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Pyoderma gangrenosum with pathergy: A potentially significant complication following breast reconstruction☆

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Summary The failure of postoperative surgical site infection to resolve after appropriate antibiotic therapy should alert the clinician to other diagnoses. Pyoderma gangrenosum (PG) is an inflammatory neutrophilic dermatosis that is typically characterized by necrotizing ulceration. PG can be exacerbated by minor trauma leading to exaggerated skin injury, a condition known as pathergy. We present a case series of PG arising after immediate reconstruction for breast oncological surgery from 1st January 2006 to 1st September 2014. 395 immediate breast reconstructions were performed in 335 patients. Three cases of post-surgical PG were identified (0.9%), all in the setting of mastectomy for breast cancer. Two cases underwent immediate reconstruction with pedicled transverse rectus abdominus myocutaneous flaps, and one underwent submuscular expander insertion. A mean delay of 6.3 days was observed from first presentation of symptoms to diagnosis of PG. Immunosuppressants commonly used included methylprednisolone, prednisone, and ciclosporin, with good success at halting disease progress. Significant scarring affected all three women. Once the disease was deemed quiescent, intravenous immunoglobulin used in the perioperative period

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for further surgical procedures provided favorable results. A diagnostic algorithm is suggested to guide surgeons in investigations and management when post-surgical PG is suspected.

Introduction

The failure of post-operative surgical site infection to resolve after appropriate antibiotic therapy should alert the clinician to other diagnoses. In 1930, Brunsting, Goeckerman and O'Leary described the disorder pyoderma gangrenosum (PG).[1] PG is an inflammatory neutrophilic dermatosis typically characterized by necrotizing ulceration and is believed to involve autoimmune dysfunction.[2] PG is not caused by infection as originally proposed.[1] PG is often triggered at locations of injury from trauma or surgery, a condition known as pathergy.[3] Pathergy can cause a challenging diagnostic dilemma for surgeons in the setting of the post-surgical wound where the clinical features of PG can often, in the early stages, be indistinguishable from that of a simple post-operative wound infection. Further wound debridement can dramatically worsen this disease and result in significant physical and psychological morbidity and mortality.[4] PG has well-documented associations with systemic conditions such as inflammatory bowel disease (IBD) and rheumatologic and hematological disorders such as rheumatoid arthritis and myeloproliferative disorders, respectively.[5,6] The optimal outcome is reliant on early diagnosis and conservative management. Prolonged and high-dose systemic corticosteroids and other immunosuppressants, in addition to gentle local wound care, characterize traditional treatment regimes.

Three cases of PG encountered over a nine year period following breast reconstruction for oncological surgery are presented. The incidence rate of PG in the setting of immediate breast reconstruction is examined. A diagnostic and management algorithm is presented to assist early diagnosis and management.

Methods

We describe three cases of PG following immediate breast reconstruction for oncological surgery at the Counties Manukau District Health Board (CMDHB) department of Plastics and Reconstructive Surgery between 1st January 2006 and 1st September 2014. The departmental database was accessed to identify all cases of immediate breast reconstruction undertaken over the corresponding time frame to allow the analysis of the incidence of PG in our population.

The CMDHB Plastic Surgery breast reconstruction service performs all major forms of breast reconstruction. Ten years ago, our most common form of autologous reconstruction was the pedicled transverse rectus abdominus myocutaneous (TRAM) flap. Over the past decade, our practice for autologous reconstruction has largely moved away from pedicled flaps to free tissue transfer. Currently, the majority of reconstructions in our unit are performed in either expander/implant fashion (approximately 55%) or deep inferior epigastric artery perforator (DIEP) free flaps (35%). The remaining 10% of reconstructions cover all other surgical types, including extended latissimus dorsi or latissimus dorsi and implant pedicled flaps, as well as pedicled TRAM flaps.

Case 1

A 51-year-old New Zealand-European woman (Figure 1) underwent left mastectomy with immediate left pedicled TRAM flap reconstruction for breast malignancy in January 2007. The histology was reported as a T2aN2M0 28-mm grade 2 invasive ductal carcinoma (IDC), estrogen receptor positive (ER+), progesterone receptor positive (PR+), and human epidermal growth factor receptor negative (HER2-) with 4/16 primary lymph nodes involved.

Her immediate post-operative course was complicated by a diagnosis of abdominal wound infection unresponsive to broad-spectrum penicillin-based antibiotics (amoxicillin–clavulanic acid). Wound dehiscence and purulence was observed. She returned to the operating room on post-operative day eight (POD-8), 11, and 13 for wound debridements. Tissue culture showed *Enterobacter*

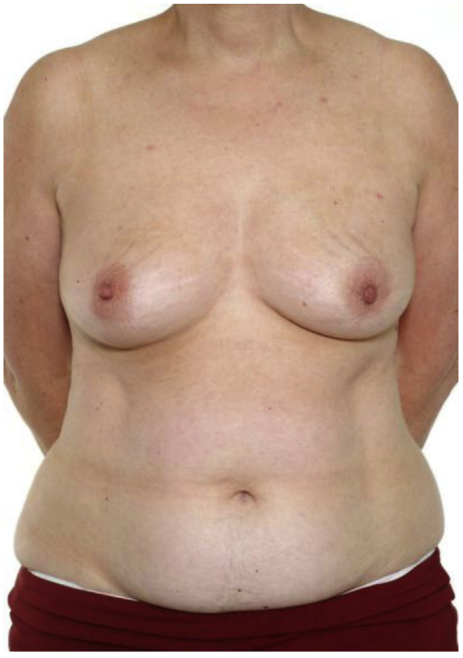

Figure 1 Pre-operative 51-year-old female who underwent left mastectomy with immediate pedicled TRAM flap reconstruction for T2aN2M0 28 mm grade 2 IDC.

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