



## CASE-REPORTS



# Facial Necrotizing Fasciitis

Kevin L. Li, MD <sup>1</sup> | Oneida Arosarena, MD <sup>2\*</sup>

1. Temple University Hospital – Lewis Katz School of Medicine
2. Professor, Department of Otolaryngology – Head and Neck Surgery Lewis Katz School of Medicine at Temple University

### Abstract

Necrotizing fasciitis is a rapidly progressive, life-threatening infection that quickly spreads to subcutaneous tissues and can lead to serious sequelae. It is uncommonly seen in the head and neck region due to its rich vascular supply. Broad-spectrum antimicrobial therapy and urgent to emergent operative debridement are typical treatment strategies. Despite treatment, there remains a relatively high mortality rate. Here, we describe an unusual case of a patient who presented with periorbital necrotizing fasciitis with subsequent spread to the face.

**Keywords:** Necrotizing fasciitis, facial, head and neck, periorbital, debridement, adult

Copyright: © 2023 Medical Editor and Educational Research Publishers Ltd

## 1 | INTRODUCTION

Necrotizing fasciitis (NF) is a rapidly progressive, life-threatening infection that quickly spreads to subcutaneous tissues and can lead to serious sequelae such as tissue necrosis and septic shock (1), (2). Typical symptoms include pain out of proportion to the skin examination and systemic toxicity (2). Toxin-producing bacteria such as staphylococci and  $\beta$ -hemolytic streptococci are commonly implicated, but gas-forming Clostridial species and polymicrobial infections are also frequently encountered (2). Necrotizing fasciitis is typically found in the abdominal wall, perineum, and limbs, and is not commonly seen in the head and neck region due to its rich vascular supply, and decreased susceptibility to ischemia and infection (1), (3). In the head and neck, NF is often found in older or immunocompromised patients, or due to an odontogenic infection. Other less common causes include tonsillar abscesses, parotitis, otitis media, trauma, and surgery (1). Indeed, any injury that leads to inoculation of a pathogen into the subcutaneous tissue can lead to NF

(2). Treatment should consist of broad-spectrum antimicrobial therapy, and urgent to emergent operative debridement. Even with optimal treatment, there is a relatively high mortality rate (4),(5). Here, we describe an unusual case of a patient who presented with periorbital NF with subsequent spread to the face.

## 2 | CASE REPORT

Our patient is a 54 year old female with a history of polysubstance abuse with multiple presentations to the emergency department (ED) for withdrawal and overdoses. This admission, she presented to the ED at a satellite hospital 6 days after being struck by an automobile and suffering a posterior scalp and bilateral eye lacerations (Image 1).



**Image 1:-** Initial patient presentation to the hospital. She was taken to the operating room by the Ophthalmology service for orbital debridement and examination under anesthesia.

Her presentation to the ED was delayed due to fear of stigma related to her drug use. Initial complaints included headache, body pain, and bilateral eye edema. She was transferred to the Temple University Hospital ED for urgent ophthalmology evaluation. Computed tomography (CT) of her face revealed extensive, symmetric soft tissue edema from the forehead to the lower face with extensive periorbital soft tissue swelling. The ophthalmologists were unable to perform an adequate examination due to periorbital edema and pain, and she was urgently taken to the operating room (OR) for an examination under anesthesia and bilateral canthotomy/cantholysis with debridement of her pre-septal NF. The intraoperative culture grew Group A Streptococcus and methicillin-resistant Staphylococcus aureus (MRSA), and appropriate intravenous antibiotics were administered. The patient returned to the OR 3 days later for further debridement by the ophthalmologists and placement of a wound vacuum-assisted closure by the plastic surgery service. Repeat debridement of bilateral eyelids was again performed after 4 days, and intraoperatively a 2x2cm right forehead eschar with underlying tissue necrosis was noted.

The otolaryngology service was consulted on hospital day 8 given the necrotic forehead tissue and development of right hemifacial swelling (Image 2).



