Schwannoma of the nasal cavity

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Abstract

Schwannomas are benign peripheral nerve sheath tumors that occur throughout the body. They may present as either solitary or multiple masses. They rarely occur in the nasal cavity. The diagnosis is often made only after histologic examination. Because these lesions are radioresistant, the preferred treatment is complete surgical excision. We present a new case of a schwannoma of the nasal cavity.

Introduction

Schwannomas (neurilemmomas, neuromas) are benign tumors of the peripheral nerve sheaths. They were first established as a pathologic entity by Verocay in 1910, and they were classified into two types, A and B, by Antoni in 1920. These lesions typically present in the third through sixth decades of life. Their estimated incidence is 1 per 3,000 births, and two to four times more women than men are affected. Solitary schwannomas can occur throughout the body. Approximately one-third arise in the head and neck; they usually involve the VIIIth cranial nerve and the nerves located in the parapharyngeal space. Lesions presenting in the paranasal sinuses and nasal cavity account for approximately 4% of head and neck schwannomas. Solitary nasal cavity lesions are rare. We found only 62 reported cases in the English-language literature from January 1943 through December 2006. In this article, we describe a new case of a solitary schwannoma of the nasal cavity.

Case report

A 19-year-old woman presented with a 10-year history of nasal obstruction (worse on the left) that became exacerbated by seasonal allergies. Other symptoms included rhinorrhea, postnasal drip, loud snoring, and chronic mouth breathing. Her symptoms persisted despite intranasal medical management.

Endoscopic examination detected a septal deviation to the right and a gray mass that filled the left posterior choana and extended across the nasopharynx to the right side. Computed tomography (CT) revealed that the soft-tissue mass had arisen between the left inferior and middle turbinates and extended posteriorly through the left choana and into the nasopharynx (figure 1). The vomer was displaced toward the right, and there was no evidence of bone destruction. The paranasal sinuses were clear, and the ostiomeatal units were patent.

The patient underwent endoscopic removal of the mass under general anesthesia. Intraoperatively, the mass appeared to be attached to the left posterior septum by a pedicle (figure 2). Endoscopy confirmed that the mass had obstructed the right and left choanae. On palpation, the mass felt firmer than a polyp. Attempts to aspirate it were unsuccessful, so the pedicle was divided with turbinectomy scissors, and the base was cauterized. Because the mass was too large to deliver through the nasal cavity, it was gently pushed into the nasopharynx and retrieved through the oral cavity.

On gross examination, the mass was encapsulated. It measured 3.6 × 2.5 × 2.1 cm, and it had a rubbery consistency. Microscopic examination revealed spindle cells with rare mitoses, and immunohistochemical stains were positive for S-100 protein (figure 3). These findings were consistent with a diagnosis of a schwannoma.

The patient’s postoperative course was uneventful, and she exhibited no evidence of a recurrence at the 4-year follow-up.

Discussion

Symptoms of schwannoma are nonspecific and occur as a result of the mass effect or necrosis of the lesion. Patients with a nasal cavity schwannoma may present with nasal obstruction, rhinorrhea, or recurrent epistaxis. Facial swelling and pain are more commonly associated with paranasal sinus involvement. Schwannomas are solitary, encapsulated masses that may arise on the surface of the nerve of origin or within the nerve. It is usually not possible to identify the nerve of origin in cases of sinonasal schwannoma, as was the case in our patient. These lesions rarely, if ever, undergo malignant transformation.

CT’s excellent soft-tissue contrast and fine bony detail make it essential in the preoperative evaluation.
window settings help to differentiate a schwannoma from a more invasive tumor. Schwannomas are slowly growing lesions, and they tend to cause expansion of the bony skeleton rather than the destruction that is seen with cancerous lesions. The diagnosis is often made only on histologic examination. Histologically, a schwannoma must be differentiated from a neurofibroma, myxoma, fibrosarcoma, and fibrous histiocytoma.

Schwannomas of the nasal cavity are usually described as polypoid masses of hard to elastic consistency. They may be tan-white or red, and they can occur as a solid or cystic mass. Microscopically, they can exhibit two architectural patterns—Antoni type A and Antoni type B—in different proportions (figure 3). Antoni A tissue is made up of an organized, compact cellular stroma with elongated spindle cells. Parallel rows of palisading nuclei (Verocay bodies) can be seen in this highly differentiated tissue. Antoni B tissue is made up of disorganized, loose myxoid stroma with few spindle cells. Vessels with thick, hyalinized walls are often present, as are degenerative changes, which are usually seen in the hypocellular areas.

S-100 protein, a neural crest marker antigen, is common to the supporting cells of the nervous system. S-100 staining is present in tumors derived from Schwann cells and melanocytes. Expression is reduced in Antoni B tissue and malignant tissue because they have a lower relative density of Schwann cells than does Antoni A tissue. The S-100 stain is also useful in excluding diagnoses of fibrosarcoma and fibrous histiocytoma, which are uniformly S-100–negative.

Schwannomas are radioresistant, so the preferred treatment is complete surgical excision. Because benign schwannomas tend to grow slowly and noninvasively, functional and cosmetic considerations should be emphasized over a radical surgical resection.

References