DISEASES OF TONGUE

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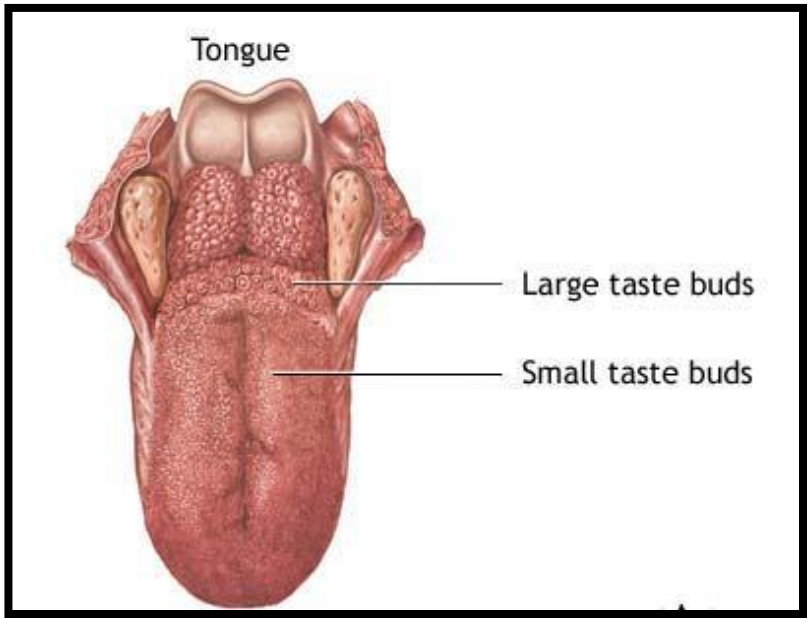
INTRODUCTION

- Tongue is a muscular organ situated in The floor of mouth. It has oral part and pharyngeal part separated by a v shaped sulcus

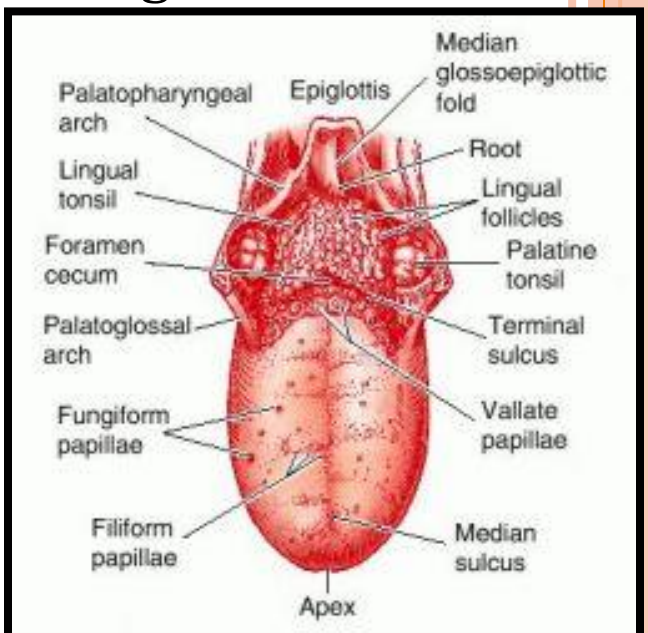
It has:

- Root
- Body
- Tip
- Dorsum
- Inferior surface



- The dorsum is convex in all directions.
  - anterior 2/3
  - posterior 1/3

- These two meet at v shaped medial pit ‘ foramen caecum’
- Represents the site from which the thyroid diverticum grown in the embryo.
- The superior surface of oral part shows a medium furrow and is covered with papillae which make it rough
- The inferior surface is covered with a smooth mucous membrane which shows a median fold called frenulum lingulae, with lingual veins on either sides.



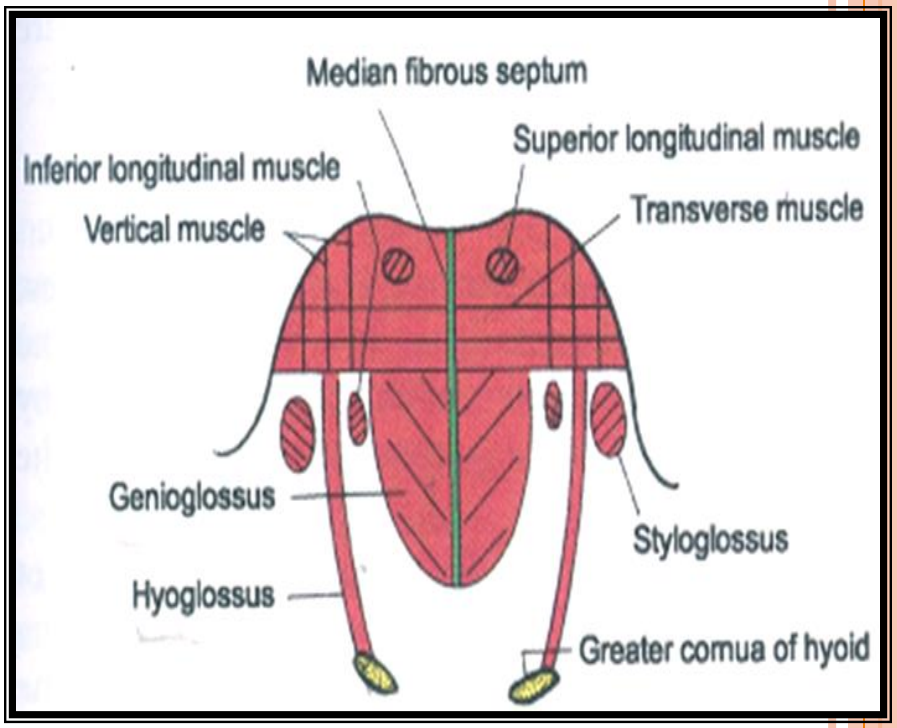
Muscles of tongue:

Intrinsic muscles:

- Superior longitudinal
- Inferior longitudinal
- Transverse
- Vertical

Extrinsic muscles:

- Genioglossus
- Hyoglossus
- Styloglossus
- Palatoglossus



PAPILLAE OF TONGUE:

Vallate papillae:

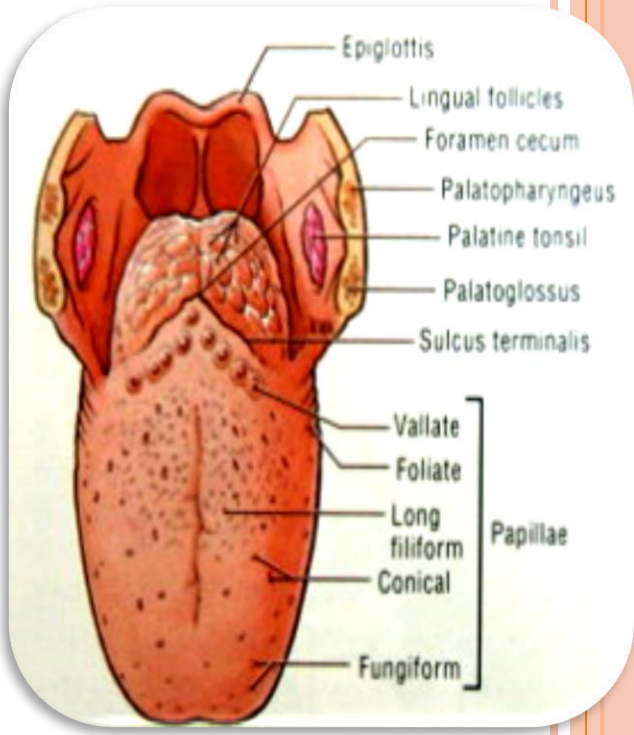
- Large sized, 1-2 mm and 8-12 in number.
- Present immediately in front of sulcus terminalis. Cylindrical projection surrounded by a circular sulcus

Fungi form papillae:

- Numerous near the tip and margins of tongue
- Smaller than Vallate papillae.
- Consists of narrow pedicle and a large rounded head
- Bright red color

