An Unusual Morphological Presentation of Cutaneous Squamous Cell Carcinoma Mimicking Microcystic Adnexal Carcinoma: A Diagnostic Pitfall

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Abstract

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Reference


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An Unusual Morphological Presentation of Cutaneous Squamous Cell Carcinoma Mimicking Microcystic Adnexal Carcinoma: A Diagnostic Pitfall

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Keywords
Squamous cell carcinoma · Microcystic adnexal carcinoma · Misdiagnosis

Abstract
Cutaneous squamous cell carcinoma (SCC) exhibiting microcystic adnexal carcinoma-like differentiation is an extremely rare tumor that shows both squamous and ductal differentiation. This tumor is often misdiagnosed clinically and histologically and is confused with other malignant and benign cutaneous neoplasms. It usually occurs in middle-aged to older adults. Here, we report a case of SCC with microcystic adnexal carcinoma-like differentiation on the left chin of a 71-year-old male. The histopathological examination revealed a nodular tumor infiltrating the dermis, subcutaneous fat, and striated muscle tissue, consisting of both prominent atypical squamous differentiation and foci of duct-like structures.

Introduction
Cutaneous squamous cell carcinoma (SCC) is a malignant neoplasm originating in the epidermis in which the neoplastic cells show variable squamous differentiation [1]. Most cases arise on the sun-exposed skin of elderly people. Microcystic adnexal carcinoma (MAC) is a distinctive malignant appendageal tumor [2]. This neoplasm is locally aggressive and...
deeply infiltrating, mostly occurring on the face. Rarely, low-grade SCC shows unusual histo-
logical aspects including focal (pseudo)ductal differentiation, thus resembling MAC and
causing a diagnostic challenge. Here, we present a rare case of SCC located on the chin
mimicking MAC.

Case Report

A 71-year-old male was admitted to the Department of Otorhinolaryngology, Head and
Neck Surgery, University Hospital of Geneva, Geneva, Switzerland, with a nodular lesion that
was soft in consistency and located on the left paramedian part of the chin. It had been present
for over 25 years and showed recent growth (6 months), producing purulent material after
being incised 1 month before. Clinical examination showed a cutaneous lesion measuring 3 x
2 cm, and the clinical differential diagnosis was infected epidermoid cyst and subcutaneous
neoplasm.

The patient’s previous medical and surgical history included a cholecystectomy, and an
upper gastrointestinal bleeding developed on a gastric ulcer. Laboratory examination was
unremarkable. An ultrasound investigation revealed a dermal and subcutaneous, mostly
well-encapsulated cystic lesion measuring 2.3 cm in its greatest dimension and 1.07 cm in
thickness. The lesion showed an irregular, deep border lying in close proximity with the
aponeurosis.

An incisional biopsy of the lesion was performed. Histologically, the specimen showed an
atypical squamous cell proliferation arising from the epidermis and extending to the dermis,
consistent with an invasive, moderately to well-differentiated SCC.

A facial magnetic resonance imaging and a neck computed tomography scan were
performed to assess any eventual tumoral extension in the maxillary bone and locoregional
lymph nodes. The radiological analysis revealed a suspected, poorly circumscribed, ulcerated,
cutaneous, and subcutaneous lesion of the chin invading the perimaxillary striated muscle
tissue without any osseous involvement. Two bilateral parotid lesions consistent with
Warthin tumors were also radiologically detected.

Seventeen days after biopsy, a radical resection of the tumor followed by local recon-
struction with a rhomboid graft was performed. Histologically, the excision material revealed
an ulcerated squamous cell tumor consisting of some clear cells and microcystic structures
filled with eosinophilic keratinous material. There were also micronodules showing some
prominent ductal differentiation resembling MAC, associated with foci of calcification. The
tumor invaded the whole dermis, subcutaneous fat, and striated muscle tissue in the form of
atypical squamous cells, micronodules, and cords (Fig. 1). The tumoral depth was evaluated
to be 1.7 cm, and the resection margins were free of tumor. There was only 1 image of peri-
neural tumoral invasion.

The tumor cells showed diffuse immunostaining for pan-cytokeratins and p63. The focal
ductal structures were highlighted by the expression of epithelial membrane antigen and
carcinoembryogenic antigen (Fig.1). The tumor cells were negative for cytokeratin 7, cyto-
keratin 20, Ber-EP4 (Ep-CAM), and androgen receptor.

