

Case Report

HISTOPATHOLOGICAL DISCORDANCE IN HARD PALATE CARCINOMA: A RARE CASE REPORT

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ABSTRACT

Squamous cell carcinoma (SCC) of the hard palate is a rare variant of malignancies of the oral cavity and is frequently associated with a delay in diagnosis because of its early presentation resembling benign odontogenic or inflammatory lesions. We report a case of a 32-year-old male who presented with loosening of maxillary molars and intermittent bleeding from a posterior left hard palatal swelling of three months' duration. On clinical examination a firm proliferative lesion was seen involving the left hard palate and adjacent alveolus. Initial histopathology revealed squamous infiltrates with differential diagnoses of mucoepidermoid carcinoma and ameloblastoma with acanthomatous change but immunohistochemistry showed strong p40 positivity and negative mucicarmine and PAS, consistent with a diagnosis of SCC. The contrast-enhanced CT demonstrated local invasion with destruction of the alveolar bone and erosion of the floor of the maxillary sinus, consistent with T4aN0M0 disease. The patient underwent left inferior partial maxillectomy with modified radical neck dissection and immediate reconstruction with temporalis muscle flap. This case illustrates the diagnostic complexity of hard palate carcinoma, the importance of clinicopathologic correlation, and the role of regional flap reconstruction in achieving oncologic clearance with functional restoration.

Keywords: Hard palate carcinoma; squamous cell carcinoma; maxillectomy; temporalis muscle flap; oral cancer; clinical-histopathological discordance.

INTRODUCTION

Squamous cell carcinoma (SCC) of the hard palate is an uncommon malignancy in the larger group of oral squamous cell carcinoma (OSCC). The hard palate is constantly exposed to the same carcinogenic influences as other oral subsites, but the incidence of primary tumors at this site is low. The rarity of the lesion, together with the complex anatomy of the maxilla and its proximity to the maxillary sinus, nasal cavity and palatal dentition, results in diagnostic delay in most cases and therapeutic complexity. Early lesions often resemble benign dental or inflammatory conditions, which can delay biopsy and initiation of definitive treatment.^[1-4]

OSCC continues to be a major global health problem, with the main risk factors being tobacco use, alcohol

consumption, betel quid chewing and poor oral hygiene. Over the last few years, there has been a growing number of reports of oral cancers in younger patients, even those without obvious traditional risk factors, indicating that other genetic, environmental and molecular mechanisms may play a role in oncogenesis.^[5-7] The hard palate is one more diagnostic challenge because lesions in this area may arise not only from the surface epithelium, but also from minor salivary glands, odontogenic remnants or intraosseous structures, increasing the differential diagnosis and complicating histopathological interpretation.^[8-10]

Radiologic evaluation is helpful in delineating tumor extent, invasion of bone and relationship to adjacent structures. Contrast-enhanced computed tomography (CT) and magnetic resonance imaging (MRI) are

complementary modalities, with CT being particularly useful in evaluating cortical destruction and maxillary sinus involvement, and MRI being superior in delineating soft tissue and assessing perineural spread.^[11-13] Accurate staging is important as invasion of bone upstages oral cavity tumors and directly impacts treatment planning. Management of clinically N0 neck in oral cavity cancer is still a matter of discussion. Occult nodal metastasis is a well-known problem in advanced T-stage tumors. It often mandates elective or therapeutic neck dissection depending upon clinical context and institutional practice.^[14-16]

Surgical excision with clear histologic margins is the treatment of choice for resectable SCC of the hard palate. Reconstruction is necessary to restore the separation between the oral and nasal cavities, preserve speech and swallowing and to reduce postoperative morbidity. Microvascular free flaps are often considered the gold standard for large defects,^[17-19] but the temporalis muscle flap remains a reliable and useful option, particularly in resource-limited settings or when the geometry of the defect favors a regional flap. The present report describes a rare case of hard palate SCC with clinical-histopathological discordance and emphasizes the need for a high index of suspicion, multimodal assessment and customized reconstruction.

CASE PRESENTATION

A 32-year-old male patient reported with a history of loosening of left maxillary molars and episodic bleeding from the palatal region for 3 months. He had a history of childhood trauma and presented with a slowly progressive, asymptomatic swelling over the posterior left hard palate. On examination, the mouth opening was 30–35 mm. Intraoral examination revealed fullness over the left posterior hard palate with intact mucosal surface and a small area of ulceration measuring approximately 2 x 1 cm. Palpation revealed a firm to hard proliferative lesion of approximately 5 × 4 cm involving the left hard palate, alveolus and teeth 26 to 28. Tooth 27 was fragile but not mobile; the rest of the oral cavity was normal, and the vestibular sulcus was intact.

