

# Ulcers Caused by Breast Surgery and Abdominoplasty

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Breast augmentation and abdominoplasty are among the most common surgical procedures performed in the United States. Breast mastopexy procedures have continued to increase over the years. Complications of breast augmentation are similar to those of breast reduction, mastopexy, and abdominoplasty, and include seroma formation, cellulitis, wound dehiscence, wound necrosis, hematoma, and abscess formation. We report on a patient with ulcers secondary to breast and abdominal surgery and discuss the clinical and psychological complications of cosmetic surgery.

**M**ore than 16 million cosmetic and reconstructive procedures were performed in the United States in 2006, with a total of 10,990,287 surgical and minimally invasive cosmetic procedures performed overall, an increase of 48% since 2000.<sup>1</sup>

As an example of the increased performance of cosmetic surgery between 2000 and 2006, a total of 329,396 breast augmentation and 103,788 mastopexy (breast lift) procedures were performed in the United States, representing increases of 55% and 96%, respectively.<sup>1</sup>

During 2005 and 2006, more than 8% of cosmetic breast surgeries were procedures to remove breast implants.<sup>1</sup> For example, a total of 27,451 cases of breast implant removals were performed in 2006. The most common indication for implant removal was capsular contracture.<sup>2,3</sup> A large retrospective study performed by Gabriel et al<sup>2</sup> found the most common complications following breast implantation to be capsular contracture, implant rupture, hematoma, and wound infection.

Abdominoplasty, also known as a tummy tuck, was the fifth most popular cosmetic surgical procedure in 2006, with 146,240 procedures performed, a 133% increase since 2000.<sup>1</sup> Abdominoplasty is commonly indicated

for abdominal deformity secondary to pregnancy and weight loss. To reduce the cost of cosmetic surgery, a trend toward more outpatient procedures has occurred. Spiegelman and Levine<sup>4</sup> retrospectively reviewed 69 consecutive abdominoplasty cases from a surgeon's private clinic and concluded that abdominoplasty can be safely and effectively performed in an outpatient surgery clinic because of comparable complication rates between the inpatient (29.7%) and outpatient (31.2%) populations.

We report on a case of surgical breast and abdominal ulcers caused by elective breast surgery and abdominoplasty and on the psychological effects resulting from those surgical complications.

## CASE REPORT

A 27-year-old woman presented for evaluation of non-healing surgical wounds located on both breasts and the lower abdomen. Nineteen days prior, she had undergone ambulatory bilateral breast reduction/mastopexy as well as abdominoplasty at a private outpatient plastic surgery clinic in Miami, Florida. In 2004, the patient had undergone breast augmentation with saline implants under general anesthesia, increasing her breast cup size from B to D. In June 2007, the patient decided to undergo elective breast mastopexy and implant reduction from breast cup size D to C because she disliked having what she called "big, sagging breasts." An elective abdominoplasty was also performed because she was dissatisfied with the appearance of her abdomen after the birth of her 2 children.

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*The authors report no conflicts of interest in relation to this article.*



**Figure 1.** Superficial ulcers in the inframammary fold and periareolar area following mastopexy and breast implant reduction.

Her medical history was remarkable for 2 cesarean sections in 2002 and 2006, with no complications. She denied alcohol, tobacco, or illicit drug use. Her family history was noncontributory. For this case report, the plastic surgeon was not interviewed; the medical history presented relied only on patient interview.

Examination of the patient's breasts showed superficial ulcers in the inframammary fold and periareolar area (Figure 1). The base of the ulcers was covered with red granulation tissue and scant serosanguineous discharge. The ulcer base on the abdomen was covered with red granulation tissue and a few areas of yellow/green fibrinopurulent material over fat exposure in the center (Figure 2A). The surrounding skin of the breasts and abdomen was indurated and edematous. There was no undermining or periulcer inflammation or axillary lymphadenopathy. Cultures and partial thickness debridement were performed, and the patient received a 7-day course of levofloxacin plus a tapering dose of prednisone. Cultures from breast wounds showed *Pseudomonas aeruginosa*, while cultures from abdominal wounds showed *Streptococcus pyogenes* (group A streptococcus) sensitive to levofloxacin. Although pyoderma gangrenosum was considered as a possible diagnosis, clinical features obviated

against it, and a diagnosis of dehisced surgical wound with a secondary wound infection was made.

For the month following surgery, wound treatment included a dressing composed of oxidized regenerated cellulose and collagen for the patient's breast ulcers and cadexomer iodine ointment for her abdominal ulcer. Small intestine submucosa (SIS) wound matrix was subsequently applied. The abdominal wound was completely healed after the 3-month treatment period with SIS (Figure 2B). During this time, the breast ulcers decreased from their original size by 75%.

