

Schwannoma of the upper lip: a 66-year single-center retrospective analysis in southern Brazilian population and literature cases review

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ABSTRACT:

Schwannoma is a benign tumor of neural origin. This condition is uncommon in the upper lip. The aim the present study was to perform an analysis of lip lesions at an oral pathology laboratory to determine the frequency of schwannoma of the upper lip and perform a literature review to correlate with the cases of this study. A retrospective analysis was performed at the oral pathology laboratory and the histopathological records from 1946 to 2012 were retrieved and organized in a database. Cases of schwannoma of the upper lip were identified and analyzed. Moreover, a literature review was performed on schwannomas found in this same anatomic site. In this period, 1195 lip lesions were diagnosed, among which four were cases of schwannoma on the upper lip (0,33%). Of these, 3 cases were in women; the mean age of patients was 45 years old. In all cases the clinical diagnosis hypothesis involved reactive lesion or benign neoplasm. The final diagnosis of schwannoma was obtained following the histopathological examination of the surgical specimens. This study emphasizes the low frequency of schwannoma in the upper lip and the importance of histological evaluation to define the final diagnosis which usually represents unexpected outcomes.

Keywords: lip; lip neoplasms; neurilemmoma; soft tissue neoplasms.

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INTRODUCTION

Schwannoma is a relatively uncommon benign tumor that arises from Schwann cells of the peripheral, cranial, spinal or autonomic nerve sheath. The etiology of schwannoma is unknown, but such tumors typically arise in association with a nerve trunk in the deep layers of soft tissues^{1,2,3}.

Schwannoma may affect individuals at any age, but is most common in young and middle-aged adults, with no predilection for gender^{2,4}. The head and neck region is the most commonly affected site, accounting for 25 to 45% of cases.¹ Among these, only 1% of cases are described in the oral cavity, particularly in the tongue⁵⁻⁷.

Clinically, schwannoma presents as a solitary, slow-growing, encapsulated nodule that is often asymptomatic and of the same color as the adjacent normal mucosa. Considering these aspects, excisional biopsy is indicated to establish a definitive diagnosis. The differential diagnosis should include benign tumor-like or reactive lesions. In lesions of the upper lip, the main diagnostic hypotheses should include fibroma, inflammatory hyperplasia, lipoma, mucocele, mucous retention cyst, and salivary gland tumors^{1,2}.

Histologically, a schwannoma is encapsulated and characterized as a proliferation of spindle-shaped cells arranged in two patterns: hypercellular areas (Antoni type A) and hypocellular areas (Antoni type B). These spindle-shaped cells may have a palisaded appearance arranged around eosinophilic areas, forming the so-called Verocay bodies observed in the Antoni type A pattern. Microscopically, a differential diagnosis should be established with other lesions composed of spindle-shaped cells, such as neurofibroma, palisaded nerve sheath tumor, myofibroma and leiomyoma. In addition to the morphological analysis, the diagnosis may be confirmed by intense immunohistochemical labeling for S-100 protein^{1,2,3}.

Treatment involves conservative surgical excision, with no need for a margin of safety. If complete enucleation is achieved, recurrence is rare and the prognosis is favorable.¹

The aim the present study was to perform an analysis of lip lesions at an oral pathology laboratory to determine the frequency of schwannoma of the upper lip and perform a literature review to correlate with the cases described in this study.

MATERIAL AND METHODS

A retrospective analysis was performed at the oral pathology laboratory of a university in southern Brazil. The histopathological records from 1946 to 2012 were retrieved and organized in a database, with information on gender, age, location in the lip and clinical and histopathological diagnosis. Cases of schwannoma of the upper lip were identified. The reports and slides of these cases were reviewed and analyzed.

The MedLine electronic data base was searched in English-language and without time (year) limitation for any published about schwannoma. The search strategy combined MeSH with free text words. The MeSH terms used were “oral schwannoma, oral neurilemoma, lip”. We read the articles that contained survey of oral lesions and lip lesions, furthermore articles about schwannoma. For our literature review of cases, we included articles with a case report of schwannoma on the upper lip, and we selected informations like age and sex of patient and the treatment proposed to analysis.

