Micro 5 summary

by: Dana Alnasra

Erysipelas

Caused by S.pyogenes

Infants and elderly mostly

Abrupt onset of fiery-red swelling, Well-defined indurated margins, along the nasolabial fold.

Bullae may develop in 2-3 days, Desquamation of skin in 5-10 days

Extension to deeper organs is rare

Rx: penicillin, flucloxacillin, clindamycin

Swelling may progress despite appropriate treatment, but pain, fever and redness diminish.

Diabetic foot infections

Any **infection** in a patient with **diabetes** that is bellow the malleolus.

The most common is infected diabetic ulcer.

Risk factors:

1. neural: peripheral sensory, motor, autonomic neuropathy.
2. Vascular: vascular insufficiency
3. Immune: poor immune function and wound healing
4. Others: poor vision, poor healthcare, previous amputations,..

Cellulitis	strep. + staph.
Infected ulcer –antibiotic naïve	monomicrobial (skin flora)
Infected ulcer –chronic, previous antibiotic therapy	polymicrobial (skin flora + enterobacteriacae)
Macerated ulcer	p.aeruginosa
Non-healing wound, prolonged antibiotic therapy	polymicrobial with **antibiotic-resistance**: gram +ve (S.aureus, CoNS, enterococci), diptheroids, fungi, gram –ve
Fetid foot -Extensive necrosis, gangrene	(gram +ve and –ve), mixed aerobes + obligate anaerobes.

Clinical features: mild→severe→life-threatening

Ulcer with no infection→ ulcer with inflammation/cellulitis→ ulcer with cellulitis + lymphangitis+ abscess + gangrene, …. (local complications)→ systemic toxicity, fever, chills, confusion, …

Dx: 1. clinically must assess perfusion and sensation

2. Doppler ultrasound

3. Imaging (MRI) to determine the extent of infection

4. Deep tissue specimens

Rx: inpatient vs. outpatient

Inpatient based on correcting systemic instability

Medical: empirical through antibiotics for infected ulcers; oral for mild cases and IV for severe ones.

Surgical: for severe infections in deeper tissues

Nodular lesions:

1. Mycobacterium marinum

Usually aquarium cleaners, fishermen,..

Cellulitis or erythematous nodules, Limited to skin (requires lower temperatures)

Dx: needle aspiration, see acid fast bacilli

Rx: rifampin+ ethambutol for 4 months.

2. cat-scratch disease

By bartonella henselae – gram -ve bacillus

Transmission cycle between cats and flea

Lesions developing at the primary site of inoculation, painful **regional ipsilateral lymphadenopathy**

In immunocompromised → bacillary angiomatosis

Dx: history is enough but serology can confirm, biopsy from lymph nodes

Rx: self-limited in immunocompetent

3. Schistosomiasis

By Schistosoma, a trematode. Common in Africa and Egypt

Multiple erythematous papules at the site of inoculation

Dx: eggs in stool and urine

Rx: single dose praziquantel

Improves with treatment, advanced stages may require long term therapy

4. Leprosy

By mycobacterium leprae; acid fast bacillus

Chronic, causes granulomas

Long incubation period of 3-20 years

Transmission: mostly nasal secretion

Types: 1. tuberculoid → intact immunity, nerve changes

2. lepromatous → defective immunity, skin changes

Signs: **bilateral symmetrical** skin nodules + thickened subcutaneous tissue, hypopigmented in dark skinned, spares groin and axilla

Dx: biopsy + acid fast stain

Rx: anti-mycobacterial e.g. rifampin, **prolonged** for 1-2 years or **lifelong**.

5. Syphilis

By Treponema pallidum

Large nodules → tertiary

Flat papulosquamous lesions → secondary

Chancre → primary

Condyloma lata → painless wart like lesion around the anus

6. Human papilloma virus

Singular warts → verruca vulgaris, HPV 1,2,4,7, in children and young adults

Multiple warts →condyloma acuminate (anogenital)

Transmission: skin contact, sharing clothes, auto-inoculation

HPV 16,18,31,33 → cervical cancer

Usually, the warts are not very erythematous or inflamed (to differentiate from whitlow)

Diagnosis of skin infections:

1. Appearance of lesion
2. Location relative to the body
3. Location within the layers of soft tissues (depth)
4. Others: temporal progression, travel history, animal exposure, age, diseases, …
5. radiography: CT and MRI (to determine the depth, define abscesses, detecting gas).
6. Lab diagnostics: aspiration (large false negative), frozen sections, biopsies, **surgical inspection and debridement are the optimal way** to determine severity.

Myositis and myonecrosis:

Myalgia: muscle pain (usually with viral infections)

Rhabdomyolysis: breakdown of damaged muscles (clostridia, strep.)

Necrotizing myositis: by S.pyogenes, the same as necrotizing fasciitis type2

Pyomyositis: pus forming infection of skeletal muscles, due to S.aureus (including MRSA, with PVL toxin, toxic shock syndrome toxin, and enterotoxins).

Hematogenous spread.

Common in tropical areas.

Occurs in: 1. tropical climate in children (2-5) and adults (20-45)

2. temperate climate in immunocompromised elderly following trauma .

Clinically:

Seen more in lower extremities.

Stage1: early invasive, non-specific symptoms

Stage2: suppurative, 10-21 days after onset of symptoms, significant inflammation, pus and abscess formation.

Stage3: systemic, bacteremia, septic shock, endocarditis, rhabdomyolysis

Dx: early diagnosis may be difficult but MRI is the gold standard

Rx: stage1: antibiotics alone, Anti-staph. (flucloxacillin, vancomycin,…)

Stage2/3: antibiotics + drainage

CT or ultrasound can be used for diagnosis and therapy.