

# INFECTIONS OF THE CRANIOMAXILLOFACIAL REGION.

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## Lecture Objectives

- Appreciate the varied bacterial infective disease pathogenetic mechanisms.
- Recognize the cardinal features of bacterial infection
- Clinically establish a firm working diagnosis of a bacterial infection
- Institute effective management protocols



## CELLULITIS

- ❖ A rapidly spreading inflammation of the soft tissues.
- ❖ Is diffuse and not well localized.
- ❖ Commonly associated with streptococcal infection:
  - Streptokinase
  - Hyaluronidase
- ❖ Manifest features:
  - A diffuse, tense, painful swelling of the soft tissues.
  - Elevated temperature
  - Malaise

## Cellulitis associated with the Maxillary teeth

- ❖ Initially involves the upper half of the face
- ❖ Extension towards the eye is a potentially serious complication:
  - Cavernous sinus thrombosis may ensue.
  - Meningitis is often fatal.
  - Blindness.



## Cellulitis associated with mandibular teeth

- ❖ Initially involves the lower half of the face.
- ❖ May precipitate respiratory embarrassment by extending to the sublingual and submandibular spaces.





## Deep surgical space Cellulitis

- ❖ Usually clinically presents as:
  - Pain
  - Trismus
- ❖ Facial swelling may not be a feature
- ❖ Inferior extension may precipitate mediastinitis
- ❖ Superior extension may precipitate:
  - Cavernous sinus thrombosis
  - Blindness
  - Meningitis



## Ludwig's angina (LA)

- ❑ A severe cellulitis that **BILATERALLY** involves
  - the submandibular
  - the sublingual
  - the submental spaces.
- ❑ The cellulitis is diffuse producing a board- like swelling of the floor of the mouth and upper neck.
- ❑ Has the tongue elevated and displaced posteriorly.
- ❑ Precipitates difficulty in eating , swallowing and breathing.
- ❑ Oedema of the glottis may occur culminating in suffocation and death.

## LUDWIG'S ANGINA.





## Sources of Bacterial infection in LA

### ➤ Odontogenic lesions:

- ❖ Dental caries
- ❖ Gingival infective lesions
- ❖ Oropharyngeal mucosal trauma
- ❖ Fractures
- ❖ Any other underlying lesions impairing immune mechanisms

± A polymicrobial bacterial infective process generally.

## Clinical Features of LA

- A severely ill patient
- Tongue raised and displaced posteriorly.
- Dyspnoea
- Inability to eat
- Stridor
- High fever, rapid pulse and respiration
- Moderate leukocytosis.

## Sequelae of delayed presentation of LA

- ❑ Involvement of the neck may precipitate:
  - Oedema of the glottis
  - Parapharyngeal, carotid sheath, pterygopalatine fossa space involvement
  - Cavernous sinus thrombosis
  - Subsequent meningitis and mediastinitis
  - Suffocation, toxæmia and death

## Relevant laboratory investigations

### ❑ Bacteriology

- Streptococci are almost invariably present
- Fusiform bacilli, spiral forms, various staphylococci, diphtheroids and many other organisms may be cultured.

### ❑ Most cases of LA are a mixed infection.

## Management of LA

### ❑ Medical intervention

- Aggressive administration of appropriate broad- spectrum antimicrobial agents.
- Consider combination therapy to contain the anaerobic microbes on board
- Parenteral nutritional support.
- ❖ Corticosteroids for anti-inflammatory intervention remains contraversial
- Appropriate analgesia

