

Lecture 1



Skin and Soft Tissue Infections

- Additional Notes
- Important
- Explanation
- Examples

Objectives:

- Describe the anatomical structure of skin and soft tissues.
- Differentiate the various types of skin and soft tissue infections and their clinical presentation.
- Name bacteria commonly involved in skin and soft tissue infections.
- Describe the pathogenesis of various types of skin and soft tissue infections.
- Recognize specimens that are acceptable and unacceptable for different types of skin and soft tissue infections.
- Describe the microscopic and colony morphology and the results of differentiating bacteria isolates in addition to other non-microbiological investigation.
- Discuss antimicrobial susceptibility testing of anaerobes including methods and antimicrobial agents to be tested.
- Describe the major approaches to treatment of skin and soft tissue infections either medical or surgical.

Introduction

- Soft tissue: anything other than bones.
- Common disease.
- Can be mild to moderate or severe muscle or bone and lungs or heart valves infection .
- **the most cause is: Staphylococcus aureus** and **streptococcus**.
- Emerging antibiotic resistance among
 - ✓ Staphylococcus aureus (methicillin resistance)
 - ✓ Streptococcus pyogenes (erythromycin resistance)

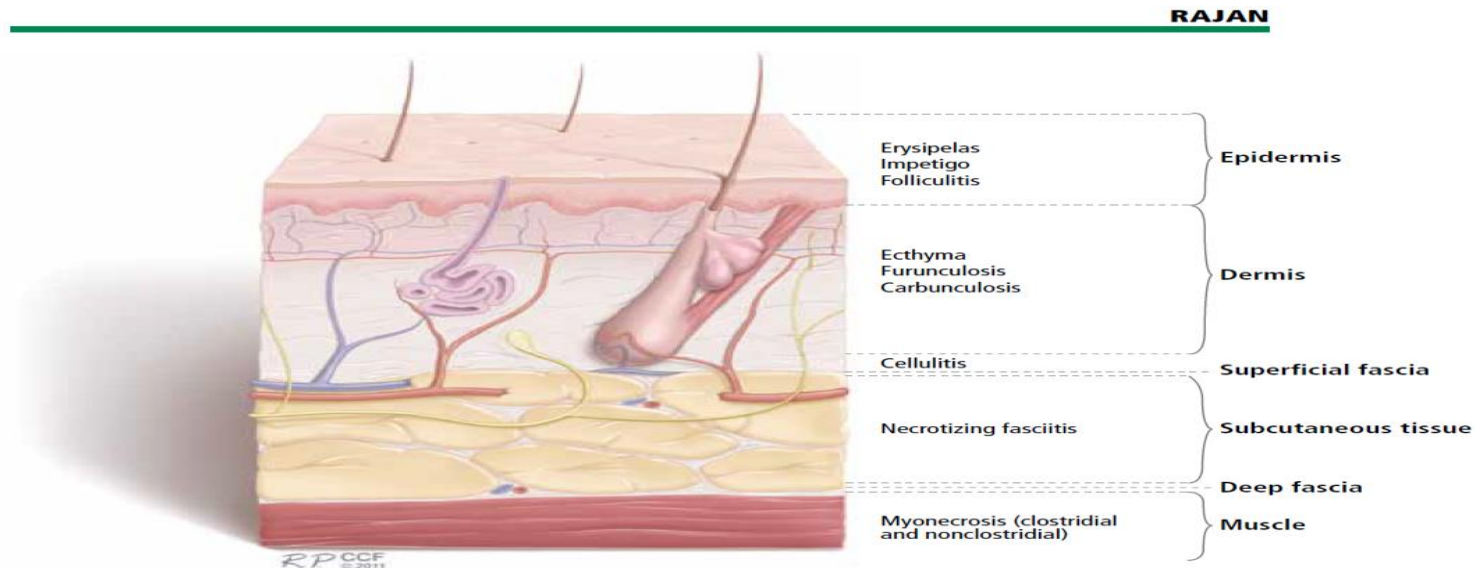


FIGURE 1. Depth of involvement in skin and soft-tissue infections.

