Case Report

Malignant myoepithelioma of the maxilla posing a diagnostic dilemma

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ABSTRACT

Malignant myoepithelioma is an extremely rare tumor of the salivary glands. Myoepitheliomas make up less than 1% of all salivary gland tumors. We report of a case of malignant myoepithelioma of the upper jaw in a 55-year old man. The tumor primarily arose from the maxillary sinus and secondarily involved the palate. A diagnosis of pleomorphic adenoma was interpreted, following fine needle aspiration cytology and spindle cell tumor, following incision biopsy with a dilemma. The surgery consisted of subtotal maxillectomy preserving the infra orbital rim and posterior wall of the maxillary sinus, with wide local resection. Neck dissection was not carried out. The final histologic diagnosis of the tumor proper was made out to be malignant myoepithelioma. Three different diagnoses were made in dilemma to reach out the final diagnosis, which was confirmed by immunohistochemistry. The case presented and discussed, underscores the importance of diagnosis and treatment of this rare clinicopathologic entity.

Key words: Malignant myoepithelioma, salivary gland tumors, pleomorphic adenoma, spindle cell tumor

INTRODUCTION

The term myoepithelioma was introduced by Sheldon in 1943. Myoepitheliomas, being uncommon, make up less than 1% of all salivary gland tumors. Most are benign, but some are malignant. The latter entity accounts for about 10% of all myoepitheliomas. Malignant myoepithelioma (myoepithelial carcinoma) is an extremely rare tumor of the salivary glands and was described much later by Stromayer in 1975.[1]

Most of these tumors are located in the parotid gland, while others occur in the submandibular gland or in the accessory glands of the oral cavity.[2] The average of patients at presentation is about 55 years (range 14-86), and the sex incidence is approximately equal. The tumors are usually painless and the duration of symptoms, before diagnosis, may range from months to years. Although the clinical and biological behavior of these tumors is unknown, they are locally destructive, with metastases being uncommon.[3]

CASE REPORT

A 55-year old man reported to our department with a 4-month history of a slowly enlarging, asymptomatic mass over the right facial aspect of the maxilla and also a rapidly enlarging asymptomatic mass involving the right side of the palate, since 20 days. History of the present illness revealed that the patient had undergone extraction of the maxillary right first molar due to pain and mobility at a private clinic 4 months ago. Initially, it was associated with five episodes of nasal discharge (blood-tinged), at intervals of 4-5 days, which stopped after taking medications.

Clinically, there was diffuse swelling of the right cheek with obliteration of the right nasolabial fold. The overlying skin was intact and normal. There was neither
pain nor neurologic deficit. The orbit was intact. The submandibular lymph nodes bilaterally were palpable, measuring 1 × 0.5 cm in dimension, ovoid in shape, and freely mobile. Tenderness was elicited in the right submandibular group.

A 6 × 3 cm in size, intraoral, smooth-surfaced, submucosal swelling in the right palatal region extending from the 1st premolar to the 3rd molar, with extension into the buccal vestibule through the missing 1st molar space, obliterating it to a minimal degree, was seen [Figure 1]. The overlying mucosa was intact and healthy. The teeth in around the tumor mass were mobile.

After clinical examination, a benign tumor of minor salivary glands, arising either from the palate or right maxillary sinus, was suspected.

Panoramic radiography revealed a well-defined, unilocular radiolucency in the right maxilla, extending from the right maxillary 3rd molar to the right 1st premolar, causing no displacement of the roots of the teeth. The maxillary sinus was completely surrounded by intact bone except in the region of the 1st molar where a discontinuity in the sinus floor was detected. Paranasal sinus radiography revealed a well-defined, radiopaque mass in the right maxillary sinus [Figure 2].

A computed tomographic (CT) scan revealed a well-defined, well-circumscribed, encapsulated mass, involving the right maxilla, extending superiorly to the sinus roof. The mass revealed soft-tissue extensions into the palatal vault. The maxillary sinus and nasal floor were completely surrounded by intact bone, except in the region of the 1st molar, where it appeared discontinuous [Figure 3].

An fine needle aspiration cytology of the swelling was performed. The smear showed highly cellular, cohesive clusters of epithelial cells with distinct cell borders, resembling salivary gland epithelial cells. They were round to cuboid, with distinct nuclei and nucleoli. Many spindle-shaped, myoepithelial cells were also seen scattered singly and in small clusters against a fibrillar, myxoid stromal background. A basement membrane-like, pinkish substance was also seen scattered amidst the epithelial cells. Some of the epithelial cells showed the typical acinar pattern of arrangement against a background of abundant myxoid stroma. These features were in favor of pleomorphic adenoma.

An intraoral incision biopsy was performed under local anesthesia. The lesion consisted of friable, hemorrhagic soft tissue. Macroscopically, the specimen measured 1.5 × 1 × 0.8 cm in dimension, was soft to firm in consistency, ovoid, and whitish to brown in color. Microscopically, a parakeratinized stratified squamous epithelium with short rete ridges, elongated spindle-shaped cells arranged in fascicles focally and few myxoid areas were noted. The subjacent connective tissue was highly cellular with dense, mixed inflammatory-cell infiltrate, plasma cells and blood vessels. Upon histopathologic findings, the diagnosis of spindle-cell tumor was interpreted.

The patient underwent surgical intervention under nasotracheal, hypotensive, general anesthesia. The tumor was approached via a Weber-Ferguson incision. A wide, local resection was carried out in the form of a right subtotal maxillectomy including the all teeth of the involved quadrant, preserving the infra orbital rim and posterior wall of the maxillary sinus, and the defect was resected out [Figure 4]. The resulting maxillary defect was reconstructed using a temporalis myofascial flap. Neck dissection was not carried out in this case.

