



ORIGINAL RESEARCH PAPER

General Surgery

A CLINICOPATHOLOGICAL STUDY OF NECROTISING FASCIITIS

KEY WORDS: Necrotising Fasciitis

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ABSTRACT

Necrotising fasciitis is a rapidly progressive soft tissue infection involving mainly the superficial fascia with relative sparing of the muscles. The case is classified as necrotising myositis when the infection extends to the muscles as well. Both the conditions present with a high mortality and long morbidity. Along with early diagnosis and treatment, various risk factors influencing the prognosis of necrotising soft tissue infections have been studied [1].

BACKGROUND-

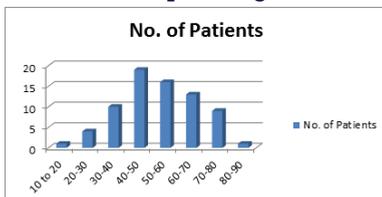
Necrotising soft tissue infections which are predisposed to and worsened by immune-compromise, diabetes mellitus or vascular compromise have regularly been associated with a grave outcome, high mortality and long morbidity. The outcome can be improved significantly improved by early diagnosis, adequate timely debridement and appropriate antibiotic treatment [2]. Blister and bullae formation is an important diagnostic clue which is rare in erysipelas or cellulitis. An apparent case of cellulitis with ecchymosis, bullae, dermal gangrene extensive or crepitus suggests an underlying necrotising infection and mandate operative exploration for confirmation and treatment [3]. Polymicrobial infections are more commonly found at the root than a single organism [4].

METHODS-

An observational study was carried out on 75 patients clinically diagnosed to be having necrotising fasciitis in the 10-90 years age group attending the surgery out-patient department in Krishna Hospital. All the patients were thoroughly examined, investigated and analysed for the predisposing factors, precipitating events and complications to be studied. Routine work-up for all the cases included haemoglobin, total count, differential count, random, fasting and post-prandial blood sugar level, RFT, lipid profile, radiograph of the affected part, culture and sensitivity of pus and slough from the wound. All the patients were optimised and taken up for surgical debridement and later managed in the ward with regular dressing and debridement as per need. Diabetic patients were managed by diet control and short and long acting insulin as per requirement. Hypertensive patients were managed by salt restriction, anti-hypertensives of different classes as per requirement followed by BP charting. Patients developing septicaemia and ARDS were managed in ICU with the help of dedicated intensivists. Regular cultures were sent and antibiotics changed as per the sensitivity reports. Patients with healthy wounds with granulation after initial debridement were treated with split skin grafts or secondary suturing while some were allowed to heal by secondary intention. Those requiring amputation were also given physiotherapy and orthotics.

OBSERVATIONS-

1. Distribution of cases as per the age:



2. SEX RATIO:

Males are affected more than females, to an extent of 76%.

	No. of patients	Percentage
Male	57	76
Female	18	24

3. OCCUPATION:

A surprising majority of the patients were unemployed followed by manual labourers who were significantly exposed to the incriminating organisms.

Occupation	No. of patients	Percentage
Unemployed	24	32
Labourer	14	18.7
Farmer	11	14.7
Driver	7	9.3
Office worker	11	14.7
Daily wage worker	8	10.7

4. COMORBID CONDITIONS:

A. Diabetes Mellitus: More than half the cases were found to be diabetic (either known or newly diagnosed). Out of the mortality in the study population, 81.8% cases were diabetic.

	No. of patients	Percentage
Non-diabetic	36	48
Diabetic	39	52

B. Hypertension: 40% cases were hypertensive (either known cases or newly diagnosed).

	No. of patients	Percentage
Non-hypertensive	45	60
Hypertensive	30	40

C. HIV: 4 cases tested reactive for HIV antibodies.

5. ADDICTIONS:

A. Alcohol: 16% cases were alcoholics.

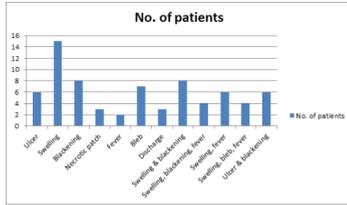
	No. of patients	Percentage
Non-Alcoholic	63	84
Alcoholic	12	16

B. Smokers: 13.3% patients were smokers.

	No. of patients	Percentage
Non-smoker	65	86.7
Smoker	10	13.3

6. PRESENTING COMPLAINTS:

The most common presenting complaint was swelling over the affected part or area of the body, others being blackening, swelling followed by necrotic patch and bleb formation.