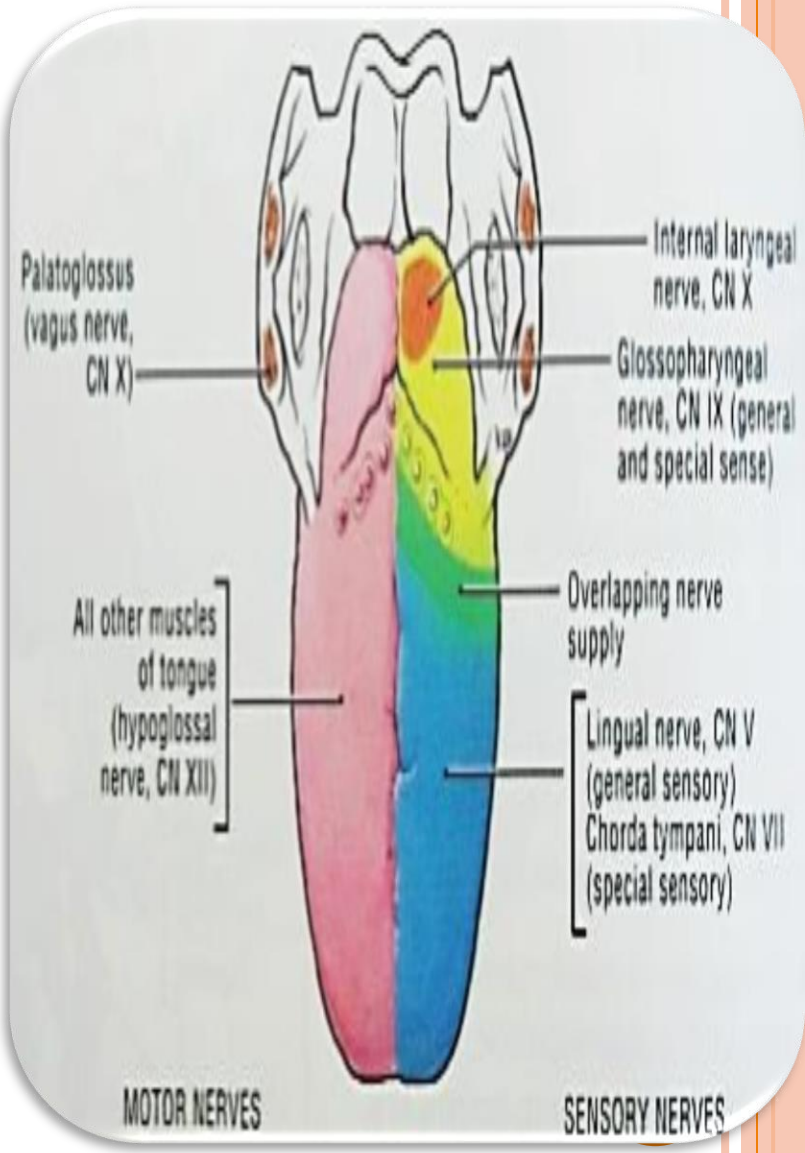
Filiform papillae:

- Cover the presulcus area of dorsum.
- Characteristic velvety appearance
- Smallest and numerous
- Pointed and covered wit keratin.



NERVE SUPPLY

- Motor supply: hypoglossal nerve (except palatoglossus - cranial part of accessory nerve)
- Sensory supply:- lingual nerve, chorda tymphani nerve
- Glossopharyeal nerve - general sensation and taste for post 1/3.



DEVELOPMENT OF TONGUE

Epithelium

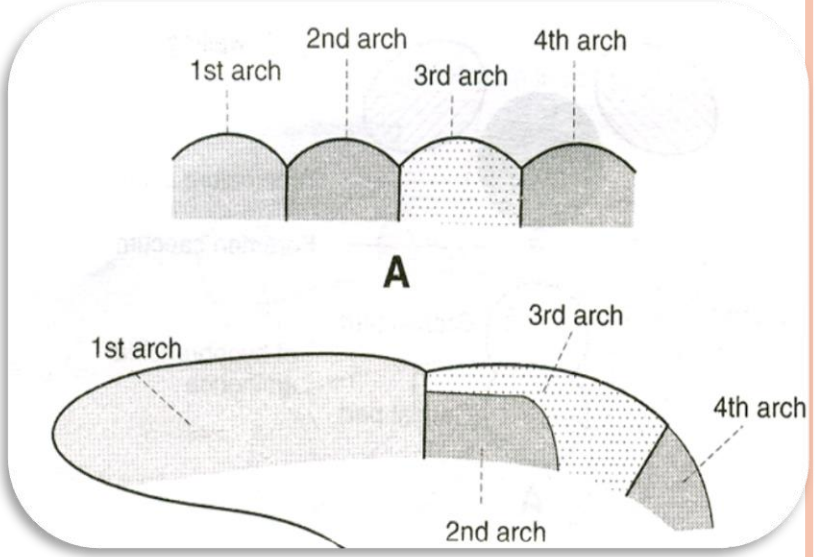
- Ant 2/3: from 2 lingual swellings and 1 tuberculam impar
- Post 1/3: from cranial part of hypobranchial eminence
- Posterior most: from 4th arch

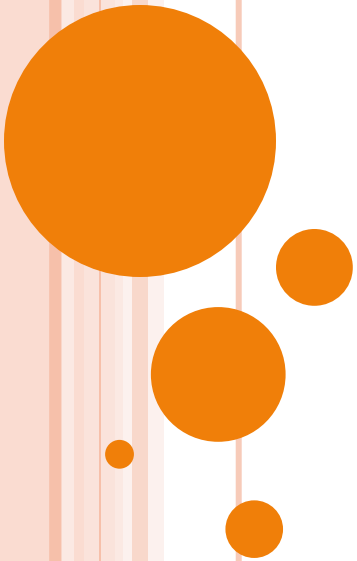
Muscles:

- Occipital myotomes

Connective tissue:

- From mesenchyme





CLASSIFICATION

INHERITED, CONGENITAL & DEVELOPMENTAL ANAMOLIES

- Variations in tongue morphology and function
  - Partial Ankyloglossia
  - Complete Ankyloglossia
- Fissured, Plicated or Scrotal tongue
- Thyroglossal Duct Cyst
- Lingual Thyroid
- Cleft, Lobed & Bifurcated tongue
- Aglossia (Hypoglossia)
- Macroglossia
- Bald or Depapillated tongue
- Localised enlargement and Papillomatosis

DISORDERS OF LINGUAL MUCOSA:

- CHANGES IN LINGUAL PAPILLAE
  - Geographic Tongue
  - Coated or Hairy Tongue
- NONKERATOTIC AND KERATOTIC WHITE LESIONS

  NON-KERATOTIC
  - Thrush
  - Burns
  - White Sponge Nevus
  - Pachyonychia Congenita

  KERATOTIC
  - Leukoplakia
  - Lichen Planus
- Nutritional deficiencies and hematologic abnormalities
- Medications
- Peripheral vascular disease

- Chronic candidiasis and median rhomboid glossitis
- Tertiary syphilis and interstitial glossitis
- Pigmentation
- Traumatic injuries, ulcers and infections
- Superficial vascular lesions

DISORDES AFFECTING LINGUAL MUCOUS GLANDS

- Sjogren's syndrome
- Ranula
- Cysts and Sialolithiasis

DISEASES AFFECTING THE BODY OF TONGUE

- Amyloidosis
- Infections
- Neuromuscular Disorders
- Obstructive Sleep Apnoea and Glossoptosis
- Neck-Tongue Syndrome
- Angioneurotic Edema

MALIGNANT TUMOURS OF TONGUE

- Squamous Cell Carcinoma
- Verrocous carcinoma

BENIGN TUMOURS OF TONGUE SIMULATING EPIDERMOID CARCINOMA

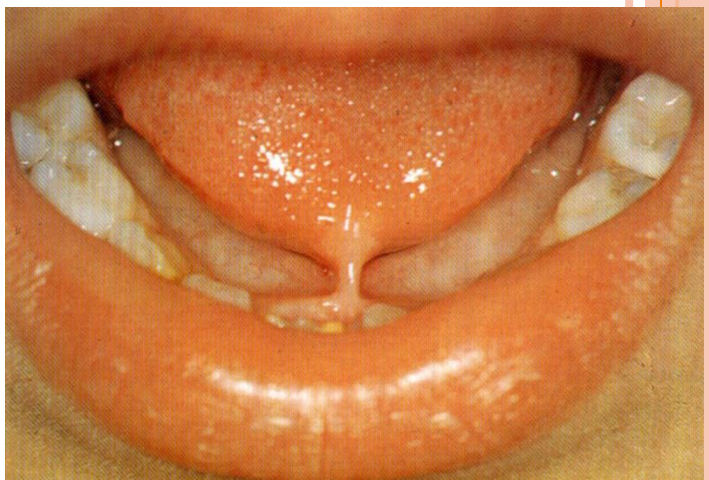
- Pseudoepitheliomatous Hyperplasia
- Papilloma
- Irritation Fibroma

ANKYLOGLOSSIA

- Inability to extend the tip of tongue beyond the vermilion border of lip or the line joining lip commissures.
- Reported to occur in neonates and more common in boys
- 2 types: Complete & Partial

