Unusual Infiltrative Basal Cell Carcinoma Mimicking Pyoderma Gangrenosum: A Case Presentation and Discussion

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Abstract

Pyoderma gangrenosum (PG) is a rare, neutrophilic dermatosis of unknown etiology frequently associated with systemic diseases, while basal cell carcinoma (BCC) is the most common malignancy of sun-exposed areas. We report a case of infiltrative basal cell carcinoma in a 77-year-old male that mimicked a classic case of PG. Physical examination revealed a 10 cm x 7 cm, cutaneous ulcer with hemorrhagic exudate and a violaceous border. The ulcer, which was located on the left pretibial region, was clinically diagnosed as PG. An excisional biopsy was performed, and the histopathological examination strongly supported the diagnosis of infiltrative BCC. This report details an unusual presentation of infiltrative basal cell carcinoma and discusses key aspects that led to the accurate diagnosis of BCC.

Introduction

Pyoderma gangrenosum (PG) is a rare, neutrophilic dermatosis with systemic morbidities such as inflammatory bowel diseases, rheumatoid arthritis, and myeloproliferative disorders.1 Basal cell carcinoma (BCC) is the most common cutaneous malignancy and typically occurs in sun-exposed regions such as the head and neck. This localized cancer typically presents as a raised, pearly, translucent papule or nodule with telangiectasias.2 Unlike most cancers, BCC rarely metastasizes, but significant disfigurement and destruction can be caused by local expansion.2 Basal cell carcinoma accounts for approximately 70% of all malignancies of the skin and presents in a variety of subtypes.3 In early stages, it can manifest as a small plaque or nodule with telangiectasias, and later can progress and present as a non-healing ulcer.1 Although the majority of basal cell carcinomas can be easily diagnosed clinically, more complex, atypical presentations can make accurate clinical diagnosis challenging. Histopathological examination was critical to accurately diagnosing our case as infiltrative BCC.

Case Presentation

A 77-year-old man presented with a progressive onset of a tender, erythematous and hemorrhagic ulcer measuring 10 cm x 7 cm on the left pretibial region (Figure 1). The patient reported that approximately seven months prior, a smaller, 4 cm x 4 cm plaque was abraded by a canine. Following this incident, the plaque gradually increased in size and presented as a chronic, non-healing lesion with central deep ulceration and a violaceous border. For the following seven months, the patient sought supportive care at a wound clinic, but the ulcer continued to worsen and enlarge despite this treatment.

Diagnosis

Biopsies from the left anterior pretibial region were taken with wide local excisions (9 cm) in 26 resections. The deep margin of resection of the superior portion of the specimen was positive for basal cell carcinoma with infiltrative pattern. The histopathology of the broad surface ulceration also demonstrated fibropurulent debris, prominent vascularity and dermal fibroplasia. Within the lobules, an atypical, basaloid, epithelial neoplasm was present that demonstrated a nodular and infiltrative pattern of growth. Laboratory findings were normal; smears and cultures for bacteria and fungi were negative. Histologic examinations were devoid of neutrophils, giant cells, and eosinophils. Although the physical findings were suggestive of PG, the laboratory findings did not support that diagnosis. Additionally, histopathological studies revealed sheets of small, round tumor cells with enlarged hyperchromatic nuclei, small nucleoli, and minimal cytoplasm, all of which were atypical in cytology (Figure 2). Infiltrative BCC generally demonstrates many similarities to nodular BCC, and there were both nodular and infiltrative patterns of growth present. Elongated strands of basaloid cells were observed, with thick cells infiltrating between collagen bundles. The findings indicated nodular and infiltrative forms of basal cell carcinoma.

Outcome and Follow-up

Surgery was indicated for the removal of the lesion, and complete excision of the carcinoma extended to the tibial periosteum. Biopsy of the excised lesion demonstrated two foci in the superior half of the specimen, consistent with BCC. The peripheral margins were devoid of cellular atypia. Following surgery, the patient had an open defect of 14 cm x 12 cm with a focally positive deep margin. The patient was placed on vacuum-assisted wound closure three times a week for three months, followed by further wound care with adjuvant therapy. As of the time of this writing, there has been no recurrence of the carcinoma.

Discussion

Basal cell carcinoma accounts for approximately 70% of all malignancies of the skin and presents in a variety of subtypes.4 In early stages, it can manifest as a small plaque or nodule with telangiectasias, and later can progress and present as a non-healing ulcer.1 Although the majority of basal cell carcinomas can be easily diagnosed clinically, more complex, atypical presentations can make accurate clinical diagnosis challenging. Histopathological examination was critical to accurately diagnosing our case as infiltrative BCC.

There have been a number of clinical cases reported in which PG has mimicked BCC.5 This case was remarkable because BCC resembled PG. PG typically presents as a painful ulcer with an undermined violaceous border. The lower extremities, specifically the pretilbal regions, are the most commonly affected sites, but other parts of the body can also be involved.6 PG is frequently associated with systemic hematological and autoimmune diseases, including Crohn’s disease, ulcerative colitis, and rheumatoid arthritis.7 T-lymphocyte helper/ suppressor imbalance, impaired neutrophilic chemotaxis, and deranged monocyte function have been postulated in the pathogenesis of PG.8

Figure 1. Erythematous, hemorrhagic, 10 cm x 7 cm ulcer on left pretibial region, sharply outlined by violaceous wound edge.

Figure 2. Low-power view showing atypical, basaloid, epithelial neoplasm with nodular and infiltrative growth pattern (H&E, 40x).
Treatment of infiltrative BCC is variable and includes excision, Mohs surgery, radiation, or a combination of these modalities. In our case, a surgical oncologist excised the carcinoma, and the area was treated with adjuvant radiation therapy due to a positive deep margin from the excisional specimen.

**Conclusion**

We present this case due to its rare clinical presentation of BCC resembling PG. BCC can present atypically, which can lead to false diagnoses. Despite the clinical presentation of our case, the histopathological and laboratory findings supported the diagnosis of BCC. Progressive onset, slow evolution, ulceration, and no association with systemic diseases is more suggestive of BCC than PG, but due to its variable presentation, BCC should be added to the differential diagnosis of PG.

**References**


