report of a Case

ABSTRACT
Paranasal sinus osteomas, especially those located in the sphenoid sinus, are rare lesions. They are usually solitary, benign and asymptomatic lesions and detected incidentally. We report a case of sphenoid sinus osteoma that was detected during investigations for otitis media. The patient was operated using the transnasal endoscopic approach. Pathological examination revealed an osteoma. The patient was discharged on the postoperative 3rd day without any problems.

KEY WORDS: Endoscopy, Osteoma, Sphenoid sinus

INTRODUCTION
Sphenoid sinus osteomas are benign and rare tumours of paranasal sinuses. They are generally slow-growing tumours with a growth rate of 0.44-6 mm/year (14). Paranasal sinus osteomas are usually asymptomatic and detected incidentally. The most common symptom of paranasal sinus osteomas is non-specific headache. The incidence has been shown to be from 0.014% to 0.43% with a slight male predilection (6,27). Paranasal sinus osteomas generally present as solitary lesions. Treatment options for sphenoid osteomas are still controversial. Lame reviewed the relevant literature and found that only 12 cases had been reported since 1800 (16). A few additional cases were later reported (4, 18, 21, 22).

CASE REPORT
A 43-year-old woman was admitted to our clinic with a history of non-specific headache and a diagnosis of a mass lesion in sphenoid sinus. She had no history of head trauma or nasal surgery. She had been treated for left otitis media 6 months before her admission to our clinic. Her neurological and nasal examination was normal. Blood tests were within normal limits. There was no visual field abnormality. A paranasal sinus CT (coronal) was performed and showed a very dense mass lesion that completely filled the sphenoid sinus (Figure-1D). There was no extension beyond the sinus margins or erosion of the bony borders. Preoperative magnetic resonance imagining (MRI) examination also revealed a bony lesion in the sphenoid sinus (Figure-1A,B,C). There was no pathology in cerebral angiograms. The patient was operated via the transnasal endoscopic approach. The walls of the sphenoid sinus were thinned by tumour. Tumour tissue was observed as an ivory white and very hard mass lesion. It was not possible to remove the tumour using biopsy forceps and curettes. Subtotal decompression was achieved with a high-speed drill (Figure-2) and the specimen was sent for histopathological investigation. The postoperative period was uneventful and the patient was discharged on the postoperative third day. The lesion
was diagnosed as osteoma by histopathological examination and was characterized by mature lamellar bone formation with prominent fibrosis in the intertrabecular spaces. New bone formation was evident at some areas. There were both ivory and cancellous parts (Figure-3) indicating this was a mixed-type osteoma.

**DISCUSSION**

Osteomas are common benign tumours of the paranasal sinuses. They are located mostly in the frontal sinus, and less commonly in the ethmoid and maxillary sinuses. The sphenoid sinus is a rare location (14). The exact pathogenesis is still unknown. Current theories on the etiology of paranasal sinus osteomas are developmental, infectious and traumatic (27). Osteomas may be a part of Gardner's syndrome that is inherited as an autosomal dominant trait and characterized by intestinal polyposis, soft tissue tumours and osteomas (16). There is a slightly male dominance and tendency to occur in the 5th to 6th decades (6,14,19). They are histologically classified as ivory or cancellous. Ivory type lesions contain compact, usually lamellar bone, with scant or no intertrabecular spaces. In the cancellous type, the ratio of bone volume to intertrabecular space decreases and the morphology becomes similar to normal trabecular bone tissue. No significant practical differences are found between these forms of morphology when diagnostic techniques, treatment and prognosis are considered. CT is the method of choice for radiological diagnosis. It is able to show bony borders, erosions and soft tissue involvement as well. Osteomas are seen as well-circumscribed dense lesions in CT scans. However MRI is mostly useful in demonstrating complications (e.g. mucocele, pneumatocele) and in differential diagnosis. Fibrous dysplasia, ossifying fibromas, clival chordomas, cranial base meningiomas and other types of bone tumours must be considered in the differential diagnosis (13,17,28,29). Contrast enhancement in MRI is generally observed in fibrous dysplasia and could cause a difficulty in the
disease of osteoma (3, 17). Durmaz et al. reported that bone scintigraphy is useful making a differential diagnosis between various bone tumors and that it could detect the lesions not visible in plain radiograms (5). The most common symptoms are facial pain, headache and nasal obstruction (1). If the lesions extend beyond the sinus margins, they cause complications such as cerebral abscess, CSF leak, mucocele, pneumatocele, meningitis and visual disturbance and may also rarely extend intradurally (9,10,11,15,20,22,25,27,29). Treatment of incidentally-found osteomas is still controversial. Smith proposed that asymptomatic and minimally symptomatic patients could be followed by serial radiograms but that surgery is indicated if the lesion fills the frontal sinus by more than 50% by volume (26). On the other hand, ethmoidal osteomas can cause symptoms earlier than those in frontal sinuses because of the small size of the ethmoidal sinuses. Osteomas that may pose a potential risk to the visual pathways have to be operated on urgently when diagnosed (20,22). Savic et al. advocated that surgery is indicated when extension beyond sinus margins or association with chronic sinusitis occurs and when they are localized near the frontonasal recess. They also proposed that ethmoidal sinus osteomas should be resected regardless of their size (23). Teed et al. proposed that osteomas should be resected when they are still small in size (27). For the past 20 years, minimally invasive surgery has gained popularity for paranasal sinus diseases. Frontal-ethmoidal sinus osteomas can be reached and resected easily by endoscopic techniques (1,2,10,19,20). It is possible to treat 71.4% of sphenoid sinus lesions safely by endoscopic approaches (24). The restraints of this approach are vital structures adjacent to the sphenoid sinus such as the optic nerve, cavernous sinus and carotid artery. Lesions located laterally in the sphenoid and frontal sinuses are very hazardous. Neighbouring structure must be evaluated carefully with preoperative CT and MRI to avoid fatal injuries (12). However, if cranial base involvement or complicated lesions are present, open surgery should be considered (8,9,11,15,22,25,29).

In conclusion, osteomas are benign and slow growing tumours. Asymptomatic lesions in the sinus margins can be followed by serial radiograms but a biopsy should be performed if there is any suspicion about the nature of the tumour. Osteomas beyond the sinus margins or associated with complications should be operated on. The operative technique has to be chosen according to the location and size of the tumours.

REFERENCES

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