Clinical Features:

- Tongue tie is associated with speech abnormalities esp lisping, and inability to pronounce certain sounds or words such as t, d, n, l, as, ta, time etc.
- Inability to chew some food, recurrent tongue biting, inability to clean the teeth and lick the lips
- Severe cases: along with mandibular diastema and lingual anterior pockets, anterior open bite



Syndromes associated:

- Oro-facial digital syndrome
- Van-der woude's syndrome
- Frazer's syndrome
- Trisomy 13 syndrome
- Fetal face syndrome

Treatment:

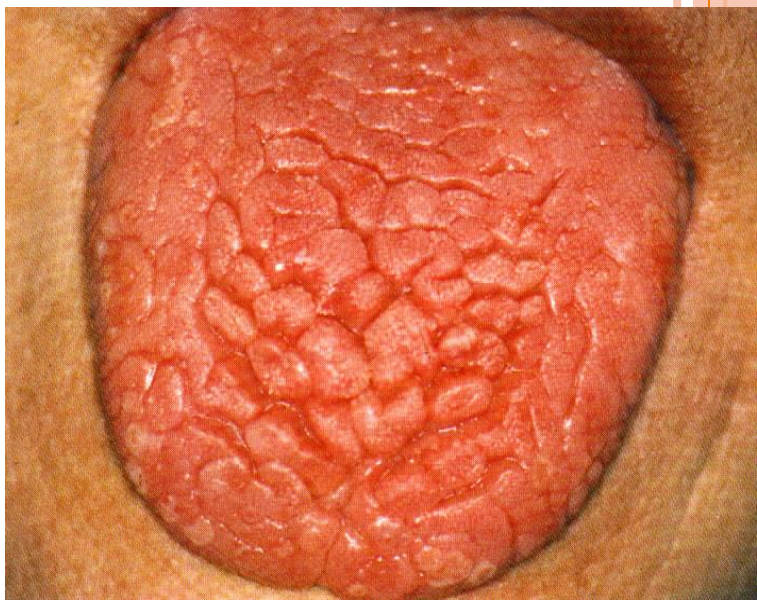
- Frenectomy
- In young children surgery is postpone until 4-5 yrs of age
- Speech therapy
- Psychiatric treatment.

FISSURED TONGUE:

- Synonym: Plicated, or scrotal tongue
- Unknown etiology affecting the tongues dorsal surface
- May be genetically determined polygenic trait
- Incomplete penetrance
- Aging and local environmental factors
- Frequency of fissured tongue is 4-5 times greater in institutionalized individuals, mentally retarded and psychotics.

Clinical Features:

- It is manifested as small furrows or grooves on the dorsal surface often radiating out from central groove along the midline of tongue.
- It ranges from 2-6 mm in depth.
- Usually asymptomatic



May be associated with:

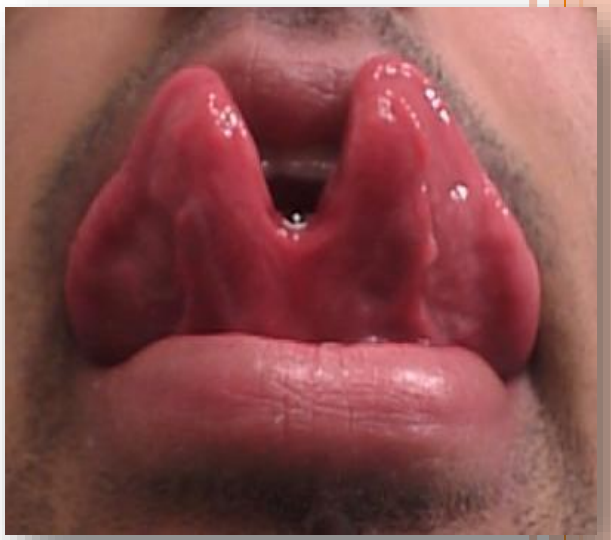
- Melkerson Rosenthal syndrome
- Downs syndrome
- Coffin- Lowry syndrome
- Orofacial digital syndrome
- Rabinow's syndrome

Treatment:

- No specific treatment as it is a benign condition
- Patient to be encouraged to clean the area with brush

CLEFT TONGUE

- Synonym: Lobed, Bifurcated and tetra furcated tongue
- A complete cleft or bifid tongue is rare condition that is apparently due to lack of merging of lateral lingual swellings.
- A partially cleft tongue is considerably more common and is manifested simply as deep groove in the midline of dorsal surface.
- The partial cleft results b'coz of incomplete merging and failure of groove obliteration by underlying mesenchyme.
- It is of less significance except that food debris and microorganisms may collect in base of tongue and cause irritation
- Syndromes:
  - Orofacial digital syndrome,
  - Meckel's syndrome,
  - Coffin-Lowry syndrome,
  - Robinow's syndrome

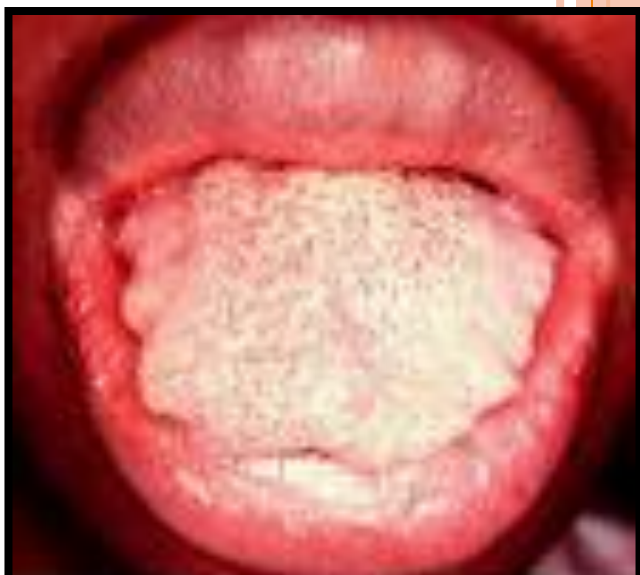


MACROGLOSSIA

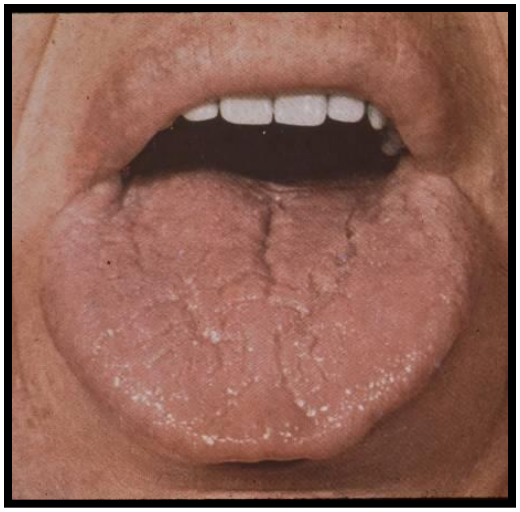
- Uncommon condition characterized by enlargement of tongue
- Classification: Congenital
  Acquired

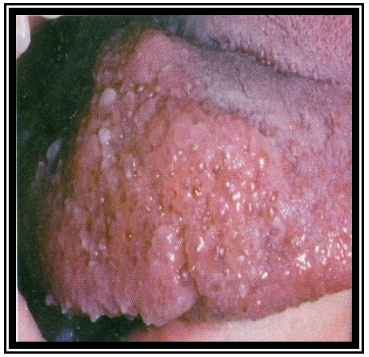
Causes:

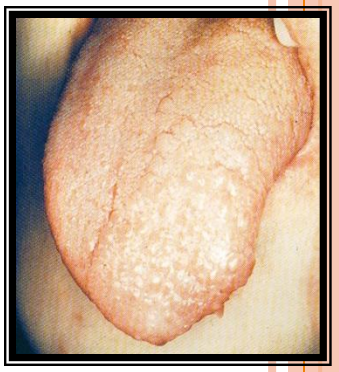
- Hypertrophic: muscles of the tongue are Hyperplastic
- Inflammatory: May involve the tongue partially or completely. Various causes include syphilis, Ludwig's angina
- Neoplastic: can be benign and malignant
- Relative macroglossia
- Apparent macroglossia



- Congenital and hereditary:
  - Vascular malformation
  - Hemi hyperplasia
  - Cretinism
  - Beckwith wideman syndrome
  - Down syndrome
  - Mucopolysaccharides
  - Neurofibromatosis
  - Multiple endocrine neoplasia
- Acquired:
  - Amyloidosis
  - Myxodema
  - Acromegaly
  - Angioedema
  - Carcinoma and other tumors







Clinical features:

- Most prominent in infants
- May manifest as noisy breathing, drooling & difficulty in eating, crenated lateral borders, open bite
- Severe macroglossia - airway obstruction.
- In some forms, the tongue usually has a multilocular appearance Eg: Amyloidosis, Neurofibromatosis, Men type 2b
- In lymphangioma, the tongue is pebbly & exhibits multiple vesicle like blebs

Treatment (Depends on cause and severity):

- Mild cases: no treatment necessary
- If speech is effected speech therapy
- Reduction glossectomy can be performed

GEOGRAPHIC TONGUE

- Synonym: Wandering rash of tongue, Erthyma migrans, Stomatits areta migrans, Migratory glossitis
- Unknown etiology, may be related to immunologic reaction, emotional stress, hereditary factors, Infections and nutritional deficiencies
- Prevalent in 1-3 % of population with female predilection
- Common in young and middle aged.

