A case of breast pyoderma gangrenosum after skin tag removal

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ABSTRACT

The following case report describes a 66 years old female who developed pyoderma gangrenosum (PG) on her left breast after skin tag removal. PG is an inflammatory dermatosis often confused with necrotizing infection. It is linked to breast surgery especially in those with preexisting autoimmune disorders. Knowledge of PG occurring in the breast is essential for early diagnosis and proper treatment.

Key Words: Pyoderma gangrenosum, Breast surgery, Skin/Dermatologic disease

1. INTRODUCTION

Pyoderma gangrenosum (PG) of the breast is rare and occurs in about 1 in 3 million people in the United States. The current case describes a 66 years old female who developed progressive skin ulceration after skin tag removal of the breast. Knowledge of this condition is vital in order to make an early diagnosis and minimize ineffective therapies.

2. CASE PRESENTATION

The patient is a 66 years old female who underwent an electrodessication of a single skin tag on her left breast in an outpatient dermatology office. Two weeks later, she was re-evaluated for pain and drainage from her left breast. An area was incised and drained by the dermatologist and she was admitted to the hospital three days later. At this time, she was experiencing low grade fever, fatigue, and chills. Her past medical history, her only significant co-morbidity was hypothyroidism. Also of note, she had a negative mammogram and colonoscopy within the last year.

Breast surgery was consulted upon admission. On initial inspection, the patient’s left breast had beefy red erythematous changes medially and inferiorly measuring approximately 15 cm in diameter. There was also denudement over another area approximately 6 cm with some central exudate without palpable fluctuance. Her labs showed a leukocytosis and anemia of unknown etiology. She was initiated on broad spectrum antibiotics by infectious disease. Then silvadene with a supportive bra was applied for local wound care. Eventually, her erythema began to recede and she was discharged within 48 hours on antibiotics. All aerobic and anaerobic cultures remained negative.

Two days later, the patient presented back to the breast surgeon’s office with progressive pain and drainage from her breast. She appeared diaphoretic and pale, but her vitals remained normal. Breast exam revealed a severely progressive erythema and skin loss with diffuse purulent brown drainage clinically consistent with necrotizing fasciitis. She
was started on IV antibiotics and an antifungal. CT was obtained and demonstrated dermal thickening and soft tissue fat stranding without abscess.

Figure 1. Left breast showing extent of PG prior to operative debridement

The patient was then taken to surgery for debridement. Operative findings revealed 20 cm of her left inferiomedial breast was affected. There were bullous changes with darkened skin edges consistent with epidermolysis and tissue necrosis with relative sparing of the breast parenchyma and nipple areolar complex (see Figure 1). All nonviable skin was debrided sharply and the wound was jet lavaged. Multiple biopsies and tissue cultures were obtained to include atypical pathogens. A wound vacuum assisted device (VAC) dressing was placed. She was taken back to the operating room two days later for VAC change which demonstrated decreased erythema and drainage (see Figure 2). Cultures from both surgeries remained negative and skin biopsy demonstrated purulent nectrotizing ulceration with dense nuclear infiltrate with no signs of malignancy and negative viral stains. ANA screen, IgG, IgM, and IgA titers were all negative. However, the patient improved clinically and was sent home.

Figure 2. 48 hours after initial debridement

Figure 3. Left breast 7 days after debridement with progression (dusky skin edge)

The patient again returned four days later with progressive left breast pain to the office. Upon examination, she had progressive skin necrosis and was markedly tender (see Figure 3). At this point she was sent to the University of Michigan (U of M) for a second opinion. During her two week hospitalization, she was followed by a dermatologist who performed two punch biopsies that were both unremarkable. She was again restarted on broad spectrum IV antibiotics. MRI of the left breast was obtained, which showed severe skin thickening and left axillary adenopathy thought to be reactive. PG was on the differential diagnosis at the time, but felt to be unlikely given her occasional fevers, leukocytosis, and partial response to antibiotics. Her VAC dressing was at that time converted to Xeroform gauze secondary to pain. She was then discharged to a skilled nursing facility with a PICC line and continued IV antibiotics.

