OPEN

PRS GLOBAL OPEN

CASE REPORT
Cosmetic

Necrotizing Fasciitis Due to *Acinetobacter baumannii* Complex Following Body Contouring Surgery: First Case Report

Lázaro Cárdenas-Camarena, MD*
Cristopher Cárdenas-Cruz, MD†
Iván González Godínez, MD‡

Summary: The rise in aesthetic surgery in recent years has led to an increased incidence of complications associated with these procedures. Liposuction and autologous fat transfer have become some of the most common cosmetic interventions worldwide, also raising the risk of developing postoperative infections, including those caused by multidrug-resistant Gram-negative bacilli, which can be life-threatening. We present the case of a 40-year-old woman who developed septic shock secondary to deep necrotizing fasciitis in the right thigh following liposuction and autologous fat transfer to the buttocks. During the postoperative period, she developed a necrotizing soft tissue infection affecting the right thigh and buttock, which progressed to necrotizing fasciitis. The patient required surgical debridement, fasciotomy, and combined antibiotic therapy. Tissue cultures revealed multidrug-resistant *Acinetobacter baumannii* complex haemolyticus, sensitive to carbapenems. The patient had surgical debridement and a 14-day course of antibiotics, resulting in clinical recovery. *A. baumannii* is a significant cause of nosocomial infections worldwide, and its persistence on inanimate surfaces may be underestimated. Complications such as necrotizing soft tissue infections are typically caused by Gram-positive microorganisms such as methicillin-resistant *Staphylococcus aureus* and Gram-negative fermenting enterobacteria. The isolation of *A. baumannii* in soft tissue cultures is unusual, making this case notable, as necrotizing soft tissue infections caused by this nonfermenting Gram-negative bacillus have not been previously reported following aesthetic body contouring surgery.
(Plast Reconstr Surg Glob Open 2025;13:e6715; doi: 10.1097/GOX.0000000000006715; Published online 17 April 2025.)

Necrotizing fasciitis (NF) is a severe, rapidly spreading soft tissue infection causing necrosis and septic shock.[1,2] Diagnosing NF is challenging and requires high clinical suspicion, as early stages may resemble cellulitis.[3] Clinically, NF is marked by rapid tissue destruction, systemic signs of toxicity, and high mortality rates.[2] Although imaging studies may aid in diagnosing necrotizing infections, surgical intervention should not be delayed if classic clinical signs or rapid symptom progression are observed.[4] Early diagnosis and debridement improve outcomes and survival rates.[4] *Streptococcus pyogenes* is the most frequently isolated bacterium.[5]

Acinetobacter baumannii is a significant cause of nosocomial infections due to its minimal growth requirements. This microorganism can be isolated from various inanimate sources, such as hospital equipment, catheters, and surgical instruments.[6,7] However, no previous cases of NF due to *A. baumannii* have been reported in association with aesthetic body contouring procedures.

We present the first reported case in the medical literature that progressed to NF caused by *A. baumannii*, secondary to liposuction and gluteal fat grafting.

CLINICAL CASE

A 40-year-old Hispanic woman, middle socioeconomic status, weighing 72 kg, 1.62 m tall, with a body mass index of 26.45 kg/m², with no risk factors underwent

*From the *Department of Plastic Surgery, Innovare Hospital, Zapopan, Jalisco, Mexico; †Surgery Department, Centro Médico Nacional Siglo XXI, Hospital de Especialidades "Dr Bernardo Sepúlveda," Mexico City, Mexico; and ‡Infectious Disease Department, Centro médico nacional Siglo XXI, Hospital de Especialidades "Dr Bernardo Sepúlveda," Mexico City, Mexico.*

Received for publication October 16, 2024; accepted March 6, 2025.

DOI: 10.1097/GOX.0000000000006715

Disclosure statements are at the end of this article, following the correspondence information.

