Clinical Case Reports

WILEY

Clinical Case Reports Open Access

CASE REPORT OPEN ACCESS

Schwannoma of the Soft Palate: A Rare Case Report

Manoj Adhikari[1] | Kanistika Jha[2] | Shova Kunwar[1] | K.C. Sarita[1] | Mallika Rayamajhi[1]

[1]Nepalese Army Institute of Health Sciences, College of Medicine, Kathmandu, Nepal | [2]College of Medical Sciences, Bharatpur, Chitwan, Nepal

Correspondence: Manoj Adhikari (manojadhikari@naihs.edu.np; adhikarimanoj2007@gmail.com)

Received: 19 June 2024 | **Revised:** 16 September 2024 | **Accepted:** 8 November 2024

Funding: The authors received no specific funding for this work.

Keywords: case report | hard palate | Neurilemmoma | S100 protein | Schwann cell | soft palate

ABSTRACT

Oral schwannomas are rare, with only 18 cases of soft palate involvement reported since 1985. We report a case of a 15-year-old male with a soft palate schwannoma who was successfully treated by surgical excision and had no complications over a one-year follow-up. Histologically, schwannomas exhibit Antoni A and B patterns.

JEL Classification: Dentistry

1 | Introduction

Schwannoma is a benign neuroectodermal tumor derived from Schwann cells of the neural sheath [1–4]. Approximately 25%–40% occur in the head and neck region, with only 1% located in the oral cavity [5–7]. Its occurrence in the soft palate is infrequent [8–10]. Since 1985, only 18 cases of soft palate schwannomas have been reported in the literature [2, 3, 6, 9]. To our knowledge, this is the first reported case of a schwannoma of the palate in Nepal.

Clinically, most schwannomas appear as solitary, firm, asymptomatic, painless, non-tender, and slow-growing lesions, predominantly affecting individuals in their second and third decades of life [2, 3]. However, definitive diagnosis relies on histopathological examination.

Histologically, schwannomas display two distinct patterns: Antoni A and Antoni B. A hypercellular proliferation of spindle-shaped cells characterizes the Antoni A pattern, often arranged in a palisading pattern around central acellular eosinophilic regions known as Verocay bodies. In contrast, the Antoni B pattern consists of less organized, hypocellular regions [10–12].

The preferred treatment for schwannomas is surgical excision, with recurrence being rare [2, 3, 9, 13].

We report a case of a 15-year-old male with schwannoma of the soft palate, successfully managed through surgical excision, with no complications or recurrence observed during one-year follow-up.

2 | Case Presentation

2.1 | Case History/Examination

A 15-year-old male patient presented to our Oral and Maxillofacial Surgery OPD at Sri Birendra Hospital, a tertiary-level hospital of the Nepali Army in Kathmandu, Nepal. The chief complaint was a slowly growing mass in the posterior region of the palate, which caused discomfort, a sensation of a foreign body in the oral cavity and difficulty in chewing, swallowing, and speaking. The patient reported no pain for the past eight months. The patient was otherwise healthy, with no relevant medical history and no history of smoking or alcohol consumption. The patient had no genetic or syndromic abnormalities.

Intraoral examination revealed a solitary, grayish-pink, non-ulcerated, oval-shaped soft tissue mass measuring 2 cm × 2 cm × 2 cm, protruding on the right side of the soft palate. The mass was firm, non-tender, non-pulsatile, non-bleeding, non-compressible, and non-reducible (Figure 1).

Summary

- Schwannoma of the soft palate is a rare entity that is challenging to diagnose clinically; thus, histopathological examination and immunohistochemistry are essential for confirmation.
- During surgical excision of the lesion from the soft palate, careful attention is required to prevent complications such as oroantral communication, swallowing difficulties, and speech impairments.

Extraoral examination revealed no abnormalities and regional lymph nodes were not palpable.

