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CASE REPORT
Cosmetic

Necrotizing Soft Tissue Infection of Abdominal Wall after Lipoabdominoplasty: Complication following Medical Tourism

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Summary: Necrotizing soft tissue infection (NSTI) is an acute life-threatening complication of cosmetic surgery. We present a case study of a 48-year-old woman diagnosed with NSTI of the abdominal wall following liposuction, abdominoplasty, and ventral hernia repair performed in Latin America. In the operating room, bowel perforation at the hepatic flexure was observed requiring emergent fascial debridement, bowel resection, and broad-spectrum antibiotics. She required multiple washouts and split-thickness skin grafts. Complications such as NSTI are possible after lipoabdominoplasty and are prevalent in cosmetic medical tourism, due, in part, to varying institutional standards and accreditations, and in some cases lack of consistent adherence to set standards. Complications after medical tourism contribute a significant burden to medical staff and the healthcare system in patients' home countries. Patient education by their surgeons and plastic surgery societies should be prioritized. It is important for domestic emergency physicians, plastic surgeons, and other care providers to understand complications postcosmetic surgery to promote timely management. *(Plast Reconstr Surg Glob Open 2022;10:e4416; doi: 10.1097/GOX.0000000000004416; Published online 5 July 2022.)*

According to the International Society of Aesthetic Plastic Surgery, surgical and nonsurgical aesthetic procedures increased in 2019 by 7.1% and 7.6%, respectively, compared with 2018.[1] Cosmetic medical tourism saw a concurrent increase during this time. Countries receiving the highest percentage of foreign patients were Thailand (33.2%), Mexico (22.5%), and Turkey (19.2%).[1] Many patients travel abroad due to reduced cost, cultural similarity between patient and providers, easy accessibility, and availability of procedures not performed in home country.[2,3] However, foreign regulations and safety standards for facilities, drugs, medical products, and devices may vary, and in some circumstances, be more lax than in the United States, increasing risk of postsurgical complications.[2] Additionally, patients who travel for procedures often lack follow-up with their surgeons, delaying timely detection of complications.[3] Common complications following cosmetic surgery performed abroad include wound infection, poor wound healing, wound dehiscence, and thromboembolic events.[2–4] Patients are also at risk of postsurgical infection associated with foreign pathogens.[2,4] This case highlights a patient presenting with serious surgical and medical complications post-lipoabdominoplasty performed in Latin America, emphasizing burdens on home healthcare system and importance of patient education.

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CASE REPORT

A 48-year-old woman with no reported medical history underwent elective ventral hernia repair, liposuction, and abdominoplasty in Latin America. The patient reportedly had anaphylactic shock after receiving diclofenac postoperatively, and was transported via air to our hospital in San Antonio, Texas. On hospital day 2, the patient underwent emergent exploratory surgery due to tender abdomen, hemorrhagic bullae (Fig. 1), and ecchymosis (Fig. 2) found on examination, suggesting infection. In the OR, necrotizing soft tissue infection (NSTI) of the abdominal wall was observed; necrotic sections of abdominal wall were debrided with two areas of fascial debridement in right and left upper quadrants. Bowel perforation at the hepatic flexure was incidentally

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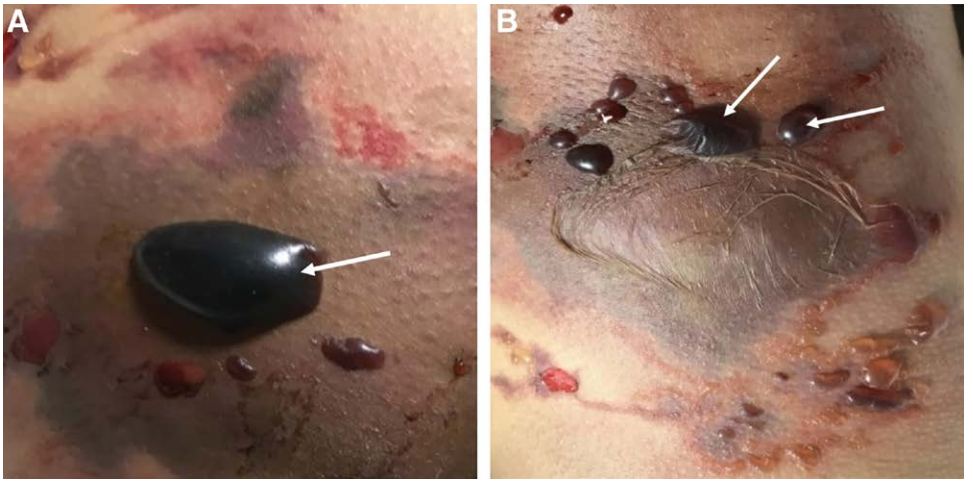