The resected specimen revealed a thick, fibrous pseudocapsule, consisting of highly cellular stroma of spindle cells, plasmacytoid cells, and epitheloid cells with mitoses and lesser degree of pleomorphism. Anastomosing cords of spindle cells in a fibro-myxoid stroma were the dominant feature appreciable. In some areas, cords of cells with epithelial islands, with luminal spaces and peripheral palisading, were seen. Areas of hyalinization and chondro-myxoid differentiation were also seen [Figure 5].

The histopathological features of the tumor proper were diagnostic of Malignant Myoepithelioma of the maxilla. Immunohistochemical study in our case favored the diagnosis of malignant myoepithelial tumor [Figure 6]. Most tumor cells were strongly reactive to pancytokeratin, epithelial membrane antigen, calponin, and nuclear positivity for S-100 protein. The immunoreaction for muscle-specific actin was negative.

Distant metastasis was ruled out by a chest radiograph, ultrasonography of the neck and abdomen, and supplemental liver function tests. To date, the case we present had no clinical or radiological evidence of loco-regional and distant metastases following surgical intervention, posing a favorable to good prognosis.

**Discussion**

Myoepithelial carcinoma, known as malignant myoepithelioma, is the malignant counterpart of myoepithelioma. Malignant myoepithelioma has been added to the second edition of the World Health Organization’s histological classification of salivary gland tumor. Manuel et al. had previously proposed a classification system comprising de novo invasive
or noninvasive pleomorphic carcinoma, invasive or noninvasive carcinoma with no pleomorphic adenoma, and true malignant mixed tumor (carcinosarcoma), which may arise alone or from a preexisting pleomorphic adenoma. Myoepithelial carcinomas of the salivary gland should be classified as high-grade malignancies. Overall, the prognosis of myoepithelial carcinoma is poor.

In our case, the tumor was located in the right palate and adjoining maxillary vestibule. The age of presentation was 55 years. Despite the fact that myoepithelial cells
play an active role in the histogenesis of several types of salivary gland tumors, such tumors are rare.

It arises in two different clinical settings: either de novo or in a recurrent pleomorphic adenoma. De novo tumors tend to be more aggressive and have a short clinical history. Those that arise in recurrent pleomorphic adenomas have a long clinical history and multiple recurrences. The tumor cells may be spindle-shaped or more rounded, sometimes with eosinophilic cytoplasm, the so-called “plasmacytoid” cells. The tumor may be quite cellular but in other areas the stroma may be more conspicuous and myxoid. The differential diagnosis must exclude sarcoma. The present case completely satisfied the two fundamental histologic criteria of malignant myoepithelioma: It was unequivocally malignant and exclusively myoepithelial, but it did not proved to be malignant on the basis of the infiltrative growth, the multicentric necroses and the marked cellular atypia. It proved to be malignant myoepithelioma by the presence of different cell populations: Spindle cells, plasmacytoid cells, and epitheloid cells with mitoses and pleomorphism. Anastomosing cords of spindle cells in a fibro-myxoid stroma were the dominant feature appreciable.

The clinical and biological behavior of this tumor is not completely understood despite being locally invasive and destructive. The duration of symptoms before diagnosis is long, ranging from 1 month to 3 years (in this case, 4-5 months).

There are reports of malignant myoepitheliomas with metastatic potential and others with a strong tendency to local recurrence.[3] When metastases occur, they can be found in neck lymph nodes and at distant sites, including lungs, kidney, brain, and bones.[7]

Distant metastasis, of our case in discussion, was ruled out by a chest radiograph, ultrasonography of the neck and abdomen, and supplemental liver function tests. Ultrasonography of the neck revealed two enlarged submandibular lymph nodes on the right side, measuring $1.7 \times 0.8$ and $1.0 \times 0.8$ cm, and one enlarged submandibular lymph node on the left, measuring $1.2 \times 0.8$ cm. All were found to be reactive, nonneoplastic inflammatory nodes. The liver function tests were within the normal parametric range. Neither did the ultrasound of the abdomen nor the chest X-ray reveal any distant metastases.

Because of the variable appearance of malignant myoepithelioma, the differential diagnosis is wide. It can resemble other carcinomas including polymorphous low-grade adenocarcinoma.[7]

Presently, the treatment of choice advocated is wide local resection. Therapeutic neck dissection is indicated when there are clinically or radiologically apparent metastases in cervical lymph nodes.[3] The case in discussion did not warrant a neck dissection, as mentioned earlier, but instead a “wait and watch policy” had been adopted.

The role of radio- and chemotherapy is not yet established. Prognosis is based on histologic appearance. The prognosis of malignant myoepitheliomas is variable, but approximately one-third of patients are free of disease after surgical intervention, one-third have a local recurrence, and the remaining die from the disease.[6]

To date, the case we present had no clinical or radiological evidence of loco-regional and distant metastases following surgical intervention, posing a favorable to good prognosis.

**CONCLUSION**

To conclude, such sporadic and complex entities pose diagnostic dilemmas, and hence, warrant comprehensive clinical and radiological examination, accurate microscopic diagnosis, devising definitive therapeutic strategies ranging from conservative to radical, whether or not to indicate radiotherapy, and of paramount importance, the assessment of patient prognosis. Moreover, each aspect of patient management merits full consideration, decisively bearing in mind the risk-benefit ratio of the case in hand.

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