2.2 | Diagnosis, Investigations and Treatment

Based on a thorough clinical examination, a provisional diagnosis of a benign salivary gland tumor was made. Schwannoma was not initially suspected due to its rare occurrence at this site. A contrast-enhanced computed tomography (CECT) scan of the face revealed a well-defined, hypodense soft tissue mass originating from the right side of the soft palate. The mass measured 2.5 cm × 2.3 cm × 1.5 cm, extending medially to the midline, laterally to 1 cm medial to the alveolar process, anteriorly to the posterior margin of the hard palate, and posteriorly to 1 cm anterior to the posterior margin of the soft palate. Routine blood investigations were performed and the results were within normal limits. An excisional biopsy under general anesthesia was planned to confirm the diagnosis. The procedure was explained in detail to the patient's parents, and informed consent was obtained.

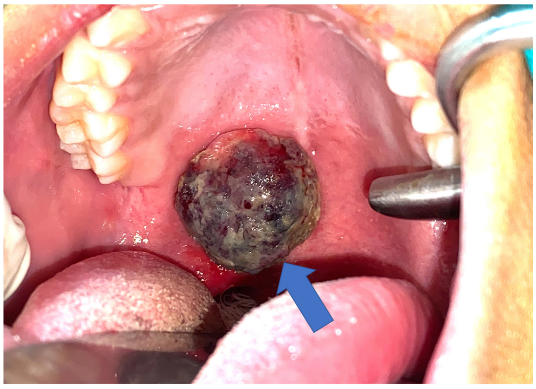

FIGURE 1 | Intraoral photograph displaying a lesion on the right side of the soft palate.

The patient was prepared for surgery with standard preoperative measures. After positioning the patient supine, nasotracheal intubation was performed, parts were prepared, and a throat pack was placed. The tumor, protruding from the soft palate, was excised in toto along with a 5 mm margin of healthy tissue using electrocautery. Hemostasis was achieved, and the specimen was sent for histopathological examination. The surgical wound was allowed to heal with a secondary intention to maintain the velopharyngeal function postoperatively (Figure 2). The throat pack was removed, reversal agents were administered, and the patient was extubated.

Postoperatively, antibiotics and analgesics were prescribed for five days. Daily dressings were done, and the patient was advised to maintain oral hygiene. The procedure was uneventful.

2.3 | Outcome and Follow-Up

2.3.1 | Histopathological Examinations (HPE)

2.3.1.1 | **Gross Findings.** The specimen consisted of a single, globular tissue piece measuring 2.5 cm × 2.3 cm × 1.5 cm. The cut section revealed white homogeneous areas.

2.3.1.2 | **Microscopic Findings.** Sections revealed tissue lined by stratified squamous epithelium with a well-circumscribed mass, predominantly consisting of compact hypercellular and few hypocellular areas. These areas comprised spindle-shaped cells with elongated eosinophilic cytoplasm and elongated nuclei. The cellular areas exhibited nuclear palisading around the fibrillary processes (Verocay bodies).

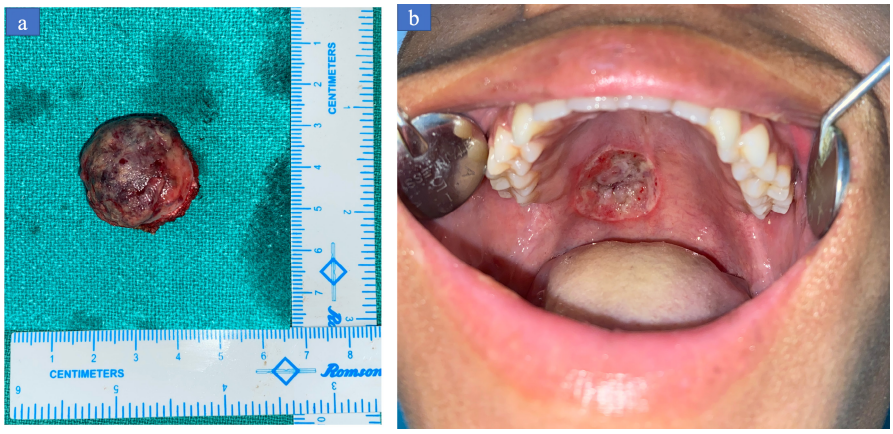

FIGURE 2 | (a) Intraoperative view showing the excised specimen. (b) Intraoral photograph revealing the right side of the soft palate after lesion excision.