Fig. 1. Patient physical exam findings indicative of NSTI. A, Right lower abdomen with hemorrhagic bullae (white arrow) on physical examination. B, Right flank with hemorrhagic bullae (white arrows) on physical examination.

found and treated with ileocecectomy with bowel left in ostomy. The patient was admitted to the surgical intensive care unit for ventilatory management and close monitoring and started empirically on broad-spectrum antibiotics including meropenem, linezolid, and metronidazole due to bowel perforation and NSTI. Blood cultures grew *Bacteroides*, prompting continuation of metronidazole for 2 weeks. After successive debridements, gastrostomy tube was placed, and an end ileostomy was created. Physical examination and computed tomography head findings were concerning for anoxic brain injury, so the patient was started on Keppra to prevent seizures. The abdominal wounds were later covered with split-thickness skin grafts from bilateral thigh donor sites. Tissue cultures subsequently grew *Candida* species, and the patient completed 7 days of micafungin. The patient also developed *Acinetobacter* pneumonia posttracheostomy and completed a course of Cefepime followed by Ampicillin/Sulbactam. The patient had a catheter in place for urinary retention and later grew *Pseudomonas*, treated with a week of ciprofloxacin. After meeting all discharge milestones, the patient was discharged to a long-term acute-care hospital.

Fig. 2. Ecchymosis and erythema on the left flank noted during the physical examination.

DISCUSSION

Lipoabdominoplasty combines liposuction and abdominoplasty during the same procedure, with minimal undermining of the abdominal flap that protects important anatomy including abdominal perforating vessels.[5,6] This technique can result in better body contour, decreased revision rates, reduced final scar extension, and faster wound healing compared with traditional abdominoplasty.[5,6] Despite the benefits of lipoabdominoplasty, the procedure carries risk of serious complication, which can include thromboembolic events, infection, abdominal wall perforation, and bowel injury.[7,8] Our patient received lipoabdominoplasty in Latin America, which was complicated by NSTI of abdominal wall and bowel perforation requiring surgical and medical management.

NSTIs consist of necrotizing changes of the soft tissue compartment, which are often life-threatening due to acute and aggressive presentation caused by gas-forming bacteria.[8,9] Early diagnosis and management is challenging due to similarity in presentation with less threatening infections.[8,9] Commonly, patients present with erythema, swelling, ecchymosis, bullous changes, and necrosis of the skin, pain out of proportion to examination, crepitus on examination, and cutaneous anesthesia.[8,9] Management includes complete debridement of the infected site and broad-spectrum antibiotics with second-look operation within 24–48 hours for further debridement.[8,9] Patients are placed in the intensive care unit (ICU) for close monitoring, supportive treatment, and acute management if organ failure develops.[9]

Our patient showed acute changes on abdominal examination, tenderness to palpation, and hemorrhagic bullae consistent with NSTI, and was taken to the OR

immediately and treated with broad-spectrum antibiotics to prevent fatal outcomes.[8,9] Her surgical complications were recognized in a timely manner due to her being monitored in our hospital's ICU following anaphylaxis. Her distribution of NSTI corresponded to where presumable liposuction occurred. Our presumption was that the liposuction cannula perforated the right colon, which went unrecognized, and was then used to liposuction the rest of the abdomen. This seeded bacteria in the area of the NSTI. The patient had further complications during the hospital course: anoxic brain injury, *Acinetobacter* pneumonia, and *Pseudomonas* urinary tract infection.

This case report is significant from surgical and medical perspectives due to the severity of complications after lipoabdominoplasty raising concerns for safety of this procedure regardless of where the procedure is completed. However, medical tourism is a significant catalyst for complications due to heterogeneous safety standards and lack of patient follow-up.[3] Timely follow-up is especially crucial in the case of rapidly progressive, life-threatening complications such as NSTI.[8,9] The Centers for Disease Control and Prevention advises patients to avoid traveling for 10 days following abdominal surgery.[2] Lipoabdominoplasty is a frequently performed surgery in the United States; hence, the possibility of rare, but severe complications such as bowel perforation and NSTI should be discussed with patients.

Organizations such as the Joint Commission International and International Society of Aesthetic Plastic Surgery provide accreditation to international institutions and physicians based on their eligibility.[2,4] After cosmetic surgeries abroad, patients lack follow-up with their surgeons and when complications arise, they visit the emergency department or plastic surgeons in their home country, placing financial, legal, and ethical burdens on the healthcare system.[4,8,10] Patients should be educated on risks of undergoing cosmetic surgery abroad, for example, NSTI and bowel perforation after lipoabdominoplasty, to allow informed decision-making.[4,10]

SUMMARY

Our case exhibits the clinical presentation of abdominal wall NSTI after lipoabdominoplasty performed abroad in Latin America. Due to the acute presentation and life-threatening complications of NSTI, timely diagnosis and management was crucial for this patient. Patients undergoing cosmetic surgery in both domestic and international settings should be educated on complications such as NSTI.

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