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Three osteomas originating from ipsilateral separating paranasal sinuses

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Key-words. Paranasal sinuses, osteoma, endoscopic surgery.

Abstract. *Three osteomas originating from ipsilateral separating paranasal sinuses*. *Objective:* Osteoma is the common benign tumour in the paranasal sinuses. However, multiple osteomas originating from the separating paranasal sinuses is extremely rare.
Case report: We report on the unusual case of a patient with three osteomas originating from the ipsilateral frontal, ethmoid and maxillary sinuses, which were successfully removed via an endoscopic approach.
Conclusion: Clinicians should be aware of the possibility of Gardner syndrome in patients with multiple paranasal sinus osteomas.

Introduction

Osteoma, the common benign tumour afflicting the paranasal sinuses, is well circumscribed, slow growing, mostly asymptomatic and usually diagnosed incidentally by radiology examinations.[1-7] In paranasal sinus osteomas, the frontal sinus is most commonly affected, followed by the ethmoid, maxillary and sphenoid sinuses.[1-7] However, there have been only a few reports on multiple osteomas originating from the separating paranasal sinuses.[1,4,7] Herein, we report on the unusual case of a patient with three osteomas originating from the ipsilateral frontal, ethmoid and maxillary sinuses, which were successfully removed by an endoscopic approach.

Case report

A 44-year-old female presented at our hospital with paranasal sinus calcified lesions, which had been incidentally detected by a computed tomography (CT) scan originally ordered for the evaluation of nasopharyngeal mass. The patient presented no nasal symptoms, facial pain or headaches. A physical examination of the nasal cavity was unremarkable. The CT scan demonstrated a

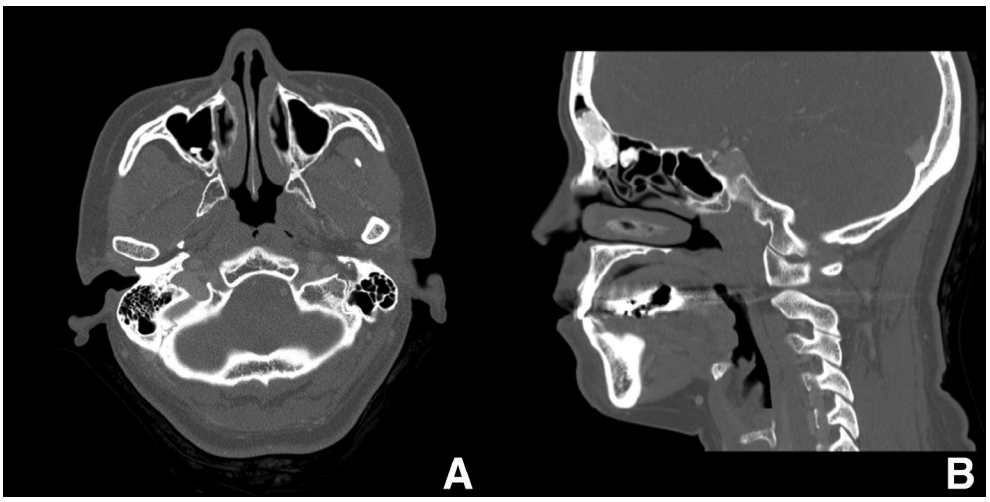

Figure 1
CT scans show the maxillary sinus osteoma (A), and frontal and ethmoid sinus osteomas in the right nasal cavity (B).

calcified mass of approximately 2.8 cm, 1.0 cm and 0.6 cm in the right frontal, ethmoid and maxillary sinuses, respectively (Figure 1).

Based on these observations, a pre-operative diagnosis of multiple osteomas of the right frontal, ethmoid maxillary sinuses was made. We performed endoscopic sinus surgery, which included an endoscopic modified Lothrop procedure. Intra-operatively, the presence of the osteomas of the right frontal, ethmoid, maxillary sinuses was confirmed by visual inspection (Figure 2). The frontal osteoma was extracted by a cavitation technique using drills. The ethmoid and maxillary sinus osteomas were removed by en bloc resection (Figure 3). The post-operative course was uneventful. The histopathological analysis of the paranasal sinus masses revealed osteomas. Subsequent to confirmation of the diagnosis, the patient underwent an exhaustive diagnostic work-up for Gardner syndrome, which included lower gastrointestinal tract endoscopy. The result was non-specific. In the CT scan one year after surgery, the frontal sinus was well open, and there was no specific finding concerning other sinuses (Figure 4). There was also no evidence of recurrence reported in the nasal endoscopic examination at the time of the three-year follow-up.

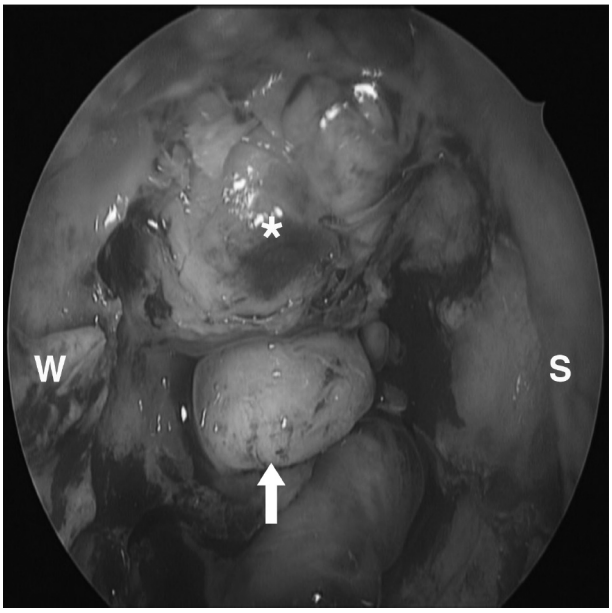

Figure 2
Intraoperative photo shows the frontal sinus osteoma (asterisk) and ethmoid sinus osteoma (arrow) in the right nasal cavity. S: nasal septum; W: orbit medial wall.