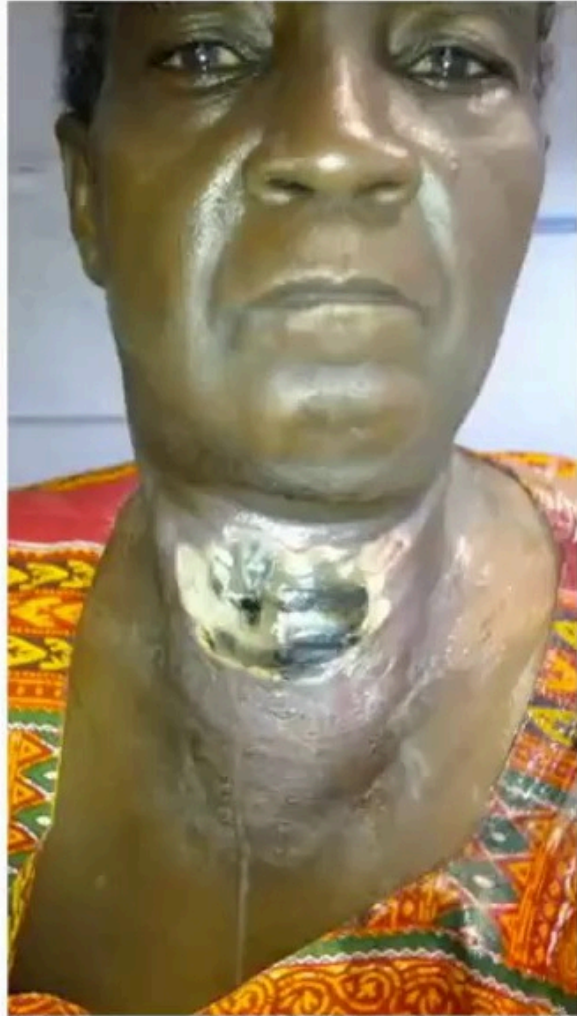
### ❑ Surgical intervention

- Tracheostomy
- Fibre optic intubation
- Incision for decompression



## Cervicofacial Necrotizing Fasciitis (CNF)

- ❑ A bacterial infective condition that manifests extensive necrosis of fascia.
- ❑ The aetiological factors may constitute:
  - Dental infection
  - Mucocutaneous injury which could be deemed to be trivial
  - Arising in immunosuppressive states
- ❑ The microbiology indicates a mixed bacterial infection
- ❑ A range of enzymes and cytokines appear to target fascial breakdown:
  - Hyaluronidases
  - Streptokinase
  - DNAase









## Clinical Features in CNF

- Extensive head and neck fascial degradation
- Subsequent cutaneous breakdown
- Little suppuration evident
- Mild pyrexia
- Leukocytosis
- Culture often yields a mixed bacterial infection



## Management of CNF

- ❑ Medical intervention:
  - Broad-spectrum antimicrobial therapy.
  - Antiseptic care of the affected region salvage residual viable skin.
- ❑ Plastic surgical intervention:
  - Primary closure with local flap manipulation.
  - Split/full thickness skin grafting.

## Gangrenous Stomatitis (GS) (NOMA, CANCRUM ORIS)

- ❑ A rapidly spreading gangrene of the oral and facial tissues.
- ❑ Usually associated with debilitated or nutritionally deficient persons.
- ❑ Chiefly, has been diagnosed in children.



## Conditions and Factors that may predispose to GS

### ➤ Infections:

- Diphtheria
- Dysentery
- Measles
- Scarlet fever
- HIV infection
- Pneumonia
- Syphilis
- Tuberculosis

### ➤ Blood dyscrasias

- Leukaemias
- Acquired immunodeficiency syndromes
- Anaemia

\*GS maybe considered a secondary complication of systemic disease.

## GS Microbiology

- ❑ GS appears to originate as a specific infection by Vincent's organisms.
- ❑ Is complicated by secondary invasion of:
  - Streptococci
  - Staphilococci
  - Diphtheria bacilli
  - ❖ *Fusobacterium necroforum* has been implicated as a specific causative agent in some West African cases.



## Clinical Features of GS

- A rapidly progressing ulceration of the gingiva that involves the jaws, lips and cheeks.
- Inflammation leads to darkening of mucosa and skin.
- Loss of blocks of tissue may manifest within 24 to 48 hours.
- Apparently the subcutaneous fat and buccal fat pad undergo necrosis in advance other than the adjoining tissues.
- Necrosis leads to an extremely foul smell (odour).
- Involvement of the palate and tongue is common.
- Patients are remarkably pyrexial in the course of the disease.
- Toxaemia and pneumonia may culminate into death.



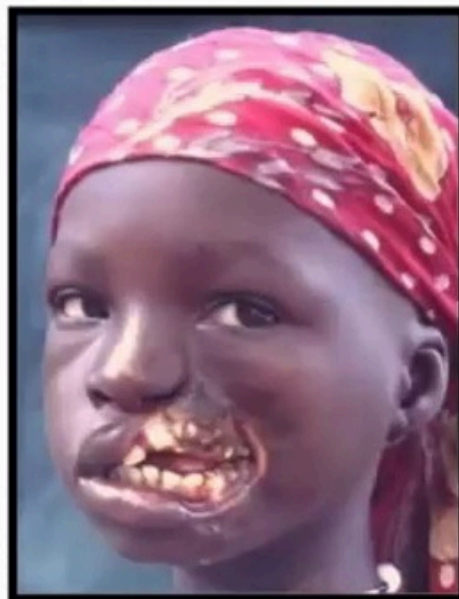
## Management of GS

### ❑ Medical intervention entails:

- Broad- spectrum/ combination antimicrobial therapy
- Nutritional support
- Wound care

### ❑ Surgical intervention:

- Plastic surgical reconstitution of lost tissues is a major challenge in many of the afflicted individuals.