As a consequence of the surgical complications, the patient experienced a period of depression lasting 2.5 months that significantly impacted her lifestyle and marriage. To ease her depression, she was referred to a psychiatrist, but for personal reasons she refused to make an appointment.

### COMMENT

This case report highlights the wound-healing and psychological complications of cosmetic surgery. A large retrospective study of 206 cases by Neaman and Hansen<sup>5</sup> found the most common complications of abdominoplasty to be seroma (17.4%), cellulitis (9.2%), wound dehiscence (7.2%), wound necrosis (6.7%), hematoma (5.8%), and abscess formation (3.3%). Obese patients, patients with diabetes, and smokers have an increased rate of both major and minor complications.<sup>5</sup> In addition to the complications listed above, other complications include deep vein thrombosis and pulmonary embolism.<sup>5</sup>

Minor complications (eg, seroma, wound dehiscence, hematoma, infection, and scarring) of breast augmentation, removal of implants, and mastopexy are comparable with those of abdominoplasty. A capsular contracture may form when the capsule around the implant becomes hard and contracts, causing pain and breast deformity. Capsular contracture is a major complication of breast implantation<sup>2,3,6,7</sup> and typically requires surgical intervention.<sup>2,3</sup>



**Figure 2.** Abdominal ulcer base showing red granulation tissue, areas of yellow/green fibrinopurulent material, and fat exposure in the center before (A) and after (B) a 3-month treatment period with small intestine submucosa wound matrix.

In addition to utilizing SIS as an initial therapy, we also used it to help speed healing. SIS is an acellular, naturally derived, extracellular matrix made from porcine SIS, which contains collagen (types I, III, and V) and growth factors. This 3-dimensional matrix serves as a reservoir for cytokines and cell adhesion molecules, promoting tissue growth.<sup>8</sup> SIS is used to treat partial-thickness and full-thickness ulcers, acute traumatic wounds, burns, and skin donor sites. It has been found to improve wound management in venous leg ulcers<sup>9</sup> and in diabetic ulcers.<sup>10</sup> Although SIS is used to treat various types of wounds, the best evidence of its efficacy exists for venous leg ulcers.<sup>9</sup> In a randomized controlled trial, Mostow et al<sup>9</sup> reported that 55% of patients with chronic venous leg ulcers healed after a 12-week treatment period of SIS plus standard care bandage compression compared to 34% of patients who received standard care alone ( $P < .05$ ).

Following surgery, our patient suffered a bout of depression. Interestingly, acute postsurgical depression is common among women undergoing cosmetic surgery and is not limited to those experiencing postsurgical complications. Depression after surgery is usually of multifactorial etiology. Among 105 patients who underwent cosmetic surgery, Rankin et al<sup>11</sup> analyzed 4 self-report questionnaires that measured overall quality of life, social support, depression, and ability to cope. Breast augmentation and abdominoplasty each accounted for 10% of the total number of surgical procedures. Although the study determined that depression was present immediately after surgery, Rankin et al<sup>11</sup> found a significant improvement in overall quality of life and depression at 1- and 6-month postoperative evaluations ( $P < .001$ ).

Despite these findings of improvement in depression over time, epidemiologic studies from the United States,<sup>11</sup> Canada,<sup>13</sup> Finland,<sup>14</sup> and the Netherlands<sup>15</sup> have reported a 2- to 3-fold higher rate of suicide in women undergoing cosmetic procedures compared with the rate in similarly aged women in the general population. A large cohort study of 3000 Swedish women by Koot et al<sup>15</sup> found a 50% excess mortality rate among women who underwent cosmetic breast augmentation (explained in part by an excess of suicides), but they also found an increase in deaths from malignant disease. Similarly, Brinton et al<sup>12</sup> also reported a higher rate of suicide but conversely found a lower overall mortality rate among US women who underwent cosmetic breast augmentation compared with the mortality rate of the general population.<sup>12</sup> If the data are correct, multiple factors can explain the lower mortality rate in the United States. These factors include the increased selectivity of plastic surgeons performing surgery and their avoidance of patients with comorbid conditions (eg, diabetes mellitus and morbid obesity) and of patients who are heavy smokers. Additionally, it

is possible that among US women who undergo cosmetic surgery, concerns about their health and other lifestyle factors, such as dieting and exercising, may play a role in their lower mortality rates.

## SUMMARY

Dissatisfaction with one's appearance may continue or even worsen if unexpected or unwanted results occur after a cosmetic surgery. This dissatisfaction may lead to additional surgery, increasing the risk of further complications. In addition to the commonly recognized complications of cosmetic surgery, depression and even suicide may also occur. Practitioners of cosmetic surgery should be aware of the potential for these complications.

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