An incisional biopsy performed at an outside center revealed infiltrating lobules of squamoid cells with peripheral palisading and central clear cells. The differential diagnosis included mucoepidermoid carcinoma (intraosseous), squamous cell carcinoma and ameloblastoma with acanthomatous alteration. Immunohistochemistry showed strong nuclear positivity for p40. Mucicarmine and PAS stains were negative. These results are in favor of the diagnosis of SCC.

Contrast-enhanced CT showed a soft tissue mass involving the left hard palate and alveolus in the region of 27 and 28 with destruction of the alveolus and erosion of the floor of the maxillary sinus. There was no extension into the nasal cavity, orbit or

intracranial compartment. The lesion was staged clinically as T4aN0M0 (Stage IVA).

Figure 1 illustrates the clinical presentation of the lesion on the left hard palate showing posterior palatal fullness with focal ulceration and intact surrounding mucosa.



Figure 1: Clinical presentation of the lesion with intact surrounding mucosa

[Figure 2] shows the intraoral examination demonstrating a firm proliferative palatal mass involving the left hard palate, alveolus, and adjacent molar region.



Figure 2: Intraoral examination of a firm proliferative palatal mass involving the left hard palate, alveolus, and adjacent molar region

Contrast-enhanced CT scan revealed a soft tissue mass involving the left hard palate and alveolus (27–28 region) with alveolar destruction and erosion of the maxillary sinus floor, without nasal, orbital, or intracranial extension [Figure 3].

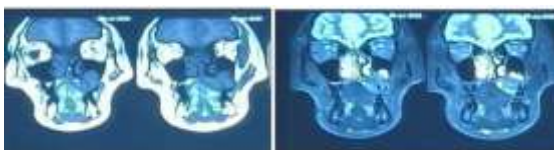


Figure 3: Contrast-enhanced CT scan

[Figure 4] shows the incision for maxillectomy by employing a standard approach, Weber–Fergusson incision with lip split.

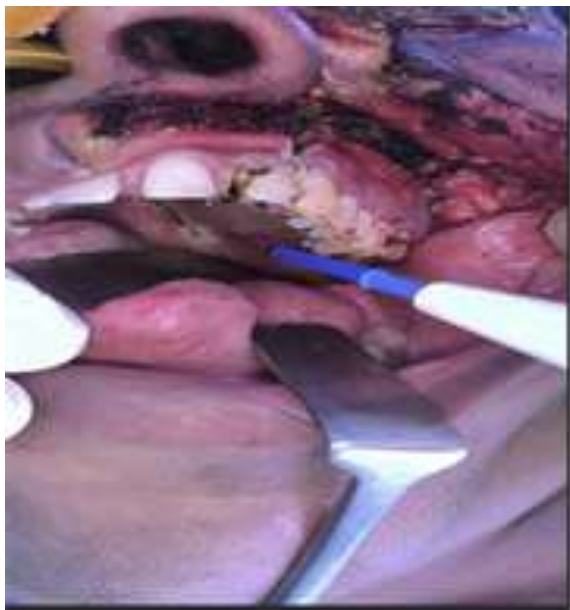


Figure 4: Weber-Fergusson incision with lip split

[Figure 5] shows the intraoperative depiction of the left inferior partial maxillectomy and enbloc resection of the hard palate lesion.



Figure 5: Partial maxillectomy and enbloc resection of the hard palate lesion

[Figure 6] illustrates the harvesting of the temporalis muscle flap through a curvilinear incision above the zygomatic arch, with transposition into the oral cavity.



Figure 6: Harvesting of the temporalis muscle with transposition into the oral cavity

[Figure 7] demonstrates the reconstruction of the palatal defect using a left temporalis muscle flap, with flap inset and sutured edges securing closure.



Figure 7: Reconstruction of the palatal defect

[Figure 8] shows the postoperative discharge image demonstrating satisfactory healing and reconstruction of the palatal defect.



Figure 8: Postoperative discharge image with satisfactory healing and reconstruction of the palatal defect

The patient underwent left inferior partial maxillectomy through Weber-Fergusson approach with lip split and modified radical neck dissection. The palatal defect was reconstructed with a left temporalis muscle flap. The left temporalis muscle was harvested via a curvilinear temporal incision and rotated under the zygomatic arch. The temporalis muscle was inset into the oral cavity. Hemostasis was achieved, and the wound was closed in layers with suction drainage, and postoperative airway monitoring was continued. Nasogastric feeding was continued for 5-7 days to allow flap healing. The postoperative period was uneventful, and the patient was discharged in stable condition.