Clinical Features:

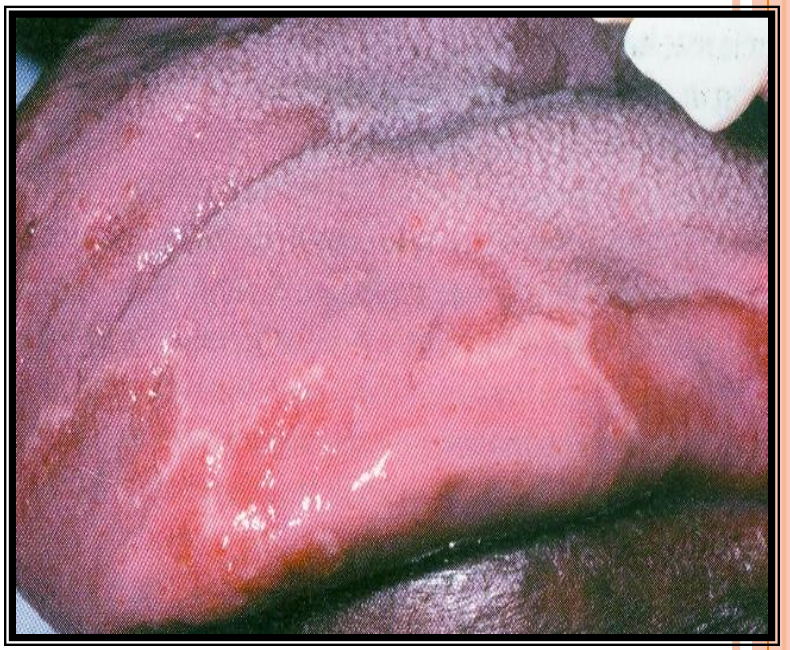
- Begin as small white patch and slowly develop a central erythematous atrophic zone and enlarges centrifugally.
- May appear as multiple, well demarcated zones of erythema, concentrated at tip, and lateral borders of tongue.
- Erythema is due to atrophy of Filiform papillae, surrounded by a slightly elevated yellowish white serpentine or scalloped borders.
- Appear at one area and quickly heal and develop at other areas.
- Asymptomatic, although burning sensation to hot, spicy foods may be noted.
- Should not be confused with Candidiasis and Erythroplakia.

Histopathologic Features:

- Filiform papillae are lost and at margins of the lesions, there is usually hyperparakeratosis and acanthosis.
- Marked migration of PMNS and lymphocytes into epithelium
- Degeneration of epithelial cells and micro abscess formation near the surface.

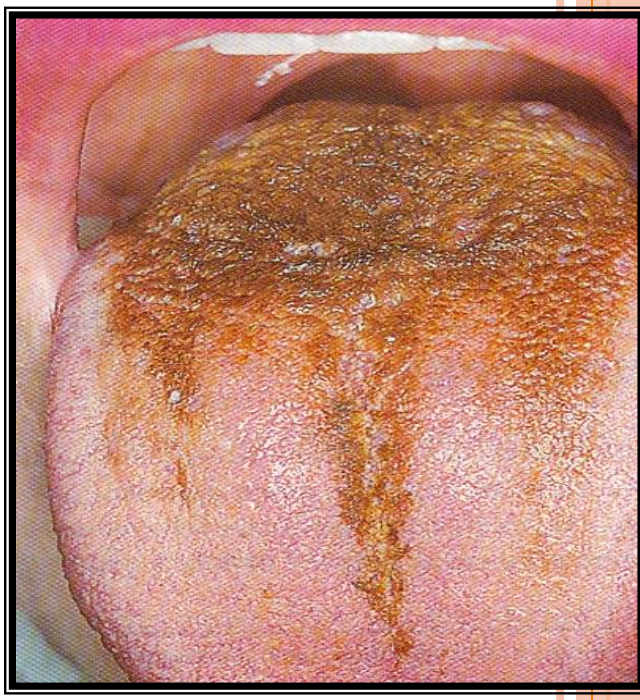
Treatment:

- For burning sensation, topical la agents like lidocaine,0.5% dicyclonine hydrochloride and diphenhydramine as mouth rinse over crushed ice before meals.



HAIRY TONGUE

- When the tongue movements are limited by illness or painful oral conditions, the Filiform papillae lengthen and become heavily coated with bacteria and fungi.
- The longer papillae give tongue coated or hairy appearance.



Etiology: Uncertain

Possible factors:

- Poor oral hygiene
- Oral use of certain drugs
- Debilitating diseases
- Use of mouthwashes/ antacids
- Overgrowth of fungal and bacterial organisms

Clinical Features:

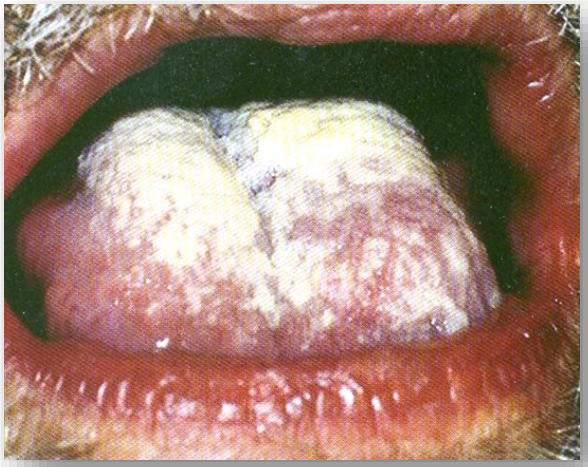
- Involves dorsum, middle and posterior 1/3rd, sparing lateral and anterior borders.
- Elongated papillae are usually brown, yellow or black as a result of growth of pigmentation producing bacteria or staining from tobacco and food.
- Matted thick appearance of tongue
- Condition is asymptomatic, although occasionally gagging sensation had been reported or bad taste in mouth

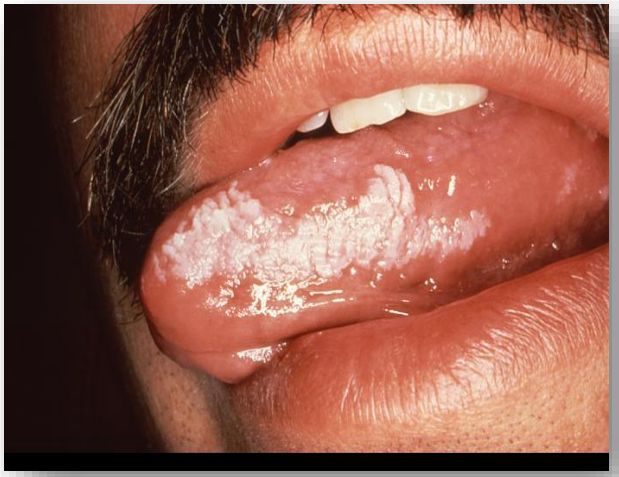
Treatment:

- Benign condition and no serious sequel.
- Oral hygiene to be maintained.
- Desquamated cells can be cleaned by brush or tongue scraper.
- Keratotic agents and topical application of podophyllin in acetone and alcohol suspension seems to be quite effective

