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Multifocal squamous cell carcinoma arising in a Favre-Racouchot lesion – report of two cases and review of the literature

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Abstract

Background: Favre-Racouchot syndrome (nodular cutaneous elastosis with cysts and comedones) is a cutaneous disease characterized by coexistence of cysts, comedones and elastotic nodules in actinically damaged skin, typically on the face. Ultraviolet radiation plays a significant role in the development of the disease. Unilateral lesions have been described.

Main observation: In this report we present two cases of squamous cell carcinoma arising in a unilateral Favre-Racouchot plaque. Both patients, fair-skinned, elderly, with impaired immune function developed large, deep invasive tumors with perineural extension.

Conclusions: Squamous cell carcinomas of large size and prominent invasive growth developing in immunocompromised individuals carry poor prognosis with regard to recurrence rate and metastasis. Manifestations of malignancy as described in this report, indicate the importance of close follow-up of patients with Favre-Racouchot syndrome. (*J Dermatol Case Rep*. 2015; 9(4): 103-106)

Introduction

Favre-Racouchot syndrome (Favre-Racouchot disease, **nodular cutaneous elastosis with cysts and comedones, FR**) is a cutaneous disease characterized by coexistence of cysts, comedones and elastotic nodules in actinically damaged skin, typically in the face.[1,2] Chronic exposure to sunlight and cigarette smoking are considered important etiological factors for lesion development. These risk factors are being shared by squamous cell carcinoma (SCC), the second most common skin cancer accounting for 10-20% of all cutaneous carcinomas. Other risk factors of SCC include fair skin and immunosuppression. SCC may develop *de novo*, from pre-existing lesions such as Morbus Bowen or within chronic wounds, scars and burns.[3] Herein, we present a previously unreported occurrence of (multifocal) squamous cell carcinoma arising in a Favre-Racouchot lesion.

Case report 1

An 80-year-old woman, with a history of rheumatoid arthritis, presented with a unilateral lesion in the temporal area comprising a sharply demarcated plaque with white papules, clinically suspicious for Favre-Racouchot. On the biopsy a diagnosis of (extensive) solar comedones was made. Half a year later the patient presented with a tumor mass originating inside the FR plaque. Histopathologic examination showed a broad exoendophytic lesion with an invaginating mass of keratinizing squamous epithelium and multiple keratin-filled craters. Basal part of the lesion demonstrated multifocal proliferation of atypical squamous epithelial cells extending into the dermis and into subcutaneous fat (linear extension 2,3 cm; invasion depth 2 mm). Part of the tumor groups showed infiltration along the nerve sheaths. Adjacent dermis contained multiple keratin-filled cysts with enlarged

