Infections of Skin and Superficial Mucosa

The entry point of pathogens in this group of infections is skin or mucosa and wide spectrum of diseases local and systemic manifestations is produced. They can be classified according to the causative pathogen which can be bacterial, viral, fungal, or parasitic.

THIS ARTICLE DOES NOT COVER THE TOPIC SUFFICIENTLY

Bacterial Infections

Bacteria infections have varying manifestations depending on which layers of skin and underlying tissue are affected.

Erysipelas

Superficial infection affecting the epidermis and dermis.

- **Agent**: Almost always streptococcus progenies.
- **Clinical features**: Rapidly progressive erythema on the face. Affects the cheeks and periorbital region mainly. The erythema has a slightly raised edge and may show blistering. It is usually accompanied by a headache, malaise, fever and vomiting. Regional Lymphadenopathy is also associated.
- **Investigation**: Swabs aren't helpful due to large amount of commensal bacteria, but Streptococcus pyogenes may be isolated from blood culture. Serology with Antostreptolysin O titre.
- **Treatment**: Penicillin. When contraindicated, Clindamycin or Clarithromycin.
- **Note**: Predominantly in children, the elderly and immunocompromised patients.

Cellulitis

Infection of the dermis and subcutaneous tissue.

- **Agent**: Streptococcus pyogenes and Staphylococcus aureus, including MRSA.
- **Clinical features**: warm, swollen and tender erythema near the infection site. Borders aren't as clear as erysipelas. When the cellulitis is secondary to a puncture wound e.g. trauma, an abcess may form. Lymphadenopathy develops and is quite tender. Some patients may complain of malaise.
- **Investigation**: Isolate bacteria from kkin biopsy and purulent discharge where present. In systemic illness blood culture is indicated.
- **Treatment**: Affected limbs should be elevated. Specialist dressing used with permanganate solution.

Oral antibiotics for uncomplicated cellulitis. In diabetic patients or systemic illness, Flucloxacillin is indicated. If penicillin is contraindicated, Clindamycin or Clarithromycin may be used. For Diabetic patients, additional Metronidazole is considered due to high risk of anaerobic bacterial infection. In MRSA patients, Vancomycin is the appropriate treatment. Due to high risk of venous thrombosis in these patients, prophylactic Heparin indicated.

- Note: Both Streptococcus pyogenes and Staphylococcus aureus are commensal and only cause infection when a barrier is breached e.g.

Trauma Ulcers Insect/animal bite Intravenous drug abuse. Diabetic patients are particularly at risk due to complications such as peripheral vascular disease, peripheral neuropathy.

Necrotising Fasciitis

Progressive infection of skin, deep fascia and may include muscle. Agents are able to produce streptokinase and hyaluronidase which break down fibrin and hyaluronic acid, allowing the organisms to invade deeper tissues.

- **Agent**: Mostly Streptococcus pyogenes, also Groups C and G B-Hemolytic streptococcus.
- **Clinical features**: extremely painful cellulitis with necrosis. Systemic infection, high fever and rigors.
- **Investigation**: X-ray, MRI, CT - show gas in tissues. Biopsy of affected tissue, purulent discharge and blood culture to isolate organism.

- **Treatment**: Clindamycin is recommended treatment but antibiotics alone are ineffective. They must be accompanied by debridement/amputation and post-operative monitoring for reinfection.

Clostridial gas gangrene

Sever infection of muscule layer.

- **Agent**: Usually Clostridium Perfringens, possibly other Clostridium species.

Infects open fracture or surgical wounds where there's residual dead tissue. Produces gas that leads to crepitus.

- **Clinical features**: extreme pain over affected wound. Thick oedematous wound that becomes haemorrhagic. Colour of muscles got from pale to red to dark red to black. Septicaemia, Tacccycardia, hypotension and reduced urine.
- **Investigation**: Blood culture. Naegler reaction to detect alpha toxin. X-ray, CT to detect presence of gas
- **Treatment**: Surgical debridement and amputation. Penicillin and Metronidaxole to prevent secondary infection.
- **Notes**: Diabetes have high risk due to peripheral vascular disease.

Fungal Infections

Tinea (Ringworm)

Superfifcial infection of keratinised skin such as skin, hair and nails.

- **Agent**: filamentous Epidermophyton floccosum and Trichophyton and Microsporum
- **Transmission**: Sharing hairbrushes and towel
- **Clinical features**: Tinea Corporis occurs on the body, Tinea Capitis occurs on the scalp and Tinea Cruris occurs in the groins. Tinea Pedis occurs between the toes (athletes's foot) and Tenea Unguinum occurs in the nails.
- **Investigation**: Nail clippings or hair root.
- **Treatment**:

Treat with topical Cotrimoxazole or Terbinafine.

Candidiasis

Infection of Keratinised epidermis of skin and maybe nails.

- **Agent**: Candida Albicans. Opportunistic infection of moist areas like the groins in babies or obese people.
- **Clinical features**: Erythematous lesions. Vesicles may be seen at the edge.
- **Investigation**: Scraped skin or nail clippings.
- **Treatment**: Topical Cotrimoxazole

Links

Related Articles

Bibliography

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