

Infection of the dermis and subcutaneous tissue usually 2° to breach in epidermis & dermis.

Epidemiology

- Common.
- Predisposing factors: DM, previous venous harvest or #, non-venous oedema, eczema, tinea, trauma, burns, cancer, or immunodeficiency.

Causes

- Most common in healthy patients are Grp A β -haemolytic *Strep. pyogenes* and *S. aureus*.
- Rarely, gram-negative organisms, anaerobes, or fungi may cause cellulitis. These are more common causes in children, people with DM or immunosuppression.
- In infants is usually caused by blood borne spread of Grp B Streptococcus.
- Around surgical wounds <24hrs post-op from *S. pyogenes* or *Clostridium perfringens*.
- Associated with water contact may be *Aeromonas* or *Vibrio* species.
- Cellulitis is being seen with increasing frequency in HIV-infected patients.

Presentation

- Commonly seen on the lower limbs, distal forearm, hand, periorbital
- Erythema, pain, swelling, and warmth.
- Oedema and erythema often gradually blend into the surrounding skin and so the margin of the affected area may be indistinct.
- Systemic symptoms (e.g. fever, malaise) may occur.
- Localized adenopathy \pm lymphangitis.
- Crepitus is a sign of infection most commonly observed with anaerobic organisms.

Differential Diagnosis

- Chronic venous insufficiency
- DVT
- Intertrigo
- Impetigo
- Erysipelas
- Necrotising fasciitis.

Investigations

- Most patients with cellulitis do not require further investigation.
- FBC, blood cultures, local lesion swab, wound edge aspiration may be done.
- Imaging if ?FB or >2wks & over bone - ?osteomyelitis, ?DVT

Management

Supportive

- Immobilization and elevation of involved limb.
- Clean wound site: irrigation, debride devitalized tissue.
- Cool sterile saline dressings decrease pain.

Drugs

- Consider need for tetanus prophylaxis.
- Analgesia, antipyretic
- ABx 7-10d: **flucloxacillin** 1-2g (child 25-50mg/kg) IV q6h or 500mg (12.5mg/kg) PO qid.

- If penicillin sensitive: **cephazolin** 2g (child 25mg/kg) IV q6h or **cephalexin** 500mg (12.5mg/kg) PO qid. If sev. allergy: clindamycin or vancomycin.
- Consider Hospital in the Home if stable & safe to have IVC. Usually od/bd IV regimes of **fluclox** (2 oral doses between bd IV), 2g od **cephazolin+probenecid**, or 1g od **ceftriaxone**.
- In facial cellulitis, use **co-amoxiclav** or **cefotaxime**.
- In bites, DM foot or varicose ulcer use **metronidazole** & **cephalosporin** or **Augmentin** (**Timentin** if sev.) to cover some anaerobes & others.

Surgical

- Incision and drainage if deep fluctuant pocket.
- Any patient with crepitus, circumferential cellulitis, or necrotic-appearing skin.
- Necrotic skin or disproportionate pain may indicate necrotising fasciitis.

Complications

- Bacteremia.
- Circumferential cellulitis may result in a compartment syndrome.
- Toxin release:
 - Group A beta-haemolytic Streptococcus and Staphylococcus aureus
 - Toxin-mediated disease may cause septic shock, hypotension, and organ failure.
 - In adults, the mortality rate of toxin-mediated disease is approximately 50%.
- Local complications: abscesses, superinfection, lymphangitis, thrombophlebitis, gas-forming cellulitis, necrotizing fasciitis.

Prognosis

- Uncomplicated cellulitis has an excellent prognosis.
- Treatment without hospital admission is effective for well over 90% of patients.

Gas Gangrene & Necrotising Fasciitis

Introduction

- Infection of subcut tissues & muscles with gas-forming orgs. Uncommon in developed countries. Poor vascular supply, contamination, poor SE groups & IVDA have ↑risk.

Causes

- Clostridium perfringens & other spp, *E.Coli*, *S.pyogenes*, bacteroides.

Presentation

- Hx: Wound trauma. Fever, pain, smell, out of proportion pain. Exam: Fever, shocked, sick. Tense skin around infection, init blanching→dusky red, haemorrhagic bullae, crepitus

Investigations

- FBC, culture, swabs, xray (may see gas in tissue planes)

Management

- ABx: **meropenem** 1g (child: 25mg/kg) IV q8h **PLUS EITHER clindamycin** 600mg (child: 15mg/kg) IV q8h **OR lincomycin** 600mg (child: 15mg/kg) IV q8h. If *S.pyogenes* indicated replace meropenem with **benzylpenicillin** 1.8g (child 45mg/kg) IV q4h.
- Mixed clostridium antitoxins
- Surgical debridement ± amputation
- Hyperbaric Oxygen