# CANDIASIS



# HISTOPLASMOSIS





# VIRAL INFECTIONS

- Herpetic
- HIV infection: orofacial manifestations



## Other Viral Infections

### Focal Epithelial Hyperplasia



# HERPETIC INFECTION





# FUNGAL + VIRAL INFECTION



## Actinic Cheilitis and Skin Hyperpigmentation





# Actinic Cheilitis



## Cancers associated with HIV infection/AIDS

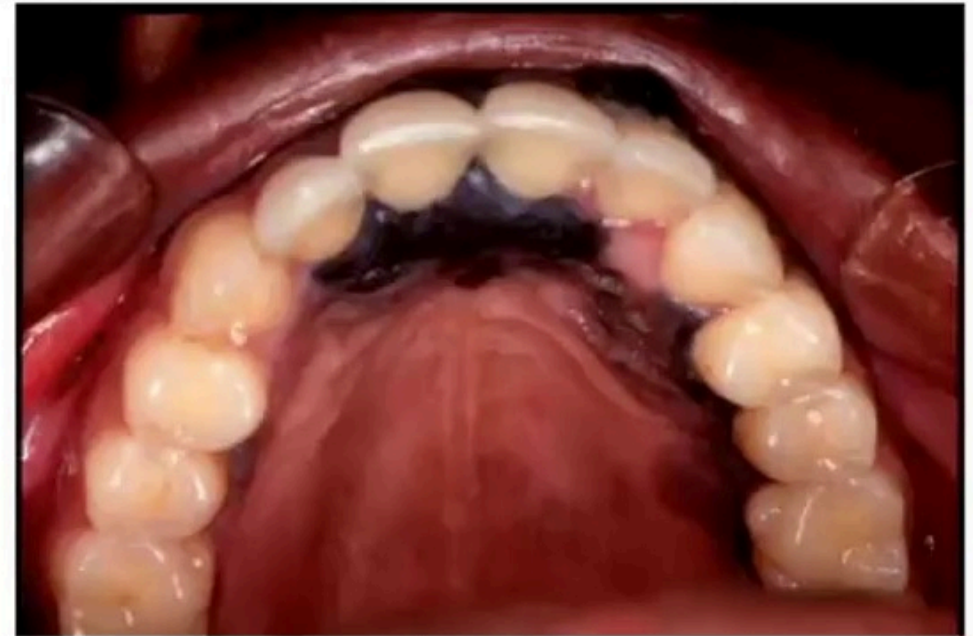
- Squamous cell carcinoma
- Malignant melanoma
- Kaposi's sarcoma
- Lymphomas

## Oral Squamous cell carcinoma



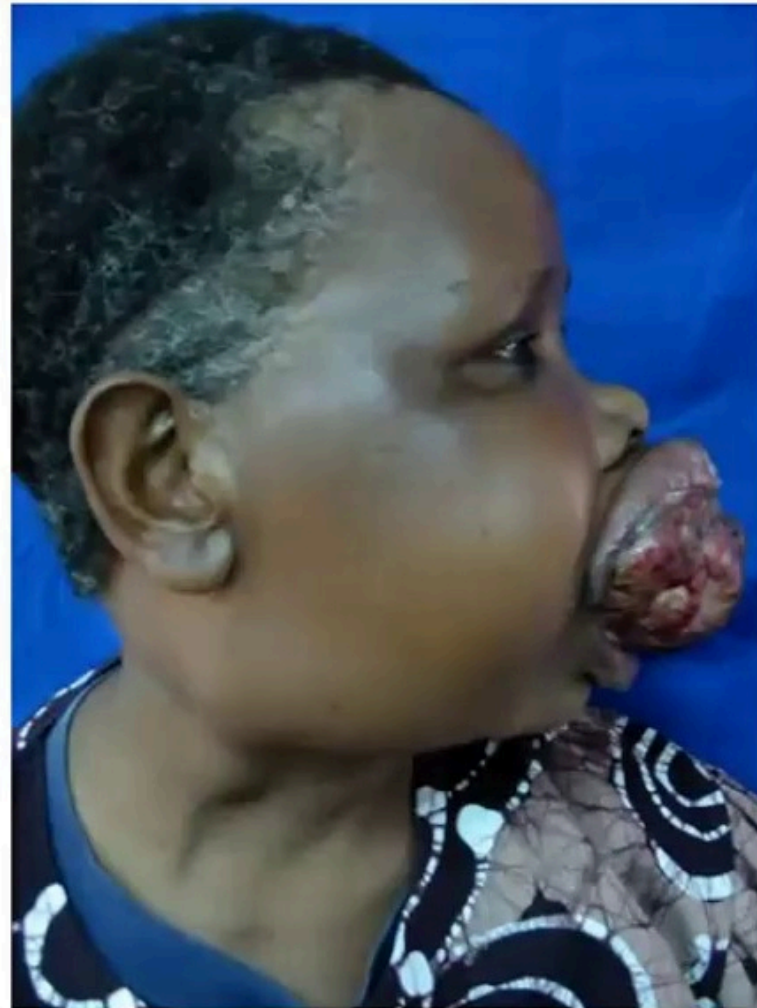


## Malignant melanoma of the maxillary alveolus.





Late stage malignant melanoma.



## Kaposi Sarcoma (KS)



## Kaposi's Sarcoma – Gingivae





KS in neck lymph glands





KS



KS



## Lymphoma









