Case Report

Encapsulated Sinonasal Schwannoma Mimicking an Antrochoanal Polyp

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Abstract

Extracranial schwannomas are uncommon neoplasms of the sinonasal tract arising from peripheral nerve shealth. Mostly acapsulated on histology, but few cases of encapsulated schwannomas have been reported. Its symptoms are nonspecific and initial clinical diagnosis is frequently missed. We report a 13-year-old boy with a huge, encapsulated sinonasal schwannoma initially thought to be an antrochoanal polyp. Computed tomography scan demonstrated a huge irregularly shaped mildly enhancing isodense mass in the right nasal cavity with lateral extension to the ipsilateral maxillary sinus, superior extension into the ethmoids and frontal sinuses and posteriorly into the nasopharynx. The tumour was completely excised via a lateral rhinotomy and patient is still on follow-up.

Keywords: Encapsulated, excision, polyp, sinonasal schwannoma

Introduction

Extracranial schwannomas and antrochoanal polyp are two distinct clinical entities with few if any similarities. While antrochoanal polyp is a relatively common inflammatory disease of the sinonasal tract, extracranial schwannomas are uncommon neoplasms of the sinonasal tract. Extracranial schwannomas arise from the peripheral nerve sheath. Its lack of distinctive clinical features open up spaces for entertaining a variety of differential diagnosis of which inflammatory nasal polyp is among. Antrochoanal polyp commonly has a lateral attachment in the nasal cavity and a nasopharyngeal component. It is mostly unilateral and common among adolescents.

Case Report

We report the case of an encapsulated schwannoma in a 13-year-old boy arising from the lateral nasal wall, with a nasopharyngeal component clinically presenting as a nasal polypoid mass thus mimicking an antrochoanal polyp.

A 13-year-old male, with no significant past medical history, presented to the clinic with an 8-month history of progressive bilateral nasal obstruction, snoring, and mouth breathing. There was associated hyponasal speech, epistaxis, anosmia, and facial fullness. Physical examination revealed a polypoid mass in the right nasal cavity firmly attached to the lateral nasal wall pushing the septum to the contralateral nasal cavity and thus obstructing it. There was also the tenting of the soft palate, right cheek fullness, and distortion of the nasal pyramid [Figure 1]. An initial clinical diagnosis of a right-sided antrochoanal polyp was made. The patient had diagnostic rigid nasal endoscopy after initial nasal preparation with 1:100,000 adrenaline-soaked gauze which revealed a polypoid mass. However, the endoscope could not be advanced deeper because of the obstructed cavity. A punch biopsy was taken and sent for histology, which revealed an inflammatory polyp. His computed tomography (CT) scan demonstrated a huge irregularly shaped mildly enhancing (HU 46–64) isodense mass in the right nasal cavity with lateral extension to the ipsilateral maxillary sinus, superior extension into the ethmoids and frontal sinuses, and posteriorly into the nasopharynx. There were suacerization and expansion of the walls of the sinuses [Figures 2 and 3].

The patient had excision of the mass through a lateral rhinotomy approach with transoral delivery of the nasopharyngeal

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component. Intraoperative findings after initial nasal preparation were that of a mass in the right nasal cavity, firm, well circumscribed, extending into the maxillary sinus laterally, the roof of the nasal cavity, and posteriorly into the nasopharynx.

On gross examination, the mass was yellowish-gray, weighing 116g and appeared encapsulated. Histological examination revealed a well-encapsulated schwannoma showing sheets of benign spindle cells arranged in hypercellular and hypocellular areas demonstrating "Antoni A" and "Antoni B" patterns within a fibrous stroma [Figure 4]. The patient had a monthly follow-up for the first 3 months and nasal endoscopy on each follow-up, which revealed no evidence of recurrence so far [Figure 5]. The patient is currently on 3-monthly follow-up reviews. He is expected to have a repeat CT scan at a 6-month follow-up.

