

# **Skin and Soft Tissue Infections**

Department of Surgery

	<i>Non necrotising</i>	<i>Necrotising</i>
<i>Localised</i>	Foruncle (boil) Cellulitis Actinomycosis	Fournier's gangrene Cancrum oris
<i>Diffuse</i>	Carbuncle Cellulitis Hidradenitis	Meleney's synergistic gangrene Necrotising fasciitis Gas gangrene

# Aetiology

Type	Microorganism
Type I (Polymicrobial) Mostly in immune compromised patients	Aerobic and Anaerobic organisms Staph aureus; Enterobacteracea like Klebsiella, E coli and Proteus mirabilis
Type II (Monomicrobial) Healthy patient starting sometimes with a minor trauma	Streptococci alone or with staphylococci
Type III	Marine vibrio

## Table 2

Clinical features suggestive of necrotizing soft tissue infections

SKIN	PAIN
<b>Erythema with ill-defined margins</b>	<b>Pain that extends past margin of apparent infection</b>
<b>Tense edema with grayish or brown discharge</b>	<b>Severe pain that appears disproportionate to physical findings</b>
<b>Lack of lymphangitis or lymphadenopathy</b>	<b>Decreased pain or anesthesia at apparent site of infection</b>
<b>Vesicles or bullae, hemorrhagic bullae</b>	
<b>Necrosis</b>	
<b>Crepitus</b>	

# Features of:

- sepsis,
- systemic toxicity,
- skin inflammation

- Hyperacute cases present with sepsis and quickly progress to multiorgan failure
- Subacute cases remain indolent, with festering soft-tissue infection.

- Necrotizing Fasciitis (NF) is a rapidly progressive soft tissue infection primarily involving the superficial fascia and subcutaneous tissue.

# Pathogenesis

- destruction of tissues and thrombosis by the toxins, antigens, the enzymes of Group A Streptococcus, and the host response to the antigens.
- virulent mechanisms by cell wall attached proteins, proteases, exotoxins, and super-antigens.
- T-helper lymphocytes are activated; in turn activating cytokines, clotting factors, and complement factors. Cytokines include tumor necrosis factor, interleukin-1 $\beta$ , interleukin-2, and interferon



## Table 3

Risk factors for necrotizing fasciitis

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### Risk factors for necrotizing fasciitis

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- **Diabetes**
  - **Chronic disease**
  - **Immunosuppressive drugs (e.g. prednisolone)**
  - **Malnutrition**
  - **Age > 60 years**
  - **Intravenous drug misuse**
  - **Peripheral vascular disease**
  - **Renal failure**
  - **Underlying malignancy**
  - **Obesity**
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S Al Shukry\* and J Ommen

**Necrotizing Fasciitis - Report of ten cases and review of recent literature**

J Med Life. 2013 June 15; 6(2): 189–194.

# Diagnosis

- Leucocytosis: differentiates NF from other soft tissue infections with more than 90% sensitivity and specificity
- Blood cultures 27.3%; 2% positive blood culture yield in patients with cellulitis.
- Plain X-ray films can demonstrate subcutaneous gas, but this is a specific not a sensitive finding (positive in fewer than 25% cases and absence of gas does not exclude NF)
- Computed tomography (CT): Asymmetrical fascial thickening, fat stranding, and gas tracking along with fascial planes are important imaging findings. CT scans are estimated to have a sensitivity of 80%
- MRI can detect the extent of NG and it can identify soft tissue edema infiltrating the fascial planes,

# Treatment

- surgical debridement,
- appropriate antibiotics
- optimal oxygenation of the infected tissues.
- skin grafting

# Fournier's gangrene



# Necrotizing fasciitis

















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