CASE REPORT
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Pleomorphic Adenoma of the Hard Palate: A Case Report

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Abstract

Pleomorphic adenoma is the most common benign salivary gland neoplasm; the majority of these tumors arise in the parotid gland and rarely in the minor salivary glands. The objective is to assess clinical and radiological results, leading to a planned excisional biopsy under local anesthesia with a minimally invasive approach. The report aims to validate diagnostic accuracy and discuss broader clinical implications, emphasizing the significance of accurate diagnosis and the role of minimally invasive procedures in managing pleomorphic adenoma (PA) in minor salivary glands. A 29-year-old ASA I male patient was referred to the clinic with a 5-year history of a painless mass in the hard palate. Based on clinical and radiological examinations, an excisional biopsy was planned under local anesthesia. The operation was performed with a minimally invasive approach. Histopathological examination identified a diagnosis of PA, consistent with clinical and radiological evaluation. Pleomorphic adenoma of the minor salivary gland is a relatively rare pathology. The complete excision of the tumor is a definitive treatment protocol for these cases.

Keywords: Benign mixed tumor, case report, palatal acrylic plate, pleomorphic adenoma, salivary gland

INTRODUCTION

Salivary gland tumors constitute about 3% of all neoplasms.[1] Pleomorphic adenoma (PA) is the most prevalent tumor found in the major salivary glands, with a primary occurrence in the parotid gland and less commonly involving the accessory salivary glands.[2] Although the palate is the most common site of the minor salivary glands affected, the other locations are the upper lip, buccal mucosa, tongue, and gingiva in the oral cavity.[3] Pleomorphic adenoma is mostly seen in women and is most prevalent in the fourth through sixth decades of life. It usually appears as a solitary, painless mass on the oral mucosa.[4,5]

Treatment options may vary depending on factors such as the size, location, and characteristics of the tumor. Common treatment options for PA include removal of the tumor while preserving surrounding tissue, removal of the gland, radiation therapy, radiosurgery (Gamma Knife or CyberKnife), and in some cases, especially if the tumor is small and not causing symptoms, the doctor may choose to monitor the tumor over time without immediate intervention.[6]

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This case report aims to present a therapeutic strategy for managing PA in the minor salivary gland.

CASE PRESENTATION

A 29-year-old male presented with a known 5-year history of swelling in his mouth, which was the same size as the last year. The patient's only complaint is that his tongue sometimes touches the mass. There was no history of nasal obstruction. Intraoral examination revealed a solitary, well-defined dome-shaped growth on the palate with a smooth surface. The swelling extending from the first premolar teeth to the first molar teeth is localized to the right side of the midline (Figure 1). On palpation, the swelling was firm in consistency, nontender, and fixed to the underlying structures.

Panoramic radiography showed no abnormality; however, a homogeneous, round, and well-defined mass with soft tissue density was identified on Cone Beam Computed Tomography (CBCT). The mass measured approximately 1.5 × 1.5 cm in size, and no nasal cavity perforation was observed on radiological examination (Figure 2).

Following comprehensive clinical and radiological evaluation, the lesion was provisionally diagnosed as a PA originating from the minor salivary glands of the hard palate, characterized by a slow-growing, painless, firm, and well-circumscribed submucosal mass with intact overlying mucosa. Differential diagnoses included mucoepidermoid carcinoma, adenoid cystic carcinoma, and polymorphous adenocarcinoma, entities that may similarly present as painless palatal masses. These were excluded based on the lesion's well-circumscribed nature, lack of pain or ulceration, and absence of invasive features. Torus palatinus was also considered; however, CBCT imaging revealed no association with bony proliferation, effectively ruling out this diagnosis. An excisional biopsy was performed to establish a definitive diagnosis.

Figure 1. Preoperative view of the mass on the right side of the hard palate.

Under local anesthesia, the sulcular incision was made between the incisor teeth and the first molar. A mucoperiosteal flap was raised and reached the mass. The mass was enucleated with its capsule (Figure 3). The curettage of the underlying bone was performed with a bur to avoid the recurrence of the pathology. There was no perforation of the palatal mucosa. The incision site was sutured according to surgical principles. The palatal acrylic plate, which was produced preoperatively, was applied for 7 days (Figure 4). The main purpose of the palatal plate is to support recovery, increase mucosal adaptation to the underlying bone, and eliminate hematoma formation. Complete healing was observed in the first-month control (Figure 5).

Histopathological examination also confirmed the preliminary diagnosis. A histopathological photomicrograph is essential for a definitive diagnosis of PA, as it allows clear visualization of the tumor's biphasic architecture and cellular composition. Including such images strengthens the diagnostic accuracy and enhances the scientific value of case reports (Figure 6). There was no recurrence after 6 months of follow-up.

Informed Consent: Written informed consent was obtained from all patients who participated in this study.