RESULTS

A total of 26,792 histopathological records were reviewed, 1195 of which were biopsies of lip lesions and four (0,33%) were cases of schwannoma on the upper lip (Table 1). Three of these cases (75%) were in women. Mean patient age was 45 years. None of these patients had referred pain. In all cases the clinical diagnosis hypothesis involved reactive lesion or benign neoplasm as illustrated on Figure 1A (representative of case 4). However, the final diagnosis of schwannoma in all cases was only obtained following the histopathological examination of the excisional biopsies specimens (Figure 1B, representative of case 4). The histopathological aspects of schwannomas revised revealed well circumscribed tumors, with hypercellular areas, characterized by palisading of the spindle-shaped Schwann cells and hypocellular areas with cells randomly arranged within a loose myxomatous stroma (Figure 2A-C). In one case, (case 4), an immunohistochemical staining was performed and strong immunohistochemical positivity for S-100 was observed, confirming the microscopic findings previously analyzed (Figure 2D).

Table 1. Case reports of schwannoma of the upper lip at oral pathology lab.

Case/year	# of cases	Age	Sex	Site	Treatment
UFRGS lab, 1970	1	77	F	Upper lip	Excisional biopsy
UFRGS lab, 1993	1	27	M	Upper lip	Excisional biopsy
UFRGS lab, 1989	1	21	F	Upper lip	Excisional biopsy
UFRGS lab, 2011	1	55	F	Upper lip	Excisional biopsy

At literature review only 10 cases of schwannoma of the upper lip have been reported in the English-language (Table 2)^{1,5-7}. Four of these cases (66,66%) were in women. Mean patient age was 22,5 years. The excisional biopsy was performed in 5 of these cases, in the other cases we don't have information.

DISCUSSION

Schwannoma is a benign tumor that is uncommon in the upper lip. The lip is located between the skin and oral mucosa and contains several tissue types, including epithelial, connective and adipose tissue, blood vessels, nerves and salivary glands. The most common lesions in this site are fibroma, inflammatory fibrous hyperplasia, salivary gland tumors, mucous retention cyst and mucocele^{4,8}. However, other rare lesions have also been reported in this site, such as tufted angioma⁹ and angioleiomyoma¹⁰.

Benign tumors of mesenchymal origin - like fibroma, and reactive lesions - like inflammatory hyperplasia, were the main diagnostic hypotheses in the present case, as these are common lesions that manifest clinically as vegetative, slow-growing, smooth-surfaced nodules of the same color as the surrounding normal mucosa and firm upon palpation¹¹. Since no traumatic factors were identified, inflammatory hyperplasia was unlikely.

Minor salivary gland tumors often affect the upper lip, accounting for 15% of cases. However, gland tumors present mainly as non-vegetative, submucosal nodules that are firm upon palpation^{4,12}. Abnormalities such as mucous retention cysts and mucoceles may cause an increase in volume and should also be considered in the differential diagnosis. Mucous retention cysts occur more commonly in the floor of the mouth, while mucoceles often occur in the lower lip. Clinically, both conditions are characterized by a bullous, smooth-surfaced lesion of a bluish color and opaque appearance, clinical features that differ from those found in the present cases¹³.

Clinically, schwannoma presents as a solitary, well-circumscribed, slow-growing lesion with no malignant potential. Diagnosis requires biopsy and microscopic analysis of the surgical specimen. Histopathological examination reveals a tumor composed of spindle-shaped cells. However, this pattern may refer to a heterogeneous group of lesions characterized by interlaced bundles of spindle-shaped cells, with elongated blunt-ended nuclei, usually associated with collagen bundles. In the present cases, spindle-shaped cells sometimes arranged in hypercellular (Antoni type A) and/or hypocellular (Antoni type B) areas were observed, characterizing schwannoma. A microscopic differential diagnosis should be made with other lesions composed of spindle-shaped cells, such as neurofibroma, palisaded nerve sheath tumor, myofibroma and leiomyoma. In addition to the morphological analysis, immunohistochemistry assists in establishing the definitive diagnosis. In one of the cases analyzed in this study an intense immunohistochemical positivity for S-100 protein was observed, which is consistent with other cases reported in the literature. The main immunohistochemical markers for differentiating spindle cell neoplasms are as

