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CASE REPORT

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# Surviving the perilous: A case report on an urgent approach to necrotizing fasciitis

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**Key Clinical Message**

Necrotizing fasciitis is a rare, fatal, and rapidly progressing bacterial infection of fascia and subcutaneous tissues. Skin necrosis, pain, bullae, and erythema are the common manifestations. Early diagnosis and prompt treatment can improve outcome.

**KEYWORDS**

bacteria, necrosis, necrotizing fasciitis, surgical debridements

## 1 | INTRODUCTION

Necrotizing fasciitis is a rapidly progressing bacterial infection of deep soft tissues, including fascia and subcutaneous tissues. Although it is an uncommon disease with an annual incidence of only 1.5 occurrences per 100,000 people, its mortality rate, which can reach about 25.3%, is fairly high.[1,2]

Severe pain, hemorrhagic bullae, skin necrosis, erythema extending beyond margins, skin fluctuance, hypotension, and diarrhea are the presenting signs and symptoms of necrotizing fasciitis.[3] Here, we report a case of necrotizing fasciitis in a 60-year-old female following a cut injury. This case report is in line with SCARE guidelines.[4]

## 2 | CASE REPORT

A 60-year-old female was admitted to the emergency department of Nepalgunj Army Hospital on January 1, 2023, with chief complaints of swelling of right lower leg with discharging sinus associated with pain and changes in the skin color over the local area for 7 days. She also had on and off recurrent fever, which was not associated with chills and rigors for 7 days. She had a history of cut injury by a metallic object (tin) in the heel region. She was a known case of type II diabetes mellitus and hypothyroidism but was not taking medication. There was no history of any burn and chemical injury on the right leg. She had undergone hysterectomy for prolapse 2 years back.

The general appearance of the patient was ill-looking and drowsy. Her oxygen saturation level was 86%. She was managed with oxygen support, intravenous fluid normal saline (NS), inj flucloxacillin, inj ketorolac, inj pantoprazole, and inj fevastin. The patient had then undergone serial debridement on the right lower leg. First debridement was done on January 1, 2023, and second debridement was done on January 5, 2023 (Figures 1 and 2). In the bacteriological culture of the discharging sinus from the right lower leg, no bacterial growth was seen after 48 h of incubation at 37°C. She then continued her treatment at Shree Birendra Hospital, Chhauni.

## 2.1 | Diagnostic assessments

During admission in Chhauni, the deranged investigations were random blood glucose level 165 mg/dL (<140 mg/dL), urea 12 mg/dL (13–43), sodium 148 mEq/L (136–145), potassium 3.1 mEq/L (3.5–5.1), and alkaline phosphatase 71 U/L (<46 U/L). She was then referred to the surgery department.

**FIGURE 1** Necrotizing soft tissue infection wound after debridement of lateral side of right leg and ventral aspect of right foot.

**FIGURE 2** Necrotizing soft tissue infection wound after debridement of medial side of right leg.

Also, her blood sample and pus collected from the draining sinus were sent for microbiological culture and antimicrobial sensitivity testing. She underwent her redebridement on January 10, 2023 and January 12, 2023 under subarachnoid block. In the last surgical intervention, necrotic tissue was no longer detectable. During bacteriological culture of pus collected from her wound, growth of *Acinetobacter* spp. was detected, which was resistant to piperacillin. But the blood culture was negative for growth of any bacteria. The diagnosis of necrotizing fascia was confirmed intraoperatively by necrosis of fascia and by the analysis of tissue samples, which revealed *Acinetobacter* infection.

## 2.2 | Treatment

She was kept under intravenous antibiotics and regular monitoring of complete blood count and renal function test. Initially to treat the infection, she was kept on fluconazole but after the culture and antimicrobial sensitivity test report showing *Acinetobacter* infection that was resistant to piperacillin, she was given imipenem–cilastatin combination. She was advised for leg elevation to 15°. She was managed with daily in-situ dressing with no soakage till February 24, 2023. Later, the patient underwent split-thickness skin graft. She was kept under evaluation for some days and then discharged on medical advice.

## 2.3 | Follow-up

The patient was regular on her follow-ups, and no adverse events were encountered.

# 3 | DISCUSSION

Necrotizing fasciitis is a rare bacterial infection with a prevalence rate of 1.5 per 100,000 population with a relatively high mortality rate of 25.3%.[1,2] Based on the causative organisms, necrotizing fasciitis can be polymicrobial (type I) or monomicrobial (type II). Type I is usually caused by *Pseudomonas*, *Klebsiella*, *Clostridium*, *Aeromonas*, and *Vibrio vulnificus*, while type II typically involves group A *Streptococcus* and methicillin-resistant *Staphylococcus aureus*.[3,5] Necrotizing fasciitis caused by *Acinetobacter* spp. is extremely rare. Severe pain, hemorrhagic bullae, skin necrosis, erythema extending beyond margins, skin fluctuance, hypotension, and diarrhea are the presenting signs and symptoms of necrotizing fasciitis.[6]

Risk factors for necrotizing fascia include diabetes, chronic infectious diseases, immunosuppressive therapy, and old age.[7] Any kind of skin lesion serves as an entry

portal for bacteria. Our patient, a known case of type II diabetes mellitus and hypothyroidism, sustained a cut injury due to tin on her right leg, which acted as the portal for entry of bacteria. Diagnosis of necrotizing fasciitis is challenging. Diagnosis can be done by laboratory investigation findings, imaging techniques, culture, and histology of tissue specimens.[8,9]

Management of necrotizing fasciitis includes complete surgical debridement, broad-spectrum antimicrobial therapy, adequate organ support, and close monitoring.[8,10] A study conducted by Rouse et al.[11] showed that 11 of the 12 patients who experienced a delay in treatment died. In the case study, early recognition and referral to a higher center for management represent the strength. These findings imply that early diagnosis and treatment of necrotizing fasciitis are crucial for survival.

## 4 | CONCLUSION

The case of necrotizing fasciitis is rare and fatal with apparent clinical presentation. Early diagnosis and surgical debridement, along with appropriate antimicrobial therapy, increases the chances of survival.

### AUTHOR CONTRIBUTIONS

**Bishal Kunwor:** Conceptualization; data curation; formal analysis; supervision; validation; visualization; writing – original draft; writing – review and editing. **Suchit Thapa Chhetri:** Conceptualization; data curation; formal analysis; supervision; validation; visualization; writing – original draft; writing – review and editing. **Niranjan Thapa:** Conceptualization; data curation; formal analysis; validation; visualization; writing – original draft; writing – review and editing. **Shiva Regmi:** Data curation; formal analysis; validation; visualization; writing – original draft; writing – review and editing. **Sunil Basukala:** Data curation; formal analysis; validation; visualization; writing – original draft; writing – review and editing.

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### CONFLICT OF INTEREST STATEMENT

No conflict of interest.

### DATA AVAILABILITY STATEMENT

All the findings are present within the manuscript.

### CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

### PATIENT PERSPECTIVE

The patient was anxious about her health condition but was assured that she would be better after treatment. The patient was cooperative and regular in follow-ups.

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