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Primary cutaneous mucoepidermoid carcinoma infiltrating the parotid gland

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Abstract. – Mucoepidermoid carcinoma (MEC) of the skin is an extremely rare neoplasm but is common in the major and minor salivary glands accounting of approximately 30% of all malignant tumors arising from these glands. Cutaneous involvement should be carefully assessed to exclude the possibility of metastases from distant sites. We report an 81 year-old man presenting a primary cutaneous mucoepidermoid carcinoma infiltrating his left parotid gland. Excision of the affected skin and a total parotidectomy with supraomohyoid neck dissection (level I-III) was performed followed by radiotherapy. No relapse after 2 years follow up has been observed.

Since the primary cutaneous mucoepidermoid carcinoma is an aggressive neoplasm that frequently develops metastases it is important to distinguish it from primary MEC originating from the salivary glands for better management and suitable therapeutic decisions.

Key Words:
Mucoepidermoid carcinoma, Parotid neoplasms, Skin neoplasms.

Introduction

Mucoepidermoid carcinoma (MEC) is a relatively common neoplasm. Primary MEC accounts for approximately 30% of all malignant tumors arising in major and minor salivary glands[1,2]. Most commonly affects the salivary glands, especially the parotid but also submandibular, and minor salivary glands. In the lacrimal gland the incidence is approximately 1.5-4%[3,4]. It may rarely be reported in the esophagus, lung, bronchi and trachea, also in the breast, thymus, thyroid, pancreas and female genital tract[5-12]. Cutaneous involvement as a primary origin is extremely rare with only 11 cases reported in the medical literature[13-23]. Thus, in cases when the skin is affected it is important to rule out the possibility of metastases from a distant site. Several authors have advocated the use of p63, a member of the p53 gene family, to differentiate between primary epidermal or adnexal neoplasms from metastatic tumors[24,25].

MEC is often used synonymously with adenosquamous carcinoma (ASC)[26] but ASC and its clinical behavior is quite different from MEC[27-30], especially in the case of a low-grade MEC, whether in the salivary gland or the skin[31,32]. MEC is usually a low-grade neoplasm with limited metastatic potential, whereas adenosquamous carcinoma (ASC) is a high-grade neoplasm prone to local recurrence and metastatic dissemination.

Case Report

We report an 81 year-old man presenting with a primary cutaneous mucoepidermoid carcinoma over his left cheek. He noticed a progressively growing persistent ulcerated skin lesion. Physical examination showed an erythematous, well defined, ulcerated nodule on his left cheek. No systemic symptoms have been found while only lateral-cervical adenopathy was present.

Echotomography, fine needle aspiration and head-neck MRI have been performed and showed a lesion infiltrating the parotid and extending to the parapharyngeal and paravertebral spaces (Figure 1).

Metastasis from another primary origin different from skin was ruled out by a complete physical examination, blood test and a total body PET CT scan.

The affected skin was excised and total parotidectomy with supraomohyoid neck dissection (level I-III) have been performed followed by radiotherapy. The patient was disease-free after two years follow-up.

The sample showed a grey-brownish fragment that measured cm 1.2 × 0.5 with cystic and mucoid aspects (Figure 2). The histologic exam, in Haematoxylin Eosin staining, demonstrated a cystic formation full of mucoid material and fibrotic connective tissue with focal chronic in-

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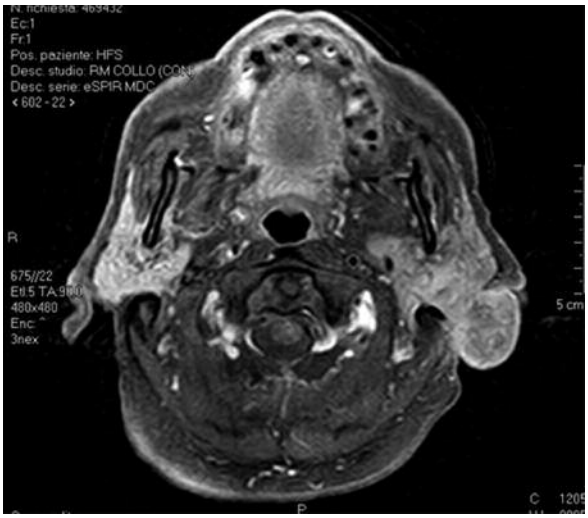

Figure 1. A voluminous cutaneous lesion of about 7 cm that infiltrates the left parotid, involving the superficial and deep lobes. It extends to the parapharyngeal and paravertebral spaces reaching the apex of the mastoid and the styloid process. Lymph nodes of about 1.5 cm are present in the left laterocervical, jugulo-digastric and submandibular sites.