Impetigo (Pyoderma = Skin diseases)

- It's a common skin infection, in **Children 2–5 Yr** in tropical or subtropical regions
- Always caused by β -hemolytic streptococci (Nonbullous) and/or S.aureus (Bullous)
- Systemic symptoms are usually absent.
- Blister if it ruptures, it produces fluid (honey crust)
- Exposed areas of the body (face and extremities)
- Treatment: **Penicillin**.
- It may lead to immune complication in some cases.



Abscesses & Furuncles and Carbuncles.

- **Cutaneous abscesses:** Collections of pus within the dermis and deeper skin tissue
- Superficial abscesses usually cause by *staphylococcus aureus*, however, deep abscess caused by *anaerobes*.
- Painful, tender, and fluctuant.
- Treats by Incision and evacuation of the pus.

- **Furuncles:** are infections of the hair follicle (folliculitis), & **Carbuncle** is extension to involve several adjacent follicles.
- It's usually caused by *S. aureus*.
- Especially in diabetics.
- Larger furuncles and all carbuncles require incision and drainage.

- Diffuse spreading skin infections, excluding infections associated with underlying supportive foci.
- Most of the infections arise from streptococci, **often group A**, but also from other groups, such as B, C, or G.

Erysipelas	Cellulitis
Affects the upper dermis (Epidermis)	involves the deeper dermis and subcutaneous tissues.
β -hemolytic streptococci (group A).	- β -hemolytic streptococci (A&B). - <i>S. aureus</i> : commonly causes cellulitis.
well demarcated, Edematous (تشبه قشر البرتقال)	Not demarcated
Infants, young children	All ages.
VERY RED , tender, painful plaque	Tenderness and redness that spreads to adjacent skin
Penicillin.	Penicillin, Cloxacillin, Cefazolin.

Necrotizing fasciitis

- It is a rare deep skin and subcutaneous tissues infection.
- Usually it happens to **diabetic patients**.
- Its divided to:
 - ✓ **Polymicrobial** (Type I) → caused by: Streptococcus (group A) and Clostridium perfringens.
 - ✓ **Monomicrobial** (Type II) → caused by: Streptococcus (group A).
- Signs and symptoms:
rapid progression of severe pain with fever , chills (typical), Swelling , redness, hotness, blister, gas formation, gangrene and necrosis
- Treatment:
 - ✓ **Surgery**, to remove all dead tissue.
 - ✓ **Antibiotics**: **Penicillin** and **clindamycin**⁽¹⁾.

⁽¹⁾Clindamycin works on ribosomes. Group A streptococcus release some proteins that's why clindamycin is important to break down the ribosomes as well as penicillin is good for the cell wall.

Skin Layers	Disease	Organism	Treatment
Epidermis	Impetigo	Staphylococcus aureus	Penicillin
	Folliculitis	Streptococcus	
	Erysipelas	Group A Streptococcus	
Dermis	Furunculosis	Commonly: S.aureus Sometimes: Streptococcus	Penicillin Cloxacillin Cefazolin
	Carbunculosis		
Superficial fascia	Cellulites	Commonly: Streptococcus Sometimes: S.aureus	
Subcutaneous tissue	Necrotizing fasciitis	Group A Streptococcus & Clostridium perfringens (For type I)	Surgery + Antibiotics

Quiz

1. The best treatment for necrotizing fasciitis is:

- a) Penicillin b) Surgery c) Antibiotics & Surgery d) Penicillin & Clindamycin

2. The most common cause of Skin and Soft-tissue infection is:

- a) Anaerobes b) S.aureus c) Viruses d) S.aureus & Streptococcus

3. Cellulitis is demarcated and Erysipelas is edematous.

- a) T b) F