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Mucoepidermoid carcinoma of buccal mucosa masquerading as oral fibroma

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Abstract: Mucoepidermoid carcinoma is a type of cancer which is found primarily in the major and minor salivary glands but they can also develop in other glands such as the tear glands, breast and thyroid. This cancerous growth develops from squamous, mucus-secreting and intermediate cells. They appear as slow growing firm lump painless to painful depending the size, site and grade. We present a case of mucoepidermoid carcinoma of buccal mucosa which was diagnosed as oral fibroma clinically.
Keywords: Mucoepidermoid Carcinoma, Fibroma, Parotid Gland, Histological Grade, Cyst, Invasion.

INTRODUCTION

Mucoepidermoid carcinoma (MEC) is a common malignant tumor of the salivary glands, and was first described as a separate pathologic entity by Stewart *et al*. in 1945 [1]. Mucoepidermoid carcinoma is named so due the mixture of the cells in the tumor which include mucous producing cells, intermediate cells and epidermoid or squamous cells. MEC frequently demonstrates prominent cystic growth. MEC is usually sub-classified as low, intermediate, or high grade on the basis of its histological features, including the presence of cystic spaces, cellular differentiation, proportion of mucous cells, growth pattern, type of invasion, and cytological atypia. The peak age of occurrence of MEC is in the older age group like sixth decade of life; with a mean age of 44.5 years [2]. MEC is common in the parotid gland (44.1%), whereas 25% of patients had tumors in the minor salivary glands. MEC shows a variety of biological behaviors, and the high-grade MEC is a highly aggressive tumor, while low-grade counterpart shows a more benign nature. MEC tumors most of the times occur in major salivary glands; the parotid gland is affected most frequently involved, followed by the minor salivary glands of the palate. Also, the percentage of benign tumors occurring in the palate was higher than that of malignant tumors [2]. The size of the salivary gland is indirectly proportional to the incidence of malignancy of that gland. The smaller glands present increased risk of malignancy.

CASE REPORT

A 40 yrs old male patient came to hospital with a chief complaint of right intraoral swelling which was single painless and firm in nature. Initially it was small but there was a gradual progression to present size. Intra oral examination reveals non tender swelling in buccal mucosa extending line of occlusion adjacent to molars and premolars. Provisional diagnosis of oral fibroma was made. Incisional biopsy was performed under local anesthesia and sent for histopathological examination (HPE). Under microscopic examination, the section exhibited numerous cystic spaces and connective tissue. The cystic lining is comprised of flattened small cells intermediate cells, mucous cells and epidermoid cells are present in connective tissue the cystic space is filled with eosinophilic material (FIGURE 1 & 2). Islands of epidermoid

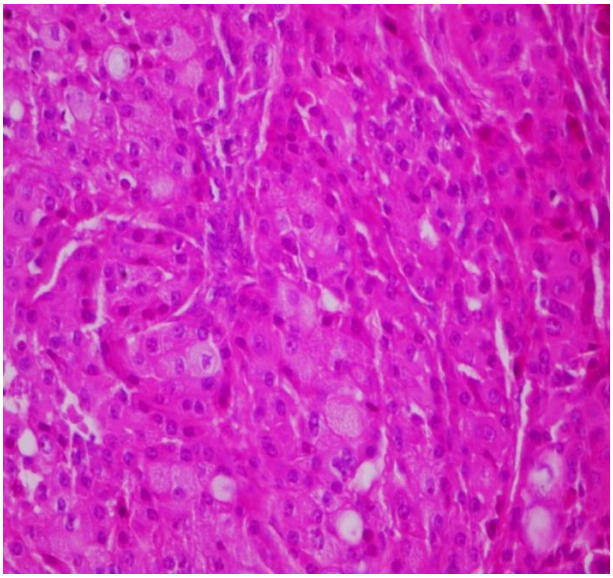

Fig 1: Image showing epidermoid cells

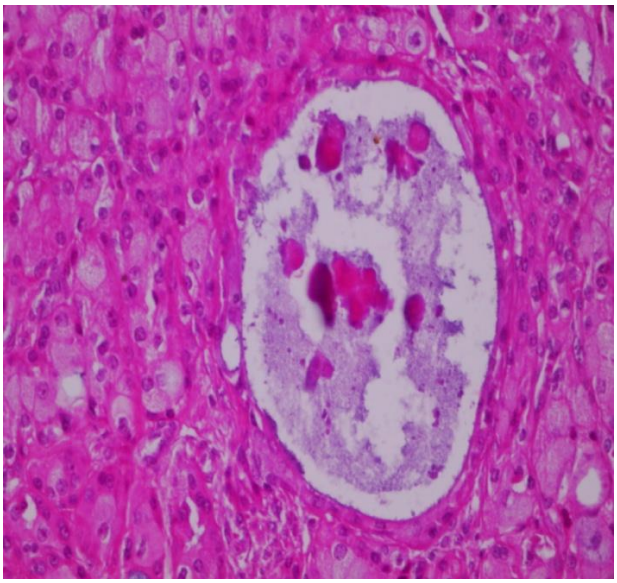

Fig 2: Image showing cystic area lined by mucinous cells, intermediate cells

DISCUSSSION

Epithelial salivary gland neoplasms are comparatively rare to occur in adults and children, they account for less than 3% of all head and neck tumors [3]. Epithelial malignancies taking origin from the minor salivary glands accounts for about 15% of all salivary gland neoplasms [2]. When MEC arises in minor salivary glands they occur at the sites such as soft palate, the retro molar area, the floor of the mouth, the buccal mucosa, the lips and the tongue [4].

