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Massive Malignant Transformation in a Patient with Hidradenitis Suppurativa during Anti-Tumor Necrosis Factor Treatment

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ABSTRACT: Hidradenitis suppurativa (HS) is a chronic skin condition that can lead to significant morbidity and, in some cases, transformation to squamous cell carcinoma (SCC). This report details the case of a 53-year-old man with a history of HS treatment with adalimumab and systemic antibiotics who developed well-differentiated SCC. For this malignant transformation, the patient required aggressive management, including radiation therapy, wide excision, and reconstructive surgery. Follow-up showed no disease progression. This case highlights the importance of early detection, routine screening, and a multidisciplinary approach in managing the risk of SCC in patients with HS.

KEYWORDS: adalimumab, hidradenitis suppurativa, malignancy, squamous cell carcinoma

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INTRODUCTION

Hidradenitis suppurativa (HS) is a chronic, autoinflammatory skin condition affecting areas rich in apocrine glands. It is clinically characterized by comedones and the formation of painful, inflammatory deep-seated nodular lesions and abscesses with permanent tissue destruction leading to scarring.[1,2] The impact of HS is significant because of its painful and visible nature, resulting in patients experiencing social isolation and a low quality of life.[3]

Squamous cell carcinoma (SCC) occurs in 4.6% of patients with HS.[2,4] For patients with HS and SCC, mortality is approximately 40%, primarily due to metastatic disease and sepsis.[3,5] The risk of SCC in HS underscores the importance of vigilant monitoring and early detection to optimize patient outcomes. However, there are limited data in the literature regarding SCC formation within HS lesions and the screening and management of these cases.[3,5] Individuals with chronic inflammation are predisposed to developing proliferative diseases such as SCC,[2] with key risk factors being male sex, prolonged disease duration, perianal lesion localization, and Hurley stage III.[3–5] In addition, human papillomavirus (HPV) was reported in one-third of SCC cases in preexisting HS lesions.[5] Aggressive tumor treatment, including wide excision, is recommended, with radiation therapy in specific cases.[4] In this report, the authors present a successfully managed complex case of extensive malignancy in the context of HS, contributing to the current knowledge of this rare complication. The patient provided informed consent for all procedures and for the publication of his case details and images.

CASE PRESENTATION

A 53-year-old man with a 16-year history of severe HS was treated with adalimumab 40 mg weekly for the past 5 years. Previously, the patient had undergone prolonged courses of systemic doxycycline and rifampicin with clindamycin, along with incisions for management. The patient had a normal body mass index and a history of smoking for over 20 years and was previously diagnosed with melanoma in situ. Despite a stable disease with anti–tumor necrosis factor treatment, the patient experienced a relapse in 2023. Physical examination revealed new purulent eruptions, diffuse infiltration, and new-onset rapid ulceration in the sacral and perineal areas, consistent with Hurley stage III (Figure A). The alteration in the clinical presentation, characterized by the emergence of an ulcerative and rapidly enlarging component, prompted further investigation into the condition.

Because of this dramatic change in the patient's condition, adalimumab was eventually discontinued. Combined IV antibiotic therapy was administered due to the presence of multidrug-resistant *Acinetobacter baumannii* in wound culture and highly elevated inflammatory markers (C-reactive protein, 76.82 mg/L; reference range, 0–5 mg/L). Following culture testing and consultation with a clinical pharmacologist, the patient was prescribed piperacillin-tazobactam solution at a dosage of 4.5 mg 4 times daily, along with local antiseptics, including povidone-iodine and octenidine dihydrochloride. A biopsy from the border of the ulcer confirmed a well-differentiated SCC, which tested negative for high-risk HPV. A computed tomography scan revealed sacral lesions with infiltration, liquefaction zones, skin involvement, and inguinal lymphadenopathy. A suspicious lesion in the S6 segment of the right lung suggested possible metastasis. The patient was consulted by a multidisciplinary team, which consisted of dermatovenereologists, plastic surgeons, abdominal surgeons, and radiation oncologists.

A course of radiation therapy was initiated to reduce the tumor size, followed by a wide excision resulting in a 20 × 20 cm tissue defect (Figure B). Reconstructive surgery was performed, accompanied by the application of a vacuum-assisted closure system, wound irrigations, and dressings. Eight staged debridements, alongside four split-skin grafting procedures, were performed.

