

Rapidly progressive squamous cell carcinoma in a patient with longstanding history of folliculitis decalvans



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INTRODUCTION

Folliculitis decalvans (FD) is a rare form of chronic cicatricial alopecia usually confined to the scalp and is characterized by erythema, edema, and perifollicular pustules. It typically presents in men in the third decade of life.¹ The disease is often recalcitrant. Treatment is focused on reducing inflammation and preventing hair loss, with oral antibiotics most frequently used.¹ To date, only 3 cases of cutaneous squamous cell carcinoma (SCC) arising in the setting of FD have been reported.²⁻⁴ We present a case of rapidly progressive, metastatic SCC in a man with a longstanding history of FD to raise awareness of this malignant transformation.

CASE REPORT

A 52-year-old Hispanic man initially presented with a >20-year history of FD, most recently treated with oral doxycycline without improvement. His cutaneous examination was notable for scarred pink plaques with hemorrhagic crusting and tufting of hairs covering most of the vertex and parietal scalp. His medical history was notable for treated sebaceous carcinoma of the right eyebrow and negative for immunosuppression. He had no family history of skin cancer. The patient denied excessive sun exposure or sunburns and was never a smoker. He was started on oral isotretinoin 20 mg daily, which was increased to 40 mg daily after the patient

Abbreviations used:

FD: folliculitis decalvans
SCC: squamous cell carcinoma

reported a significant reduction in pain and drainage 1 month into the treatment (Fig 1, A).

The following month, the patient was noted to have a fluctuant nodule on the right side of his parietal scalp (Fig 1, B). A shave biopsy of the lesion revealed florid endophytic squamous proliferation with basilar atypia associated with neutrophilic aggregates and lichenoid inflammatory response (Fig 2). Diagnosis of pyoderma vegetans in the setting of isotretinoin therapy was favored, and isotretinoin treatment was discontinued. The patient was started on intralesional triamcinolone injections (40 mg/mL concentration), prednisone (20 mg daily for 12 days, followed by 10 mg daily for 14 days), and antibiotics (cephalexin 500 mg daily for 7 days, followed by minocycline 100 mg twice daily) with an initial clinical improvement. After 2 months of the treatment regimen, repeat biopsy demonstrated exo- and endophytic squamous proliferation with basilar atypia, lichenoid inflammation, and dermal fibrosis (Fig 3). E-cadherin immunostain was intact within keratinocytes, and p53 and Ki67 immunostains highlighted predominantly basilar keratinocytes. The findings were believed to be consistent with

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Fig 1. Folliculitis decalvans with malignant transformation to metastatic squamous cell carcinoma: **A**, One month after the initial visit, the patient demonstrated a significant clinical improvement while on isotretinoin treatment. **B**, Two months into the treatment, a rapidly enlarging fluctuant nodule developed. **C**, The nodule initially responded to the treatment regimen of intralesional triamcinolone and oral minocycline, but continued to grow during treatment interruption, requiring subsequent surgical removal 3 months after its development. **D**, Two months after radical resection of the primary tumor and completion of adjuvant radiation therapy, 2 new tender tumors developed on the right side of his occipital and temporal scalp. **E**, The tumors, confirmed to be metastases of squamous cell carcinoma, had significantly grown in size 2 months after they first appeared. **F**, The patient was noted to have a dramatic reduction in the size of both tumors 3 weeks following the first cycle of cemiplimab therapy.

pseudoepitheliomatous hyperplasia due to chronic FD, and the patient continued treatment with minocycline and intralesional triamcinolone. When the intralesional injections were briefly interrupted due to the pandemic, the lesion enlarged (Fig 1, C). At this time, approximately 3 months after the development of the exophytic mass, the patient underwent debulking of the mass, which revealed an invasive, moderately differentiated SCC (Fig 4). One month later, the patient underwent radical resection with reconstruction. Surgical excision showed poorly differentiated SCC with perineural and

subcutaneous invasion. To reduce the risk of local recurrence, he completed adjuvant radiation therapy (6000-cGy total dose over 30 fractions).

One year after the patient's presentation and 2 months after his last radiation therapy session, 2 mildly tender, rapidly enlarging tumors began to develop on the right side of his occipital and temporal scalp (Fig 1, D). A positron emission tomography scan was performed in the same week, revealing multiple fluorine-18 fluorodeoxyglucose avid subcutaneous lesions as well as cervical and periaortic lymph nodes. Needle biopsy of the

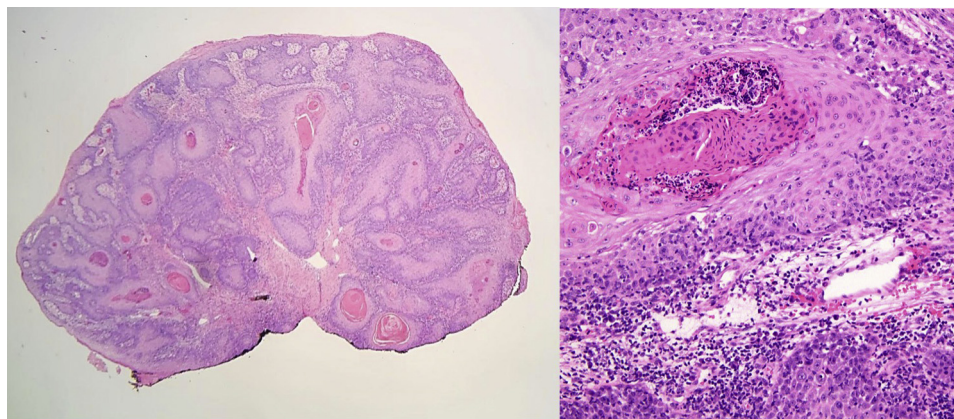


Fig 2. The patient's shave biopsy showed florid endophytic squamous proliferation with basilar atypia and associated neutrophilic aggregates and lichenoid inflammatory response. (Hematoxylin-eosin stain.)

