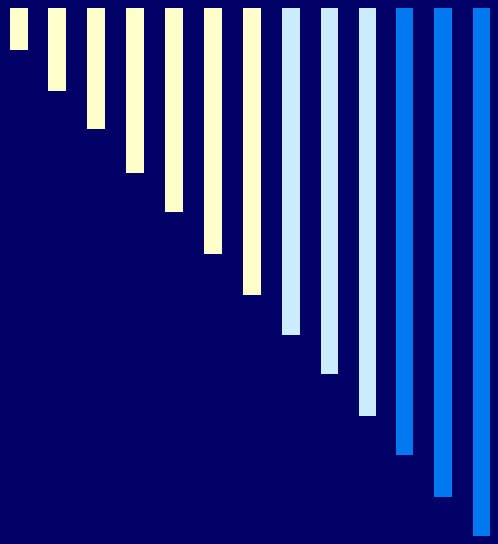


Soft tissue neoplasms

Soft tissue neoplasms

- Arising from connective tissue
  - Fibroblasts
  - Blood vessels
  - Nerve
  - Muscle
    - Skeletal
    - Smooth

Soft tissue neoplasms

- Fibroma
- Giant cell fibroma
- Inflammatory papillary hyperplasia
- Fibrous histiocytoma
- Pyogenic granuloma
- Peripheral giant cell granuloma
- Peripheral ossifying fibroma

Soft tissue neoplasms

- Neural:
  - Traumatic neuroma
  - Palisaded encapsulated neuroma
  - Neurilemmoma
  - Neurofibroma
  - Neurofibromatosis
- Neuro-endocrine:
  - Multiple endocrine neoplasia
  - Melanotic neuroectodermal tumor of infancy

Soft tissue neoplasms

- Vascular
  - Hemangioma
  - Vascular malformations
  - Sturge-weber syndrome
  - Hemangiopericytoma
  - Lymphangioma
- Muscle:
  - Leiomyoma
  - Rhabdomyoma

Malignant Soft tissue neoplasms

- Fibrosarcoma
- Malignant fibrous histiocytoma
- Liposarcoma
- Malignant schwannoma
- Malignant peripheral nerve sheath tumor
- Angiosarcoma
- Kaposi's sarcoma
- Leiomyosarcoma
- Rhabdomyosarcoma
- Synovial sarcoma
- Alveolar soft part sarcoma
- Metastasis to oral tissues.