Variable-sized, thick- and thin-walled congested blood vessels were present, along with areas of inflammation primarily composed of lymphocytes. Areas of hemorrhage were also noted (Figure 3).

The immunohistochemical (IHC) examination with S-100 protein showed intense positivity in the tumor cells. The cells of the tumor also exhibited positive expression of SRY-related HMG-box 10 (SOX-10) protein (Figure 4).

Based on these findings, a final histopathological diagnosis of "Schwannoma" was made. Postoperative healing was satisfactory, with no complications. Following surgical treatment, the patient was completely asymptomatic. A one-year follow-up showed healthy mucosa with no signs of recurrence (Figure 5). Functional outcomes were excellent, with no difficulties in swallowing, no velopharyngeal regurgitation, no speech impairment, and no soreness observed.

3 | Discussion

Schwannomas are benign neuroectodermal tumors originating from Schwann cells of cranial, peripheral, or autonomic nerves [11, 14, 15]. Notably, Schwann cells are absent in olfactory and optic nerves, so schwannomas do not arise from these nerves [6, 15]. These tumors are also known as neurinoma, neurilemmoma, and perineural fibroblastoma [1, 7]. Verocay first described the histological characteristics of schwannoma in 1908, naming it "Neurinoma" [8–10]. In 1932, Masson introduced the term "schwannoma" [3, 4]. In 1935, Stout detailed further histological features and called it "neurilemmoma" [1, 11]. Later, in 1940, Tarlov suggested a fibroblastic origin and termed it "perineural fibroblastoma" [3].

Schwannomas can occur anywhere in the body, but they are more commonly found in the head and neck region and on the flexor surfaces of the upper and lower extremities [1, 4]. Of all

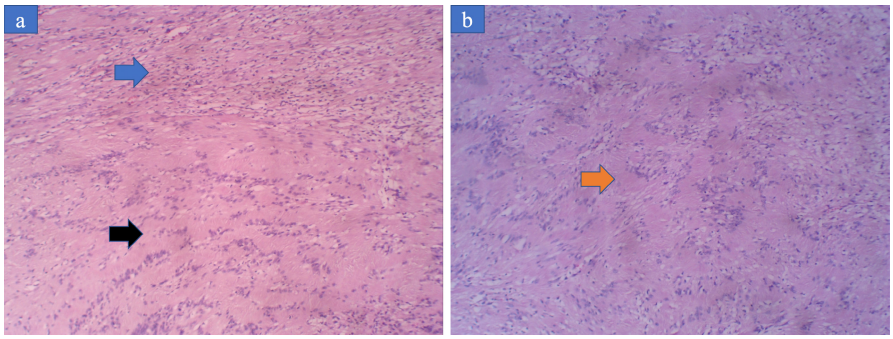

FIGURE 3 | (a) Microscopic view at 10X magnification demonstrating a biphasic pattern: The compact, hypercellular Antoni A pattern is indicated by the blue arrow, while the black arrow marks the myxoid, hypocellular Antoni B pattern. (b) A microscopic view at 40X magnification shows nuclear palisading around a fibrillary process known as Verocay bodies, highlighted by the orange arrow.