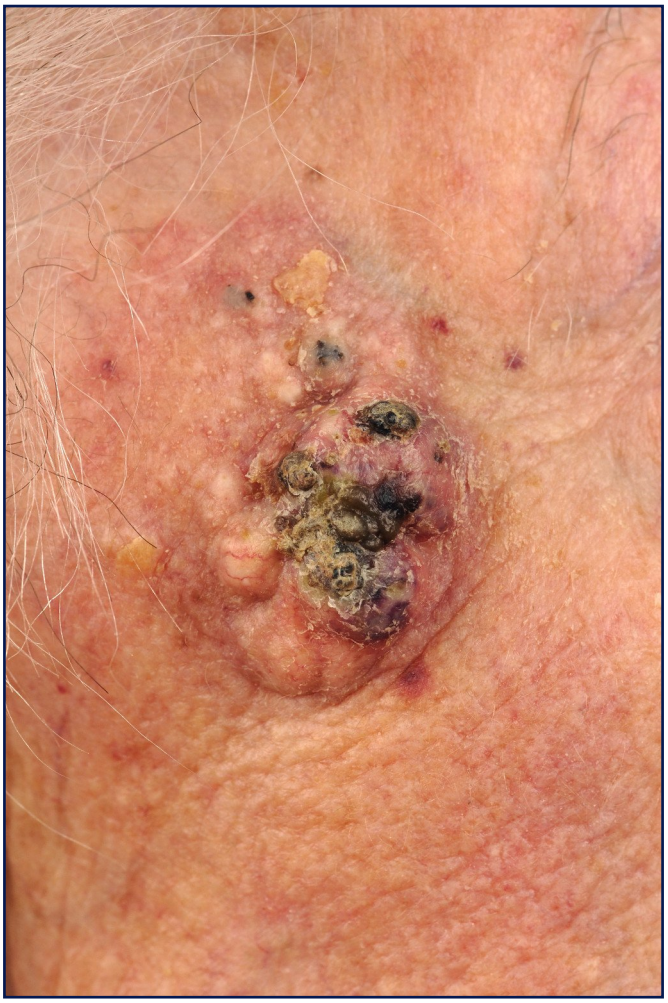

Figure 1

Clinical presentation case 1. *Nummular tumor with a hyperkeratotic plug surrounded by comedones in the temporal area of an 80-year-old female patient.*

infundibula surrounded by marked actinic elastosis and atrophic sebaceous glands. Skin morphology at clinical presentation is illustrated by Figure 1; histopathological findings are described in Figure 2 and 3.

Ten years earlier, the patient was diagnosed with cutaneous squamous cell carcinoma of the right eyebrow with lymphogenic metastasis to the right parotid gland. At that time, the SCC was radically excised. On histopathological examination the tumor was deeply invasive reaching into striated muscle with perineural extension. Patient underwent resection of the parotid gland and modified radical lymph node resection of the neck, followed by radiotherapy. Radiation field included the right temporal area in which the solar comedones were diagnosed ten years later.

Case report 2

A 70-year-old man, with a history of chronic lymphatic leukemia, was referred to the hospital for a tumor mass in the right temporal area. Over a period of 1,5 years the lesion became progressively larger, painful and sporadically leaked yellowish fluid. Examination showed a nodular lesion of 5 cm with a central depression, surrounded by multiple, yellow translucent papules. Several biopsies from the lesion were taken and suspicion of squamous cell carcinoma was raised in one of the biopsies. Other biopsies demonstrated severely actinically damaged skin with significant solar elastosis and multiple (epidermal) cysts. Subsequent radical excision of the tumor demonstrated a large endophytic lesion with invaginating nests of atypical keratinizing squamous epithelium, deeply infiltrating the dermis down to the fascia temporalis (linear extension 2,6 cm; invasion depth 6 mm). Multiple keratin-filled cysts were present amidst the tumor strands. Large parts of the tumor showed central acantholytic changes, and in one of the slides perineural invasion was noticed. Regularly, multinucleated giant cells enveloping the keratinocytic debris of burst cysts were seen. Skin morphology at clinical presentation is illustrated by Figure 4; histopathological findings are described in Figure 5.

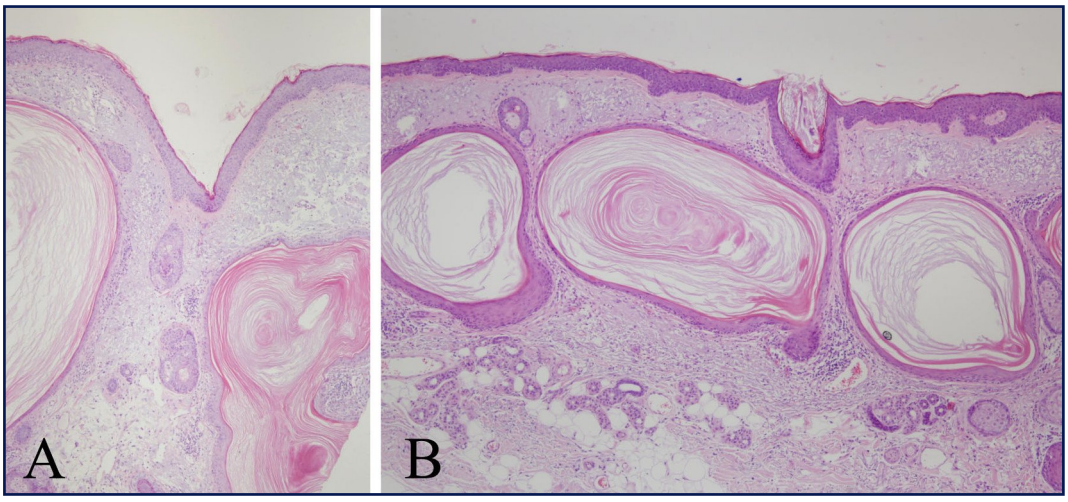

Figure 2

Histopathological findings case 1. *Solar elastosis. A) Biopsy showing (extensive) solar comedones ten years prior to current presentation (haematoxylin/eosin, x20).*
B) Keratin-filled cysts with enlarged infundibula surrounded by actinic elastosis on excision (haematoxylin/eosin, x40).

