Pyoderma Gangrenosum after Reduction Mammoplasty: A Case Report

Juan J. Mercado MD; María I. Santé, MD; Susana T. Ferrá, MD
University of Puerto Rico, Medical Campus, Department of Pathology and Laboratory Medicine

Abstract
Pyoderma gangrenosum (PG) is an idiopathic, destructive cutaneous disease characterized by progressive, painful, rapidly-evolving ulceration. It is an unusual cause of skin necrosis, particularly in the absence of predisposing systemic conditions, that may occur spontaneously or may arise at sites of minor trauma or surgery. Its ability to mimic superficial wound necrosis of infectious etiology could lead to a delay in diagnosis and correct management. No microorganisms can be cultured from the skin lesions and the ulcers fail to respond to antibiotic therapy and standard wound care. Review of the literature demonstrates previous reports of this rare disease and the importance of early recognition that could prove disfiguring if misdiagnosed. We present a case of bilateral postsurgical pyoderma gangrenosum in a 55 year-old woman without associated systemic diseases that occurred bilaterally after reduction mammoplasty.

Introduction
Breed reconstruction complications are rare and usually minor. In the case of infections, they are confined to the surgical site and can be successfully managed with antibiotic and standard wound healing procedures. In the presence of a recurrent wound unresponsive to typical treatment, PG is a diagnostic possibility that needs to be considered. PG is an idiopathic, necrotizing cutaneous disorder that is traditionally associated with systemic diseases such as inflammatory bowel disease (IBD), monoclonal gammopathy, rheumatologic disorders and hematologic malignancies. It was first described in 1930 by Brusting, Goeckerman and Oleary, in its classic presentation (a deep ulcer with a violaceous border that overhangs the ulcer bed and when there are no predisposing factors. Therefore, it is extremely important to be aware of it. At present, PG is considered a reactive inflammatory dermatosis and part of the spectrum of the inflammatory bowel disease (IBD), monoclonal gammopathy, rheumatologic disorders and hematologic malignancies. Slides from four different surgical procedures were evaluated. Special stains (Acid Fast, Grocott and Periodic Acid Shift) were ordered to look for microorganisms. Microscopic examination revealed massive intradermal acute inflammatory changes with ulceration and abscess formation (Figure 2). Acute vasculitis with vessel wall fibrinoid necrosis and focal thrombosis was seen more prominent at the ulcer base. (Figure 3). Special stains were negative for pathogenic microorganisms.

Discussion
PG is an ulcerative skin condition of unknown etiology. It is a relatively rare entity that can affect any age group, but it is most common in the third, fourth, and fifth decades of life. The incidence of PG is estimated at 0.2 to 3 cases per million inhabitants per year (2). Children associations similar to those of adults, including IBD, arthritis, and leukemia (4). Distribution between sexes is equal. A history of pathergy exists in 30% of cases (5). It typically occurs on the lower extremities or trunk but can occur anywhere. It begins as an erythematous nodular lesion that ulcerates centrally. The boggy, raised border is characteristically deep red, purple or dusky blue with an undermined ragged edge. They are painful in 75% of cases and there may be symptoms of low grade fever and malaise. But what is distinctive of PG is that it occurs as a result of minor trauma, and the cultures of the wound are usually negative. Healing rarely occurs spontaneously and it leaves hypopigmented atrophic scarring (6). The precise pathogenesis of PG is not well understood. However immunological factors and occlusion dysfunction can be considered to be involved (2). Thus, it may be considered that the predisposed patient experiences an inciting event such as minor trauma, and instead of a normal response that recognizes and removes the material, the patient’s abnormal response results in lesions of PG. (7) (Mowad et al. (6) distinguish four variants within the clinical spectrum of PG: ulcerative, pustular, bullous, and vegetative forms. The histopathology of PG is nonspecific and varies according to stage and biopsy location. Necrotizing, suppurative neutrophilic infiltration is prominent along with ulceration, and there may be evidence of leukocytoclastic vasculitis. Biopsy is important to exclude other diseases. Tissue should be cultured to exclude bacteria, tuberculosis, atypical mycobacterial infection, and fungi. Infection must be excluded before immunosuppressive treatment is started. Wound debridement and skin grafting can lead to further progression of the lesions at donor sites, and they are therefore contraindicated (8). In spontaneous cases, immunologic, rheumatologic, gastrointestinal and hematologic evaluation are recommended to look for an underlying condition.

Case Report
A 55 year old woman without history of systemic illness underwent bilateral reduction mammoplasty. On the 4th post-operative day, she complained of pain from the wounds and discharge from the vertical suture lines in both breasts. The following day, there was tissue dehiscence (wounds broke down) synchronously, and she developed ulcers at the inferior borders of the patient’s record and pictures of the lesions were included in the material received for consultation. Histology slides, a detailed summary of his experiences an inciting event such as minor trauma, and instead of a normal response that recognizes and removes damage tissue, the patient’s abnormal response results in lesions of PG (7) (Mowad et al. (6) distinguish four variants within the clinical spectrum of PG: ulcerative, pustular, bullous, and vegetative forms. The histopathology of PG is nonspecific and varies according to stage and biopsy location. Necrotizing, suppurative neutrophilic infiltration is prominent along with ulceration, and there may be evidence of leukocytoclastic vasculitis. Biopsy is important to exclude other diseases. Tissue should be cultured to exclude bacteria, tuberculosis, atypical mycobacterial infection, and fungi. Infection must be excluded before immunosuppressive treatment is started. Wound debridement and skin grafting can lead to further progression of the lesions at donor sites, and they are therefore contraindicated (8). In spontaneous cases, immunologic, rheumatologic, gastrointestinal and hematologic evaluation are recommended to look for an underlying condition.

Conclusions
After any surgical procedure where an infectious expanding lesion is present that become refractory to antibiotic treatment and debridement, the disease should be reevaluated and PG may be entertained. This peculiar association must be familiar to surgeons, pathologists and clinicians in general. Final confirmation is only achieved after the dramatic response patients usually have with appropriate treatment.

Pathology Findings
Slides from four different surgical procedures were evaluated. Special stains (Acid Fast, Grocott and Periodic Acid Shift) were ordered to look for microorganisms. Microscopic examination revealed massive intradermal acute inflammatory changes with ulceration and abscess formation (Figure 2). Acute vasculitis with vessel wall fibrinoid necrosis and focal thrombosis was seen more prominent at the ulcer base. (Figure 3). Special stains were negative for pathogenic microorganisms.

References

Figure 1. Extensive deep ulceration of the breast with well defined violaceous borders. Note sparing of the areola and nipple

Figure 2. Massive intradermal acute inflammatory change with ulceration and abscess formation. Hematoxilin and eosin stain, 20x

Figure 3. Leukocytoclastic vasculitis with fibrinoid necrosis. Hematoxin and eosin stain, 40x