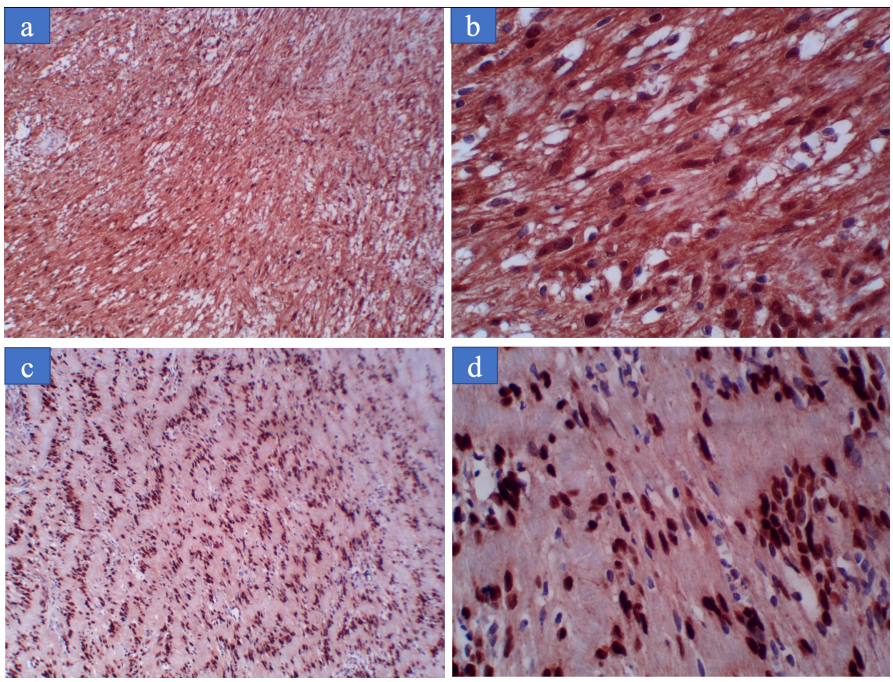

FIGURE 4 | Immunohistochemical images showing positivity for S-100 protein, staining both the nucleus and cytoplasm, at (a) 10X magnification and (b) 40X magnification, as well as positivity for SOX-10 protein, staining the nucleus, at (c) 10X magnification and (d) 40X magnification.

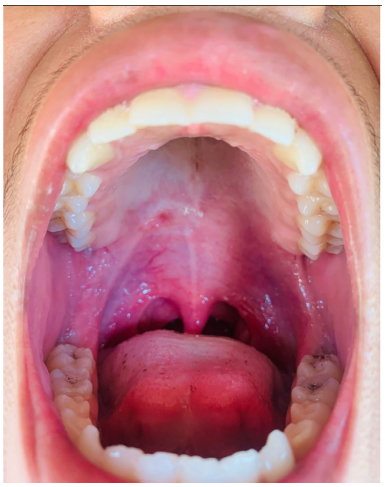

FIGURE 5 | Intraoral photograph showing a healed wound of schwannoma on the right side of the soft palate with no signs of recurrence after one year of follow-up.

schwannomas, 25%–40% are located in the head and neck region, and only 1% occur in the oral cavity [2, 3, 5, 16]. Within the oral cavity, the tongue is the most frequently affected site, followed by the floor of the mouth and buccal mucosa; their occurrence in the soft palate is rare [2, 3, 5, 16]. Since 1985, 49 cases of schwannomas in the palate have been documented in the literature [2, 3, 6, 9]. Among these, 31 cases involved the hard palate and 18 the soft palate [2, 3, 6, 9]. Of the 18 soft palate schwannomas, 10 were located on the right side, 6 on the left side, one in the midline and one case, the side was unspecified [2, 3, 6, 9]. In the present case, the right side of the soft palate was affected, marking the first reported case of a schwannoma in the palate in Nepal.

Schwannomas are classified as either central (bone/intraosseous) or peripheral (soft tissue) types based on their anatomic locations [11, 16]. Intraosseous schwannomas are rare [4]. when originating from bone, they cause bony expansion [7, 17]. Intraosseous schwannomas are typically found in the posterior part of the mandible and appear as unilocular or multilocular radiolucencies on radiographs [4, 7]. In the present case, the schwannoma was of the peripheral soft tissue type.

Schwannomas originating from small nerves are freely mobile, unlike those arising from larger nerves [6]. In this case, the tumor was mobile. There are different perspectives on the tumor's origin: one view considers it an ectodermal tumor derived from Schwann cells, while another suggests it is a mesodermal, originating from the perineurium [3]. Schwannomas occur due to a defect in the neurofibromatosis-2 (NF2) gene, which regulates Schwann cell growth by producing the protein called Merlin [5]. Schwannomas are believed to arise from the proliferation of Schwann cells in the perineurium [11].

Most schwannomas are solitary, firm, asymptomatic, painless, non-tender and slow-growing [2–4]. Our case exhibited similar findings. While schwannomas are generally solitary, they can occasionally be multiple, as seen in von Recklinghausen's neurofibromatosis [5, 7]. They are usually painless but as the tumor grows, it may cause nerve displacement and compression, leading to paresthesia [6, 17]. However, in our case, the patient did not experience paresthesia.

