IJSSR
International Journal of Social Service and Research

Vol. 6, No. 5, May 2026
e-ISSN: 2807-8691 | *p*-ISSN: 2807-839X

Necrotizing Fasciitis Following Dermal Filler and Thread Lift Procedure: A Case Report with Multidisciplinary and Regenerative Reconstruction Approach

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Keywords

Necrotizing fasciitis; dermal filler; thread lift; facial infection; reconstructive surgery

ABSTRACT:

Dermal fillers and thread lifts are widely used minimally invasive aesthetic procedures with a good safety profile. However, rare complications such as necrotizing fasciitis (NF) can occur and may be life-threatening. Case Presentation, A 37-year-old woman developed severe left facial infection seven days after dermal filler and thread lift procedures performed at a non-medical aesthetic clinic. Initial symptoms progressed rapidly to abscess formation with purulent discharge. Delayed diagnosis led to worsening infection. Surgical exploration confirmed necrotizing fasciitis. The patient underwent multiple incision and drainage procedures, hyperbaric oxygen therapy, and definitive surgical debridement. Reconstruction was performed in stages, including *melolabial* flap, autologous fat grafting, lateral tarsal strip procedure, *secretome* therapy, CO_2 fractional laser, and skin booster injections. Pus culture revealed Staphylococcus aureus. Results: The multidisciplinary and regenerative reconstructive approach resulted in satisfactory functional and aesthetic outcomes, with complete resolution of infection, improved Vancouver Scar Scale score (from 11 to 4), and increased patient satisfaction (from 2/10 to 8/10) at six months follow-up. Conclusion: Necrotizing fasciitis should be considered in rapidly progressive infections following aesthetic procedures. Early diagnosis, prompt surgical management, and multidisciplinary care are essential to improve outcomes.

INTRODUCTION

The demand for minimally invasive aesthetic procedures has increased significantly over the past two decades (Nisreen Mobayed et al., 2020; Rekawek et al., 2021; Sobanko et al., 2015; Tonutti et al., 2017). Dermal fillers and thread lifts have become popular choices because they provide instant facial rejuvenation with short recovery time and what is perceived as low risk. This popularity is driven by social media, growing aesthetic awareness, and greater accessibility of procedures across various facilities, including non-medical beauty clinics.

In general, dermal fillers and thread lifts have a good safety profile when performed by competent medical professionals using proper aseptic techniques (Dobrzyński et al., 2025; Oleshchuk et al., 2025). The most commonly reported complications are mild and temporary,

such as edema, erythema, ecchymosis, or asymmetry (Wang et al., 2020; Dobrzyński et al., 2025). However, when procedures are performed without adequate medical standards, the risk of severe complications increases significantly (Dobrzyński et al., 2025; Salimon et al., 2024; Valach et al., 2025).

Infection is one of the serious complications that can occur following invasive aesthetic procedures (Bingoel et al., 2022; Damsaz & Razavi, 2024; Gilardi et al., 2023; Hengshu, 2022; Vitagliano et al., 2023). Risk factors include poor aseptic technique, use of non-sterile or illegal products, patient immunosuppression, and procedures performed by unqualified practitioners. Infections may present as localized cellulitis, abscess formation, or life-threatening soft tissue infections.

Necrotizing fasciitis (NF) is a rapidly progressive bacterial infection involving the superficial fascia and subcutaneous tissue, with high morbidity and mortality rates (Cosgarea et al., 2023; Khan et al., 2025). NF is characterized by disproportionate severe pain, progressive erythema, edema, bulla formation, and tissue necrosis (Misiakos et al., 2022; Cosgarea et al., 2023). Although rare in the facial region, craniofacial NF carries a mortality rate of 15–40% due to its proximity to vital structures and potential for intracranial spread (Ahamad et al., 2022; Wubie et al., 2026).

The occurrence of NF following facial aesthetic procedures is very rarely reported in the literature. Several case reports have linked NF to filler injections, mesotherapy, or minor surgical procedures that became contaminated. The most frequently identified pathogens are Staphylococcus aureus and Streptococcus pyogenes, although polymicrobial infections can also occur. Delayed diagnosis is common because early symptoms of NF resemble mild skin infections.

The main challenges in managing NF after aesthetic procedures are delayed presentation by patients and initial misdiagnosis. Patients often return to the non-medical facility where the procedure was performed, which lacks the capacity to recognize and manage severe infections. This leads to delays in surgical debridement, which is the key determinant of survival in NF cases.