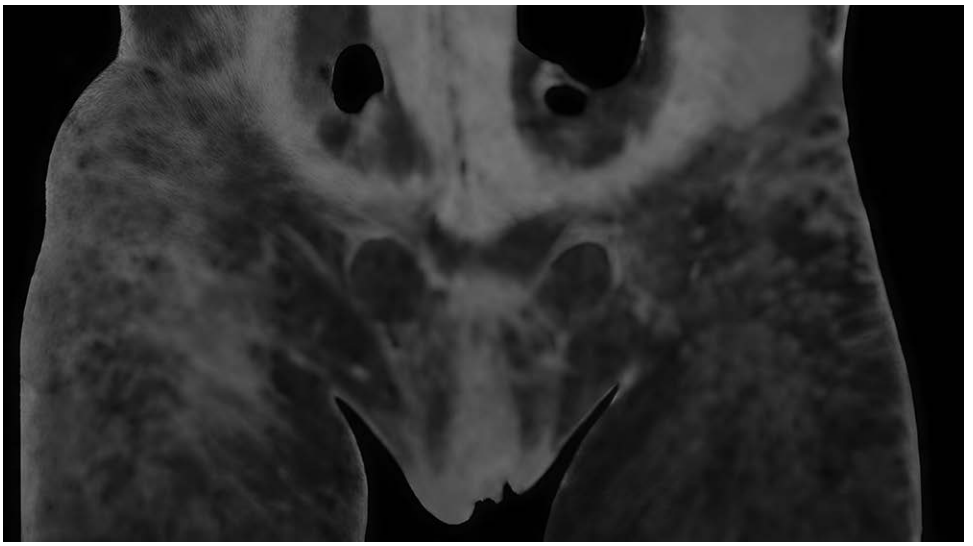

Fig. 1. Computed helical tomography, coronal section, showing skin thickening, subcutaneous tissue partitioning, and muscle hypodensity with loss of the reticular pattern.

lipoabdominoplasty and gluteal fat grafting. One week after surgery, she had a fever of 40°C, swelling in the right leg, and scattered ecchymosis in the gluteal region. An unspecified antibiotic treatment was initiated, with no clinical improvement. One month later, the patient presented to our service due to worsening of her general condition. Upon admission, her blood pressure was 60/40 mm Hg, mean arterial pressure was 46 mm Hg, temperature was 39.8°C, and heart rate was 110 bpm. Physical examination revealed enlargement of the right thigh, local hyperthermia, erythema, and intense pain upon superficial palpation, along with a fluctuating area in the right gluteal region and lateral thigh. The patient developed septic shock with severe soft tissue involvement. A computed tomography scan of the affected thigh showed loss of the normal fibrillar pattern in the muscle structures and signs of necrotizing soft tissue infection (Fig. 1). Samples were taken for pathological and microbiological analysis. Histopathologic evaluation revealed acute and chronic inflammation of the subcutaneous cellular tissue and striated muscle with thrombosis in medium-caliber vessels, with the formation of microabscesses and extensive areas of necrosis. An infectious disease specialist was involved in the management of the disease, and a plastic surgeon and a general surgeon were involved in the surgical procedures.

Empirical dual antibiotic therapy with ceftriaxone and metronidazole was initiated, along with vasopressor support. Based on clinical, laboratory, and imaging findings, and an index of 9 in the Laboratory Risk Indicator for Necrotizing Fasciitis,[3] NF in the right thigh associated with compartment syndrome was diagnosed. Given this, immediate surgical intervention was performed, including fasciotomy, debridement, and mechanical irrigation. During the procedure, 300 mL of tense fluid collection between the fascia and the vastus lateralis muscle was drained, consisting of thick purulent fluid without a characteristic odor. Fat necrosis extending toward the fascia of the anterior thigh compartment was also observed, located a few centimeters from the liposuction incision in the subgluteal fold.

Fig. 2. Fat necrosis extending into the fascia of the anterior thigh compartment, a few centimeters from the liposuction incision.

Subsequently, additional mechanical irrigation was performed, and a negative pressure wound therapy system was applied, with changes every third day until clinical healing was achieved. Tissue cultures isolated *A. baumannii* complex haemolyticus, which showed resistance to several

Fig. 3. Placement of negative pressure wound therapy.

antibiotics, while retaining sensitivity to carbapenems, including meropenem. The antibiotic regimen was adjusted accordingly. After initiating standard-dose meropenem and completing a 14-day antibiotic course, the patient showed favorable progress, achieving clinical recovery. Having obtained improvement of the wound after a negative pressure wound therapy procedure, deferred primary closure was performed (Figs. 2, 3). The patient was followed up for 3 months after her hospital discharge and did not present any functional sequelae, only aesthetic sequelae due to the scars caused by the fasciotomy (Fig. 4).

DISCUSSION

The prevalence of aesthetic surgery procedures increased by 19% between 2019 and 2022, with a notable 23% rise in liposuctions. Being a widely performed surgical procedure, it is not exempt from multiple complications.[8] Among the most severe complications, necrotizing soft tissue infections stand out as potentially life-threatening.[2,9] These infections are classified according to the layers involved: dermis, subcutaneous tissue, fascia, or muscle.