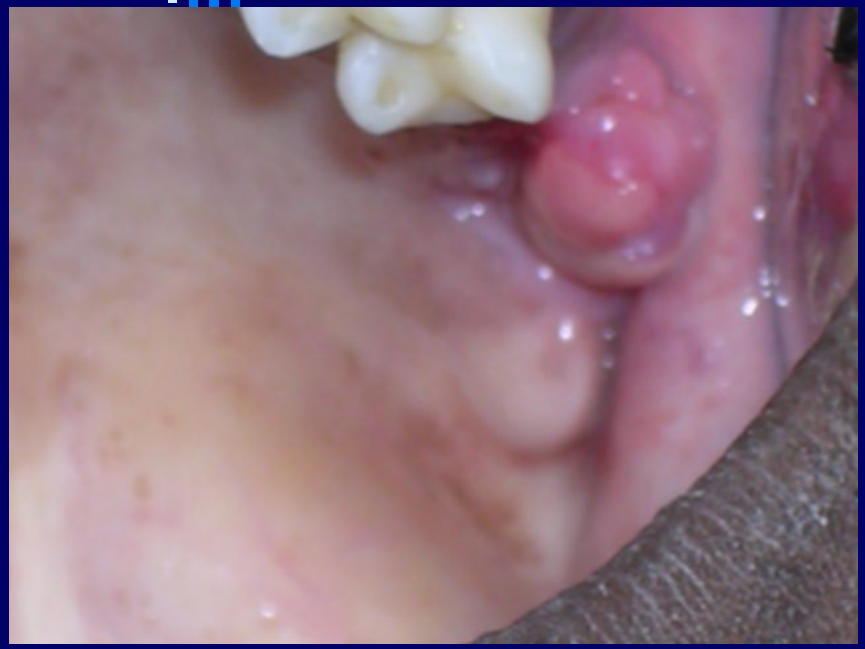
Fibroma

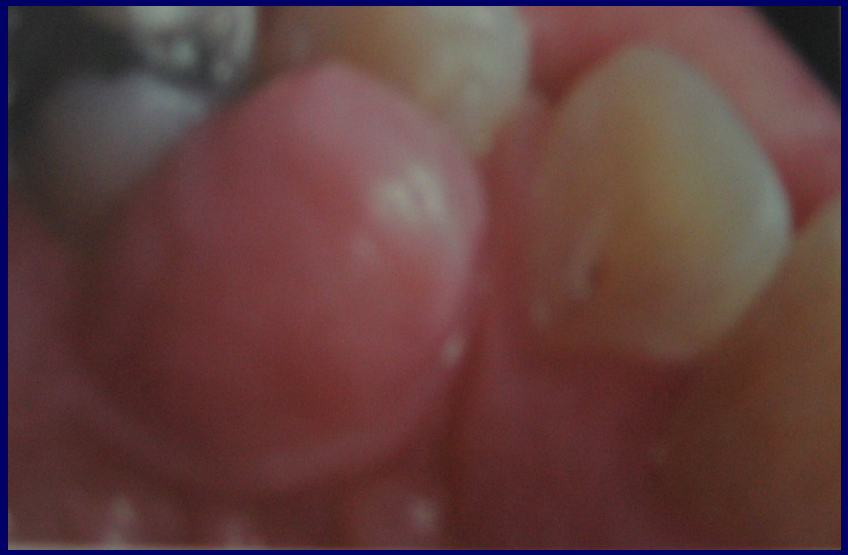
- Also called irritation fibroma, traumatic fibroma
- Most common tumor of the oral cavity
- It is a reactive hyperplasia of fibrous connective tissue in response to local irritation

Clinical features

- Common in buccal mucosa along the occlusal line, labial mucosa, tongue and gingiva
- Could represent fibrous maturation of a pre-existing pyogenic granuloma
- Smooth surfaced, sessile, pink nodule about 0.5cm in diameter,
- 4^{th}-6^{th} decades, in females

