

## Necrotizing Fasciitis of Lower Limb – Surgical Management along with Penicillin Therapy

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### Abstract

*Introduction:* Necrotizing fasciitis represents a group of highly lethal infections characterized by rapidly progressing inflammation & necrosis. Early recognition & aggressive surgical treatment in combination with antibiotic therapy can prevent fatal consequences. *Aims and Objectives:* The aim of the study was to assess the clinical profile, analyse the microbial flora & the outcome of aggressive surgical management in combination with intravenous Penicillin therapy. *Material and Methods:* A prospective study was carried out in our hospital between April 2016 to December 2017. Predisposing factors, clinical presentations, microbial flora and management amongst thirty consecutive patients who had presented to this hospital during this period were studied. *Results:* Age above 45 years, trauma & diabetes mellitus were the commonest predisposing factors. All wounds had polymicrobial growth. Repeated aggressive debridement was carried out in most patients with average of 3.5 debridements per patient. Majority of the wounds healed by secondary intention. However, 30% of the patients needed skin grafting. *Conclusion:* Early & aggressive surgical debridement, often in multiple sittings, supplemented by appropriate antibiotics & supportive therapy forms the key to successful outcome. Low threshold & early referral by family physicians can prevent the potent complications of necrotizing fasciitis.

**Keywords:** Necrotizing Fasciitis; Rapidly Progressing Inflammation & Necrosis; Intravenous

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Penicillin Therapy; Polymicrobial Growth; Fasciotomy; Debridement.

### Introduction

Necrotizing fasciitis is defined as the spreading inflammation of the skin, deep fascia and soft tissues with extensive destruction and toxemia commonly due to mixed organisms like aerobes, anaerobes, coliforms and Gram negative organisms [1,2].

It is a severe, rare, potentially lethal, soft tissue bacterial infection that tends to develop in scrotum, perineum, abdominal wall or the extremities, which threatens both limb and life [2].

Streptococcus pyogenes, S. aureus and E. Coli are the most common organisms involved [3]. It is common in old age, smokers, diabetics, immunosuppressed, malnourished and obese individuals. Trauma is one of the most common precipitating factor [3].

The clinical features include sudden swelling and pain with oedema, discoloration, necrotic areas and ulceration, Foul smelling discharge, Features of toxemia with high grade fever and chills, Hypotension, Oliguria often with acute renal failure due to acute tubular necrosis, Rapid spread in short period.

### Aims and Objectives

The aim of the study was to assess the clinical profile, analyse the microbial flora & the outcome of aggressive surgical management in combination with intravenous Penicillin therapy.

### Material and Methods

A prospective study was carried out in our hospital

between April 2016 to December 2017.

Predisposing factors, clinical presentations, microbial flora and management amongst thirty consecutive patients with necrotizing fasciitis of lower limb who had presented to this hospital during this period were studied.

Written and informed consent was taken in all the patients before initiation of treatment.

Detail history and thorough clinical examination was done in all the patients.

Biochemical and haematological investigations were accessed of all the patients.

In our study, all the patients were started empirically on Inj. Crystalline Penicillin – 20 Lac IV (6 hourly), Inj. Amikacin 500 mg IV (12 hourly) and Inj. Metronidazole 500mg IV (8 hourly).

Penicillin sensitivity test was done in all the patients prior to administration of intravenous

penicillin to prevent hypersensitivity reactions.

All the patients underwent emergency fasciotomy & debridement.

Daily dressing was done in all patients.

Pus for culture and sensitivity was sent in all the patients to assess microbial flora. Patients were discharged as per the response to management.

## Results

In our study of 30 patients, 17 (56.66%) were male and 13 (43.33%) were females.

Age above 45 years, trauma & diabetes mellitus were the commonest predisposing factors.

All wounds showed polymicrobial growth.

|                                      |                |        |
|--------------------------------------|----------------|--------|
| Male                                 | 17/30          | 56.66% |
| Female                               | 13/30          | 43.33% |
| Age above 45 years                   | 23/30          | 76.66% |
| Trauma                               | 18/30          | 60%    |
| Diabetes mellitus                    | 16/30          | 53.33% |
| Smoking                              | 4/30           | 13.33% |
| Obesity                              | 9/30           | 30%    |
| Organisms isolated on pus culture    | Total          |        |
| Staphylococcus aureus                | 27/30 (90%)    |        |
| Streptococcus pyogenes               | 25/30 (83.33%) |        |
| E.Coli                               | 16/30 (53.33%) |        |
| Pseudomonas                          | 8/30 (26.66%)  |        |
| Wound healing by secondary intention | 21/30 (70%)    |        |
| Wound requiring SSG                  | 9/30 (30%)     |        |

Staphylococcus, Streptococcus, Pseudomonas and E.Coli being the commonest among them.

## Discussion

Necrotizing fasciitis is one such condition which requires urgent surgical attention and subsequent intervention [6].

It should be differentiated from cellulitis unlike which the dermal and epidermal elements are spared [4,5]. Majority of the infections are polymicrobial in nature with Staphylococcus, Streptococcus, Pseudomonas and E.Coli being the commonest among them [3].

In our study, a combination of early fasciotomy

and repeated surgical debridements along with intravenous Penicillin therapy led to a favourable outcome.

An early diagnosis with a high index of suspicion is thus mandatory.

## Conclusion

Early fasciotomy and aggressive surgical debridement, often in multiple sittings, supplemented by appropriate antibiotics and supportive therapy forms the key to successful outcome. Low threshold and early referral by family physicians can prevent the potent complications of necrotizing fasciitis.

Penicillin remains the most effective drug against

Streptococci & MRSA. In our case, Inj. Crystalline Penicillin was started empirically along with Amikacin & Metronidazole & response was encouraging.

This encouraging response to Penicillin can be attributed to diminished use of this antibiotic, thereby increasing its sensitivity to emerging resistant organisms due to the indiscriminate use of other antibiotics.

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