DISCUSSION

Tumors of the minor salivary glands constitute roughly 20%-40% of all salivary gland neoplasms. The hard and soft palate serve as the primary sites of occurrence for these tumors due to the higher concentration of minor salivary glands in this area.[7] Pleomorphic adenoma originates from a distinct embryological background, encompassing both epithelial and mesenchymal elements. These tumors develop from intercalated and myoepithelial cells within the salivary glands. They are distinctly separated from surrounding tissues by a fibrous capsule, which forms due to fibrosis in the adjacent salivary parenchyma, often termed the "false capsule." Generally, pleomorphic adenomas appear as well-defined and encapsulated masses. However, it is important to note that the integrity of the capsule can differ, with incomplete capsules being more frequently observed in tumors of the minor salivary glands.[8]

The diagnosis of PA relies on a comprehensive approach encompassing the patient's medical history, a thorough physical examination, radiological investigations, and the crucial histopathological examination report. When evaluating the lesion, surgeons should take into account various differential diagnoses, such as palatal abscess, odontogenic or non-odontogenic cysts, and soft tissue tumors like neurofibroma, fibroma, or neurilemmoma.[7]

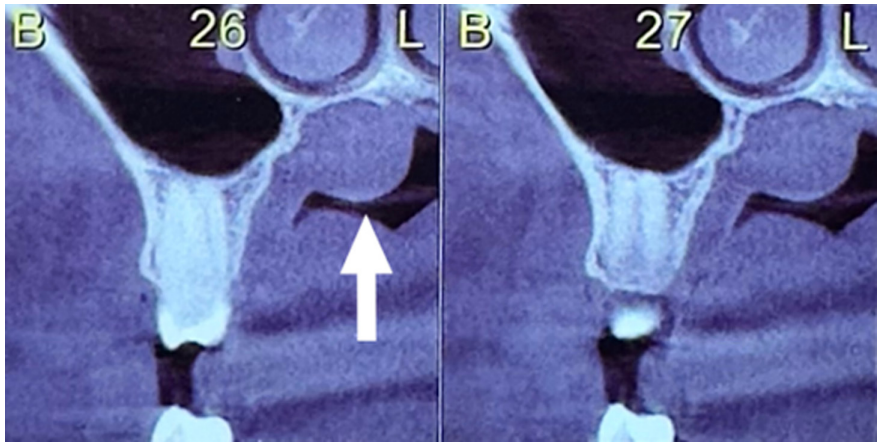

Figure 2. The computed tomography scans revealed a 1.5 × 1.5cm, round, soft-tissue mass.

Due to its diverse morphological patterns, PA may pose significant diagnostic challenges, especially in histopathological evaluation. Its biphasic composition, with both epithelial and mesenchymal-like components, can mimic several other salivary gland tumors. Among the key differential diagnoses are myoepithelioma, which may share myxoid or plasmacytoid features; myoepitheliomas are considered a variant of PA but lack key features such as glanduloductal differentiation and chondromyxoid or chondroid areas, which are characteristic of pleomorphic adenomas;[9] adenoid cystic carcinoma, notable for its cribriform pattern and perineural invasion; mucoepidermoid carcinoma, characterized by the presence of mucous, intermediate, and epidermoid cells; and basal cell adenoma, which may resemble PA in its basaloid cell arrangement but lacks the stromal diversity. Recognizing these entities is critical, as they differ in prognosis and therapeutic approach. Therefore, accurate histological diagnosis supported by immunohistochemical staining when necessary is essential for guiding appropriate treatment and avoiding misdiagnosis.

Imaging methods are essential in the assessment of pleomorphic adenomas. Computed tomography is particularly useful for evaluating the size of the lesion, identifying bony erosion, and detecting signs of invasion. Conversely, magnetic resonance imaging excels in providing detailed visualization of the tumor's spread within soft tissues.[10]

The most recommended treatment approach for PA entails a meticulous procedure known as wide local excision. This surgical technique may also involve the removal of the periosteum or affected bone structures, if necessary.[11]

In cases where surgical excision leads to large palatal defects, palatal reconstruction may be necessary, especially for highly aggressive tumors. Recurrence of the tumor is unlikely when

Figure 3. The mass was enucleated with its capsule.

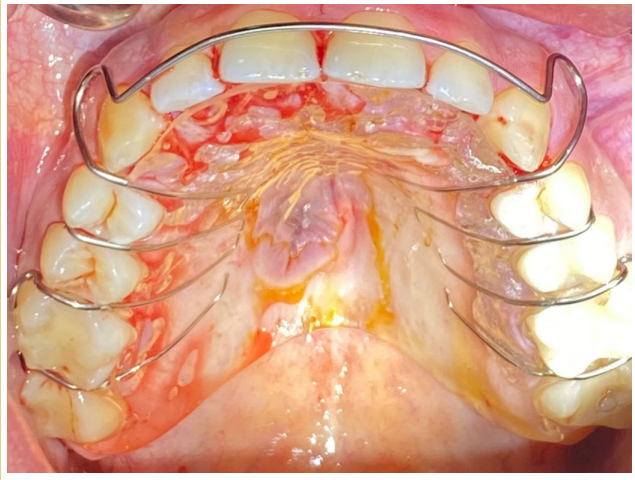

Figure 4. The palatal acrylic plate was applied for 7 days.

