

Low-grade Mucoepidermoid Carcinoma of the Hard Palate Presenting as Non-healing Ulcer: Report and Review

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ABSTRACT

Introduction: Presence of numerous minor salivary gland tissues in the posterior part of hard palate increases the possibility of occurrence of salivary gland neoplasms in this area of oral cavity. Minor salivary gland tumor accounts for about 15% of all the salivary gland neoplasm, of which mucoepidermoid carcinoma accounts to about 35.9%.

Case report: This article reports a case of mucoepidermoid carcinoma involving the posterior part of hard palate, presenting as a mucosal ulcer. The lesion was treated by wide surgical excision and healing of the palatal mucosal defect by secondary intention.

Conclusion: The paper highlights the importance of prompt clinical diagnosis of such lesions, thereby reducing postoperative morbidity.

Keywords: Salivary gland neoplasm, palatal ulcer, wide surgical excision.

surgical resection, thereby increasing the risk of postoperative morbidity and mortality. This article reports a case of MEC involving the hard palate, presenting as persistent slow growing ulcer, localized only to the palatal mucosa. The pathology was successfully treated by wide surgical excision.

CASE REPORT

A 65 years old Indian male, was referred to oral surgery clinic by his local dentist, for evaluation of a non-healing wound over left upper back region of mouth since 2 months. The wound was not associated with mild pain, which increased during food intake and mastication. Patient reported no significant medical and family history. Patient had a habit of chewing tobacco quid mixed with lime, four to six times a day since past 35 years. Patient was moderately built and nourished. Extra-oral examination showed symmetrical face with no abnormality. Lymph nodes were not palpable in the submental, submandibular jugulodiagastric and juguloomohyoid regions, bilaterally. Intraoral examination showed 1×1 cm pinkish red crateriform ulcer associated with edema and erythema of surrounding palatal mucosa (figure 1). Anteroposteriorly the lesion extended from distal aspect of 26 to distal aspect of 28. Mediolaterally the lesion extended 1cm from mid palatine raphe to 0.5 cm from marginal gingiva of molars. Margin of the ulcer was erythematous with rolled out border. Based on history and clinical presentation a provisional diagnosis of squamous cell carcinoma of palate was made. The differential diagnosis included, mucoepidermoid carcinoma, pleomorphic adenoma, necrotizing sialometaplasia, aphthous ulcer and adenoid cystic carcinoma.

An incision biopsy was planned and carried under local anesthesia. Microscopic examination of the specimen revealed scanty stratified squamous epithelium. The lesion consisted of islands and cords comprising of large pale stained mucous cells epidermoid cells, hyperchromatic intermediate cells and mucus pooled areas. Surrounding connective tissue comprised of collagen fibers, fibroblasts, extravasated RBC and scanty inflammatory cell infiltrate. Based on histopathological findings a final diagnosis of low grade mucoepidermoid carcinoma was established (figure 2). To study the extent of the lesion and possible spread into adjoining nasal cavity and maxillary antrum, cone beam computed tomography (CBCT) was

INTRODUCTION

Mucoepidermoid carcinoma (MEC) is a malignant epithelial tumor that arises from the pluripotent cells of excretory ducts of salivary gland epithelium. It was first described by Massao and Berger in 1924.¹ Previously it was termed as mucoepidermoid tumor, and was considered to be a benign lesion. WHO in 1990 classified it as a malignant neoplasm and renamed it to mucoepidermoid carcinoma.² Although it accounts for less than 10% of all tumors of salivary glands, it constitutes approximately 30% of all malignant tumors of salivary glands.³

MEC occurs most frequently between the third to sixth decades of life and affects women more often than men, in a ratio of 3:2.⁴ It is frequently seen in parotid gland, followed by minor salivary glands. Involvement of minor salivary glands is commonly seen in region of hard palate, soft palate, retromolar region, buccal mucosa, floor of mouth and labial mucosa. Palate is the most frequent site for MEC (28%), followed by the retromolar region (23%), the floor of the mouth (14%), the buccal mucosa (11%), and the lower lip (9%).⁵ Presentation of MEC of hard palate is variable and depends on the grade of tumor and stage of detection.