This histological aspect was highly reminiscent of cutaneous MAC but with areas with
pure squamous differentiation consistent with an invasive SCC mimicking MAC.

There was no further treatment. A clinical and ultrasonographic surveillance were
performed every 3 months. The patient was followed up at 3 and 6 months postoperatively
and showed no suspected cervical lymphadenopathy. The parotid lesions remained unal-
tered. A squamous papilloma of the right anterior oropharyngeal pillar has been detected and
biopsied at 6 months during the follow-up.
Both cutaneous SCC and MAC are infiltrating tumors that can sometimes be difficult to distinguish one from another clinically and histologically. MAC occurs predominantly on the head and neck, in the centrofacial region, and mainly in the white population [3]. It is a slowly growing, indurated nodule, plaque, or partially cystic lesion that has often been present for many years. Radiation therapy is a possible etiologic factor [3–5]. This tumor is usually asymptomatic without ulceration and is often unnoticed. Sometimes, symptoms such as numbness, burning, paresthesia, and tenderness appear, usually caused by the high frequency of perineural invasion [3, 4]. MAC is a locally aggressive tumor that deeply invades the adjacent tissue and rarely metastasizes [6, 7]. Histologically, MAC is composed of keratin-filled cysts, nests, and cords of bland basaloid and/or squamoid cells with the formation of ductal structures within a desmoplastic stroma. These ducts and nests can show tail-like appearances [3, 6]. There is no connection to the epidermis. In general, tumor aggregates are
smaller as the tumor invades more deeply. Typically, there are no cytologic atypia, mitoses, or tumoral necrosis, but infiltrative growth and perineural invasion are a feature [6, 8].

The histologic differential diagnosis includes malignant tumors such as SCC with MAC-like differentiation, squamoid eccrine ductal carcinoma, morpheiform basal cell carcinoma, eccrine porocarcinoma with squamous differentiation, and other benign adnexal tumors such as trichoadenoma, desmoplastic trichoepithelioma, and syringoma [2, 3]. Misdiagnosis can easily occur, especially as a result of an inadequately small biopsy specimen that does not involve the deeper portion of the tumor.

Rarely, cutaneous SCC has an unusual morphological presentation with some focal MAC-like differentiation as in our case. Histologically, it is characterized by an infiltrative pattern of atypical cells forming cords, minute nests, micronodules, and foci of duct-like structures with a prominent desmoplastic stromal reaction resembling MAC. Ductal differentiation is highlighted by epithelial membrane antigen and carcinoembryogenic antigen immunostaining. It is important to know that, despite the invasive nature of MAC, the tumor cells are cytologically bland with rare to absent mitoses and a lack of cell necrosis, whereas the tumor cells in cutaneous SCC show moderate to high-grade cytologic atypia with the presence of variable mitotic activity and with or without tumoral necrosis. Moreover, a proper sampling or serial sections will often reveal an in situ component in SCC.

Another rare tumor known as squamoid eccrine ductal carcinoma has been described exhibiting both squamous and adnexal ductal differentiation [9, 10]. The cell origin of this tumor is controversial as it may represent a SCC arising from the eccrine ducts or a subtype of eccrine carcinoma with squamous differentiation, or it could be considered a biphenotypic carcinoma. It has been classified as a variant of cutaneous SCC and as a type of eccrine carcinoma. It usually occurs in elderly adults, on sun-damaged skin, particularly in the head and neck region. Histologically, squamoid eccrine ductal carcinoma is a poorly demarcated tumor showing a biphasic appearance and an infiltrative growth in the dermis and sometimes subcutaneous tissue. Superficially, the tumor has the same aspect as a well-differentiated SCC with epidermal connection and eventually a background of SCC in situ or actinic keratosis. In the deeper portion, there are cords and strands with sweat duct differentiation in a desmoplastic stroma. Cytologic atypia is moderate to severe. Although morphologically our tumor resembled squamoid eccrine ductal carcinoma, the presence of multiple keratin cysts suggested a SCC with MAC-like differentiation.

Cutaneous SCC with MAC-like features is an unusual cutaneous neoplasm, which should be considered in the differential diagnosis of any MAC-like tumors. However, to make the correct diagnosis, it is important to demonstrate its biphasic growth component and especially the presence of highly atypical cells.

Pathologists should be aware of this underrecognized phenomenon showing histologic features of SCC with MAC-like differentiation.

**Statement of Ethics**

The patient gave his informed consent for this publication.

**Disclosure Statement**

The authors have no conflicts of interest to disclose.
References


