Casebook: necrotising fasciitis

- What in the presentation should alert the GP to the condition?
- How should emergency treatment proceed?
- What are the keys to successful management of necrotising fasciitis?

BEN J CHALLACOMBE
MRCS
Senior House Officer

GARRICK A GEORGEU
MRCS
Specialist Registrar

NAGUIB EL-MUTTARDI
FRCS
Consultant, Department of Plastic Surgery, St Thomas’ Hospital, London

Necrotising fasciitis (NF) is a challenging condition in both its initial and subsequent treatment. Defined as a bacterial soft tissue infection that spreads rapidly along fascial planes, its relative rarity means that individual clinicians outside dedicated plastic surgery units are unlikely to see a significant number of cases during their careers.

Although NF remains an uncommon disease, it is increasing in incidence in the United Kingdom and has received increased media attention in recent years.

The keys to the successful management of NF are increased clinical awareness – NF should be considered in all unusual superficial infections – early diagnosis, thorough surgical debridement, intensive supportive care and split-skin grafting of the affected area (see table 1).

**Aetiology and epidemiology**

NF is an aggressive bacterial infection of the superficial fascia and subcutaneous tissues with an overall mortality of 20 per cent. It may occur anywhere in the body; however, when it affects the perineum and scrotum it is usually referred to as Fournier’s gangrene.

Approximately 75 per cent of patients with NF have positive wound and blood cultures, the organisms usually responsible being β-haemolytic streptococci and mixed aerobic-anaerobic organisms.

The majority of deaths from NF are seen in patients with other pre-existing co-morbidities (renal disease, diabetes, cancer and congestive cardiac failure) or who are at the extremes of age. Mortality is also directly related to the time from injury to diagnosis and from the diagnosis to definitive treatment.

**Presentation** NF is two to three times more common in men and usually affects people in the fourth or fifth decades of life. Many cases arise de novo and have no evidence of preceding trauma.

It can present with a painful area on the skin and with increasing discomfort, which is often out of proportion to the size of the underlying...
Necrotising fasciitis

Table 1 The management of necrotising fasciitis

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<th>Early diagnosis</th>
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<tr>
<td>Cellulitis not responding to appropriate antibiotics</td>
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<td>Disproportionate pain</td>
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<td>Awareness of co-morbidities</td>
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<th>Late signs</th>
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<td>Crepitis</td>
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<td>Gangrene</td>
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<td>Septic shock</td>
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<th>Surgical management</th>
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<td>Early radical debridement</td>
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<td>Intravenous antibiotics</td>
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<td>Second look operation at 24-48 hours</td>
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<td>ITU support</td>
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<td>Delayed reconstruction once stable</td>
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groins with systemic evidence of sepsis (pyrexia 38.5°C, tachycardia and tachypnoea).

A diagnosis of NF was confirmed when the plastic surgeons took the patient back to theatre for an extensive debridement of his scrotum, perineum, groin and lower abdomen.

"Discomfort is often out of proportion to the size of the underlying wound"

He required two further debridements before extensive split-skin grafting to these significant defects could be performed. Initial support was required in ITU and following extensive physiotherapy and rehabilitation he was discharged after 160 days.

**PATIENT 2**

While playing golf at the weekend a 27-year-old computer programmer hit his leg by a golf ball on the lateral aspect of his left knee. The following day his knee became painful, red and swollen. He went to his GP, who diagnosed a haematoma in the soft tissues and prescribed oral antibiotics and simple analgesics.

By the second day his symptoms had worsened and he attended A&E where a diagnosis of septic arthritis was made by the orthopaedic surgeons. An emergency arthroscopy was performed, but found no obvious pus within the joint cavity. His condition rapidly deteriorated, becoming septic with a pyrexia of 38.5°C with erythema extending both above and below the knee.

NF was diagnosed and a plastic surgery referral was made. He required an extensive debridement followed by delayed split-skin grafting (see figure 1) and remained in hospital for a total of 40 days.

**PATIENT 3**

A 54-year-old non-insulin-depen-dent diabetic woman was taken to A&E after being found collapsed at home. When examined she was found to have a painful, red and swollen right vulva.

A diagnosis of a Bartholins abscess was made and she was admitted under the gynaecologists. After incision of the vulval abscess, with minimal drainage of pus, intravenous antibiotics were started.

However, over the next 24 hours she had increasing pain and redness, with evidence of the infection spreading rapidly to involve both groins in the form of crepitus subcutaneously. A CT confirmed the presence of gas within the subcutaneous tissues and she was urgently referred to the plastic surgeons. Extensive debridement was immediately performed followed split-skin grafting. She stayed in hospital for 28 days.

**PATIENT 4**

A 40-year-old unemployed male intravenous drug abuser presented to A&E with a painful swollen left leg and was admitted under the general surgeons. Incision and drainage of this subcutaneous abscess resulted in the release of a small amount of pus.

His pain increased post-operatively and erythema rapidly spread both proximally and distally in his leg. The on-call plastic surgeons were called and NF was diagnosed. Emergency debridement of the leg was performed followed by split-skin grafting, with an inpatient stay of 34 days.

**PATIENT 5**

A 22-year-old unemployed man with mild learning difficulties was a regular attender at his local A&E department with what was thought to be self-inflicted injuries.

On this occasion he presented with a large abscess on his right leg, which required incision and drainage under the care of the general surgeons.

Following this initial procedure, cellulitis spread throughout his right leg and a diagnosis of NF was made. His condition deteriorated, requiring admission to the ITU and emergency debridement.

Ten subsequent debridements were performed before he was transferred to the local plastic surgery unit. A final wound toilette was required prior to split-skin grafting of the final defect (see figure 2). Despite his protracted inpatient stay, he was discharged after 54 days.

References

Further reading
1 Burnand KG, Young AE (authors). The New Aird’s Companion in Surgical Studies: Churchill Livingstone 1994

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