DISCUSSION

SCC of the hard palate is a rare oral cancer and is often diagnosed late due to the mild early signs which may be mistaken for odontogenic or inflammatory disease. If a patient presents with symptoms such as tooth mobility, palatal swelling, ulceration or spontaneous bleeding, then urgent investigation is indicated especially if these symptoms persist despite conventional dental treatment. Here, the presentation of the patient with molar loosening and bleeding is a good example of diagnostic delay, as is often observed in hard palate tumors.^[1,2,4,8]

The histopathological findings in the present case exhibit the diagnostic dilemma faced in palatal lesions. Nests of squamoid tumor cells with clear cell features can resemble a variety of lesions, including SCC, mucoepidermoid carcinoma, and ameloblastoma with squamous metaplasia. Immunohistochemistry was therefore an important tool. Strong positivity for p40 supported squamous

differentiation while negative mucicarmine and PAS stains argued against mucinous salivary gland neoplasia. Such clinical-histopathological discordance is well recognized in small biopsies of heterogeneous palatal tumors and emphasizes the necessity of correlating pathology with imaging and clinical findings.^[8-10,20]

Radiology was essential in staging and operative planning. CT revealed bony destruction and erosion of the floor of the maxillary sinus, consistent with locally advanced disease. The SCC of the oral cavity has major implications for staging and extent of resection when there is bone invasion. CT is especially helpful when assessing osseous involvement, whereas MRI may be reserved for soft tissue, marrow or perineural evaluation when indicated.^[11-13,21]

The treatment of choice for resectable hard palate SCC is surgical excision with negative margins. Involvement of the alveolus and the floor of the maxillary sinus often necessitates a partial maxillectomy. Local recurrence is the main oncologic problem, and it is influenced by margin status, depth of invasion and biological aggressiveness. Inadequate clearance in the maxilla is associated with persistent disease and poor survival outcomes.^[3,12,14,22]

The management of the clinically N0 neck in carcinomas of the hard palate and maxillary alveolus is controversial. In some selected cases, observation is preferred by some clinicians, but elective neck treatment is increasingly advocated in advanced primary tumors, as occult nodal metastasis can be clinically silent, but prognostically significant. A preference for definitive regional control in a T4a lesion.^[14-16,23] was the basis for the decision to perform a modified radical neck dissection in this case.

Post-maxillectomy reconstruction is vital for regaining the separation of the oral and nasal cavities and functional integrity. Prosthetic obturation is successful for small to moderate defects but may be less predictable in large or irregular composite defects, particularly when retention is compromised. Free tissue transfer provides excellent reconstructive versatility but involves greater microvascular skill and operative resources. The temporalis muscle flap is a good alternative because of its proximity, reliable vascularity and adequate reach for many palatal defects. Its primary limitations are temporal hollowing and potential trismus, but these are usually acceptable trade-offs in properly selected patients.^[17-19,24-26]

Recent advances in reconstructive planning including virtual surgical planning, CAD/CAM-guided obturators and patient-specific implants have improved the precision and functional outcomes in maxillary reconstruction. Such technologies, however, are not available everywhere. Regional flaps remain of great importance in many settings and represent an excellent option when free flap reconstruction is limited by anatomical constraints,

simplicity of execution or availability of resources.^[24-28]

This case reaffirms several important principles. Any persistent swelling of the palate, bleeding lesion, or unexplained loosening of teeth should be biopsied promptly, and with a high index of suspicion. Second, immunohistochemical workup and correlation with clinical and radiologic findings should be performed when the pathology from a small biopsy is equivocal. Third, locally advanced hard palate SCC often necessitates wide excision with partial maxillectomy to obtain adequate margins. Fourth, neck management should be individualized, but is often justified in advanced lesions due to occult disease. Finally, the selection of reconstruction should consider oncologic adequacy, functional restoration, operative complexity and local resources.^[29,30]

CONCLUSION

Squamous cell carcinoma of the hard palate is a rare but clinically significant malignancy presenting with nonspecific dental symptoms and diagnostic uncertainty. Early diagnosis and detailed histopathological analysis and appropriate imaging are essential for accurate diagnosis and staging. Surgical resection with clear margins is the mainstay of treatment, and the temporalis muscle flap provides a reliable reconstructive option in palatal defects, especially in situations where free flap reconstruction may not be possible. Multidisciplinary management is required for optimal oncologic and functional outcomes.

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