Pyoderma gangrenosum after breast reduction surgery

Eudora Lee* BS, Subin Lim* BA, Erika Elliott MD, Gabriela A Cobos MD

*Authors contributed equally

Affiliations: Department of Dermatology, Tufts University School of Medicine, Boston, Massachusetts, USA

Corresponding Author: Gabriela A Cobos MD, Department of Dermatology, Tufts Medical Center, 260 Tremont Street, 13th and 14th floors, Boston, MA 02116, Tel: 617-636-0156, Fax: 617-636-9169, Email: gabriela.cobos@tuftsmedicine.org

Keywords: dermatology, neutrophilic dermatosis, post surgical, pyoderma gangrenosum

To the Editor:

Within one week of undergoing an uncomplicated bilateral breast reduction, a 61-year-old woman presented with rapidly progressive ulcers, erythema, and severe pain of both breasts. Lesions began as tender vesicles along incision sites that quickly ulcerated and expanded in size. She also endorsed fever and chills. Physical examination revealed two large, well-defined ulcerative plaques on bilateral breasts with overlying fibrinous and necrotic debris (**Figure 1A**). Laboratory testing showed remarkable leukocytosis and elevated C-reactive protein. Antinuclear antibody, rheumatoid factor, and antineutrophil cytoplasmic antibodies were negative. A left breast punch biopsy revealed an ulcer with diffusely purulent neutrophilic infiltrate. Tissue cultures returned negative for bacterial, fungal, and mycobacterial infections. Given her clinical presentation, tissue cultures, and biopsy findings, post-surgical pyoderma gangrenosum (PSPG) was diagnosed. The patient was initiated on prednisone with planned taper and adalimumab for treatment. At her 3-month follow-up visit, the patient returned to clinic with marked improvement in symptoms showing near complete reepithelization of both breasts (**Figure 1B**).

Pyoderma gangrenosum (PG) is an uncommon neutrophilic dermatosis that is characterized by painful, necrotic ulcers with undermined borders. Post-surgical pyoderma gangrenosum refers to the development of PG on surgical sites due to pathergy. It is a rare dermatological complication that typically occurs two weeks after surgical procedures. Although its pathogenesis is not completely understood, it is likely related to immune dysregulation and usually presents in association with other systemic diseases such as inflammatory bowel disease [1,2]. Other major risk factors for PSPG include previous history of pyoderma gangrenosum, rheumatoid arthritis, and hematologic malignancies [3,4].

Post-surgical pyoderma gangrenosum has been particularly associated with breast surgeries; specifically reduction mammoplasty and breast reconstruction have accounted for 25% of all PSPG cases. Cardiothoracic surgeries, particularly coronary artery bypasses and abdominal surgeries, account for 14% of all PSPG cases [5]. In summary, although PSPG is an uncommon surgical complication, it should be on dermatologists' differential diagnosis

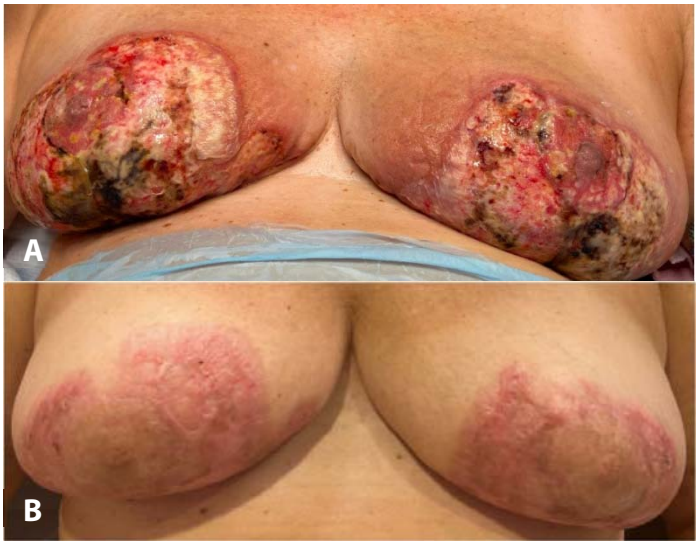

Figure 1. *Post-surgical pyoderma gangrenosum **A)** at initial presentation, and **B)** post-treatment with adalimumab.*

when evaluating patients with ulcers at surgical sites, particularly after breast reduction mammoplasty and reconstruction. Primary treatment strategy may involve systemic corticosteroids, cyclosporine, and immunomodulators [4]. However, in patients with extensive and rapidly progressing disease, as observed in our case, biologic therapies should be considered as first-line treatment.

Potential conflicts of interest

The authors declare no conflicts of interest.

References

1. Edinger KM, Rao VK. The Management of Postsurgical Pyoderma Gangrenosum following Breast Surgery. *Plast Reconstr Surg Glob Open*. 2022;10:e4282. [PMID: 35494881].
2. Rand RP, Brown GL, Bostwick J III. Pyoderma gangrenosum and progressive cutaneous ulceration. *Ann Plas Surg.* 1988;20:280–4. [PMID: 2451893].
3. Hou YL, Lee CH. Pyoderma Gangrenosum. *JAMA Dermatol*. 2022;158:202. [PMID: 34910081].
4. Tolkachjov SN, Fahy AS, Wetter DA, Brough KR, Bridges AG, Davis MD, El-Azhary RA, McEvoy MT, Camilleri MJ. Postoperative pyoderma gangrenosum (PG): the Mayo Clinic experience of 20 years from 1994 through 2014. *J Am Acad Dermatol.* 2015;73:615-22. [PMID: 26209218].
5. Zuo KJ, Fung E, Tredget EE, Lin AN. A systematic review of post-surgical pyoderma gangrenosum: identification of risk factors and proposed management strategy. *J Plast Reconstr Aesthet Surg*. 2015;68:295-303. [PMID: 25589459].