CASE REPORT

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Endoscopic removal of a nasal septum chondrosarcoma*

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SUMMARY

We describe an alternative, endoscopical technique for the surgical removal of a rare chondrosarcoma on the nasal septum. The technique requires a resection of the whole tumour within margins in healthy osteocartilaginous nasal septum under endoscopic guidance and includes bilateral middle turbinectomy and ethmoidectomy. We present the case of a 57-year-old woman with a well-differentiated chondrosarcoma (Grade I) of the nasal septum. Endoscopical surgery resulted without any cosmetic deformity problems, and the functional result was favourable. No recurrence was evidenced after a follow-up of 3 years. The main advantages of this technique are the excellent functional and cosmetic results without any surgical reconstructive techniques. This approach may provide a minimally invasive method to remove well-differentiated, low-grade (Grade I) and size limited malignant cartilaginous tumours of the nasal septum.

Key words: nasal septum chondrosarcoma, grading, transnasal approach, endoscopic surgery

INTRODUCTION

Chondrosarcoma, a malignant cartilaginous tumour, is rarely arising from the nasal septum, with only 43 cases reported at the time of this case report. Chondrosarcoma of the head and neck area can arise from cartilaginous or bony structures, but also from non-cartilaginous and non-ossified tissues (Gallagher et al., 1972). The nasal septum represents only in 0.18 to 1.8 % of all cases the origin of a chondrosarcoma (Burkey et al., 1990). A radical and wide en bloc resection with large tumour-free margins seemed to be the treatment of choice for chondrosarcoma of the nasal septum (Soboroff et al., 1955). However, this wide surgical resection is associated with cosmetic and functional side effects, which can only be minimised with adequate prosthetic appliances and modern surgical reconstruction techniques.

In this article, we report a case of a nasal septum chondrosarcoma that was successfully removed by an endonasal endoscopic procedure.

CASE REPORT

We present the case of a 57-year-old woman, who was consulted in our Rhinology clinic, complaining of chronic nasal obstruction, posterior rhinorrhea and intermittent suborbital facial pain on both sides for 12 months. She suffered three times of rhinosinusitis treated with antibiotics. Her medical history included reconstruction surgery of a palatal cleft at the age of 2 years. Endoscopic examination of the nose revealed a whitish, pale and irregular tumour mass with rich superficial vascularisation, filling completely the posterior 2/3 of the left nasal cavity and compressing the middle meatus (Figure 1). The tumour appeared to be extending through the nasal septum into the right nasal cavity. There was no cervical

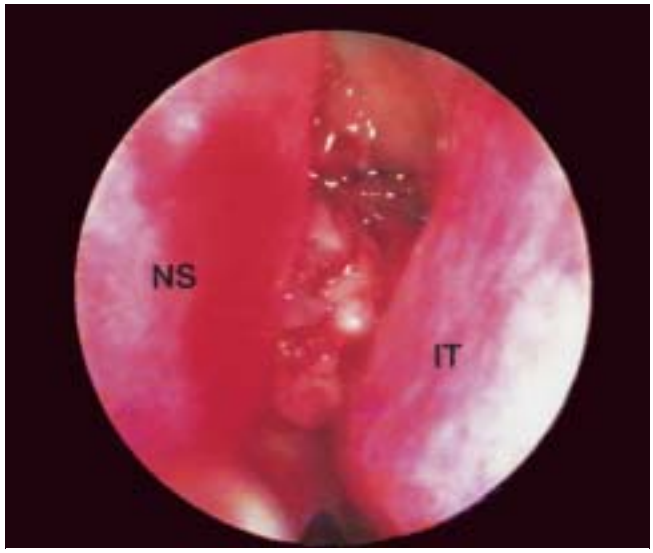

Figure 1. Zero-degree endoscopic view of a lobulated, grey-white cartilaginous mass, occupying the left nasal cavities, and arising from the nasal septum (NS). Inferior turbinate (IT).

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lymphadenopathy. The computed tomographic (CT) scan confirmed the presence of a large mass involving the posterior 2/3 of the nasal cavity with adhesion to the middle turbinate on both sides (Figure 2). Nuclear magnetic resonance imaging (NMRI) showed a polylobulated, poorly vascularised mass, which extended 2 centimetres under the cribriform plate. The biopsy yielded diagnosis of a well-differentiated chondrosarcoma (Grade I).