Schwannomas can occur in any age group but are most frequently seen in the second and third decades of life [6, 7]. The patient in this case was in his second decade, aligning with existing literature. Gender distribution varies; some studies suggest a higher prevalence in females, while others indicate a male predominance, with no definitive gender predilection [1–3, 17]. The patient in our case was male.

Due to the rarity of schwannomas in the soft palate, differential diagnoses often include other more common benign lesions, which are later confirmed by histopathological examination. Differential diagnoses include pleomorphic adenoma, lipoma, fibroma, neurofibroma, traumatic neuroma, ameloblastoma, pyogenic granuloma, hemangioma, leiomyoma, papilloma and palatal abscess [10, 12]. In this case, the provisional diagnosis was a benign salivary gland tumor.

Schwannomas have distinct microscopic features that aid in their diagnosis [17]. Histologically, schwannomas exhibit two distinct patterns: Antoni A and Antoni *B. Antoni* A consists of hypercellular fusiform cells arranged in a palisading pattern around a central acellular eosinophilic area known as Verocay bodies. Antoni B patterns are hypocellular and less organized [10–12]. The histological findings in our case were consistent with these characteristics, confirming the diagnosis.

Immunohistochemical (IHC) examination is essential for differentiating schwannomas from other tumors and confirming the final diagnosis [1, 3, 6]. IHC staining with S100, which typically yields positive results, is widely used to confirm suspected schwannomas [1, 3, 6, 17]. In the present case, IHC staining with S100 and SOX-10 was also employed to confirm the diagnosis.

The treatment of choice for schwannoma is surgical excision, with recurrence being rare [9, 13]. The patient in our case underwent surgical excision, with no recurrence observed during a one-year follow-up. Approximately 2% of schwannomas are reported to be malignant and have the potential to metastasize [5].

4 | Conclusion

Schwannoma of the soft palate is a rare entity and poses a diagnostic challenge clinically. Therefore, a definitive diagnosis relies on histopathological and immunohistochemical examinations. Surgical excision remains the treatment of choice for soft palate schwannomas, having a low recurrence rate and a favorable prognosis.

Author Contributions

Manoj Adhikari: conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing – original draft, writing – review and editing. **Kanistika Jha:** conceptualization, data curation, formal analysis, investigation, methodology, resources, software, supervision, validation, visualization, writing – original draft, writing – review and editing. **Shova Kunwar:**

conceptualization, formal analysis, investigation, supervision, validation, visualization, writing – original draft, writing – review and editing. **K. C. Sarita:** conceptualization, data curation, investigation, methodology, resources, supervision, validation, visualization, writing – original draft, writing – review and editing. **Mallika Rayamajhi:** conceptualization, data curation, investigation, methodology, supervision, validation, visualization, writing – original draft, writing – review and editing.

Acknowledgments

Director General of Medical Services: Dr. Arun Sharma.

Commandant: Dr. Bharat Bahadur Bhandari.

Clinical Registrar: Dr. Bhuban Raj Kunwar.

Dental Division Head: Dr. Sameer Aryal.

Departments of Dentistry, Pathology, ENT, Anesthesiology and Radiology.

Ethics Statement

It is our routine standard surgical procedure so ethical clearance was not required from the institution's ethics committee, Nepalese Army Institute of Health Sciences, College of Medicine, Kathmandu, Nepal.

Consent

Written informed consent was obtained from the parents of the minor patient to publish this case report in accordance with the journal's patient consent policy.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

No data were generated or analyzed in the present research.

Patient's Perspective

The patient expressed high satisfaction with the successful treatment outcome, which was achieved without any complications.

References

1. P. N. Lambade, D. Palve, and D. Lambade, "Schwannoma of the Cheek: Clinical Case and Literature Review," *Journal of Maxillofacial and Oral Surgery* 14, no. 2 (2015): 327–331.

2. A. A. Alhedaithy, A. M. Alsayed, K. A. Al-Sindi, and W. M. Janahi, "Schwannoma Originating in the Soft Palate: A Case Report," *International Journal of Surgery Case Reports* 84 (2021): 106108.

