Case Report

Schwannoma of the hard palate

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ABSTRACT

Schwannomas are benign encapsulated perineural tumors. The head and neck region is the most common site. Intraoral origin is seen in only 1% of cases, tongue being the most common site; its location in the palate is rare. We report a case of hard-palate schwannoma with bony erosion which was immunohistochemically confirmed. The tumor was excised completely intraorally. After two months of follow-up, the defect was found to be completely covered with palatal mucosa.

Key words: Bony erosion, neurilemmoma, oral cavity

Introduction

Schwannomas are infrequent benign neoplasms arising from cranial, peripheral or autonomic nerves that contain Schwann cells. [1] They are slow-growing, solitary and encapsulated.[2] The prognosis is very good since they do not usually recur, and malignant transformation is rare.[3,4] About 25-45% of schwannoma occur in the head and neck; only 1% have an intra-oral origin.[3] The tongue is the most common site; its location in the palate is rare. We report a case of schwannoma of the hard palate with bony erosion, which was excised intra- orally and after two months the defect was completely covered with palatal mucosa.

Case Report

A 28-year-old man presented with a gradually increasing swelling over the palate for four years; pain in the swelling was for last three months. On examination, the swelling was over the hard palate, more towards the left side, it was 3 cm in diameter with a small ulcer having purulent discharge [Figure 1a]. The mucosa over the mass was normal except a whitish spot at the discharge point. The mass was firm, mildly tender and fixed. No cervical lymphadenopathy was present.

There was no medical history of interest. Clinical diagnosis at that time was minor salivary gland tumor. Fine needle aspiration cytology revealed benign squamous cells and a single cluster of spindle cells with bland nuclear features. Contrast-enhanced computed tomography showed irregular thickening at the left side of the anterior hard palate with central hypodense area. Bony erosion was present [Figure 1b]. Wide local excision of the mass was performed with g`ood margin. On careful dissection it was found that the bony palate at its base was destroyed. But the nasal mucosa could be preserved. On gross examination, the resected tumor was well-encapsulated. On cut section there was whitish tumor with focal hemorrhage [Figures 1c and d]. Microscopic examination showed an encapsulated tumor composed of fascicles of spindle cells exhibiting alternate cellular and hypocellular areas (Antoni A and Antoni B). With immunohistochemistry (IHC), S-100 was positive and smooth muscle antigen (SMA) was negative in the tumor cells. The diagnosis of schwanomma was given [Figure 2].

Postoperative period was uneventful. After two months the defect was completely covered with palatal mucosa. There was no tumor recurrence till ten months of follow-up.

Discussion

The term Schwannoma was originally suggested because this neoplasm was thought to be derived from Schwann cells of peripheral nerve sheaths.

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Figure 1: (a) The lesion over the hard palate; (b) bony erosion of the hard palate in CECT; (c) excised specimen, oral side; (d) cut section of excised specimen

Figure 2: Schwannoma with Antoni A and Antoni B areas, H and E, ×100; inset-S100-positive tumor cells, ×100

These cells were named after German anatomist, physiologist, and cofounder of the cell theory, Theodor Schwann (1810-82). In 1908, Jose Verocay provided the first microscopic description of this tumor and suggested the designation 'Neurinoma'. In 1935, Arthur Stout coined the term 'Neurilemmoma'. In 1940, on the basis of light microscopic studies, Isadore Max Tarlov proposed this tumor to be of fibroblastic origin and coined the term 'perineural fibroblastoma'. Today, most pathologists consider the terms schwannoma, neurinoma, neurilemmoma, and perineural fibroblastoma to be synonymous and distinguish this lesion from neurofibroma.[5] According to Erlandson (1985), schwannomas may be: Classical

Table 1: Comparison of present case of schwannoma of hard palate (pathological proven) with that of other cases in the literature