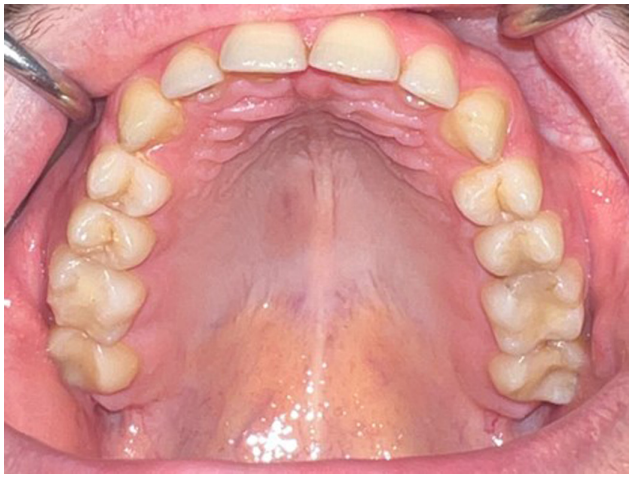

Figure 5. The complete healing was observed in the first-month control.

complete surgical excision is performed. However, recurrence risk increases with enucleation procedures, as microscopic extensions resembling pseudopods may remain due to the lack of a true capsule. In a study involving 1342 patients with benign minor salivary gland tumors, Spiro reported a recurrence rate of 6%.[12]

A review of previously reported cases of PA of the hard palate reveals certain patterns and points of divergence in clinical presentation and management.[10,13-21] (Table 1) A literature search was conducted using PubMed, Web of Science, and Google Scholar databases, utilizing the keywords "pleomorphic adenoma," "hard palate," "minor salivary glands," and "case report." The search included English-language publications from the past 10 years to comprehensively review and compare previously reported cases.

Although the majority of cases involve female patients, occurrences in male patients have also been documented, as in the cases reported by Parvathi et al[18] and Rahnama et al[14] The age range among reported cases spans from the second to the sixth decade of life, indicating a broad demographic distribution. Regarding symptom duration, the current case exhibited a 5-year history of a painless palatal mass, which is notably longer than most other reports; however, some cases, such as that of Yousra and Saliha,[17] documented a much longer duration of up to 20 years. Tumor size was inconsistently reported across the literature, yet surgical excision remains the standard treatment. Techniques vary from wide local excision to en bloc resection depending on the lesion's characteristics. In the present case, a minimally invasive approach under local anesthesia was employed, complemented using a prefabricated palatal acrylic plate, which contributed to improved healing—a method rarely emphasized in existing literature. Postoperative follow-up revealed no signs of recurrence, in alignment with the generally favorable prognosis reported following complete excision. This case, therefore, reinforces the utility of personalized surgical planning and the potential benefits of adjunctive tools in enhancing postoperative outcomes.

In the present case, a conservative surgical approach was preferred after clinical and radiological evaluation. The tumor was enucleated as a whole with its capsule, and the underlying bone was curetted to prevent recurrence. Palatal mucosa perforation and fistula formation were avoided by performing the excision without creating a palatal defect. Therefore, there was no requirement for reconstruction surgery at the