Mucoepidermoid carcinoma (MEC) is a malignant epithelial tumor composed of varying portions of epidermoid or squamous, mucous/ mucoid, intermediate, columnar and clear cells that frequently demonstrate prominent cystic growth. On the basis of morphological and cytological features it is divided into low grade MEC, intermediate grade MEC, and high grade MEC'' by Ellis and Auclair [5].

Though the incidence is less than 15% of all salivary gland tumors, MECs account for about 30% of all malignant salivary gland neoplasms that originate from both major and minor glands and 22% and 41% of malignant tumors in the major and minor glands, respectively (5-11). In adults, MECs are most common in the third to fifth decades of life.

No chemical carcinogens or oncogenic viruses are associated with MEC, but prior exposure to ionizing radiation is clearly a contributing factor. According to the author Whatley MEC has been reported after radiation therapy for thyroid carcinoma or leukemia [12].

The translocation of gene material, t (11; 19) (q21; p13.1), has been identified as a solitary abnormality in some cases of MEC and may be an early event in pathogenesis [13]. Cloning of this translocation led to the identification of a fusion transcript of exon 1 of a novel gene termed MECT1 [14]. MECT1 is a gene of unknown function on 10p12-13, with exons 2% to 5% of the mastermind like gene family (MAML2) at 11q21. The transcript is a notch gene coactivator and a newly discovered mechanism of MEC tumorigenesis. By reverse transcription-polymerase chain reaction, the transcript was identified in 2 of 4 MEC tissues and was undetectable in normal tissues, indicating an association between this transcript and MEC.

MEC tumors are usually firm, smooth, often cystic, gray white to tan or pink, with well-defined or sometimes infiltrative borders. Low-grade tumors closely mimic benign cystic tumors. Intermediate-grade and high-grade MECs are usually infiltrative growths with less cystic formations as compared to low-grade tumors.

Microscopic appearance of MECs depends on the histological grade of differentiation. Cystic change are prominent and is the hallmark of low grade MEC and these spaces are lined by matures mucin-producing, intermediate, or epidermoid cells. Quantitatively, mucous cells are more prevalent in low-grade MECs than in intermediate-grade and high-grade tumors. A prominent fibrous stroma is often present. When the mucinous material from the cysts escapes into the stroma, an intense inflammatory reaction and simulates true neoplastic nature of the lesion. The growth pattern of low-grade carcinomas is generally a broad advancing front; they are not highly invasive. Often, a lymphocytic infiltrate with possible germinal center formation is observed at the interface. No perineural or lymphovascular invasion is present. Intermediate-grade tumors have very few and smaller cysts than do low-grade lesions. Intermediate cells are many in these tumors and form solid islands. Slight to moderate

cellular pleomorphism and occasional mitotic figures are seen, but nucleoli are noted more often in intermediate-grade than low-grade lesions. The distinction between intermediate-grade and low-grade tumors is based on the relative proportion of cystic and solid cellular areas and the predominance of intermediate and epidermoid cells in intermediate-grade tumors. Unlike low-grade tumors, intermediate-grade tumors usually have invasive border. High-grade carcinomas are characterized by solid areas of cellular proliferations of epidermoid and intermediate cells, with higher degrees of atypia, anaplasia, multiple mitoses, and necrosis. These are infiltrative tumors in which perineural and lymphovascular invasion is easily found. High-grade carcinomas have scanty cystic areas and less mucin production; thus, a careful search and special stains may be required to identify it.

Early- stage and low grade malignant salivary gland neoplasms are usually curable by adequate surgical excision alone. The most favorable prognosis is when the tumor is in a major salivary gland. The parotid gland tumors have most favorable prognosis than the submandibular gland; the least favorable prognosis is seen with the tumors involving sublingual and minor salivary glands. Large bulky tumors or high grade tumors carry a poorer prognosis and may best be treated by surgical resection combined with postoperative radiation therapy [15].

CONCLUSION

Mucoepidermoid carcinoma (MEC) on the buccal mucosa may resemble fibroma, dental abscess and cysts on gross appearance and leads to the delay in diagnosis. These swellings are to be considered carefully and treating clinician should have interdisciplinary approach so as to bring the best of the treatment. Histopathological examination of the tumor tissue forms the major treatment modality as the grade of the tumor can be decided so as to give the appropriate treatment.

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