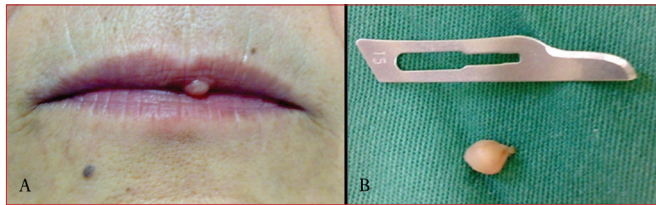


Figure 1. Illustration of case 4. A: Clinical view of schwannoma located in the upper lip. B: Macroscopic view of the specimen, highlighting surgical resection with a small safety margin.

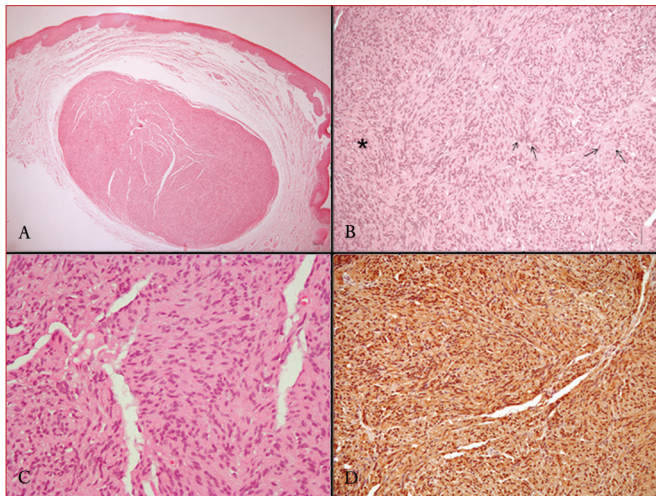


Figure 2. Illustration of case 4. Histopathological view of the schwannoma. A: Note well circumscribed, encapsulated solid tumor (hematoxylin and eosin, original magnification x40); B: Tumor exhibiting spindle-shaped cells and a hypercellular pattern (hematoxylin and eosin, original magnification x100); C: Palisaded cells arranged in Antoni type A pattern (arrows) and cells loosely arranged in Antoni type B pattern (*) (hematoxylin and eosin, original magnification x200); D: Intense and diffuse positive immunohistochemical staining for S-100 protein (LSAB, original magnification x200).

Table 2. Case reports of schwannoma of the upper lip in the literature.

Case/year	# of cases	Age	Sex	Site	Treatment
DasGupta et al., 1969 ¹	3	NA	NA	Lip	NA
Cherrick, Eversole, 1971 ¹	1	NA	NA	Lip	NA
Barbosa, Hansen, 1984 ¹	1	36	M	Upper lip	Excisional biopsy
Asaumi et al., 2000 ¹	1	20	F	Upper lip	NA
Yang, Lin, 2003 ¹	1	22	F	Upper lip	Excisional biopsy
Yilmaz et al., 2004 ⁵	1	29	F	Upper lip	Excisional biopsy
Lida et al., 2006 ⁶	1	16	M	Upper lip/palate	Excisional biopsy
Hashiba et al., 2007 ⁷	1	12	F	Upper lip	Excisional biopsy

NA: Data not available.

follows: S-100 protein for neural tumors such as schwannoma, neurofibroma and palisaded nerve sheath tumor; smooth muscle actin and HHF-35 for myofibroma; smooth muscle actin, HHF-35 and desmin for leiomyoma^{4,14}.

Between 1969 and 2012, only 10 cases of schwannoma of the upper lip were reported in the literature. In our laboratory four cases of schwannoma of the upper lip were diagnosed among a universe of 1195 lip biopsies - it corresponds to 0.33% of total biopsies in lip lesions. There are no reports in the literature on a predilection for gender in cases of schwannoma, but a review of all cases affecting the upper lip reveals a higher incidence in women (2:1). The treatment of choice is complete surgical excision. Recurrences are rare in all cases of schwannoma affecting the upper lip described in the literature.

CONCLUSION

This study emphasizes the low frequency of schwannoma in the upper lip and the importance of histological evaluation to define the final diagnosis which usually represents unexpected outcomes.

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