Fig. 4. Final result after negative pressure wound therapy. Re-intervention with delayed primary closure.

Clinical presentation, histopathologic results along with magnetic resonance imaging, is essential to confirm the diagnosis of NF. Magnetic resonance imaging is particularly useful with images suggesting NF.[10] If necrotizing soft tissue infections are not treated promptly and appropriately, they can progress to NF.[2] Early diagnosis of these infections can prevent serious and potentially fatal complications.

A. baumannii significantly contributes to nosocomial infections. Its extended survival ability, which can exceed 4 months in hospital environments, facilitates its persistence and transmission through medical devices and surgical

equipment. However, it is relatively rare for *A. baumannii* to be the causative agent of postoperative NF.[5,7]

This case of NF had an atypical course, likely due to 2 factors. *A. baumannii* can persist in poorly vascularized tissues, reactivating later as a severe infection. Additionally, the initial use of nonspecific antibiotics may have allowed a latent state, worsening the condition. The severity necessitated extensive fasciotomies. Given *A. baumannii*'s presence in devitalized tissues, contamination likely resulted from inadequate cleaning of liposuction or lipoinjection cannulas. To prevent similar infections, environmental culture protocols should ensure proper disinfection of operating rooms and instruments.[7] Thorough cleaning of liposuction and lipoinjection cannulas is crucial to remove tissue residues that promote microbial growth. Medical staff must be aware of these complications, requiring a multidisciplinary approach. In suspected NF, the Laboratory Risk Indicator for Necrotizing Fasciitis score aids diagnosis alongside clinical assessment,[3] enabling timely treatment and reducing morbidity and mortality.

CONCLUSIONS

This is the first reported case of postoperative NF after body contouring surgery caused by *A. baumannii*. Proper sterilization, cultures, and antibiograms are essential for targeted antibiotic therapy. Early diagnosis and surgical treatment are crucial to reducing morbimortality, emphasizing the importance of prevention and early detection.

Cristopher Cárdenas Cruz, MD
Surgery Department, Centro Médico Nacional Siglo XXI
Hospital de Especialidades "Dr Bernardo Sepúlveda"
Mexico City 06720, Mexico
E-mail: dr.cristophercardenascruz@gmail.com
Instagram Handle: christophercccruz

DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

REFERENCES

1. Marchesi A, Marcelli S, Parodi PC, et al. Necrotizing fasciitis in aesthetic surgery: a review of the literature. *Aesthetic Plast Surg.* 2017;41:352–358.
2. Alexander J, Takeda D, Sanders G, et al. Fatal necrotizing fascitis following suction-assisted lipectomy. *Ann Plast Surg.* 1988;20:562–565.
3. Wong CH, Khin LW, Heng KS, et al. The LRINEC (Laboratory Risk Indicator for Necrotizing Fasciitis) score: a tool for distinguishing necrotizing fasciitis from other soft tissue infections. *Crit Care Med.* 2004;32:1535–1541.
4. Bucca K, Spencer R, Orford N, et al. Early diagnosis and treatment of necrotizing fasciitis can improve survival: an observational intensive care unit cohort study. *ANZ J Surg.* 2013;83:365–370.
5. Bergogne-Bérézin E, Towner KJ. Acinetobacter spp. as nosocomial pathogens: microbiological, clinical, and epidemiological features. *Clin Microbiol Rev.* 1996;9:148–165.
6. Villers D, Espaze E, Coste-Burel M, et al. Nosocomial *Acinetobacter baumannii* infections: microbiological and clinical epidemiology. *Ann Intern Med.* 1998;129:182–189.
7. McConnell MJ, Actis L, Pachón J. *Acinetobacter baumannii*: human infections, factors contributing to pathogenesis and animal models. *FEMS Microbiol Rev.* 2013;37:130–155.
8. Comerci AJ, Arellano JA, Alessandri-Bonetti M, et al. Risks and complications rate in liposuction: a systematic review and meta-analysis. *Aesthet Surg J.* 2004;44:NP454–NP463.
9. Lehnhardt M, Homann HH, Daigeler A, et al. Major and lethal complications of liposuction: a review of 72 cases in Germany between 1998 and 2002. *Plast Reconstr Surg.* 2008;121:396e–403e.
10. You JS, Chung YE, Baek SE, et al. Imaging findings of liposuction with an emphasis on postsurgical complications. *Korean J Radiol.* 2015;16:1197–1206.