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A Clinicopathological Study of Necrotising Fasciitis at a Rural Tertiary Care Centre

Dr. Tejaswi Ankush Shitole
Postgraduate Student, Department of General Surgery
Dr. Balasaheb Vikhe Patil Pravara Rural Medical College, Loni, Maharashtra, India

Dr. P. K. Baviskar
Professor, Department of General Surgery
Dr. Balasaheb Vikhe Patil Pravara Rural Medical College, Loni, Maharashtra, India

Abstract

Background: Necrotising fasciitis (NF) is a rapidly progressive, life-threatening soft-tissue infection associated with significant morbidity and mortality. Early diagnosis and prompt surgical intervention are critical determinants of outcome.

Objectives: To evaluate the clinical profile, bacteriological spectrum, associated comorbidities, management strategies, and outcomes of patients diagnosed with necrotising fasciitis.
Methods: This ambispective observational study was conducted in the Department of General Surgery at a rural tertiary care hospital. Eighty-five patients diagnosed with necrotising fasciitis were included. Demographic details, clinical features, laboratory parameters, microbiological findings, surgical management, and outcomes were analysed.

Results: The mean age of patients was 58.26 ± 10.49 years, with a slight male predominance (54.1%). Diabetes mellitus was the most common comorbidity (56.5%). Lower limb involvement was the most frequent presentation (61.2%). Early surgical debridement within 24 hours was performed in 77.6% of cases. Polymicrobial infection was common, with Enterobacter, E. coli, and Pseudomonas being frequently isolated. The overall mortality rate was 40%, with delayed presentation and comorbidities contributing to poor outcomes.

Conclusion: Necrotising fasciitis remains a surgical emergency with high mortality. Early recognition, aggressive surgical debridement, appropriate antibiotics, and intensive supportive care significantly improve survival, particularly in resource-limited rural settings.

Keywords: Necrotising fasciitis, soft tissue infection, debridement, diabetes mellitus, LRINEC score

Introduction

Necrotising fasciitis (NF) is a severe and rapidly progressive infection of the skin, subcutaneous tissue, and fascia, characterized by extensive tissue necrosis and systemic toxicity. Despite advances in antimicrobial therapy and critical care, NF continues to pose a major clinical challenge due to its nonspecific early presentation and rapid progression. Minor trauma, surgical wounds, or trivial skin breaches may serve as portals of entry, particularly in immunocompromised individuals.

Diabetes mellitus, chronic kidney disease, alcoholism, and advanced age are well-recognized risk factors. Early diagnosis followed by prompt and aggressive surgical debridement remains the cornerstone of management. This study aims to analyse the clinicopathological characteristics and outcomes of necrotising fasciitis in a rural tertiary care setting.

Materials and Methods

Study Design: Ambispective observational descriptive study

Study Setting: Department of General Surgery, Dr. Vitthalrao Vikhe Patil Pravara Rural Hospital, Loni

Study Duration: February 2022 – February 2026

Study Population: Patients diagnosed with necrotising fasciitis

Inclusion Criteria

- Patients aged >12 years
- Both genders
- Confirmed diagnosis of necrotising fasciitis

Exclusion Criteria

- Patients unwilling to give consent
- Incomplete records in retrospective arm

Sample Size: 85 patients

Data Collection:
Clinical presentation, comorbidities, laboratory investigations, LRINEC score, microbiological culture reports, surgical details, and outcomes were recorded.

Statistical Analysis:
Descriptive statistics were used. Continuous variables were expressed as mean ± SD, and categorical variables as frequencies and percentages.

Results

- Age & Gender: Mean age 58.26 ± 10.49 years; males 54.1%, females 45.9%
- Comorbidities: Diabetes mellitus present in 56.5%
- Site of Infection: Lower limb involvement in 61.2%
- Clinical Features: Pain and swelling in 100% of cases
- Debridement: Early debridement (<24 hours) in 77.6%
- Microbiology: Predominantly polymicrobial infections
- Mortality: 40%

Discussion

The present study highlights that necrotising fasciitis predominantly affects middle-aged and elderly individuals, with diabetes mellitus being the most significant predisposing factor. Lower limb involvement was the most common, consistent with existing literature. Early surgical debridement remains the single most important factor influencing survival. Delayed presentation and systemic involvement were associated with higher mortality.

Conclusion

Necrotising fasciitis is a rapidly progressive surgical emergency with high mortality. High clinical suspicion, early diagnosis, prompt surgical intervention, and multidisciplinary care are essential to improve patient outcomes, especially in rural healthcare settings.

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