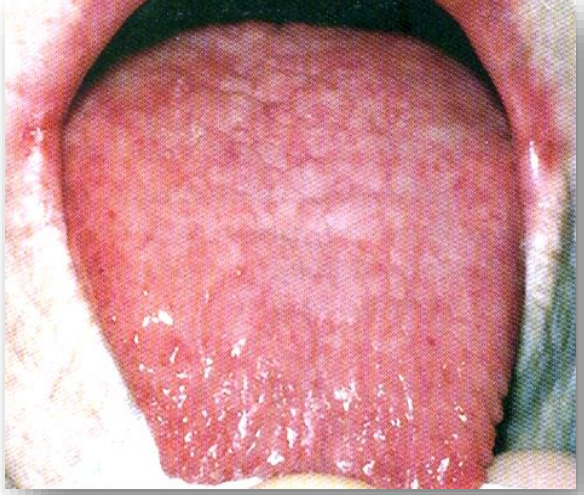
CANDIDIASIS

- Normal component of oral mucosa.
- Opportunistic infections are common, when there is change in oral environment brought about by diabetes, poor oral hygiene, chronic irritation, prolonged use of antibiotics, immuno compromised states., long term use of steroids.
- Acute Pseudomembraneous form is characterized by a soft yellowish white membrane resembling milky curds located on the dorsum of tongue and buccal mucosa which can be scrapped off leaving a raw bleeding surface

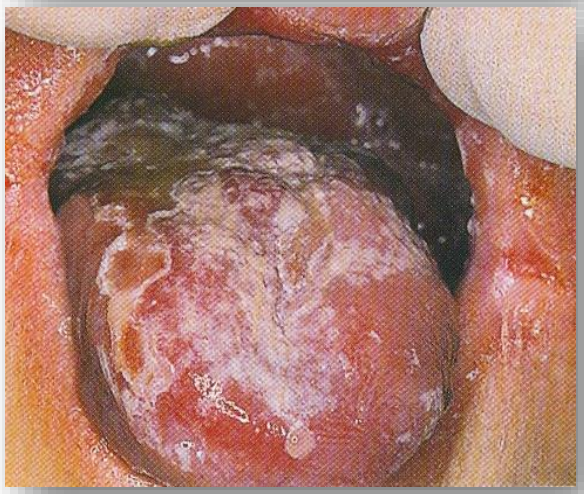




- Acute atrophic form is seen in adults, consists of varying sized painful, red atrophic areas on the dorsum of tongue.

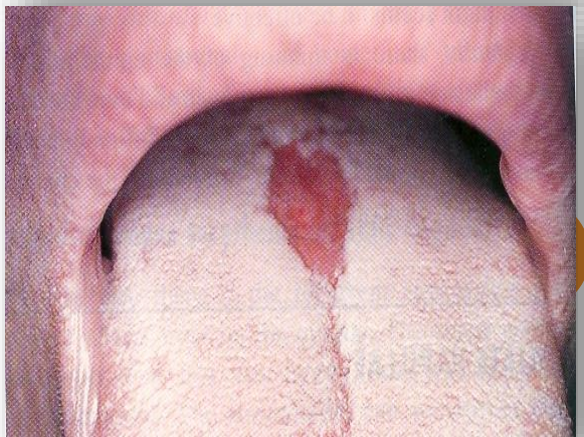


- Chronic Hyperplastic form: median rhomboid glossitis: appears as a painful persistent firm, white plaques or area of depapillation in the midline of dorsum of tongue



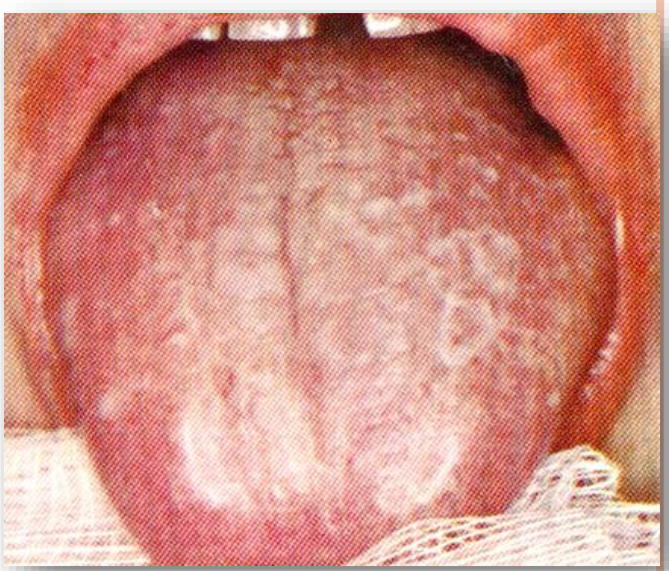
Management:

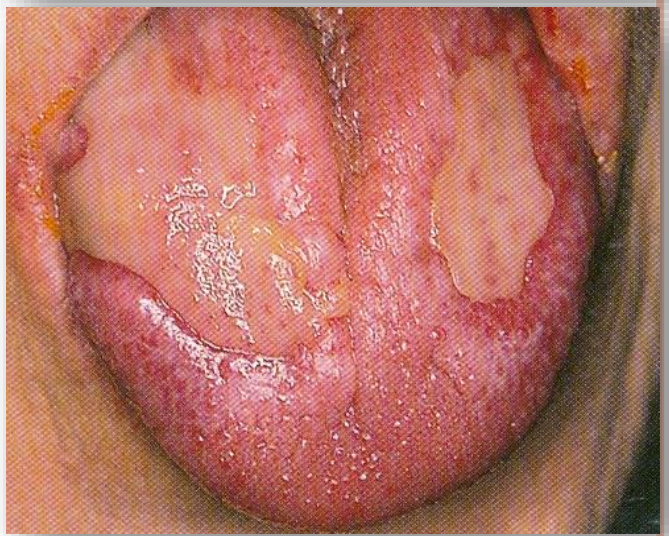
- Treating the predisposing cause and using antifungal therapy.



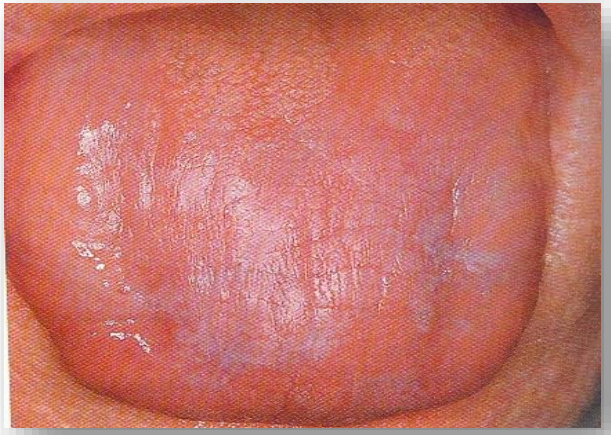
LICHEN PLANUS

- Can be plaque like, reticular, erosive, or atrophic.
- Early lesions usual appear as depapilated areas with irregular whitish borders located on dorsum of tongue.
- The plaque like lesions are raised white areas resembling leukoplakia from which it can only be distinguished histologically
- The erosive form occurs on the lateral borders as well as the dorsum and is typical with painful ulcers and a yellowish base.

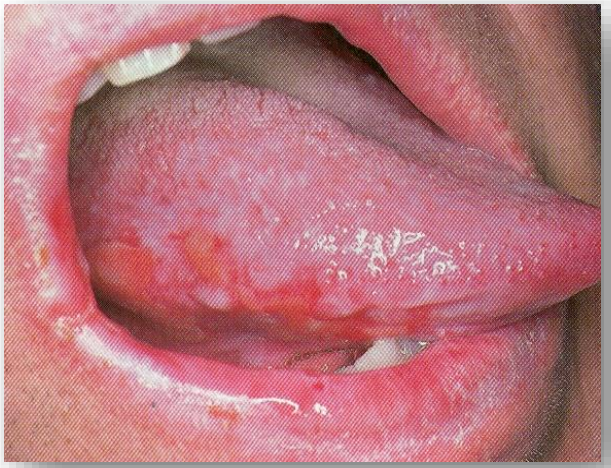


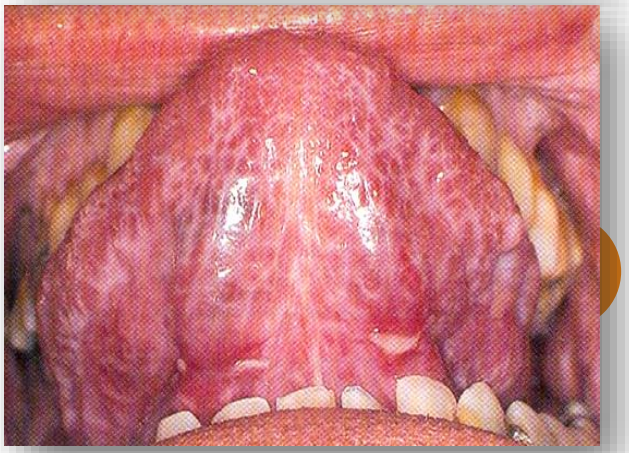


- The atrophic form may be seen in conjunction with the reticular or erosive areas and appears as smooth, red patches with very fine white striae



- Lichenoid reaction may occur that are drug induced, amalgam reaction, or develop as a part of graft versus host disease, HIV infection or hepatitis c virus infection. Often difficult to differentiate both.