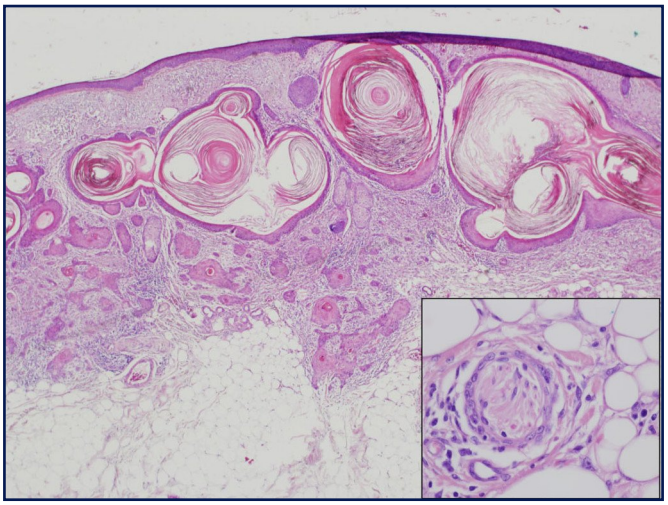

Figure 3

Histopathological findings case 1. *Squamous cell carcinoma (haematoxylin/eosin, x20). Inset: perineural extension (haematoxylin/eosin, x400).*

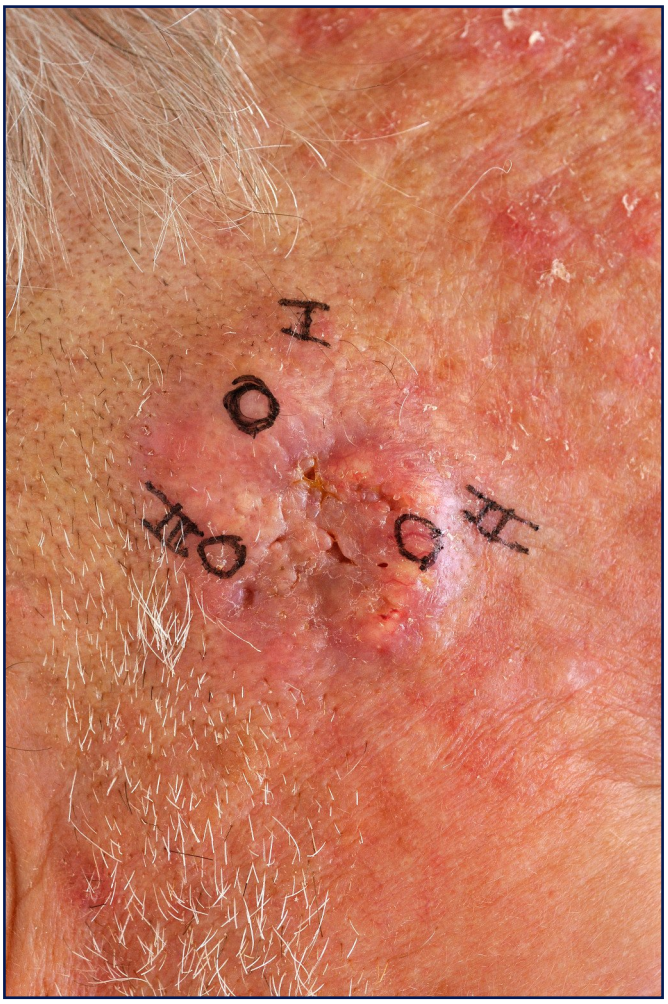

Figure 4

Clinical presentation case 2. *Nodular lesion with a central depression surrounded by yellowish translucent papules in the temporal area of a 70-year-old patient.*