**Image 2:-** Right hemifacial swelling on hospital day 8. Subsequent Otolaryngology consultation.

A repeat maxillofacial CT revealed a large abscess that extended from the right parotid gland to the frontal scalp and the left preauricular subcutaneous region with multiple gaseous foci. She returned to the OR for urgent facial debridement of her NF and irrigation with diluted tobramycin. The abscess was approached from bilateral preauricular incisions, and frontal, hair-bearing scalp incisions. Copious purulence was expressed from her wound that extended from her right parotid gland, across her forehead down to the glabella and into her left face. Her wound was packed with 1" iodoform gauze. Intraoperative cultures speciated clindamycin-resistant Staphylococcus aureus. Her packing was changed daily with subsequent placement of a Penrose drain and intravenous antibiotics were continued (Image 3).

---

**Supplementary information** The online version of this article (<https://doi.org/10.52845/JORR/2023/4.3.3>) contains supplementary material, which is available to authorized users.

---

**Corresponding Author:** Oneida Arosarena, MD FACS, Professor, Department of Otolaryngology–Head and Neck Surgery, Lewis Katz School of Medicine at Temple University. 215-707-3663  
E-mail: [Oneida.Arosarena@tuhs.temple.edu](mailto:Oneida.Arosarena@tuhs.temple.edu)



**Image 3:-** Post-operative day 3 after incision and drainage with the Otolaryngology service. 1” iodoform packing in place in the bilateral pre-auricular incisions as well as the midline forehead.

The drain was removed, and antibiotics were discontinued on post-operative day 12 after significant improvement in symptoms and no further drainage from her wounds. The patient’s eyelid wounds re-epithelialized and skin grafts were not needed. The patient then elected to leave against medical advice and has been lost to follow up.

### 3 | DISCUSSION

Necrotizing fasciitis is a rare entity in the head and neck region. In a Taiwanese study spanning 12 years, Lin et al. described 47 patients found to have head and neck NF (5). As with our case, patients in their cohort all presented with swelling and erythema, with pain being the most common complaint in 85% of patients. Fever, leukocytosis, and fluid or pus that was aspirated were common, but dyspnea, dysphagia, odynophagia, and crepitus were also observed. Only 4% of their cohort had NF in the periorbital or scalp regions, with the majority in the neck. This emphasizes the atypical presentation of our patient, even within head and neck NF. In their cohort, *Klebsiella pneumoniae*, *Staphylococcus aureus*, *Streptococcus spp.*, and polymicrobial cultures were the most commonly isolated species. Our patient needed multiple trips to the OR for repeat

debridement, even before the otolaryngology service was consulted. In the Lin et al. cohort, typical time between presentation and surgical intervention was 9 hours with an average of 2.6 operations (5). In a more recent systematic review which studied 77 patients, Acharya et al. recommended immediate debridement or incision and drainage for all suspected cases of NF with repeat debridement as needed (4). After our initial debridement of her face, daily packing changes were sufficient to debride any necrotic tissue and facilitate her recovery from her infection.

### 4 | CONCLUSION

Necrotizing fasciitis is a rare entity in the head and neck, even more so within the periorbital and forehead regions. Emergent surgical debridement with daily packing changes and appropriate antibiotic therapy is an effective management option.

### REFERENCES

1. Ord R, Coletti D. Cervico-facial necrotizing fasciitis. *Oral Dis.* 2009;15(2):133-41.
2. Hakkarainen TW, Kopari NM, Pham TN, Evans HL. Necrotizing soft tissue infections: review and current concepts in treatment, systems of care, and outcomes. *Curr Probl Surg.* 2014;51(8):344-62.
3. Sepulveda A, Sastre N. Necrotizing fasciitis of the face and neck. *Plast Reconstr Surg.* 1998;102(3):814-7.
4. Acharya PP, Cohn JE, Shokri T, Bundrick P, Ducic Y. Surgical Management of Necrotizing Fasciitis of the Head and Neck. *J Craniofac Surg.* 2022;33(8):e858-e61.
5. Lin C, Yeh FL, Lin JT, Ma H, Hwang CH, Shen BH, et al. Necrotizing fasciitis of the head and neck: an analysis of 47 cases. *Plast Reconstr Surg.* 2001;107(7):1684-93.

**How to cite this article:** Kevin L. Li, MD and Oneida Arosarena MD, Facial Necrotizing Fasciitis *Journal of Otolaryngology and Rhinology Research.* 2023;145-147. <https://doi.org/10.52845/JORR/2023/4.3.3>