The patient was seen in the breast surgery office six weeks from presentation (3 weeks from initial debridement) without any local improvement (see Figure 4). At this point, it appeared that the patient’s progressive skin ulceration was not infectious in nature due to repeated negative cultures and failure to improve with long term broad spectrum antibiotics. PG became the leading diagnosis based on exclusion and she was referred to Mayo Clinic for further evaluation and consideration of systemic anti-inflammatory agents given her prolonged clinical course.
At Mayo Clinic, she completed her three week course of antibiotics. An esophagogastroduodenoscopy (EGD) was performed and duodenal biopsy did not reveal any abnormalities concerning for malignancy or autoimmune disease. A fine needle aspiration of her ipsilateral axillary node revealed inflammatory changes only. Rheumatology and hematology consultations were performed. No autoimmune or hematological diseases were found. The plan was to start oral prednisone only if the lesions worsened. She continued local Xeroform dressings and returned home (see Figure 5).

The patient then returned to see the dermatologist at the U of M following her extensive work up without much improvement. She was started on topical clobetasol 0.05% cream. After a month of treatment with the topical steroid and no additional procedures, the entire breast had healed primarily (see Figure 6).

3. DISCUSSION

PG was first mentioned in medical literature in 1930 by Brunsting et al. It is an inflammatory dermatosis of unknown origin although it has been associated with autoimmune disorders. According to various case descriptions, it starts out as pustules spreading concentrically to undermine healthy skin. It is rapidly progressive and causes painful necrolytic ulcerations. PG is a diagnosis based on exclusion and is often misdiagnosed as a necrotizing infection. The histopathology usually appears as sterile dermal neutrophilia mixed with inflammation, and lymphocytic vasculitis. PG is treated with steroids and usually has an immediate response within 48 hours. There are reports of steroids being used in intravenous, oral, and topical forms. Given the neutrophil predominate infiltrate seen on pathology; dapsone can be used in addition to steroids Treatment can also include cyclosporine A and in some cases tacrolimus.\[1–14\]

PG of the breast is extremely rare occurring in 3 in 1 million people in the United States. Approximately 70% of occurrences are associated with autoimmune diseases such as rheumatoid arthritis, ulcerative colitis, or hematologic diseases. The existing case reports in literature describe PG of the breast occurring after breast procedures such as reductions, reconstructions, and even biopsies. This highlights the hallmark of pathergy in the disease process. Pathergy is when trauma to tissues leads to additional necrosis and ulceration. Interestingly as the ulcerations progress, the vast majority of cases spare the nipple areolar complex. Disease onset also appears to have a latency period from the inciting event of about 6-14 days after tissue trauma. At each evaluating cen-
As in the present case, the patient had an initiating event with the removal of a skin tag from her breast. The disease was thought to be a necrotizing skin infection due to its appearance as well as it causing a systemic inflammatory response. It is important to note that PG can have a multi-system inflammatory reaction including leukocytosis, hypoproteinemia, and fevers as demonstrated in some case reports. The rarity of this disease as well as the nonspecificity of its symptoms makes PG of the breast extremely difficult to diagnose. This case highlights the typical characteristics of PG of the breast including sparing of the nipple areolar complex, negative tissue biopsies, and failure to respond to antibiotics.

PG is a rare disease of the breast making diagnosis and proper treatment extremely challenging. This disease should be included on the differential diagnosis when patients present with skin ulcerations on their breast after procedures especially those with a history of autoimmune diseases. Early recognition and treatment can minimize hospitalizations and further trauma to the breast.

4. Conclusions

PG is a rare disease of the breast making diagnosis and proper treatment extremely challenging. This disease should be included on the differential diagnosis when patients present with skin ulcerations on their breast after procedures especially those with a history of autoimmune diseases. Early recognition and treatment can minimize hospitalizations and further trauma to the breast.

Conflicts of Interest Disclosure

The authors declare they have no conflicts of interest.

References