MEC of hard palate presents as a slow growing, persistent swelling which is usually painless and soft in consistency. However pain with pus discharge through a sinus tract may be seen in lesion with secondary infection. Ulceration, resorption of underlying bone, numbness of adjacent teeth, tooth mobility, root resorption and indurated/firm mass are indicators of advanced disease or high grade MEC.⁶ Advanced disease and late diagnosis causes extensive spread, with possibility of perforation of the hard palate and invasion into maxillary antrum or nasal cavity. Spread in pterygoid region, maxillary antrum, nasal cavity and the cranial base requires extensive

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advised. CBCT sections of the lesion revealed no perforation of the underlying palatal bone and the lesion was confined to the soft tissues (figure 3).

As the lesion presented with no bony erosion, surgical plan included wide local excision of the lesion, under general anesthesia. Incision marking was made keeping margins of 1 cm into healthy looking mucosa (figure 4a). Mucosal tissue along with the lesion was excised out by subperiosteal dissection. Careful inspection of the surgical bed revealed no erosion, breach in continuity, dehiscence, or change in the surface texture of underlying palatal bone (figure 4b). The palatal surface of the excised specimen showed no periosteal breach. Proper hemostasis of the surgical site was achieved by packing the defect with resorbable gelatin sponge (figure 4c). A prefabricated acrylic splint was applied to the palate and secured with the teeth using 24 gauge stainless steel wires (figure 4d). The excised specimen was sent for histopathological analysis which was consistent for diagnosis of mucoepidermoid carcinoma. The margins of the specimen were free of any dysplastic change. Patient was kept on regular follow-up and showed normal healing of the surgical site. At one year postoperative period the site showed normal healing with no signs of recurrence.

DISCUSSION

Mucoepidermoid carcinoma is the most common malignant salivary gland tumor, accounting for 30% of all malignant tumors.⁴ As the name suggest MEC mainly consists of mucin producing cells and epidermoid cells. These cells are believed to arise from pluripotent reserve cells in the salivary duct system. These reserve cells may undergo neoplastic transformation at any stage of maturation and develop into immature mucin producing cells, duct like epidermoid cell or intermediate cells, leading to formation of MEC.⁷ The most common location of this tumor is parotid gland, accounting for about 60-70% of cases, followed by the minor salivary glands. MEC is about 1.5 times more prevalent in female as compared to males and is commonly seen in third to sixth decade of life. Among minor salivary glands the tumor shows predilection to hard and soft palate.

Etiology of MEC is not definitively known. Prior exposure to ionizing radiation is considered as a contributing factor.⁸ Cases of MEC have been recorded after radiation therapy for thyroid carcinoma or leukemia. Tobacco either in chewing or smoking form has not been implicated as a causative factor of MEC. In the present case the patient had a history of tobacco chewing, which may be an incidental finding rather than the etiological cause.

According to clinical features and histopathologic analysis the tumors are graded into low, intermediate and high grade. A low grade MEC presents as a very slow growing swelling or mass with a characteristic size of less than 3 cm. Histologically these tumors show predominance of mucous secreting cells. They appear blue in color because of the mucin filled spaces that appear blue in color through the overlying mucosa. They are partially encapsulated and contain cystic spaces filled with mucin, lined by mucus secreting, intermediate and epidermoid cells.⁷ An intermediate grade tumor comprises of solid as well as cystic areas with more predominance of solid areas. It contains large amount of intermediate cells that can give rise to both mucous



Figure-1: Intraoral view showing clinical presentation of the lesion.