Case	Authors	Year	Age (Yr)	Sex	Location on hard palate	Duration of presentation	Size of lesion	Clinical findings	Radiological finding	Provisional diagnosis	Surgical procedure	Encapsulation	IHC positivity	Follow-up
1	Lollar *et al.*[1]	2010	33	M	Midline	3 mo	2 × 2 cm	Painless pedunculated mass	Soft-tissue lesion	-	Shave Bx → WLE	Present	S-100, Vimentin	-
2	Murthy *et al.*[2]	2009	28	F	Lt side of anterior half	4 mo	1.5 × 1.5 cm	Painless swelling	-	-	Incision Bx→Excision	-	-	-
3	Lopez *et al.*[3]	2009	15	-	Lt side	3 mo	-	Painless swelling	Bony erosion	Lipoma/ mucocele/ adenoma	Incision Bx→ Extirpation	-	S-100	2 Yr
4	Santos *et al.*[5]	2010	41	F	Rt posterior part	5 Yr	-	Painless swelling	-	Pleomorphic adenoma	Excision Bx	Absent	-	-
5	Santos *et al*[5]	2010	53	M	Hard palate	6 mo	3cm dia.	Painless swelling	-	-	Excision Bx	Absent	S-100	-
6	Huseyin *et al.*[6]	2010	45	F	Rt side posterior part	15 Yr	2 × 2 cm	Painless swelling	Soft-tissue lesion	-	WLE	Present	S-100	-
7	Neelampari *et al.*[7]	2010	64	F	Anterior part	3 Yr	2 × 2 cm	Painless swelling	Radiolucency with sclerotic lining in OPG	Palatal cyst	Excision	Present	-	-
8	Amir *et al.*[8]	2002	40	M	Entire palate	3 mo	5 × 4 cm	Painless swelling	Soft-tissue mass with bony erosion	-	WLE	Present	S-100	-
9	Present case	-	28	M	Towards Lt side	4 Yr	3 cm dia.	Painless swelling	Soft-tissue mass with bony erosion	Minor salivary gland tumor	WLE	Present	S-100	10 mo

Yr - year; M - male; F - female; Rt - right; Lt - left; mo - month; dia. - diameter; Bx - biopsy; WLE - wide local excision; OPG - orthopantomograph

(Verocay), cellular, plexiform, cranial nerve, melanotic, degenerated (ancient), and granular cell types.[5]

About 25-45% of schwannomas occur in the head and neck, and only 1% demonstrate an intraoral origin, being found principally in the anterior portion of the tongue. The location in the palate is rather rare.[3]

A review of the literature on hard-palate schwannomas was done; the results are shown in Table 1. In this study, an analysis of nine cases was done, including the present case. There was a wide range of age distribution, second to sixth decade of life (mean age, 36.2 years). Schwannomas of the head and neck region can occur at any age, and are most commonly found during the second and third decades of life.[1,3,6]

Gender distribution of head and neck schwannomas varies in different studies.[6] There was equal gender distribution among the cases we reviewed. It was a painless, sessile mass in all cases, and pedunculated in one. All these schwannomas measured between 1.5 and 5 cm in greatest dimensions (mean, 2.64 cm). The duration of clinical presentation of the schwannomas was from 3 months to 15 years. Radiologically, bony erosion was found in four cases (44.45%) including ours. There are three mechanisms by which schwannomas may involve bone: (1) they may arise centrally within bone, (2) they may arise within the nutrient canal and produce canal enlargement, or (3) a soft tissue or periosteal tumor may cause secondary erosion and penetration into bone.[5]

Clinically, two forms of oral schwannomas can occur: The most frequent is the encapsulated type, in which the tumor is surrounded by dense fibrous connective tissue; the other is the pedunculate type, resembling a fibroma.[3] Five cases (55.5%) were encapsulated among these cases.

The origin of schwannoma is unknown. It is believed to originate from proliferation of Schwann cells in the perineurium causing displacement and compression of adjacent nerve. It does not arise from cranial nerve I and II because they lack Schwann cells.[3]

The preoperative diagnosis is quite difficult, among other reasons because this is an infrequent tumor and is not usually suspected in the oral cavity.[3] In the reviewed cases also, diagnoses differed preoperatively. Computed tomographic or magnetic resonance imaging scans can be useful in the initial workup to determine the extent of the lesion and assist with delineating a differential diagnosis.[1,7]

Histologically, neurilemmomas are composed of two distinct areas termed as Antoni A and Antoni B regions. Antoni A regions consist of palisading trabeculae of spindle-shaped Schwann cells.[8] The structure as a whole, including a central stromal region, is known as a Verocay body. By comparison, the Antoni B regions are loose and hypocellular, and the Schwann cells appear polymorphic. On IHC, S-100 protein shows strong positivity for neurilemmomas, reflecting their propensity of Schwann cells.[8] They also show positivity for vimentin, Leu-7 antigen and glial fibrillary acidic protein.[1]

We can conclude that the possibility of schwannoma should be kept in mind when dealing with an intraoral, well-circumscribed, soft-tissue lesion. It has an excellent prognosis and wide local excision is almost curative.

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