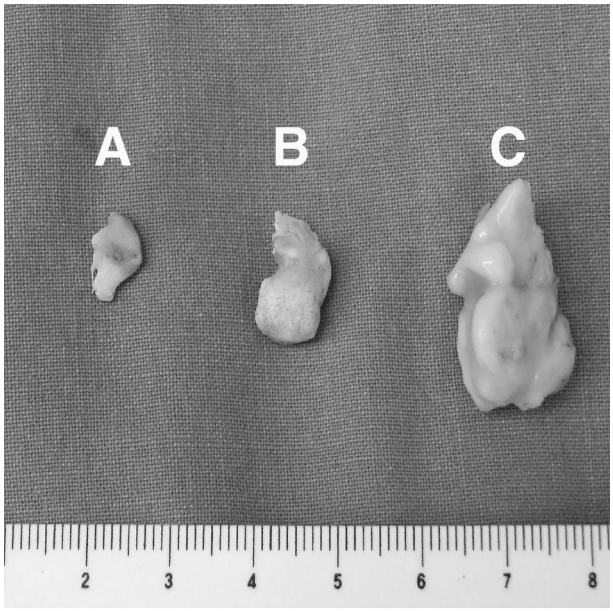

Figure 3
Surgical specimen: (A) maxillary sinus osteoma, (B) ethmoid sinus osteoma, (C) frontal sinus osteoma.

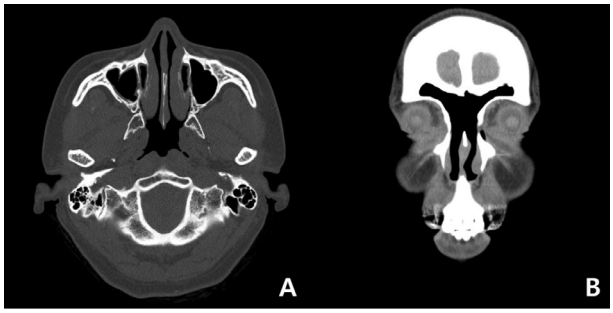

Figure 4
CT scans one year after surgery show no evidence of recurrence in the maxillary sinus (A), or frontal and ethmoid sinus (B).

Discussion

Osteoma is the common benign tumour afflicting the paranasal sinuses.[1-7] Most osteomas are usually random in occurrence; however, they may represent a sign of Gardner syndrome, an autosomal-dominant, hereditary disorder characterized by intestinal polyposis, cutaneous soft tissue tumours and multiple osteomas.[1,5,7-9] In affected patients, the risk of developing colon cancer is approximately 100%.[1,7,9] Multiple paranasal sinus osteomas may be the initial finding in these patients. Therefore, after the diagnosis of paranasal sinus osteoma, a complete work-up for Gardner syndrome, including lower gastrointestinal tract endoscopy, barium enema

imaging and DNA testing, should be performed.[1,5,7-9] This patient was also worked up for the specific purpose of ruling out Gardner syndrome. However, this patient had no abnormal findings with regard to gastrointestinal tract endoscopy, as well as no family history or abdominal symptoms. Therefore, additional tests for Gardner syndrome were not performed.

Paranasal sinus osteomas are usually asymptomatic, which can occasionally cause symptoms depending on the location, size and growth rate of the tumor.[1-7] About 4-10% of osteomas lead to clinical symptoms.[5] The most common symptoms are headaches and facial pain.[1-5,7]

The diagnostic tool of choice for the purpose of detecting paranasal sinus osteoma is CT scanning.[1-8] CT is helpful for assessing the location and extension of the lesion, and for determining the most appropriate surgical approach.[1-8] In CT scans, paranasal sinus osteomas usually appear as well circumscribed with a high density, a lack of contrast enhancement and lytic bone destruction.[2,3]

The treatment of choice for symptomatic paranasal sinus osteomas is surgical excision.[2-8] Surgical options for paranasal sinus osteomas include an endoscopic, an external or a combined approach.[3-7] The method of surgical approach depends on the size, extent and location of the lesion.[3-5,7] In this case, we successfully resected three osteomas by an endoscopic approach. The management of asymptomatic patients with paranasal sinus osteomas is still controversial.[2-5,7] Many clinicians have proposed regular radiology examinations for asymptomatic or small osteomas.[3-5,7,8] The surgical criteria for our hospital include large or symptomatic osteomas, the presence of complications associated with osteomas, growing osteomas by serial CT scans, osteomas accompanied by refractory sinusitis and/or osteomas with significant intracranial or intraorbital extension.[4-8] In this patient, the frontal osteoma was too large and the possibility of frontal sinusitis could have been high, so we performed surgery.

In conclusion, multiple osteomas originating from the separate paranasal sinuses are extremely rare. We reported on the unusual case of a patient with three osteomas originating from the ipsilateral frontal, ethmoid and maxillary sinuses, which were successfully removed via an endoscopic approach. Clinicians should be generally aware of the possibility of Gardner syndrome in patients with paranasal sinus osteomas, and especially vigilant where multiple lesions have been identified, as was the case with our patient.

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