

# Necrotizing fasciitis

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## Case (1)

A fifty seven year old monk presented with swelling in the submental region for one week which rapidly increased in size. There were associated symptoms of fever and pain, but no dysphagia or stridor.

He was admitted and incision and drainage was done. Foul smelling pus came out. Four days later, another abscess with overlying necrotic skin occurred on right anterior chest wall. Incision and drainage and wound debridement were done for the second time.

After that, multiple abscesses developed on right cheek, nearly the whole anterior chest wall and back. Herpes infection also developed in left axilla region. The patient also suffered from hoarseness of voice.



The patient had history of diabetes mellitus which was not well controlled. He was an ex-smoker and betel chewer.

On examination, he was febrile (temperature was 100°F). There were wounds in submental region and anterior chest wall, right cheek, and back. Herpes infection was detected in left axilla.

**Figure (1) Necrotizing fasciitis involving the neck and anterior chest wall**



Wound debridement was done. He was first treated with injection ceftriaxone and injection metronidazole then injection cefipime, injection gentamycin and oral azithromycin according to pus and blood culture and sensitivities. For diabetes mellitus, soluble insulin according to sliding scale was given.

**Figure (2) Involvement of right cheek**

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## Case (2)

Sixty five year old man presented with swelling at submental and submandibular region for 5 days and pus discharge from this swelling for 2 days.

He had dental infection in right lower 3<sup>rd</sup> molar tooth which was followed by swelling in submental region. He had no history of diabetes mellitus, heart disease, smoking and alcohol drinking. Examination revealed swelling occupying the whole neck extending from mandible to upper chest with discoloration of overlying skin. Pus came out from the swelling.



**Figure (3) Necrotizing fasciitis involving neck and upper chest**



**Figure (4) Necrotizing fasciitis in healing stage (Front View)**



**Figure (5) Necrotizing fasciitis in healing stage (Lateral View)**

Gram stain showed G (+)ve cocci and culture revealed a moderate growth of Streptococcal species, sensitive to penicillin, erythromycin, azithromycin, cefdinir, ceftriaxone. Wound debridement was done. Injection power zone, metronidazole followed by oral myclav and dazolic were given according to culture and sensitivity.

Both the patients got better and were prepared for closure of the wound with skin graft.

## Necrotizing fasciitis

It is a rapidly progressive inflammatory infection of the fascia, with secondary necrosis of the subcutaneous tissues. The speed of spread is directly proportional to the thickness of the subcutaneous layer. Necrotizing fasciitis moves along the fascial plane.

The frequency of necrotizing fasciitis has been on the rise because of an increase in immunocompromised patients with diabetes mellitus, cancer, alcoholism, vascular insufficiencies, organ transplants, HIV infection, or neutropenia.

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Since 1883, more than 500 cases of necrotizing fasciitis have been reported in the literature. There may be an increased incidence in African and Asian countries. The mean age of a patient with necrotizing fasciitis is 38 - 44 years. This disease rarely occurs in children. The male-to-female ratio is 2-3 : 1.

## **Aetiology**

It may occur as a complication of a variety of surgical procedures or medical conditions, including cardiac catheterization, vein sclerotherapy, and diagnostic laparoscopy, among others. It may also be idiopathic.

The causative bacteria may be aerobic, anaerobic, or mixed flora. A few distinct necrotizing fasciitis syndromes should be recognized. The 3 most important are as follows:

- Type I, or polymicrobial
- Type II, or group A streptococcal
- Type III gas gangrene, or clostridial myonecrosis

## **Pathogenesis**

In necrotizing fasciitis, group A haemolytic streptococcal and staphylococcus aureus, alone or in synergism, are frequently the initiating infecting bacteria. However, other aerobic and anaerobic pathogens may be present. Streptococcal pyrogenic exotoxins (SPEs) A, B, and C are directly toxic and tend to be produced by strains causing necrotizing fasciitis. These pyrogenic exotoxins, together with streptococcal superantigen (SSA), lead to the release of cytokines and produce clinical signs such as hypotension.

## **Management**

Once the diagnosis of necrotizing fasciitis is confirmed, treatment should be initiated without delay. Hemodynamic parameters should be closely monitored. Because necrotizing fasciitis is a surgical emergency, the patient should be admitted immediately to a surgical intensive care unit. A regimen of surgical debridement is continued until tissue necrosis ceases and the growth of fresh viable tissue is observed. Prompt surgery ensures a higher likelihood of survival.

Antibiotic therapy is a key consideration. Possible regimens include a combination of penicillin G and an aminoglycoside (if renal function permits), as well as clindamycin (to cover streptococci, staphylococci, gram-negative bacilli, and anaerobes).

While the literature appears to support the use of hyperbaric oxygen as an adjunctive treatment measure in patients with necrotizing fasciitis, transfer to a hospital equipped with a hyperbaric oxygen chamber should not delay emergency surgical intervention.

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## Prognosis

The reported mortality in patients with necrotizing fasciitis has ranged from 20% to as high as 80%. Pathogens, patient characteristics, infection site, and speed of treatment are among the variables that affect survival. Necrotizing fasciitis survivors may have a shorter life span than population controls, owing to infectious causes such as pneumonia, cholecystitis, urinary tract infections, and sepsis.

## References

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