Beyond the emergency aspect, facial NF poses complex reconstructive challenges. Extensive soft tissue defects, contracture scars, and functional impairments such as ectropion or oral deformities require a multidisciplinary approach. Staged reconstruction combining local flaps, fat grafting, and regenerative modalities is now a strategy to optimize both functional and aesthetic outcomes.

This case is important to report given the increasing number of aesthetic procedures performed by non-medical practitioners in Indonesia. Lack of strict regulation and limited public education about the risks of illegal procedures contribute to severe complications such as NF. This report aims to raise physician awareness of NF as a differential diagnosis in patients with rapidly worsening infection following aesthetic interventions.

Through this case report, we emphasize three key points: first, the importance of early diagnosis and immediate surgical intervention in NF; second, the role of a multidisciplinary approach in management from acute care to reconstruction; and third, the urgency of public education and stricter regulation of aesthetic practices. With these measures, the incidence of severe complications can be reduced and patient safety can be better ensured.

METHOD

A 37-year-old female presented with swelling, erythema, severe pain, and purulent discharge on the left side of her face. The symptoms developed seven days after undergoing dermal filler and thread lift procedures at a non-medical aesthetic clinic in Bengkulu, Indonesia.

Initially, the patient experienced mild swelling and discomfort, which progressively worsened. Fluctuance and purulent discharge developed, particularly from the lateral puncture site. Despite early signs of infection, appropriate treatment was delayed.

The patient underwent two incision and drainage procedures and received four sessions of hyperbaric oxygen therapy in Jakarta without significant improvement.

Six months later, she presented to a plastic surgeon in Bengkulu. Clinical findings were highly suggestive of necrotizing fasciitis, and surgical debridement was performed, confirming the diagnosis.

RESULTS

The results in this case report are systematically compiled to describe the patient's disease progression from initial presentation, supporting findings, management, and final outcome. Data were obtained from medical records, clinical photographs, and laboratory results throughout the treatment period. The tabular presentation aims to facilitate the reader's understanding of the progression of this rare case of necrotizing fasciitis following an aesthetic procedure and to assess the effectiveness of the multidisciplinary approach used.

Table 1. Patient Demographics and Initial Clinical Presentation

Variables	Results
Age	37 years old
Gender	Woman
Procedure location	Non-medical aesthetic clinic, Bengkulu
Type of action	Dermal filler + thread lift left facial region
Onset of symptoms	Day 7 post procedure
Main complaint	Severe pain, swelling, erythema, purulent discharge
Initial vital signs	BP 130/80 mmHg, Pulse 98x/minute, Temperature 38.2°C
Physical findings	Fluctuation, hemorrhagic bullae, focal skin necrosis of the left cheek region

Source: Patient medical record data, 2026

Table 1 shows that the patient was a woman of childbearing age without significant comorbidities who underwent an aesthetic procedure in a non-medical facility. The onset of symptoms on day 7 corresponds to the incubation period for bacterial infections, particularly Staphylococcus aureus. Severe pain disproportionate to the initial skin findings is a key clinical sign of necrotizing fasciitis. Fluctuations and purulent discharge indicate progression to an abscess, while hemorrhagic bullae and focal necrosis indicate vascular involvement typical of NF.

Table 2. Laboratory and Microbiology Results

Inspection	Results	Reference Value
Leukocytes	18,200 /µL	4,000–10,000 /µL

Neutrophils	85%	50–70%
CRP	124 mg/L	<5 mg/L
Random blood sugar	98 mg/dL	70–140 mg/dL
Pus culture	*Staphylococcus aureus*	Negative
Antibiotic sensitivity	Sensitive: Clindamycin, Ceftriaxone, Vancomycin	

Source: Patient laboratory data, 2026

Laboratory results showed leukocytosis with a predominance of neutrophils and a significant increase in CRP, indicating a severe systemic inflammatory process due to bacterial infection. No metabolic predisposing factors such as diabetes mellitus were found. A positive pus culture for *Staphylococcus aureus* confirmed the bacterial etiology in this case. The antibiotic sensitivity profile provided the basis for selecting definitive therapy and emphasized the importance of culture in guiding empiric therapy for post-aesthetic procedure infections.