Discussion

Schwannomas are rare slow-growing benign tumors that arise from schwann cells, which compose the myelin layer, i.e. nerve supporting cells of the peripheral nerve sheath. Although 25%–45% of schwannomas arise in the head-and-neck region, only 4% of schwannomas occur in the sinonasal cavity.[1-3] The true incidence is unknown, however, in 2001, approximately 40 cases of sinonasal schwannomas had been reported, 100 cases as of 2014.[4,5]

It has been proposed that sinonasal schwannomas may originate from the ophthalmic or maxillary branches of the trigeminal nerve or from sympathetic or parasympathetic fibers from the carotid plexus or sphenopalatine ganglion.[2,6,7] The nerve of origin in this index case cannot be ascertained because of its advanced nature.

Patients' ages have ranged from 12 to 76 years, with most cases occurring in patients aged 25 and 55 years. However, cases have been reported in 10-year-old and 2.5-year-old children.[2,8,9] The current case was in a 13-year-old boy. There is no sex predilection.

The symptoms of schwannoma involving the sinonasal tract are nonspecific and vary according to the site, nerve of origin,

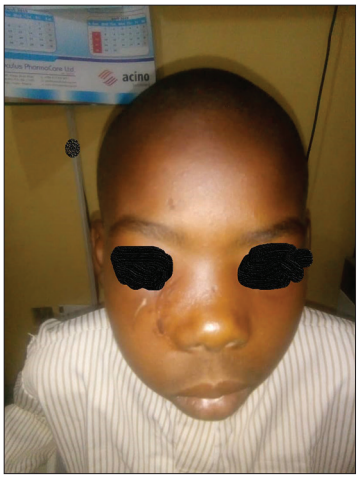

Figure 1: A 13-year-old boy with right sinonasal schwannoma

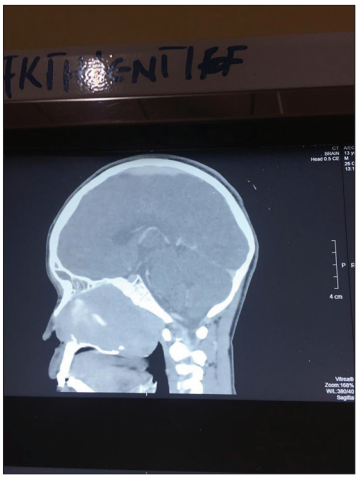

Figure 2: Sagittal view of computed tomography paranasal sinuses showing tumor extending posteriorly and almost filling the nasopharynx

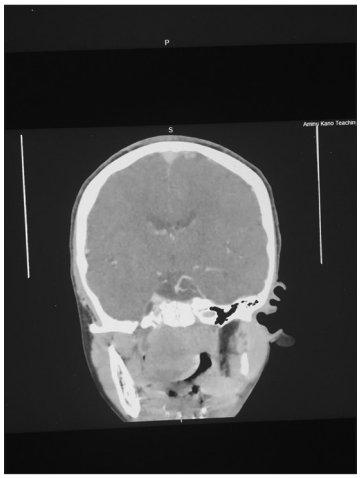

Figure 3: Coronal view of computed tomography paranasal sinuses showing tumor

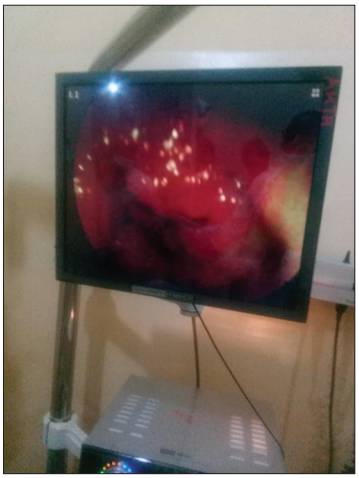

Figure 4: Postoperative endoscopic view of the nasal cavity, a month after surgery showing no sign of recurrence or residual tumor