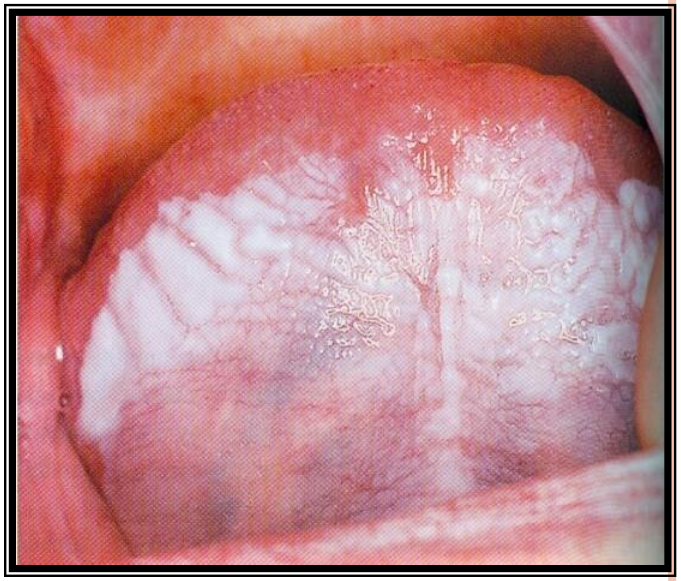


MANAGEMENT

- Asymptomatic LP require no treatment
- The erosive forms which are painful require topical anesthetic agents as well as steroid therapy
- Recalcitrant lesions can be managed by Intralesional steroid injections.
- Good oral hygiene and smoking cessation help improve symptoms
- Systemic immunosuppressive agents have also been used for severe LP unresponsive to other forms of treatment.

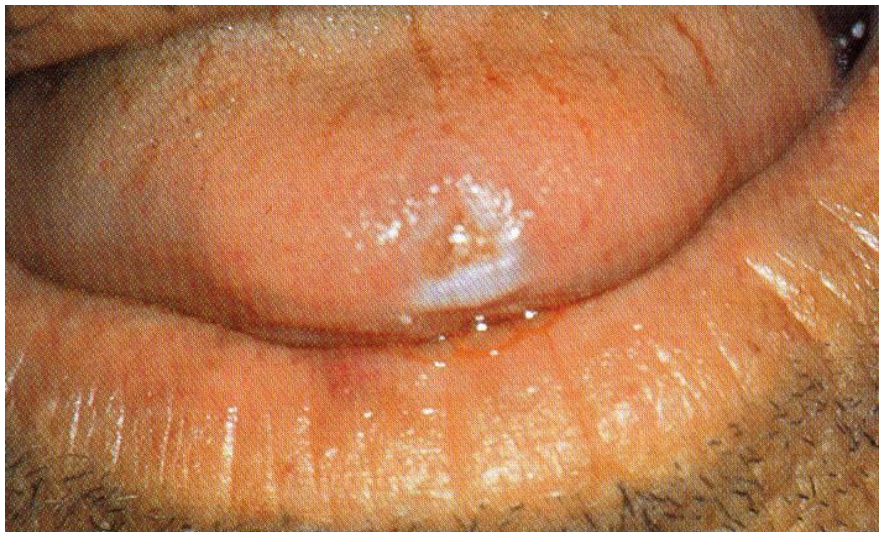
LEUKOPLAKIA

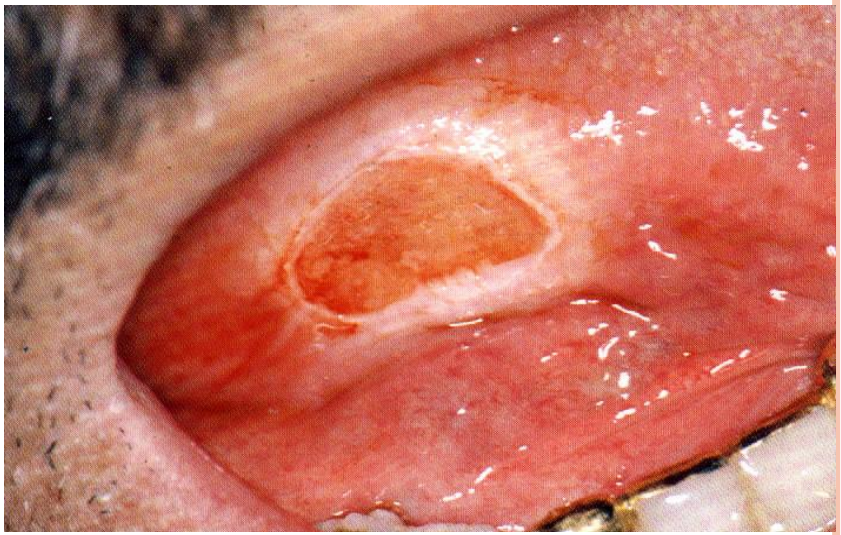
- Can occur in any part of oral cavity.
- It is confined to anterior 2/3 of tongue and gradually spreads to dorsum.
- The surface is fissured and cracked due to contraction of underlying scared tissue by chronic inflammation
- The affected area of tongue shows milky white patches which are not scrappable.
- In course of time the thickened area disappears and followed by smooth and red areas.



TRAUMATIC INJURIES

- Tongue may be repeatedly traumatized, either mechanically or clinically.
- Associated with jagged teeth, rough surfaces of restorations and inadvertent contact with dental medications such as phenol and eugenol.
- Localized area of depapilation are often noted with papillary regeneration around such areas.

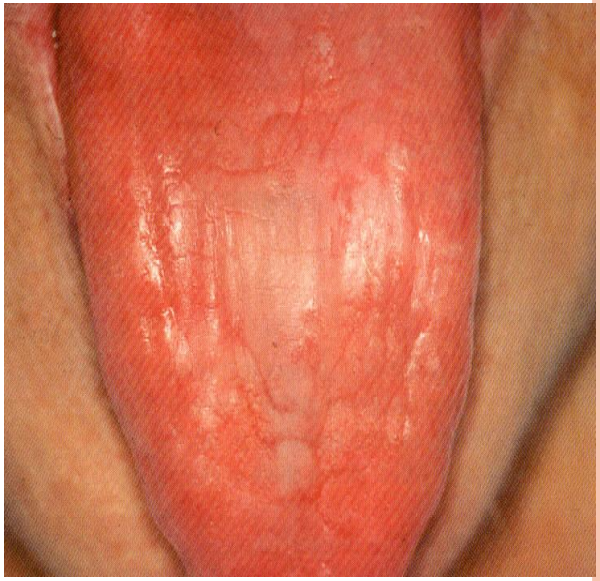


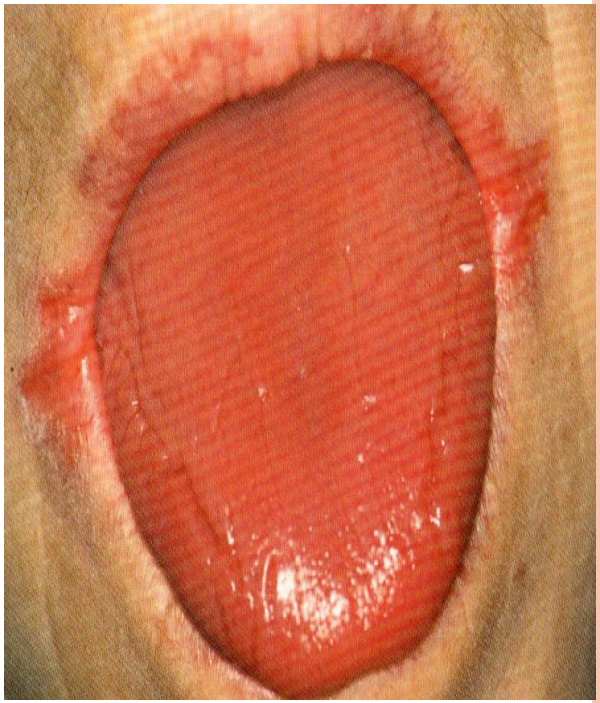


SYSTEMIC DISEASES

Iron deficiency anemia:

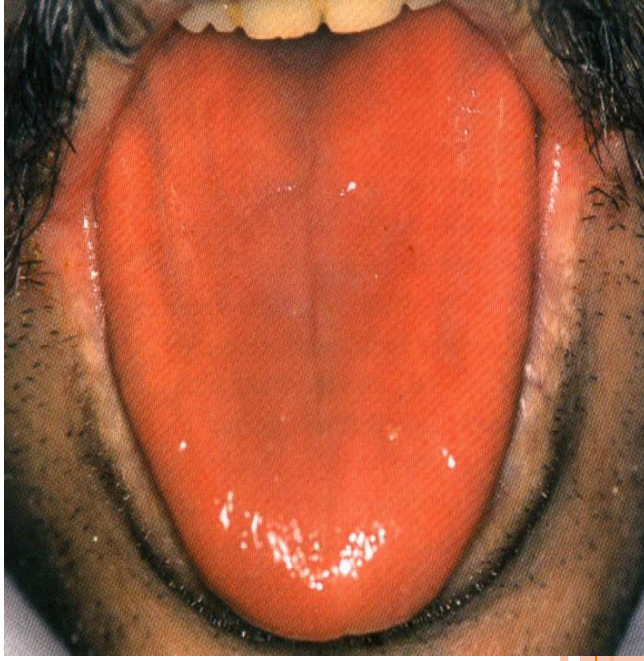
- Atrophic changes on the dorsum of the tongue is seen.
- First it appears at the tip and lateral borders with loss of Filiform papillae.
- In extreme cases, the entire dorsum becomes smooth and glazed.
- Tongue is very painful and is either pale and fiery red.
- Angular Chelitis is a commonly associated finding.
- Anemia pts often complains of weakness and dyspnoea on exertion and skin tends to be pale.





Pernicious anemia:

- General weakness and burning, itching sensation of oral mucosa.
- The tongue here becomes smooth, beefy, fiery red because of papillary atrophy.
- Lobulated appearance. Pain and burning sensation generally are present and associated disturbances in taste.



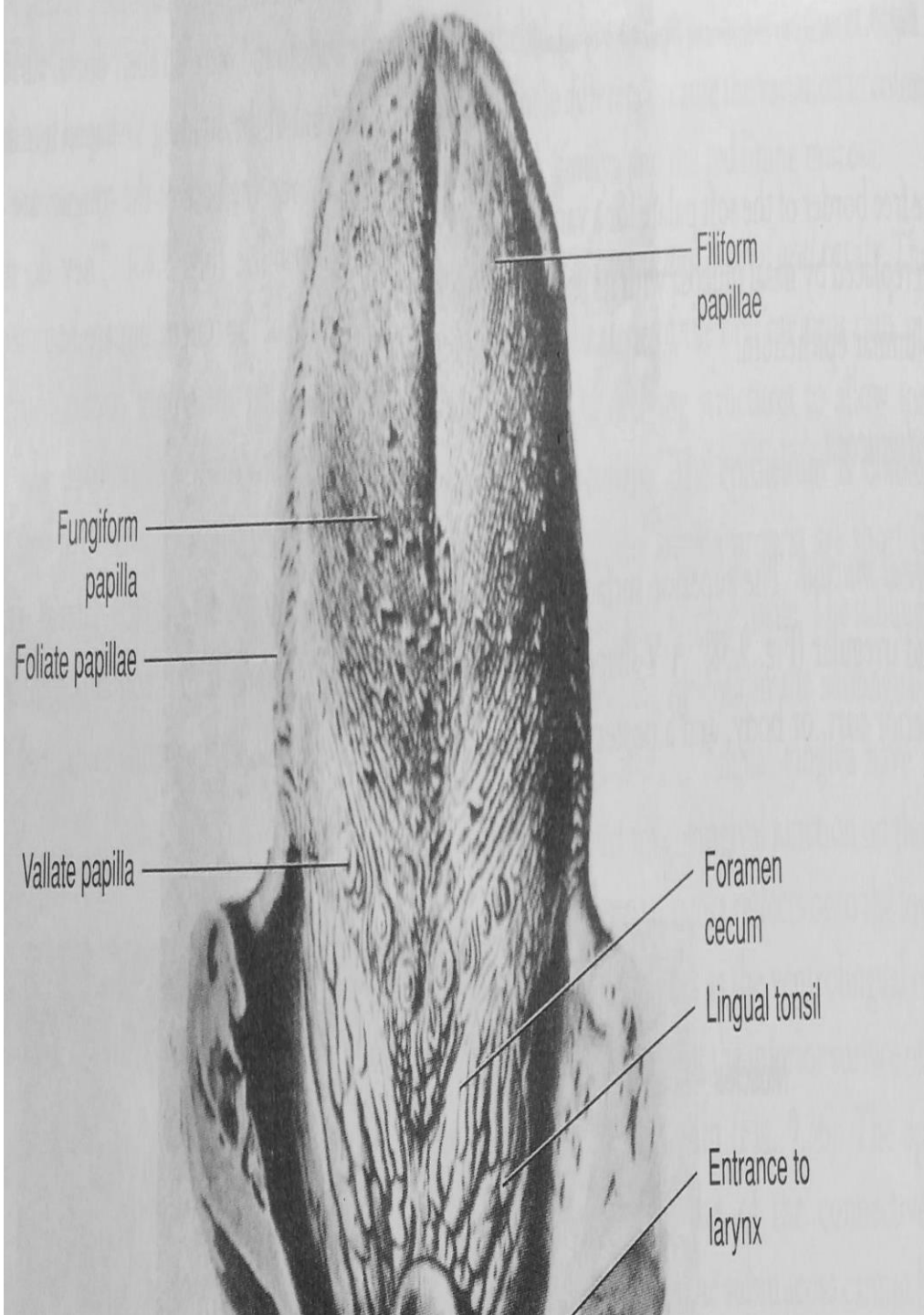
Niacin deficiency (Pellagra):

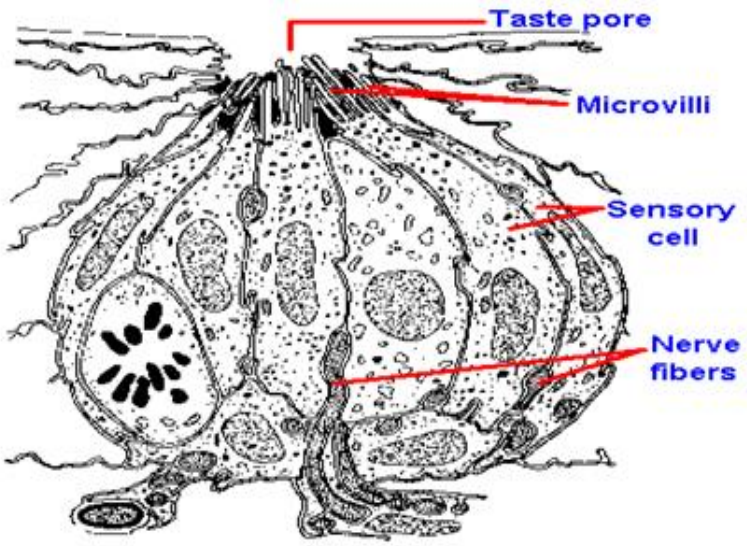
- The tip and lateral margins of the tongue become fiery red and devoid of papillae and swollen
- Filiform papillae are most sensitive and disappears first.
- The fungi form papillae may become enlarged.
- As swelling of tongue increases, indentation of teeth may be seen on the lateral margins of the tongue

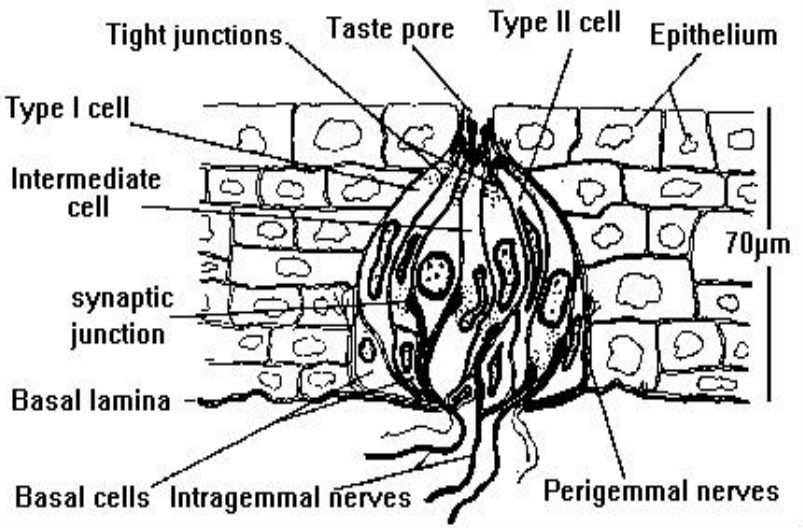
Terminology	Seen in
Interstitial glossitis, Luetic glossitis	Tertiary syphilis
Strawberry tongue, Rasberry tongue	Scarlet fever
Hunter's/Moeller's glossitis	B_{12} or folic acid deficiency
Bald tongues of sandwich	Niacin B_3 deficiency
Magenta coloured tongue	Riboflavin (B_2) deficiency