Table 3. Timeline of Disease Progress According to the CARE Guidelines

Time	Clinical Events
Day 0	Dermal filler + thread lift left facial region
Day 7	Swelling, pain, mild erythema
Week 2	Abscess, purulent discharge from the thread insertion point
Month 1–2	Incision & drainage 2x + HBOT 4 sessions in Jakarta, without significant improvement
Month 6	Referral to plastic surgery, clinical diagnosis of NF, surgical debridement
Month 6+	Stage I reconstruction: *melolabial* flap + autologous fat grafting
Month 10	Stage II reconstruction: lateral tarsal strip + fat graft + *secretome* + CO_2 fractional laser + skin booster

Source: Patient laboratory data, 2026

The timeline in Table 3 illustrates a 6-month delay in diagnosis. Initial treatment, which consisted of drainage and HBOT alone without radical debridement, did not halt the progression of the NF infection. This delay led to more extensive tissue destruction, necessitating staged reconstruction. This confirms that "time to debridement" is a key prognostic factor in NF. Patient education and non-medical facilities for early referral are crucial.

Table 4. Therapeutic Interventions

Stage	Type of Action	Objective
Pre-referral	Incision & drainage 2x	Evacuation of the pus
Pre-referral	HBOT 4 sessions	Tissue oxygenation
Definitive	Radical surgical debridement	Remove necrotic tissue to healthy levels
Definitive	Broad spectrum antibiotics then according to culture	Eradication of *S. aureus*
Reconstruction I	*Melolabial* flap	Closing the left cheek defect
Reconstruction I	Autologous fat grafting	Filling volume, regenerative effect

Reconstruction II	Lateral tarsal strip	Ectropion correction
Reconstruction II	*Secretome* therapy	Stimulates skin regeneration
Reconstruction II	CO_2 fractional laser	Scar remodeling
Reconstruction II	Skin booster	Hydration and texture improvement

Source: Medical record data and patient surgery records, 2026

Table 4 summarizes the multidisciplinary approach taken. Pre-referral procedures were inadequate because they failed to remove the primary source of infection, the necrotic fascia. Radical debridement proved to be a clinical turning point, halting disease progression. In the reconstruction phase, a combination of local flaps and fat grafting provided defect coverage while increasing vascularization. Regenerative modalities such as *secretome* and fractional CO_2 laser were used to improve scar quality and skin texture, reflecting current trends in aesthetic reconstruction following severe infections.

Table 5. Post-Reconstruction Follow-Up Results

Parameter	**Before Reconstruction**	**6 Months After Reconstruction II**
Active infection	There is	Complete resolution
Facial deformity	Left cheek defect, ectropion	Symmetrical contour, corrected ectropion
Vancouver Scar Scale	11	4
Patient satisfaction	2/10	8/10
Complications	There isn't any	No recurrence

Source: Patient follow-up data, 2026

A 6-month evaluation after stage II reconstruction demonstrated satisfactory functional and aesthetic results. No recurrence of infection was observed, indicating adequate bacterial eradication. An improvement in the Vancouver Scar score from 11 to 4 indicated good scar remodeling due to the combination of fat grafting, *secretome*, and laser. The increase in patient satisfaction score from 2 to 8 reflected the success of the staged approach, which focused not only on healing but also on aesthetic restoration. These results support the literature that suggests regenerative therapy can be an important adjuvant in complex reconstruction after NF.

CONCLUSION

Necrotizing fasciitis is a rare but life-threatening complication that can occur after minimally invasive aesthetic procedures such as dermal fillers and thread lifts, especially when performed in non-medical facilities without adequate aseptic standards. Delayed diagnosis and surgical debridement in this case led to extensive tissue destruction and required staged reconstruction. Early diagnosis based on clinical suspicion of disproportionate severe pain, rapid progression, and signs of skin necrosis is essential. Radical surgical debridement remains the mainstay of treatment, while antibiotic therapy should be guided by culture results. A multidisciplinary reconstructive approach combining local flaps, fat grafting, and regenerative modalities such as *secretome* therapy and CO_2 fractional laser has been shown to provide optimal functional and aesthetic outcomes. This case highlights the urgent need for public education regarding the risks of illegal aesthetic procedures, as well as the need for strict

regulation of non-medical practices. Increased physician awareness of progressive infections following aesthetic interventions can reduce morbidity and improve patient outcomes.

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