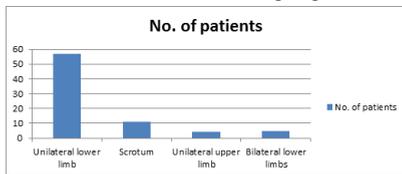
7. INCITING EVENT:

The most common inciting event was trauma, which was trivial in majority. The second biggest group was spontaneous.

Inciting Event	No. of patients	Percentage
Spontaneous	29	38.7
Trauma	42	56
Pre-existing Ulcer	3	4
Insect bite	1	1.3

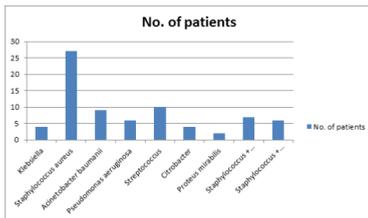
8. AREA AFFECTED:

Majority of the patients (76%) showed involvement of only a single lower limb. 14% had Fournier's gangrene.



9. ORGANISMS CULTURED:

The most common organism found in the culture was Staphylococcus aureus. Majority of the cultures showed more than one organism in the first culture itself reaffirming the polymicrobial nature of the disease. The cases whose later cultures revealed more than one organisms were considered to have had secondary infection from the surroundings. The second most common organism identified was Acinetobacter baumannii.



10. MORTALITY:

11 cases out of the sample of 75 expired (14.7%). These patients typically presented late, had involvement of greater body surface area, deranged renal function and other comorbidities mentioned previously.

DISCUSSION-

As we have seen, necrotising fasciitis can have serious implications in terms of prognosis which can worsen with delay in treatment. Early adequate debridement is vital for better prognosis and conservative debridement as indicated by continued disease progression as can result in worsened sepsis with possibility of multiple organ failure.

Males were found to be more affected as can be explained by the fact that they are more involved in outdoor work which can cause trivial trauma more often. Diabetic status played a vital role in the prognosis, just as HIV in infection and immune status.

The most common presenting complaint was found to be swelling of the affected part being the only complaint in 20% cases and in combination in 49% cases. Trauma was found to be the most common inciting event and unilateral lower limb

was the most frequently involved area found.

The organism identified in the first culture on admission was identified as the primary infecting organism whereas those organisms identified in further cultures were labelled as secondary infections. Staphylococcus aureus was the most common primary isolate as a single organism (36%) as well as in combination (17%). Acinetobacter baumannii was the next common organism (21%) followed by Streptococci (13%). 37% cases were grafted in the first surgery itself whereas the rest of them underwent secondary suturing and healing by secondary intention. There were 11 deaths amounting to 14% of the cases. Early presentation, diagnosis, emergency surgical debridement, control of other systemic diseases such as diabetes affecting the outcome, aggressive antibiotic therapy, repeated surgical debridements whenever necessary and regular dressings can help in bringing down the mortality associated with the disease.

CONCLUSION-

Necrotising fasciitis is a surgical emergency. T is a rapidly progressing life threatening infection and early intervention is a vital prognostic factor in patient survival.

- This study was conducted on 75 randomly selected patients who were admitted over last 2 years. The maximum incidence of necrotizing fasciitis was found in the age group of 40-50 years. The oldest patient was 87 years old while the youngest was 15 years old.
- The male to female ratio was 3:1
- Most of the patients (32%) were unemployed. Labourers constituted 18% of the patients.
- 52% patients were suffering from diabetes. In the group of expired patients 81.8% were suffering from diabetes.
- 40% were suffering from hypertension.
- 16% were alcoholics and 13% were smokers.
- Swelling of the affected part was the commonest mode of presentation
- Trivial trauma was the most common inciting event which was followed by NF. Although a large majority also developed NF spontaneously.
- Lower limbs were the most frequently affected site. Fournier's gangrene was seen in 14% of the patients.
- Staphylococcus was the most common organism cultured from the 1st exudates fluid, slough specimen sent from OT. Streptococcus was the 2nd most common single organism cultured. Acinetobacter baumannii was the 2nd most common organism, if mixed cultures were considered.
- 37% patients were posted for grafting in their primary admission.
- 14.7% patients expired due to NF and the complications associated with it.

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