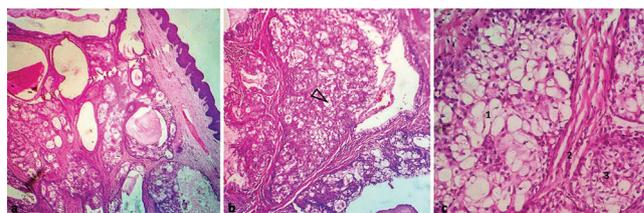


Figure-2: Photomicrographs (H and E stained sections) showing; (a) palatal mucosa with normal overlying epithelium and underlying submucosa with numerous salivary acini (4X magnification); (b) numerous amount of mucous secreting cells in the parenchyma (10X magnification); (c) numerous mucous secreting cells (1), few epitheloid cells (2) and intermediate cells (3)

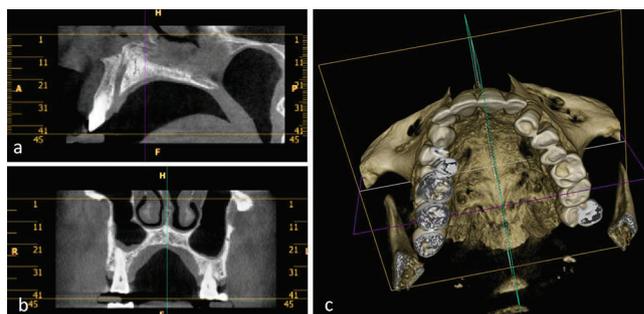


Figure-3: CBCT sectional images (a,b) and 3D Formatted image (c)



Figure-4: Intra-operative views showing incision marking (a); surgical defect after excision (b); surgical site packed with gelatin sponge (c); and palatal plate in-situ (d).

and epidermoid cells.⁷ Clinically it presents as an ulcerated or solid mass, which is firm in consistency with normal colored overlying mucosa. They are faster growing compared to the low grade tumor and show infiltrative behavior. It shows tendency to ulcerate in early stages. The high grade tumors predominantly consist of epithelial cells as the predominant cell, with very few mucinous cells. These are most rapid growing tumors that show a tendency of local tissue invasion in early stages. In late stages these can perforate the underlying cortical plate and invade the vital structures of maxillary antrum, nasal cavity and may grow rapidly to the pterygoids finally reaching the infratemporal spaces and to the cranial base. Distant metastasis is observed in late longstanding cases with an unfavorable prognosis. The lung is the most commonly involved site of metastasis.⁹

Presentation of MEC can be variable thereby mimicking various other pathologies involving the palatal mucosa. A low grade MEC with a bluish hue with compressible nature may give a suspicion of either as an underlying vascular lesion. It may show a bluish papular appearance as that of melanoma. A low grade and intermediate grade MEC with intact mucosa may appear as a diffuse swelling of palate mimicking mucocele and pleomorphic adenoma of palate. Intermediate grade tumor with a slow growth pattern and ulcerated mucosa resembles an adenoid cystic carcinoma and polymorphous low grade adenocarcinoma. A high grade MEC with ulcerated surface, with infiltration and destruction of underlying bone may give an appearance of squamous cell carcinoma. Spread of the high grade tumor into nasal and maxillary antrum gives an impression of nasal and sinus carcinomas.⁷

Mucoepidermoid carcinoma appears as a cystic or tumor like lesion on routine radiography. If larger in size, they may cause displacement of the adjoining teeth. It may perforate the adjoining bone and can present as a well defined radiolucency with definite corticated borders. Low grade lesion can appear as lobulated or irregularly sharply circumscribed cystic areas with intact underlying periosteum. Intermediate tumor may show bony invasion in the form of palatal bone erosion. High grade lesions invariably perforate the underlying bone, to reach the maxillary antrum as well as nasal cavity.⁶ Advanced radiological imaging to study MEC includes, Computed Tomography (CT), Cone Beam Computed Tomography (CBCT) and Magnetic Resonance Imaging (MRI). Extent of the lesion and its invasion in the bone can be evaluated with the help of CT scan and CBCT scans. In the present report the lesion was localized over hard palate and presented as a non-healing ulcer with surrounding area of inflammation. It is important to clinically evaluate such lesion, so as to differentiate between neoplastic disease and other benign or non-neoplastic pathologies. Incision biopsy plays an important role to rule out dysplastic changes and to arrive at a definitive diagnosis. Advanced radiological imaging like CBCT, provide valuable inputs on size, extent and involvement of adjacent vital structures. CBCT was taken in the reported case, showed the lesion to be limited to the palatal mucosa with no involvement of underlying palate, maxillary sinus or nasal cavity. Early detection of the pathology and its localized presentation restricted the extent of the surgery. The lesion was successfully managed by wide soft tissue excision only, thus restricting the extent of resection and postoperative surgical morbidity.