3. V. Dokania, A. Rajguru, V. Mayashankar, I. Mukherjee, B. Jaipuria, and D. Shere, "Palatal Schwannoma: An Analysis of 45 Literature Reports and of an Illustrative Case," *International Archives of Otorhinolaryngology* 23, no. 3 (2019): e360–e370.

4. G.-C. Ml, A. Eguia-Del Valle, R. Martinez-Conde, C.-M. Jc, and A.-U. Jm, "Ancient Schwannoma of the Hard Palate. An Uncommon Case Report and Review," *Journal of Clinical and Experimental Dentistry* 5, no. 1 (2013): e62–e65.

5. R. Maulana, M. R. Pahlevi, Y. B. Rosanto, B. P. Sejati, and C. Y. Hasan, "A Rare Case of Upper Lip Schwannoma: A Case Report With Analysis of the Histological, Immunohistochemical and Pathogenesis Aspects," *International Journal of Surgery Case Reports* 118 (2024): 109445.

6. K. A. Siddig, O. M. Nazhat, N. M. Saleem, et al., "Uncommon Finding of a Soft Palate Schwannoma: A Case Report," *Cureus* 15, no. 12 (2023): e50172.

7. N. Aswath, T. Manigandan, S. Sl, and L. Yogesh, "A Rare Case of Palatal Schwannoma With Literature Review," *Journal of Oral and Maxillofacial Pathology* 23, no. 1 (2019): 36–39.

8. N. Murakami and Y. Fukuya, "Surgically Excising an Intraoral Schwannoma of the Soft Palate Using a Buccinator Flap: A Case Report," *International Journal of Surgery Case Reports* 49 (2018): 17–20.

9. L. S. Fiedler, "Soft Palate Resection and Secondary Healing Not to Impair the Velopharyngeal Function?—Diagnosis and Treatment of an Intraoral Schwannoma: A Case Report," *International Journal of Surgery Case Reports* 77 (2020): 826–829.

10. A. Rahpeyma, A. H. Jafarian, S. K. Ahmadi, and J. Sarabadani, "A Schwannoma of the Soft Palate in a Child: Histological and Immunohistochemical Features and Surgical Method," *Iranian Journal of Otorhinolaryngology* 24, no. 67 (2012): 95.

11. S. Bagul, S. Chandan, and N. D. Pandey, *Choudhary SH* (Intraoral Cellular Schwannoma Involving Maxillary Gingiva: A Rare Case Report. Frontiers in Dentistry, 2023), 20.

12. C. N. Eroglu, S. Keskin Tunc, and O. Gunhan, "Soft Tissue Schwannomas of the Hard Palate and the Mandibular Mentum," *Case Reports in Dentistry* 2017 (2017): 1–4.

13. Y. Nassehi, A. Rashid, G. Pitiyage, and R. Jayaram, "Floor of Mouth Schwannoma Mimicking a Salivary Gland Neoplasm: A Report of the Case and Review of the Literature," *BML Case Reports* 14, no. 2 (2021): e239452.

14. Â. Ferreira, S. Dionísio, E. Ventura, R. Saleiro, and C. Monteiro, "Parapharyngeal Schwannoma—A Challenging Case Report," *Journal of Surgical Case Reports* 2020, no. 3 (2020): rjaa048.

15. S. K. Dabas, N. N. Menon, R. Ranjan, et al., "Trigeminal Schwannoma – Case Report of a Rare Tumour," *Indian Journal of Otolaryngology and Head & Neck Surgery* 75, no. 2 (2023): 1180–1185.

16. K. Subhashraj, S. Balanand, and S. Pajaniammalle, "Ancient Schwannoma Arising From Mental Nerve. A Case Report and Review," *Medicina Oral, Patología Oral y Cirugía Bucal* 14, no. 1 (2009): E12–E14.

17. C. Das, K. Dey, and S. K. Das, "Schwannoma in Soft Palate: A Rare Case Report With Review of Literature," *Indian Journal of Otolaryngology and Head & Neck Surgery* 74, no. S2 (2022): 2482–2485.