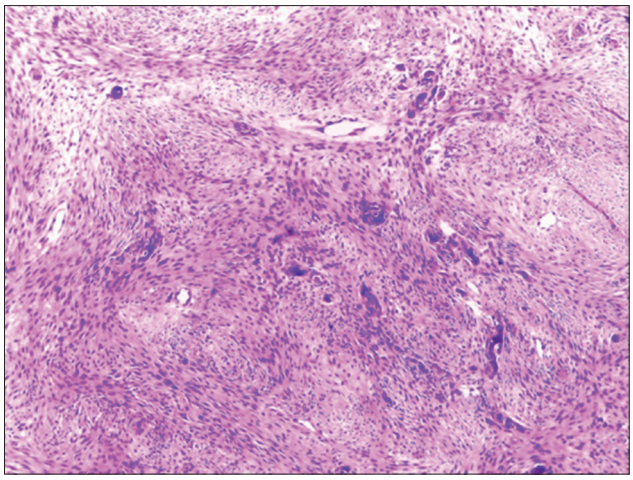

Figure 5: Schwannoma showing sheets of benign spindle cells arranged in hypercellular and hypocellular areas demonstrating "Antoni A" and "Antoni B" patterns within a fibrous stroma

and/or compression of adjacent nerves. Epistaxis is related to ethmoid sinus or nasal fossa and pain to maxillary sinus involvement. The current case had a history of epistaxis as well but no facial pain. The computed tomographic scan revealed the involvement of the ethmoids and maxillary sinus. Other symptoms include facial swelling, hypoesthesia, nasal obstruction, mucopurulent rhinorrhea, exophthalmos, and hyposmia. This case similarly presented; however, there were no exophthalmos. Lesions can also present as a nasal polyp, as it is in the current case we report. In sphenold sinus schwannoma, diplopia (cranial nerves involvement) and deep retroorbital and/or occipital, frontal, and bitemporal pain have been reported with the possibility of hypopituitarism with the posterior extension to the hypophysis.[10-12] Our case did not present with such features because the mass did not directly infiltrated the sphenoid sinus.

As schwannomas of the sinonasal tract are located in a cavity, they are able to grow silently over a long time, allowing them to reach a substantial size and thereby surrounding the nerve of origin.[13] They appear to push rather than destroy the axons. As they have a tendency to grow slowly, the adjacent osseous structures remodeling can be secondary to benign pressure erosion. Our patient had been with symptoms for 8 months before presenting for hospital review. His CT scan revealed saucerization and expansion of the walls of the sinuses, probably due to remodeling following erosion of the bones.

The diagnostic workup for sinonasal schwannoma should include nasendoscopy, CT, and magnetic resonance imaging (MRI) of the paranasal sinuses to examine the extent of disease and to guide surgical approach for excision. Our patient had all but an MRI done in his evaluation. CT imaging usually shows round expansile masses with the adjacent bony walls smoothly eroded and scalloped and with cystic or hemorrhagic degeneration, especially in large tumors, without calcification generally.[14-16] The CT scan in our case showed similar features. Imaging features are nonspecific and insufficient to allow a definitive diagnosis, which could be confirmed only by pathological and immunohistochemical examination.

Histopathology remains the gold standard for the diagnosis. A classic feature of head-and-neck schwannomas is a well-defined capsule, with the exception of tumors of the nose and paranasal sinuses, which have been reported in all prior cases, as being acapsular. Other authors have theorized that the lack of a capsule could be attributed to these tumors deriving from the autonomic nerves of the sinonasal mucosa, which lacks perineural cells.[2] The absence of a capsule could be responsible for the lack of a cleavage plane and thus complicates the surgical resection. The histological diagnosis in our case reported an encapsulated schwannoma like a few reported ones.[17-19]

The treatment of choice of sinonasal schwannoma is surgical excision. Surgical approaches include lateral rhinotomy, weber Ferguson, midfacial degloving, open septoplasty, and endoscopic.[18,20,21] Our patient had lateral rhinotomy and excision of the tumor.

Conclusion

Sinonasal schwannoma is a rare, mostly acapsulated, benign tumor which can rarely be encapsulated. Its diagnosis is often confused with other sinonasal masses, including antrochoanal polyp due to its nonspecific symptoms and signs. Histopathology is the gold standard for the diagnosis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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