Treatment of MEC depends on aggressiveness and the extent of spread of the tumor. When the tumor is confined to the palatal mucosa with intact periosteum, wide excision of lesion along with underlying mucoperiosteum is advised.¹⁰ When the tumor infiltrates the periosteum with erosion of underlying bone, excision of lesion along with the underlying bone is indicated. If the lesion is restricted to the alveolar region, alveolectomy is performed.¹¹ This consists of removal of the affected alveolus and a limited portion of the maxilla. Failure to detect lesion in its early stage leads to involvement of overlying maxillary sinus and the nasal cavity, requiring more extensive surgery including; palatotomy, infraorbital maxillectomy or extended maxillectomies.¹¹⁻¹² Such procedures often require an extra oral approach and need for further reconstructive surgery of the oral defect.

CONCLUSION

General physicians and dental practitioners may be the first health care provider to examine patients with palatal lesions, presenting as non-healing ulcer or swelling. Knowledge of presentation of MEC and its prompt diagnosis will lead to its early detection, thus preventing further spread into adjoining vital structures, reducing the surgical morbidity and improving the prognosis of the disease.

REFERENCES

1. Eversole LR. Mucoepidermoid carcinoma: Review of 815 reported cases. *J Oral Surg.* 1970;28:490-4.
2. Seifert G, Brocheriou C, Cardex A, Eveson J W. WHO international histological classification of salivary gland tumours. *Path Res Pract.* 1990;186:55-81.
3. Boahene DO, Olsen KD, Lewis JE, Pinheiro AD, Pankratz VS, Bagniewski SM. Mucoepidermoid carcinoma of parotid gland. *Arch Otolaryngol Head Neck Surg.* 2004; 130:849-56.
4. Pires FR, Pringle GA, de Almeida OP, et al: Intra-oral minor salivary gland tumors: A clinicopathological study of 546 cases. *Oral Oncol.* 2007;43:463.
5. Waldron CA, El-Mofty SK, and Gnepp DR: Tumors of the intraoral minor salivary glands: a demographic and histologic study of 426 cases. *Oral Surg Oral Med Oral Pathol.* 1988,66:323-333.
6. Flaitz C. Mucoepidermoid carcinoma of the palate in a child, *American Academy of Pediatric Dentistry.* 2000;22:4,292-293.
7. Munoz E A et al. Atypical clinical manifestation of mucoepidermoid carcinoma in palate *Gen Dent.* 2009;57:e51-3.
8. Saku T, Hayashi Y, Takahara O, Matsuura H, Tokunaga M, Tokunaga M, et al. Salivary gland tumors among atomic bomb survivors, 1950-1987. *Cancer.* 1997;79:1465-75.
9. Shah N, Mahajan A, Patel H, et al: Mucoepidermoid carcinoma of palate: A case report *Sch J. Dent. Sci.,* 2015; 57:e 51-3.
10. Moore, Burkey et al, *Surgical Management of Minor Salivary Gland Neoplasms of the Palate.* The Ochsner Journal. 2008;8:172-180.
11. Theodore O. Truitt, et al, *Surgical management of hard palate malignancies* *Otolaryngol Head Neck Surg.* 1999;121:548-52.
12. M. A. Pogrel *Inferior Hemi-Maxillectomy for Treatment of Palatal Tumors* *J Oral Maxillofac Surg.* 1980;46:85-87.

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