A follow-up computed tomography scan 4 months after the primary tumor excision did not show any disease progression. At the time of this writing, the patient was under a close follow-up schedule with appointments every 3 months; skin grafts had almost

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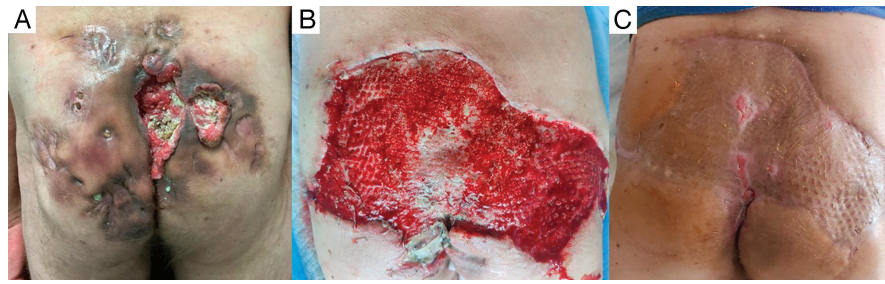

FIGURE. TREATMENT PROGRESSION
A, Purulent eruptions, diffuse infiltration, and rapid ulceration in the sacral and perianal area. B, Wide excision with a significant tissue defect, followed by a first grafting procedure. C, At follow-up, 4 months after the last skin grafting procedure.

completely covered the defect, and the patient was in good physical health with no malignant disease recurrence observed (Figure C).

DISCUSSION

This case emphasizes the complexity of the combination of purulent and malignant processes, complicated by a substantial tissue defect, subcutaneous pockets, high resistance to hospital microbial flora, and a high risk of mortality. According to a systematic literature review by Gierek et al,[3] the majority of patients who develop SCC in previously existing HS lesions are middle-aged men with Hurley stage III HS and a long-standing disease history, which aligns closely with the present patient's profile. In these cases, SCC is usually well differentiated and often localizes in the gluteal region. In the review by Gierek et al,[3] only 5 patients of the 74 cases described were on immunosuppressive treatment when they developed SCC; therefore, the authors do not consider tumor necrosis factor treatment to have been the only risk factor contributing to the development of a malignant lesion in the present case. However, further research is needed to determine the potential impact of biologics on the development of cancerous lesions within this patient population.[4]

Given that SCC is a rare complication of long-standing HS, clinical decision-making is not standardized, and management typically relies on case reports and expert opinion.[1] Because of the aggressive nature of SCC in patients with HS, an aggressive approach is almost always warranted. Timely and routine screening of individuals with HS for this complication is of utmost importance. Delayed diagnosis is possible because SCC may be missed in chronic HS lesions. Therefore, a low threshold for repeated deep tissue biopsies in nonhealing lesions is recommended.[2,5,6] The most commonly described morphology of SCC lesions was tumorous growth and ulcerations.[3]

In cases of histologically confirmed SCC, appropriate imaging techniques such as MRI and positron emission tomography should be used. Sentinel lymph nodes should also be evaluated. The treatment of first choice is a large and deep surgical excision with a minimum margin of 2 cm. However, performing such excisions can be challenging in patients with chronic wounds because of severe tissue defects, and the risk for metastatic disease and recurrence is high.[4,5] Patients should be managed by a multidisciplinary team that includes oncologists for consideration of radiotherapy and reconstructive surgeons to discuss wound closure options. Chemotherapy has not shown efficacy in these cases.[4] The benefits of using topical negative pressure to promote wound healing and granulation tissue production are described in the literature[7] and used in the present case.

With regard to disease prevention, HPV vaccination should be considered because HPV has been described as a potential risk factor for SCC in patients with HS.[3] Providers should also offer patients guidance on smoking cessation as smoking may be a potential risk factor for a malignant transformation of HS.[3] Optimal intervals for cancer screening have not been established; therefore, vigilant surveillance for potential transformation should be maintained at every patient visit, with thorough full-body examinations performed regularly.[5]

CONCLUSIONS

The presented case emphasizes the complexity and high-risk nature of SCC development in patients with chronic HS. Successful management requires a combination of timely diagnosis, aggressive surgical intervention, and a multidisciplinary approach to treatment. Routine screening and a low threshold for biopsy in nonhealing HS lesions are crucial for early SCC detection and improved patient outcomes. In addition, consideration of potential risk factors, such as HPV and smoking, is essential in the prevention and management of malignant transformation in patients with HS. The present case contributes valuable insights into the clinical management of this rare but severe complication, advocating for vigilant and proactive care in similar patient populations.

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