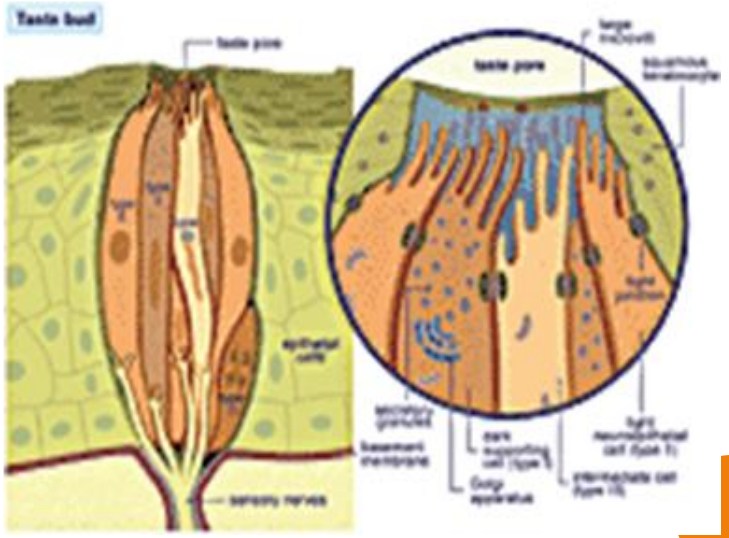
DISORDERS OF THE TASTE SENSATION

- Taste is a special sense.
- It is also a gustatory sensation.
- It is carried out by special sense organs like taste buds. Taste buds are ovoid bodies located on papillae present on dorsum of tongue and the number of taste buds varies with age.
- They are more in number in case of children. In old age many taste buds are degenerated and the sensitivity to taste becomes less.




Taste pore
Microvilli
Sensory cell
Nerve fibers


Tight junctions
Taste pore
Type II cell
Epithelium
Type I cell
Intermediate cell
70µm
synaptic junction
Basal lamina
Basal cells
Intragemmal nerves
Perigemmal nerves


Taste bud
taste pore
taste pore

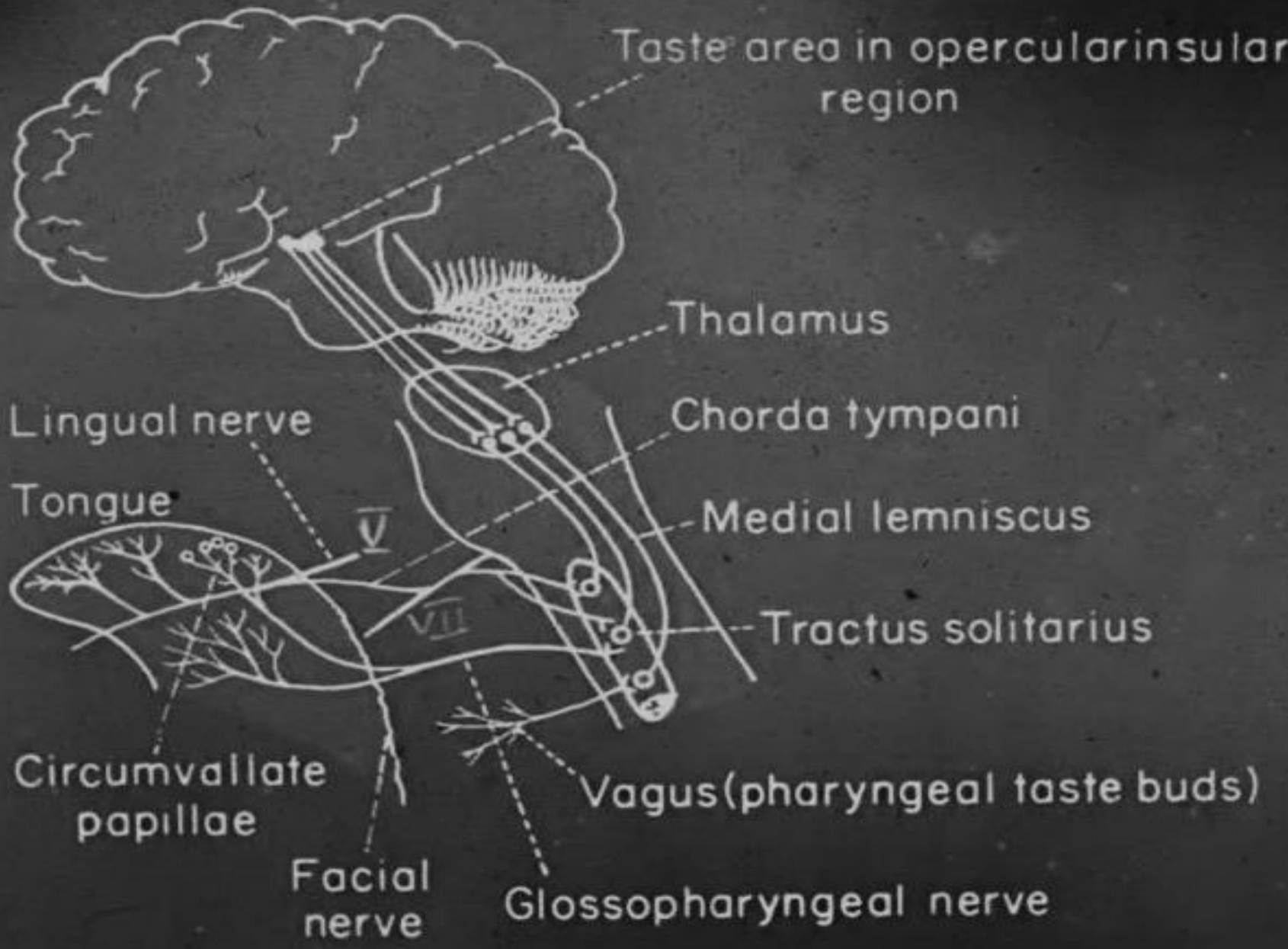


Figure 62–2. Transmission of taste impulses into the central nervous system.

AGEUSIA:

- Loss of taste sensation is called ageusia.
- Lesions in the facial nerve or chorda tympani or mandibular division of trigeminal nerve causes loss of taste sensation in the anterior 2/3rd of the tongue. Lesions in glossopharyngeal nerve leads to loss of taste in the posterior 1/3rd of the tongue.
- Temporary loss of taste sensation occurs due to the drugs like captopril & pencillamine which contain sulphydral group of substance.

HYPOGEUSIA

- The decrease in the taste sensation is known as hypogeusia.
- This is due to increase in the threshold for different sensations. However, the taste sensation is not completely lost.

DYSGEUSIA

- The disturbance in the taste sensation is called the dysgeusia.
- It is found in the temporal lobe syndrome, particularly when the anterior region of temporal lobe is affected.
- In this condition the paroxysmal hallucinations of taste & smell occur which are usually unpleasant.

TASTE BLINDNESS

- Taste blindness is a rare genetic disorder in which the ability to recognize substances by taste is lost.
- **Phenyl thiocarbomide** is a substance used for to test taste blindness. Many people are having blindness to this substance.

PARAGEUSIA

- An abnormal taste that is present only part of the time & does not always exclude other sensation

Cacogeusia

- One that is severe enough to prevent normal tasting & is experienced as a continuous, unpleasant sensation.

Aglycogeusia

- In which the affected individual is unable to distinguish sugar solutions from water.
- It is more commonly reported in patients of Pseudohypoparathyroidism.

LOCAL CONDITIONS

- Median Rhomboid Glossitis
- Benign Migratory Glossitis
- Hairy Tongue
- Foliate Papillits
- Depapillation of the tongue
- Leukoplakia
- Lichen planus:- plaque variety
- OSMF
- Oral Thrush
- Long standing Xeostomia
- Sjogrens syndrome
- Chronic trauma
- Surgical interruption of nerves supplying the taste buds

SYSTEMIC CONDITIONS

- Post- general & local anesthesia
- Hypothyroidism
- Fever
- Pseudohypoparathyroidism
- Respiratory Infection
- Cirrhosis
- Cushing's syndrome
- Zinc deficiency
- Hypertension
- Collagen diseases
- Craniofacial hypoplasia
- Leukemia
- Drugs: Vitamin deficiencies
- Scleroderma
- Dermatomyositis
- Diabetes
- Syphilis

THANK YOU