

# Skin & Soft Tissue Infections.

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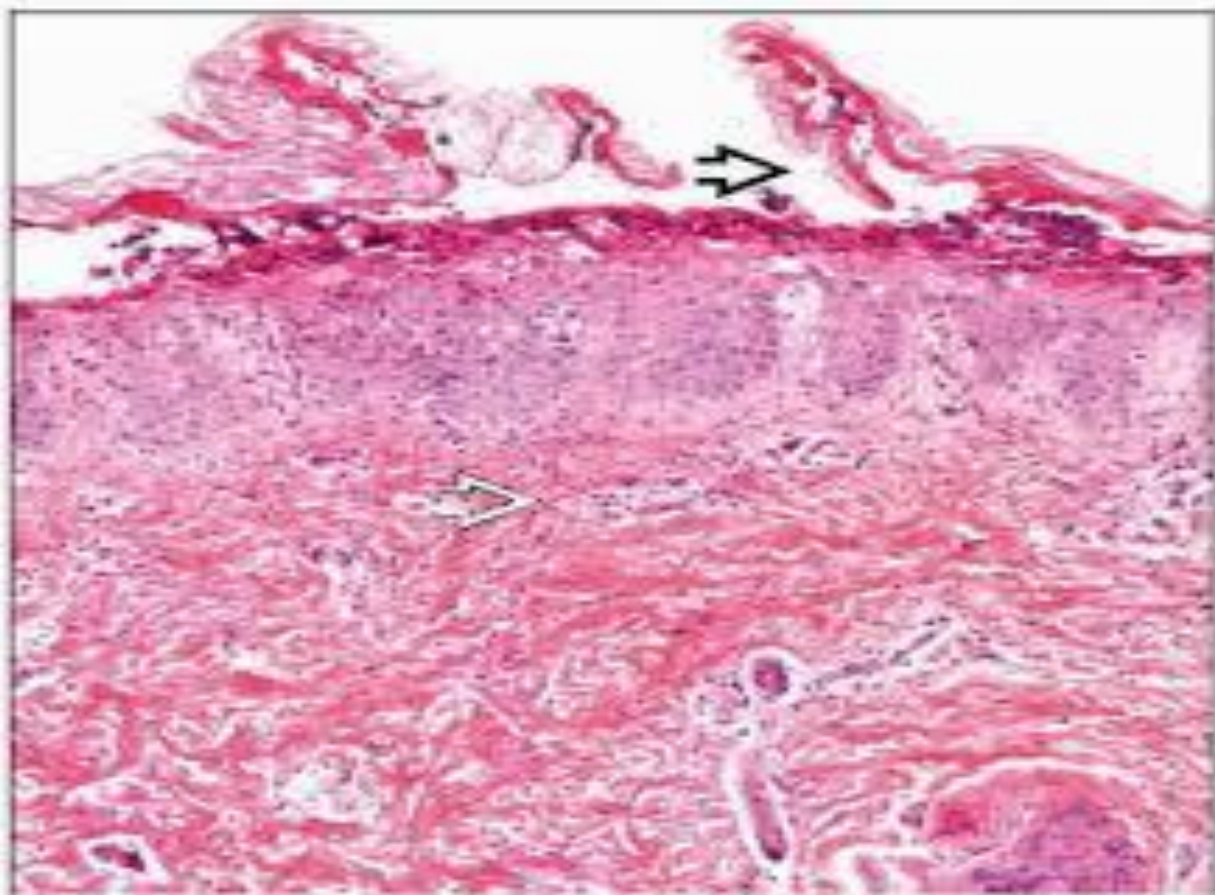
KGMC.

# Impetigo.

- A common and highly contagious skin infection caused by bacteria *Staphylococcus aureus* but less commonly *Streptococcus pyogenes* .
- Mainly affects infants and young children.
- Usually appears as reddish sores on the face, especially around the nose and mouth, on hands and feet.
- Over about a week, the sores burst and develop honey-colored crusts( dried serum or scab).

# Morphology.

- Biopsy shows spongiotic epidermis.
- Neutrophilic infiltrate.
- Bacterial cocci can be demonstrated by using Gram stain in superficial epidermis.



# Impetigo.



# Cellulitis.

- A common, potentially serious bacterial skin infection caused by Group A  $\beta$  - hemolytic streptococcus.
- It affects deeper tissues.
- The affected skin appears swollen, red, typically painful and warm to the touch.
- It usually affects skin on the lower legs but it can occur on the face, arms and other areas.

# Cellulitis.



# Erysepelas.

- A superficial infection, affecting the upper layers of the skin extending into the superficial cutaneous lymphatics.
- Erysepelas and cellulitis can overlap each other, so it is not always possible to make a definite diagnosis between the two.



# Erysepelas.



# Contd...

- It is also known as St. Anthony's fire due to the intense rash associated with it.
- The most common cause is streptococcal bacteria, especially *Streptococcus pyogenes* and less frequently *Staphylococcus*.
- Erysipelas results in a fiery red rash with raised edges that can easily be distinguished from the skin around it.

