• **Inoculation**: entry of pathogenic microbes into the body without disease occurring.

• **Infection**: entry and proliferation of pathogenic microbes into the body resulting in triggering of the defense mechanism, a process manifesting as inflammation.

• **Inflammation** is the localized reaction of vascular and connective tissue of the body to an irritant, resulting in the development of an exudate rich in proteins and cells. Inflammation may be caused by microbes, physical and chemical factors, (heat, irradiation).
• **Acute Inflammation.** This is characterized by rapid progression and is associated with typical signs and symptoms. If it does not regress completely, it may become subacute or chronic.

• **Subacute Inflammation.** This is considered a transition phase between acute and chronic inflammation.

• **Chronic Inflammation.** This procedure presents a prolonged time frame with slight clinical symptoms and is characterized mainly by the development of connective tissue.
Body response to infection

• Hyperemia

• Precipitation of fibrin network to wall off the infected region

• Phagocytosis of bacteria and dead cells

• Disposal of necrotic debris by macrophage
clinical signs and symptoms of infection

- redness
- hottness
- swelling
- pain
- loss of function
Odontogenic infections

- Periapical infections
Periodontal infections
Pericoronal infections
Pericoronal infections

**Etiology:**

- Food impaction
- Trauma from opposing tooth
- Virulent micro-organism
- Lowering of the host resistance
• Acute pericoronitis

• Sub Acute pericoronitis

• Chronic pericoronitis
**Treatment**

- **Drainage of pus if present**
- **If no pus, gentle irrigation of the pericoronal space with normal saline**
- **Extraction of opposing upper tooth or selective grinding**
- **Antibiotic**
- **Extraction of impacted tooth**
• **Mostly mixed infections (aerobic and anaerobic)**
Spread of odontogenic infections

- **Cellulitis**: spread of infection into the loose connective tissue

- **Suppurative infections**: characterized by abscess formation
Suppurative infection
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Cellulitis</th>
<th>Abscess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>Acute</td>
<td>Chronic</td>
</tr>
<tr>
<td>Pain</td>
<td>Severe and generalized</td>
<td>Localized</td>
</tr>
<tr>
<td>Size</td>
<td>Large</td>
<td>Small</td>
</tr>
<tr>
<td>Localization</td>
<td>Diffuse borders</td>
<td>Well circumscribed</td>
</tr>
<tr>
<td>Palpation</td>
<td>Doughy to indurated</td>
<td>Fluctuant</td>
</tr>
<tr>
<td>Presence of pus</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Degree of seriousness</td>
<td>Greater</td>
<td>Less</td>
</tr>
<tr>
<td>Bacteria</td>
<td>Aerobic</td>
<td>Anaerobic</td>
</tr>
</tbody>
</table>
Routes of infection spreading

• Direct continuity

• Lymphatic

• Blood stream
Factors that influence the spread of odontogenic infections

• Virulence of micro-organism
• Patient immune system
• Anatomical factors that influence the direction of infection spread:
  • A. site of source of infection
  • B. point at which pus escape
  • Natural barriers (fascia, muscle, bone)
Physical examination
Infection of facial spaces
Submental space infections
Sublingual space infections
Ludwigs angina
Ludwigs angina

• Causes

• Dental infections (90%)
• Sunmandibular gland infections
• Mandibular fractures
• Soft tissue lacerations and wounds in the floor
Signs and symptoms
Treatment

- Securing airway
- GA should be avoided
- Surgical drainage
- AB
Submassetric space infections
Pterygomandibular Abscess
Lateral Pharyngeal Abscess

- Parotid Gland
- Retropharyngeal space
- Lateral pharyngeal space
- Pterygomandibular space
- Medial pterygoid muscle
- Ramus of the mandible
- Masseter muscle
- Submandibular space
- Buccinator muscle
Retropharyngeal space infection
Danger space

- Danger space or space for cannot be reliably differentiated from the retropharyngeal space on imaging and is therefore combined with retropharyngeal space for discussion.
Peritonsillar (Quinsy) abscess
Infection of spaces related to upper jaw
Upper lip infections
Canine fossa infections
Buccal space infection
Infra temporal space Abscess
Subperiosteal in the palate
Maxillary antrum
Cavernous sinus thrombosis

Thrombosis of the Cavernous Sinus

It is an infection leading to blood clot caused by the complication of an infection in the paranasal or central face sinuses.

- Inflamed Cavernous sinus

Signs and Symptoms of Thrombosis of Cavernous Sinus

1. Fatigue
2. Seizures
3. Vomiting
4. Impaired vision
5. Boil on the face
6. Drooping eyelids
7. High temperature
8. Sinusitis - an infection in the skull
9. Severe pain or numbness in the face
10. Infection in eyes - redness, swelling or irritation around the eyes
Clinical features

• Marked edema and congestion of the eyelids and conjunctiva
• Proptosis and ptosis
• Ophthalmoplegia and dilated pupil
• Papilloedema
• Fever
• Depressed level of consciousness
Treatment

- AB
- Heparin
- Treatment of odontogenic causes
Principles of treatment of odontogenic infections

- Dental treatment
- Surgical treatment
Methods of drainage

- Through the root canal
- Through the socket by extraction
- Through fenestraion of the alveolar bone
- Through incision
Indications for incision and drainage

• Signs of pus accumulation
• When the involved compartment are inaccessible
• Serious and rapidly evolving infections of neck and floor of the mouth
Principle of incision and drainage

1. Should put on healthy skin and mucosa as possible, in area of maximum fluctuancy

2. Esthetically accepted area

3. should include only skin and subcutaneous tissues and dissection through deeper tissue should be done bluntly

4. Drain should be used after evacuation of the pus

5. Wound margins should be cleaned daily to remove clots and debris

6. Sample of pus should be obtained and sent to the laboratory for culture and sensitivity test
Prior to surgical drainage, a sterile aspirate is obtained for culture and sensitivity.
Palatal abscess, incision parallel to the greater palatine vessels
An incision at **submandibular region** should be placed two fingers’ breadth below the lower border to avoid injury of the marginal mandibular branch of the facial nerve.
5) **Placement of Drain**

- **Purpose:**
  - to allow the discharge of tissue fluids and pus from the wound by keeping it patent
  - allows for debridement of the abscess cavity by irrigation

- **Types:**
  - corrugated
  - Penrose
Medical treatment

- Hydration
- Soft diet
- Analgesics
- Maintain good oral hygiene
- AB
Indications for the use of AB in odontogenic infection

- Acute cellulitis
- Acute pericoronitis with fever and trismus
- Deep fascial space infections
- Compromised patients
Guidelines for use appropriate antibiotics

- Determine the causative organisms
- Determine the antibiotic sensitivity
- Use of least toxic AB
- Should know the patient drug history
- Bacteriocidal better than bacteriostatic
- Cost effective
- Proper dose and adequate length
Indications for combination of AB therapy

1. when we need to increase the antibiotic spectrum
2. when we need to increase the bacteriocidal effect
3. to prevent rapid development of bacterial resistance
4. in severe rapidly progressive infections
Monitoring of the patient to check:

- Response to the treatment
- Recurrence of infection
- Presence of allergic reaction
- Toxicity reaction
- Secondary infections
Causes of failure of AB therapy

- In adequate surgical treatment
- Depressed host defence
- Presence of foreign body
- Problems with use Ab
Sinus formation
Nectrotizing fascitis
Thank you for listening