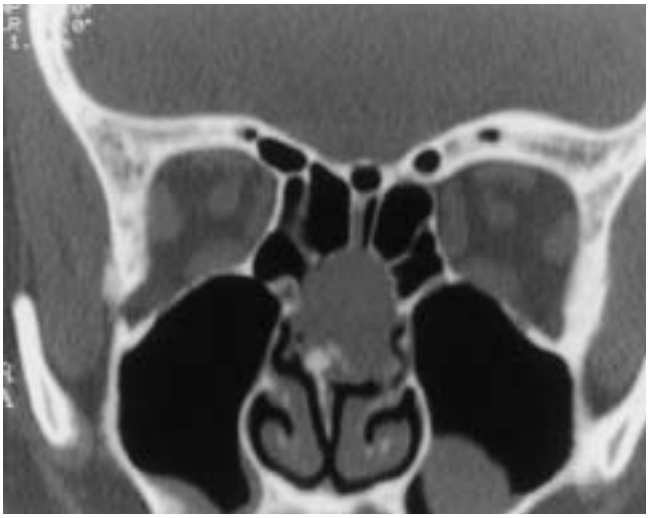

Figure 2. CT scan shows septal tumour with destruction of bony and cartilaginous portions of the septum and adhesion to the middle turbinate on both sides.

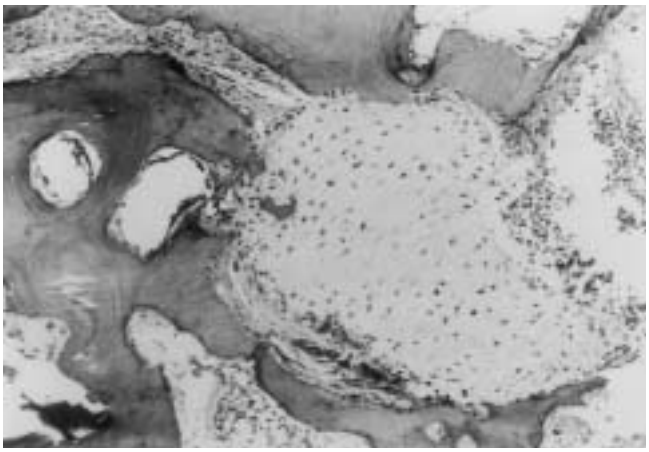

Figure 3. Chondrosarcoma Grade I. Island of malignant hypercellular cartilage permeating the bone trabeculae of the nasal septum (Hematoxylin and eosin stain. x 100).

Under general anaesthesia, the septal mucosa was infiltrated with xylocaine-adrenaline 2%, 2ml. After a bilateral mucosal incision of the nasal septum, a subperichondral dissection was performed to provide a complete exposure of the quadrangular cartilage of the nasal septum. A lobulated, grey-white cartilaginous mass corresponding to the lesion was seen at the level of the junction between the quadrangular cartilage and the vomer. The surgical treatment included bilateral middle turbinectomy, ethmoidectomy and resection of the whole tumour with Blakesly® forceps (Micro France, Bourbon L'archambault, France), under zero-degree endoscopic guidance. Resection was extended within a 2 cm margin in healthy osteocartilaginous structures surrounding the septal tumour. The definite histology of the resected tumour confirmed a grade I chondrosarcoma (Figure 3). To be sure of tumour-free margins surrounding the lesion, we performed several biopsies of the margins, which were free of malignant cells. A silicone tube was applied in both nasal cavities, which were packed with gauze soaked in ointment of oxytetracyclin, polymyxin and hydrocortisone (TERRACORTRIL®, Pfizer) and were removed on the third day postoperatively. Endoscopic cleaning of the nasal cavities was performed weekly for 1 month. Follow-up remained uneventful. There has been no additional therapy. No tumour recurrence was evidenced at follow-up endoscopic examinations up to 3 years postoperatively (Figure 4).

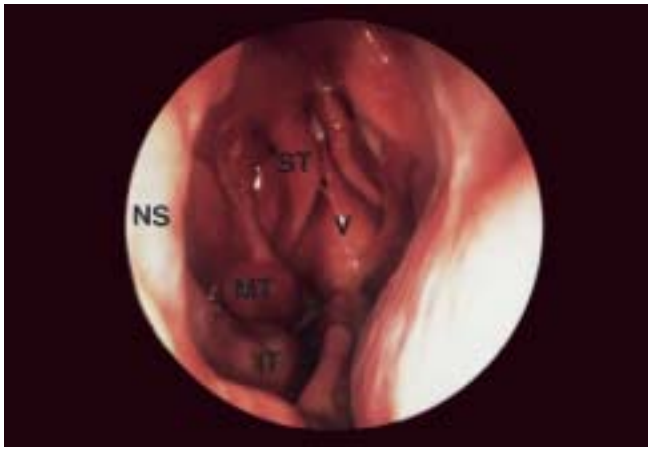

Figure 4. Zero-degree endoscopic view of the same side as in Fig. 1, but 3 years postoperatively, showing complete removal of the tumour without any evidence of recurrence. Nasal septum (NS), inferior turbinate (IT), part of middle turbinate (MT), superior turbinate (ST), part of vomer (V).

