Only Septal Deviation? A Tiny Schwannoma in the Nasal Septum

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Abstract Schwannoma of nasal septum presentation is exceedingly rare in the literature, previously reported multiple lesions involving the paranasal sinuses or nasal mucosa. We report the case of a 20 year-old yellow male with a tiny schwannoma arising from the nasal septum, complaining of lightly alternate nasal obstruction. Both anterior and endo-rhinotomy didn't detect this tiny smooth-surfaced mass and other abnormality, except a little septal deviation. After final clinical diagnosis, we completely removed this tumor and corrected the deviation by an endoscopic approach. We discuss the clinical presentation, differential diagnosis, pathologic diagnosis factor and therapy of this rarely encountered neoplasm.

Keywords Schwannoma · Nasal septum · Endoscopy · Calretinin

Introduction

Schwannoma is a benign tumor arising from schwann cells of the peripheral nerves. It can arise throughout all parts of the body. Although it is not uncommon to find schwannomas in the head and neck region, this disease is comparatively rare in the nasal cavity and paranasal sinuses, previously reported multiple lesions involving the paranasal sinuses or nasal mucosa [1–5, 7–9]. Herein we report the scarce case of nasal septum schwannoma without any lesion involving both mucosa and paranasal sinuses, which the out-patient diagnosis was septal deviation only. Then we review the medical literature to discuss the clinical presentation, histology, differential diagnosis and therapy of this rare disease, and the experience we should pay attention.

Case Report

A 20 year-old yellow male was referred to the Sichuan University Otorhinolaryngology Department with 1 year history of alternate nasal obstruction and headache. He denied having rhinorrhea, hyposmia and epistaxis, facial pain. His medical and family histories were unremarkable. Anterior rhinoscopy revealed right septal deviation only. Before the CT scanning, the out-patient diagnosis was septal deviation. After admission, rigid endoscopic examination showed the right deviation located in the center of septum and both sides of septum mucosa were normal. The remainder of his otolaryngologic and physical examinations were unremarkable. Complete blood count, chemistry profile, and coagulation studies were all within normal limits.

A computer tomography (CT) scan of the paranasal sinuses (1 mm-thick sections) was requested to determine

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the nature and extent of neoplasm. It showed an oval homogeneous mass in the middle of nasal septum (Fig. 1). The lesion was well defined with smooth margins, without calcification and bone destruction. Neither whole sinuses nor nasal meatus were abnormal. The patient agreed and consented to remove the mass under local anesthesia by endoscopy. Correct the nasal septum deviation when the rigid endoscopic observation revealed that a tiny, smooth-surfaced mass with the stalk arising from the junction of perpendicular plate of ethmoid bone, septal cartilage and posterior margin of vomer. Both sides of septum mucosa were well. Finally the mass was excised completely along with a cuff of septal cartilage.

The mass measured 7–10 mm in size. Histological examination revealed schwannoma (Fig. 2). The immunohistochemical staining of the mass showed a diffuse immune reactivity for the S-100 protein and Calretinin (Figs. 3, 4). The patient is well and free of disease after the surgery for about ½ year.

Discussion

Schwannoma is a tumor arising from Schwann cells and was first described as a distinct pathological entity by Verocay [11]. It may develop virtually anywhere in the body and arise from the myelin sheaths of peripheral motor, sensory, sympathetic and cranial nerves. 25–45 % of such tumors are in the head and neck region. Exactly, involvement of the nose and paranasal sinus is rare, with only sporadic cases having been reported in the world [7, 9, 11]. Especially, nasal septum involvement is also quite rare, and there are only a few numbers of these schwannomas reported in the literatures. All of previously

Fig. 1 A CT scan shows a soft-tissue tiny mass in the nasal septum. Neither whole sinuses nor nasal meatus were abnormal

Fig. 2 Histopathological examination shows high cellular density and palisading pattern of the tumor cells (HE, original magnification $\times 400$)

Fig. 3 Tumor cells are strong positive for S-100 protein (S-100, original magnification $\times 400$)

Fig. 4 The same area displays diffuse staining for calretinin (Calretinin, original magnification $\times 400$)

cases reported lesions involving the paranasal sinuses or nasal mucosa. The most frequent site affected in the head and neck is vestibular nerve (the eight cranial nerves). Though the ophthalmic branch and maxillary branch of trigeminal nerve or parasympathetic nerve develops schwannoma in the nasal septum and paranasal sinuses, it is very difficult to determine the origin intraoperatively [8].

The clinical symptom of sinonasal schwannoma is usually varied and non-specific. Patients' chief complaint may include nasal obstruction, epistaxis, rhinorrhoea, anosmia, or facial swelling and pain [6, 7]. The clinical presentation of a schwannoma can also be hypoesthesia or paresthesia that is caused by the compression of the involved nerve by tumor [7, 9]. It is very important to antidiastole with septal deviation, chronic sinusitis and other up-airway diseases. Although specific diagnosis from imaging study is difficult, CT scan is helpful in evaluating the origin, localization of the tumor and involvement of vital structures (i.e., carotid artery, skull base, orbit,) around the lesion [3, 4, 10], thus help to choose the approach for surgical resection. As its slow growth, it can enlarge the nerve pathways and cause bone to become thin or deviated; however, commonly bone destruction does not occur. Histopathologically, both schwannomas and neurofibromas arise from peripheral nerves. Schwannomas representatively are well circumscribed and composed of spindle cells organized as cellular areas with nuclear palisading (Antoni A) and paucicellular areas (Antoni B), while neurofibromas contain several cellular components, including Schwann cells, perineurial-like cells, and endoneurial fibroblasts [6, 7]. If a schwannoma does not show the characteristic histology findings, immunohistochemical S-100 protein staining may be helpful for the diagnosis of schwannoma. Calretinin is also a useful marker for differentiating schwannomas from neurofibromas. Although mast cells present in these 2 neoplasms also react with calretinin, the pattern of staining can be distinguished easily from that of neoplastic cells [6].

The treatment for nasal schwannoma is a completely surgical resection of the mass through approach that allowed adequate exposure [7]. Different approaches have been employed in relation to tumor extension [1]. We chose the nasal-endoscopic approach as the mini invasive surgery for the patient and to date, there are no cases of recurrence by surgical therapy in the literatures.

Learning Points

- (1) This is the first time to report such a tiny schwannoma in the nasal septum without any lesion in mucosa and bone in english literature.

- (2) In immunohistochemistry, calretinin is a useful clinical pathology diagnosis marker for differentiating schwannomas from neurofibromas.
- (3) Because of the untypical symptom and sign, the outpatient diagnosis was septal deviation only. We almost missed the tiny benign neoplasm. Septal deviation may implicate a lot, we need notice from this case.

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