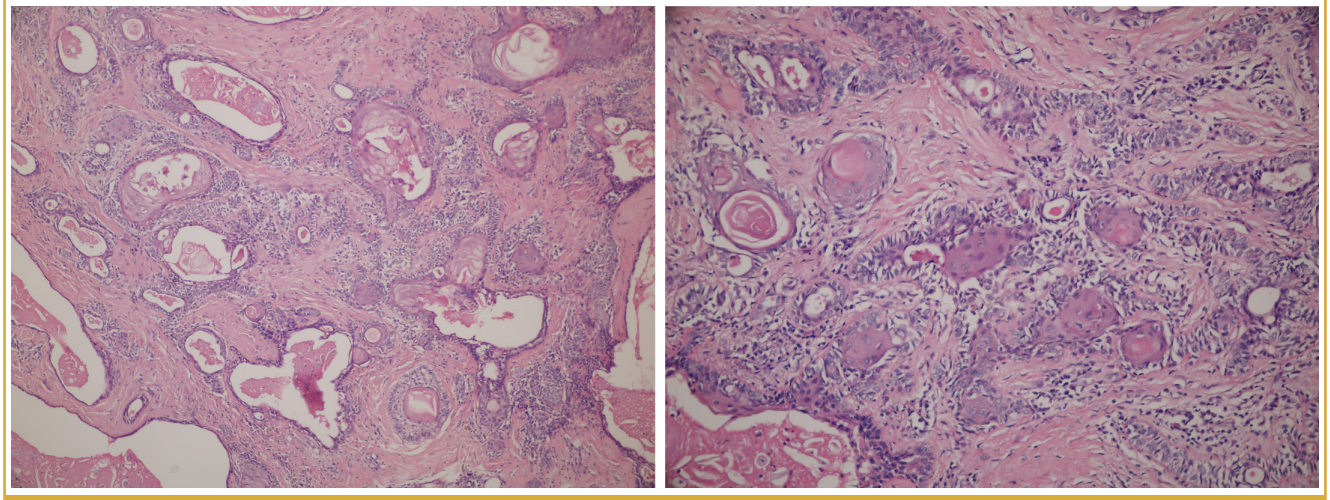

Figure 6. Ductal and tubular structures are observed within the connective tissue enriched with collapsed collagen fibers. In certain portions of the ductal structures, squamous metaplasia is evident in the lining epithelial cells, accompanied by the presence of lamellar keratin in the central areas (Figure Left: H&E, ×100; Figure Right: H&E, ×200).

Table 1. Reported Cases of Pleomorphic Adenoma of the Hard Palate (2013-2024)

Author(s)	Year	Age/Gender	Tumor Size	Symptoms	Treatment	Follow-Up Duration	Outcome
Gupta and Gupta[10]	2013	43/F	3.0 × 2.5 cm	Painless swelling for 9 months	Surgical excision	1 year	No recurrence reported
Chaudhari et al[13]	2013	30-45/Various	Not specified	Painless swelling	Surgical excision	6 months	No recurrence reported
Rahnama et al[14]	2013	40/M	Not specified	Painless, slow-growing mass	Surgical excision	1.5 years	No recurrence reported
Moghe and Pillai[15]	2014	24/F	Not specified	Painless swelling	Surgical excision	1 year	No recurrence reported
Chaturvedi et al[16]	2018	45/F	4.9 × 4.7 × 3.2 cm	Painless, slow-growing mass	Wide local excision	Not specified	No recurrence reported
Yousra and Saliha[17]	2021	61/F	Not specified	Slow-growing mass for 20 years	Surgical excision	1 year	No recurrence reported
Parvathi et al[18]	2023	37/F	Not specified	Painless swelling	Surgical excision	1 year	No recurrence reported
Albodbaij et al[19]	2023	38/M	Not specified	Painless swelling	Wide surgical excision	6 months	No recurrence reported
Dhakal et al[20]	2024	35/F	Not specified	Painless swelling	Wide local excision	6 months	No recurrence reported
Nisha et al[21]	2024	25/F	3 × 3 cm	Painless swelling	Surgical excision	1 month	No complications noted

end of the operation. It was found that using a postoperative palatal plate increased healing process and enhanced mucosal adaptability. Long-term follow-up with the patient continues, as stated in the literature.

In addition to standard clinical considerations, the treatment approach in this case provides a noteworthy perspective on surgical management and postoperative care. The standard protocol for pleomorphic adenomas of the minor salivary glands involves complete excision of the lesion. The distinctive aspect of this case is the adoption of a minimally invasive surgical technique. Rather than performing a wide resection, which is often preferred to prevent recurrence in PA cases, the lesion was conservatively excised without extensive tissue removal or the need for reconstructive surgery. Also, a palatal acrylic plate was applied postoperatively to accelerate the healing process and prevent dead space formation and hematoma. While the use of palatal plates is well documented in various oral surgical procedures, such as impacted canine extractions, its application in the postoperative management of palatal PA cases remains underreported in the literature. This case highlights the potential clinical value of this simple yet effective adjunct in enhancing postoperative outcomes. Additionally, from the patient's perspective, the minimally invasive surgical approach combined with the palatal acrylic plate was positively received, contributing significantly to patient comfort and satisfaction during recovery.

CONCLUSION

This case report emphasizes the significance of accurate diagnosis and complete surgical excision in the management of PA of the hard palate. The use of a palatal acrylic plate contributed to optimal healing. Long-term follow-up is essential to ensure favorable outcomes.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Informed Consent: Written informed consent was obtained from the patient who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – Y.E.; Design – Y.E.; Supervision – M.M.; Resources – M.M.; Materials – Y.E. V.O.; Data Collection and/or Processing – V.O., B.A.; Analysis and/or Interpretation – Y.E.; Literature Search – B.A.; Writing Manuscript – Y.E.; Critical Review – Y.E., B.A.

Declaration of Interests: The authors have no conflict of interest to declare.

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