flammatory infiltration. It is delimited by an epithelium constituted of a mixture of mucous cells, cuboidal intermediate cells and epidermoid cells; sometimes it formed papillary structures. In the pericystic connective tissue small nests of epithelium characterized by mucipar glands and a solid mass of stratified cells were found (Figure 3). The histology of the neck dissection showed metastases to two lateral-cervical lymph nodes at levels I and II. Immunohistochemistry resulted positive for cytokeratin 5/6/7, anti-human epithelial membrane antigen (EMA) and P63 and was negative for cytokeratin 20, S100 and MelanA. The neoplasm was graded as an in-

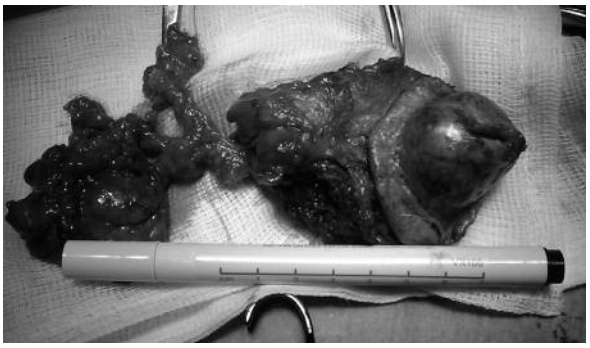

Figure 2. Macroscopic aspect of an excised primary cutaneous mucoepidermoid carcinoma. Note the 7 cm deep infiltration of the lesion.

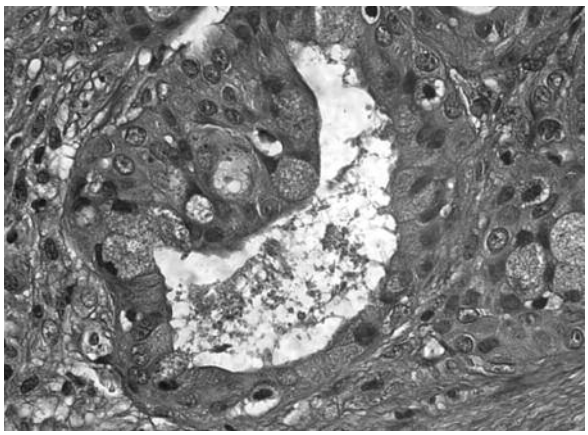

Figure 3. A 40 × Haematoxylin Eosin staining of mucoepidermoid carcinoma of the skin.

termediate (grade II) mucoepidermoid carcinoma. Since the histological pattern was suggestive that it originated from sweat glands, absent in salivary glands, together with the positive p63 staining we concluded that the appropriate diagnosis is that of a primary cutaneous mucoepidermoid carcinoma infiltrating the parotid gland hence excluding a primary neoplasm of the parotid infiltrating the skin.

Discussion

Mucoepidermoid carcinoma was established as a unique entity in 1945 by Stewart et al[33,39] when they reported a series of 45 salivary gland tumors. It is characterized by mixtures of mucous-secreting cells, epidermoid cells, and intermediate basaloid cells in various patterns[34]. Early attempts to distinguish between benign and malignant variants have been abandoned, with all variants currently treated as malignant[35]. Histologic classification most often divides them into low-grade (well-differentiated) and high-grade (poorly differentiated) subtypes, although an intermediate grade has also been proposed. Also three groups have been described based on the proportion of mucin-secreting, squamous, intermediate, and clear cells and the degree of maturation of these cells. Immunohistochemical studies are positive for CK7, PanCK, EMA, and carcinoembryonic antigen while they result negative for CK20 and anti-human gross cystic disease fluid protein[36]. Rare cases of cutaneous metastasis of MEC originating from different sites like for example bronchial origin should be taken into

account[37]. For this reason a careful evaluation of patients to look for occult neoplasms in distant sites needs to be done. It is recommended to perform blood chemistry profile, CBC together with diagnostic imaging like total body PET CT scan and P63 immunostaining.

While more than 50% of primary cutaneous MEC would develop distant metastasis[37], only 2%, 16%, and 35% of low-, intermediate, and high-grade tumors from salivary glands respectively have been reported to develop metastasis[26]. Considering the more aggressive behavior of primary cutaneous MEC, many authors consider it to be an adenosquamous carcinoma and thus consider it as a distinct and more aggressive entity to avoid confusion with the less aggressive high grade mucoepidermoid carcinoma of the major salivary glands. Although some Authors emphasize that primary mucoepidermoid carcinoma of the skin should be considered as a different entity from adenosquamous carcinoma and stress that the first is less aggressive than the latter[19,38,39].

Conclusions

The diagnosis of MEC is based on many findings from histopathology, immunohistochemistry and clinical features. Each of these findings is essential for an accurate diagnosis. Considering the aggressive behavior of the cutaneous MEC/ASC it is mandatory to perform the required exams to distinguish this entity from the less aggressive MEC originating from the salivary glands or other distant primary sites to avoid relapses and to decide the most suitable therapy for each entity.

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