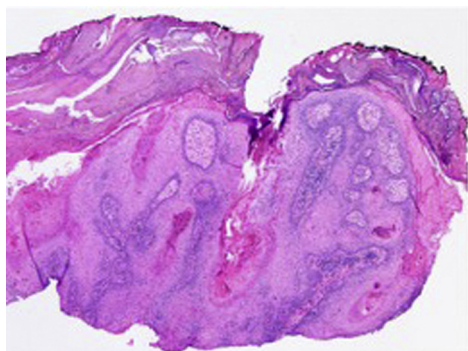


Fig 3. The patient's punch biopsy demonstrated exo- and endophytic squamous proliferation with basilar keratinocyte atypia, brisk lichenoid inflammation, and dermal fibrosis, most consistent with marked pseudoepitheliomatous hyperplasia in the setting of chronic folliculitis decalvans. (Hematoxylin-eosin stain.)

cervical lymph nodes confirmed metastatic SCC. Two months after the new lesions appeared, the patient began cemiplimab therapy every 3 weeks, and he has demonstrated a clinical response with a dramatic reduction in the size of his tumors after 1 cycle (Fig 1, E and F).

DISCUSSION

SCCs most commonly arise as a result of chronic ultraviolet exposure.⁵ However, SCC can also develop in the setting of chronic wounds, known as Marjolin ulcer. These lesions are most frequently associated with burn injuries; however, they have been reported as a complication of several chronic inflammatory dermatologic conditions, most notably hidradenitis suppurativa.⁶ It has been postulated that active inflammation and associated tissue remodeling in the skin provide a conducive milieu for

malignant transformation. SCCs secondary to chronic wounds are aggressive malignancies, with estimated rates of metastasis at 26% to 40% and overall mortality at 21%.^{5,6} Early detection and surgical treatment with wide local excision prior to the metastatic spread are thus critical.

A Google Scholar search for key words “folliculitis decalvans” and “squamous cell carcinoma” identified only 3 prior reports of this malignant transformation.²⁻⁴ In the 4 total cases, including ours, all patients were men aged 44 to 66 years. They all had refractory FD, with disease duration ranging from 8 to 26 years. One of the patients was noted to have a history of extensive sun exposure. Another patient was a former smoker. Interestingly, 2 patients had been started on isotretinoin therapy within 2 months of developing rapidly enlarging nodules and ultimately diagnosed with metastatic SCC.⁴ The relationship between isotretinoin initiation and progression of FD to SCC is unclear.

In our patient, the history of poorly controlled inflammatory condition for >20 years was likely the main risk factor predisposing him to the development of SCC in a process similar to the formation of a Marjolin ulcer. Although he denied a history of sunburns or extensive sun exposure, it is possible that the patient underestimated his exposure to ultraviolet radiation, which could have contributed to the malignant transformation. Our patient had no history of immunosuppressive conditions, such as diabetes mellitus, and had not received treatment with corticosteroids or any other immunosuppressive therapy prior to his presentation.

Under the Brigham and Women's Hospital tumor staging criteria for cutaneous SCC, our patient's tumor was ultimately staged as T2b and exhibited 3 of the 4 high-risk features (clinical size of >2 cm,

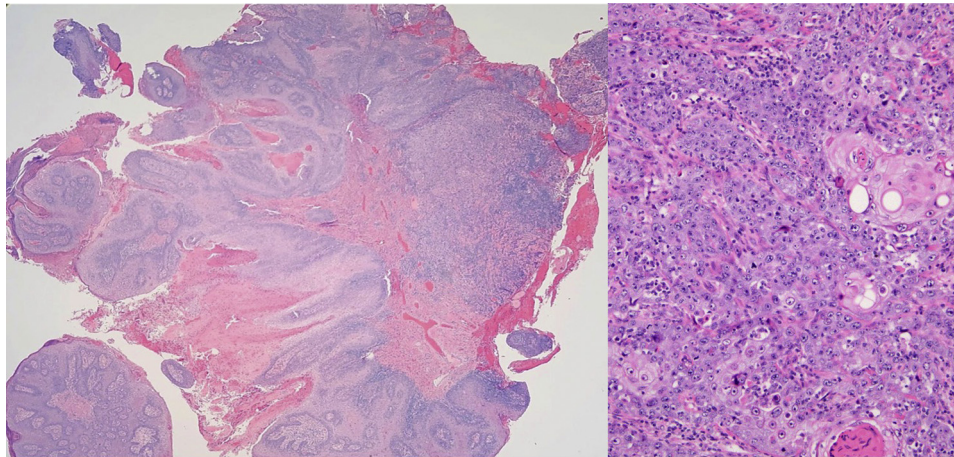


Fig 4. The patient's surgical debulk revealed invasive, moderately differentiated squamous cell carcinoma. Dermal fibrosis and foreign body giant cells suggestive of the vicinity of ruptured folliculitis, such as folliculitis decalvans, were also seen. (Hematoxylin-eosin stain.)

poor differentiation, and perineural invasion).⁶ Tumors at this stage are associated with high rates of nodal metastasis (24%-37%) and disease-specific mortality (16%-20%).⁶ Despite the rarity of SCC arising in the setting of chronic FD, it is important that dermatologists be aware of this malignant transformation with a high risk of metastasis among the reported cases.

Our case further highlights not only the importance of monitoring patients with FD for any new and/or changing lesions at the site of disease activity but also the utility of serial pathology evaluation to detect malignant transformation to ensure early diagnosis and intervention.

Conflicts of interest

None disclosed.

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