# Pathophysiology.

- As the offending organism invades the compromised area, it overwhelms the defensive cells (neutrophils, eosinophils, basophils, and mast cells) that normally contain and localize inflammation and cellular debris accumulates.
- As cellulitis progresses, the organism invades tissue around the initial wound.

## Cellulitis

- Refers to an acute, superficial, diffuse spreading skin infection
- May refer to infection involving the deeper dermis and adjacent subcutaneous tissue



## Erysipelas

- May refer to a more superficial infection involving the upper dermis and superficial lymphatics, with more clearly delineated borders compared to cellulitis



# Folliculitis.

- A common skin condition in which hair follicles become inflamed.
- It is usually caused by a bacterial or fungal infection.
- At first it may look like small red bumps or white-headed pimples around hair follicles — the tiny pockets from which each hair grows.

# Folliculitis.



# Casues.

- Bacteria: Staphylococcus aureus.
- Viruses,
- Fungi,
- Even an inflammation from ingrown hairs.

# Clinically...

- Folliculitis signs and symptoms include:
  - Clusters of small red bumps or white-headed pimples that develop around hair follicles,
  - Pus-filled blisters that break open and crust over,
  - Itchy, burning skin,
  - Painful, tender skin,
  - A large swollen bump or mass.



# Skin abscess (Furuncle/ carbuncle).

- A **furuncle**, also known as a boil, is a painful infection that forms around a hair follicle and contains pus.
- A **carbuncle** is collection of boils that develop under the skin.
- When bacteria infect hair follicles, the follicles can swell and turn into boils and carbuncles.
- A **furuncle** starts as a red lump.

# Cause.

- Bacteria typically cause a furuncle, the most common being *Staphylococcus aureus* — which is why furuncles can also be called staph infections.
- *Staph. aureus* normally resides on some areas of the skin.

# Contd...

- *Staph. aureus* can cause an infection in situations where there are breaks in the skin, such as a cut or a scratch.
- Once the bacteria invade, immune system tries to fight them.
- The boil is actually the result of white blood cells working to eliminate the bacteria.

# Pathogenesis.

- A furuncle may begin as a benign-looking bump on skin, like a pimple.
- However, as the infection worsens, the boil can become hard and painful.
- The boil contains pus as a result of body's attempt to fight the infection.
- Pressure may build, which may cause the furuncle to burst and release its fluids.
- The pain may be at its worst right before a furuncle ruptures and will most likely improve after it drains.

# Contd...

- Furuncles start out small but can increase in size to over 2 inches.
- The skin around the infected hair follicle may become red, swollen, and tender.
- Scarring is also possible.
- The development of several boils that connect in the same general area of body is called “a carbuncle”.
- Carbuncles may be more associated with symptoms like fever and chills. These symptoms may be less common with a single boil.

# Furuncle.



# Carbuncle.

- A carbuncle is a red, swollen, and painful cluster of boils that are connected to each other under the skin.

# Cause.

- Most carbuncles are caused by *Staphylococcus aureus* bacteria, which inhabit the skin surface, throat, and nasal passages.



# Pathophysiology.

- These bacteria can cause infection by entering the skin through a hair follicle, small scrape, or puncture, although sometimes there is no obvious point of entry.
- Filled with pus -- a mixture of leukocytes, tissue debris and living or dead microorganisms.
- They must be drained.
- They are more likely than boils to leave scars.

# Symptoms of Carbuncles.

- They usually start as red, painful bumps.
- Carbuncle fills with pus and develops white or yellow tips that weep, ooze, or crust.
- Over a period of several days, many untreated carbuncles rupture, discharging a creamy white or pink fluid.
- Symptoms include fever, fatigue, and a feeling of general sickness.
- Swelling may occur in nearby tissue and lymph nodes, especially lymph nodes in the neck, armpit, or groin.

# Types of carbuncles.

- Superficial carbuncles: Have multiple openings on the skin's surface are less likely to leave a deep scar.
- Deep carbuncles: More likely to cause significant scarring.

# Pathophysiology of abscess.

- When an area of body becomes infected, immune system tries to fight infection.
- White blood cells go to the infected area, collect within the damaged tissue and causes inflammation.
- During this process, pus forms.
- Pus is a mixture of living and dead white blood cells, bacteria and dead tissue.

# Carbuncle.



# Necrotizing soft-tissue infections.

- Are infrequent but highly lethal infections.
- They can be defined as infections of any of the layers within the soft tissue compartment (dermis, subcutaneous tissue, superficial fascia, deep fascia or muscle) that are associated with necrotizing changes.

# Pathophysiology.

- Vessel occlusion results in skin infarction and necrosis.
- It facilitates growth of obligate anaerobes (eg. Bacterioides) while promoting anaerobic metabolism by facultative organisms (eg. Escherichia coli), resulting in gangrene.