DISCUSSION

In all cases of chondrosarcoma of the nasal septum, the presenting symptoms depend on the site of origin, size and rate of growth of the tumour. Nasal obstruction is the most common symptom (28 of 33 described patients (85%)). Headache, epiphora, diplopia, exophthalmus, epistaxis, rhinorrhea, recurrent sinusitis, and local facial pain were other frequent complaints. Cranial neuropathies were present in 3 patients with lesions growing near the anterior cranial fossa (Rassekh et al., 1996). The previously described 43 patients ranged in age from 14 to 89 years; the mean age was 52 years. To confirm the diagnosis of chondrosarcoma, complete radiological examination, including CT scan and NMRI findings with several endonasal biopsies, for the grading of chondrosarcoma into well-, moderately-, and undifferentiated tumours (Grade I, II, III), are recommended (Evans et al., 1977).

The surgical approach to nasal septum chondrosarcoma must provide optimal visualisation and safe excision. Untill now, a radical and wide en bloc resection from lateral rhinotomy approach, antrectomy by a Weber-Fergusson incision, craniofacial approach or sublabial transnasal approach, with large tumour-free margins surrounding the chondrosarcoma, seemed to be the treatment of choice for a chondrosarcoma of the nasal septum (Soboroff et al., 1955). The resection of the hard palate, if involved by the tumour, should be performed (Hasegawa et al., 1987). The preservation of the caudal end of the septal cartilage, 10-15 mm in length, can provide a good profile postoperatively (Hasegawa et al., 1987). The cosmetic and functional deformity problems associated with wide surgical resection can be minimised with adequate prosthetic appliances and modern surgical reconstruction techniques.

There is no report concerning an endonasal approach under endoscopic control for the removal of nasal septum chondrosarcoma. It seems to be a minimally invasive alternative to the lateral rhinotomy with en bloc resection in cases of a chondrosarcoma of low-grade malignancy and well-defined on the nasal septum without major involvement of adjacent tissue and structures. There were no cosmetic deformity problems, and the functional result was favourable.

Chondrosarcomas have a slow growth rate, with displacement and invasion of adjacent tissue. Metastasis are rare and late (Ewing, 1939). Intravascular tumour growth occurs, and secondary metastasis may develop in the lungs, bones, liver, kidneys and brain; lymphatic invasion and lymphnode metastasis are extremely rare (Lichtenstein et al., 1943). Three important factors may influence the prognosis: 1. the location and extension of the tumour, 2. the adequacy of the surgical therapy performed for resectable tumours, and 3. the degree of tumour differentiation (Fu et al., 1974). Tumours arising in the nasopharynx, posterior nasal space, and sphenoid sinuses have the poorest prognosis, because they are relatively large at the onset of symptoms and diagnosis (Fu et al., 1974). The local recurrence rate in the literature is high, with surgery alone (>65%), if margins are positive (Rassekh et al., 1996). Eleven of 36 patients with nasal septum chondrosarcoma (31%) with a longer follow-up had local recurrences and complications (all of them with positive or unknown margins), including growth into the cranial fossa (with or without dural infiltration, subdural abscess, meningitis), which was the major factor leading to death (6 of these 11 patients) (Arlen et al., 1970). Kim et al. (1983) showed that no metastasis occurred in patients with grade I chondrosarcomas, whereas 70% of grade III tumours had metastasis. Distant metastasis were reported in 1 case of nasal septum chondrosarcoma (El-Silimy et al., 1987). Five-year survival for grade I, II and III of chondrosarcomas of the head and neck was 90%, 81% and 44% (Arlen et al., 1970; Burkey et al., 1990; Finn et al., 1984; Fu et al., 1974; Mark et al., 1993). Precise long term follow-up reports of chondrosarcomas of the nasal septum are too rare to make a definite 5-year survival prognosis.

It should be pointed out, that we will operate very aggressive (Grade II, III) chondrosarcomas with extension to adjacent tissue and structures furthermore with radical and wide en bloc resection from lateral rhinotomy approach. But in view of this excellent functional result and under regard of the location (well-defined on the nasal septum), the extension (no involvement of adjacent structures) and the histological grading (Grade I, low-grade malignancy), we advocate the endonasal approach under endoscopic control for these special cases of chondrosarcoma. Clinical observations with repeated biopsies and precise imaging using CT and NMRI to detect a possible tumour recurrence during the whole life of a patient are recommended after all types of treatment.

This is, to the best of our knowledge, the first report of surgical removal of a nasal septum chondrosarcoma under endoscopic approach. This technique might be recommended for well-differentiated (Grade I) chondrosarcoma, when tumour localisation is limited to the nasal septum, without major infiltration of neighbouring structures.

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