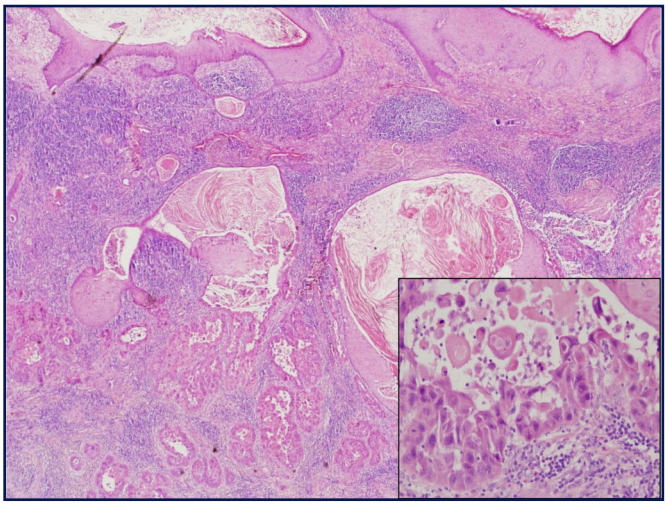

Figure 5

Histopathological findings case 2. *Squamous cell carcinoma. Atypical squamous epithelium in the deep dermis (haematoxylin/eosin, x20). Inset: tumor groups with central acantolysis/cystic degeneration (haematoxylin/eosin, x400).*

Discussion

First described in detail in 1951,[4] Favre-Racouchot (FR) syndrome is a slowly progressive disease estimated to occur in 1,4% of the general population,[5] and in 6% of fair-skinned men older than 50 years of age.[2] Chronic exposure to ultraviolet radiation and cigarette smoking are considered important triggers. Histologically, FR lesions demonstrate significant solar elastosis with epidermal atrophy and basophilic degeneration of the upper dermis. Sebaceous glands typically show atrophy or are absent. FR lesions are typically restricted to the periorbital area, however reports of similar findings in periocular region[6] and atypical locations such as forearms and chest[7] have been made. Unilateral manifestation of the disease has been described previously[8-10] and was attributed to prolonged occupational unilateral sun exposure or following radiation therapy.[11,12] In our two cases, both patients had unilateral FR lesions. Little information was available on the occupational history of the patients to support chronic unilateral sun exposure. In turn, a positive history of radiation therapy was present in one patient, who developed FR in an area exposed to therapeutic radiation. However, causative relationship remains speculative in this case, as FR developed in the radiation field only 10 years after exposure. In the literature much shorter time spans (several weeks up to 4 months) between the exposure to radiation treatment and appearance of FR lesions are reported.[11-13] Induction of chronic follicular inflammation by ionizing radiation, with secondary follicular hyperkeratosis and production of comedones is forwarded as a potential route in the pathophysiology of radiation-induced FR.[13]

FR is commonly associated with other dermatoses including actinic keratosis and cutis rhomboidalis nuchae. In our two cases, SCC arose inside the FR plaque, an unusual, and previously unreported finding. Due to shared risk factors of SCC and FR (e.g. sun exposure and therapeutic radiation)

and common occurrence of both entities in the elderly population, it would be fair to state that an association between the occurrence of these entities can be expected. However, review of literature demonstrated that no such association has been described in original articles so far. We believe there is underestimation of SCC cases that are recognized as being developed in a FR lesion. On the other hand, it should also be taken into account that the two patients presented in this report, had an increased risk of developing squamous cell carcinoma, since they were both immunocompromised individuals (immunosuppressive drugs for rheumatoid arthritis and presence of leukemia respectively). Importantly, both tumors in this report had a large diameter (more than 2 cm) and demonstrated major invasive growth with perineural extension, which are negative prognostic factors for overall risk of recurrence and metastasis.[14]

In conclusion, our report of (multifocal) squamous cell carcinoma originating in a Favre-Racouchot lesion demonstrates a need of awareness of this previously undescribed association, especially in immunocompromised individuals. High level of suspicion, dermoscopy monitoring and multiple biopsies from the Favre-Racouchot lesions are therefore warranted in this patient group for timely diagnosis and treatment.

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