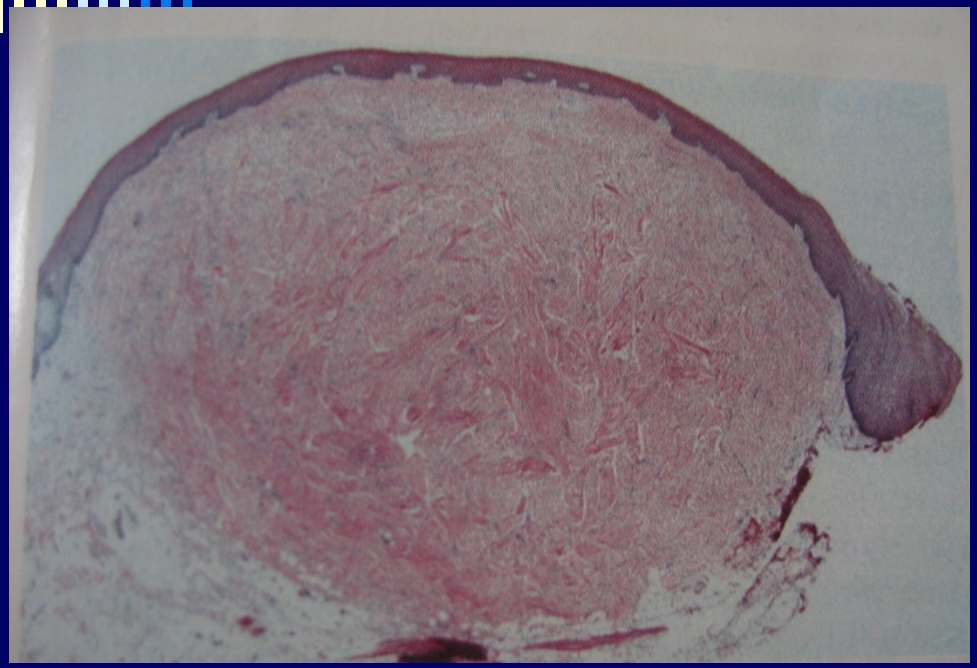
Fibroma

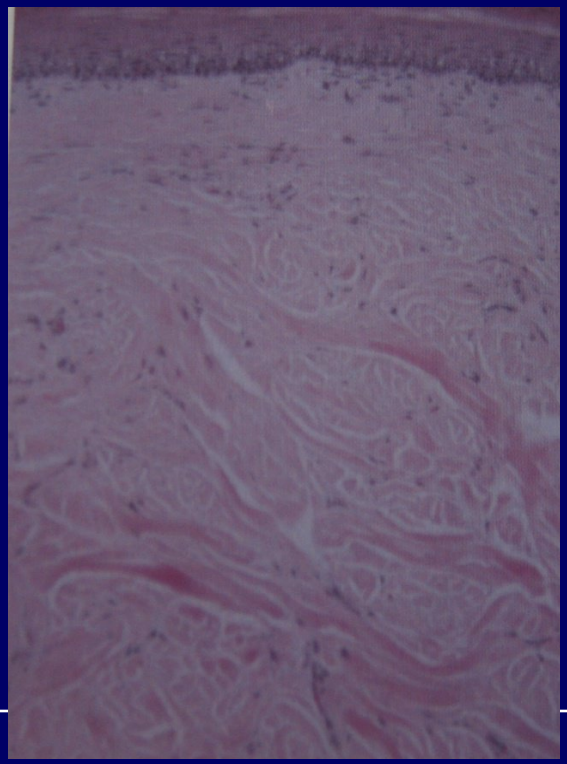




Histopathology

- Nodular mass of fibrous connective tissue covered by stratified squamous epithelium.
- CT is dense and collagenized and it blends gradually into the surrounding connective tissue
- Overlying epithelium could be atrophic and minimal inflammation.



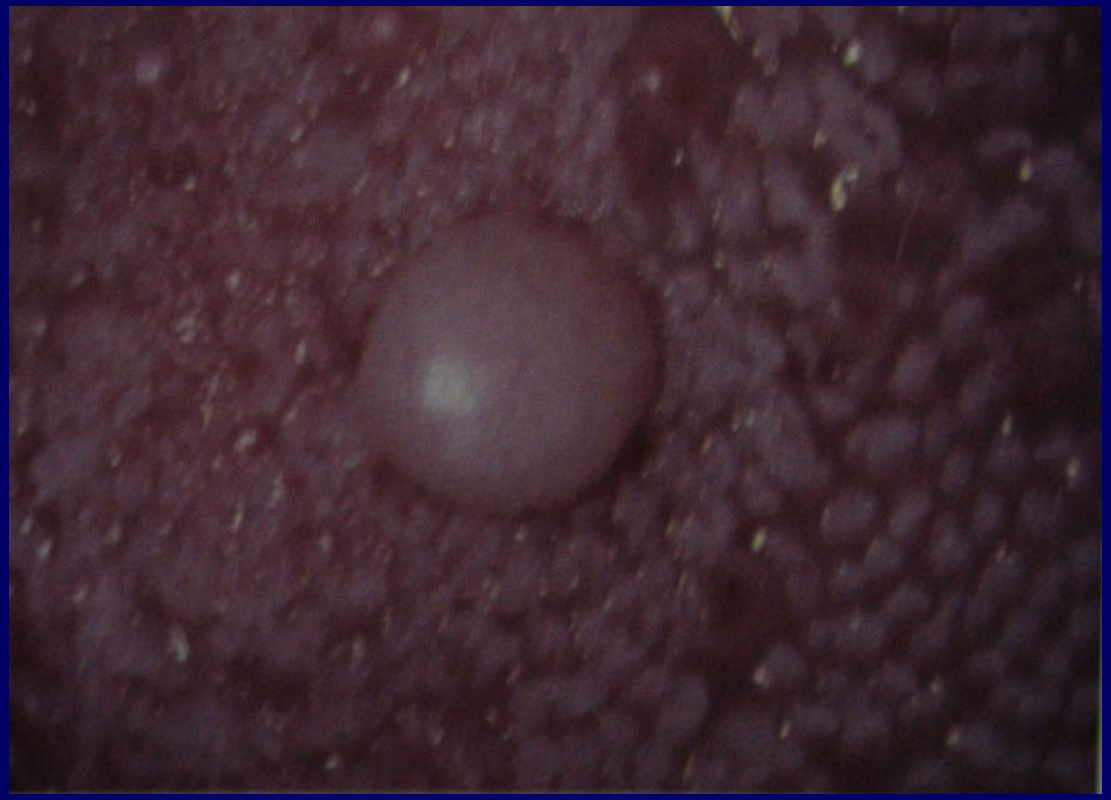


Ttt and prognosis

- Surgical excision
- Recurrence is extremely rare

Giant cell fibroma

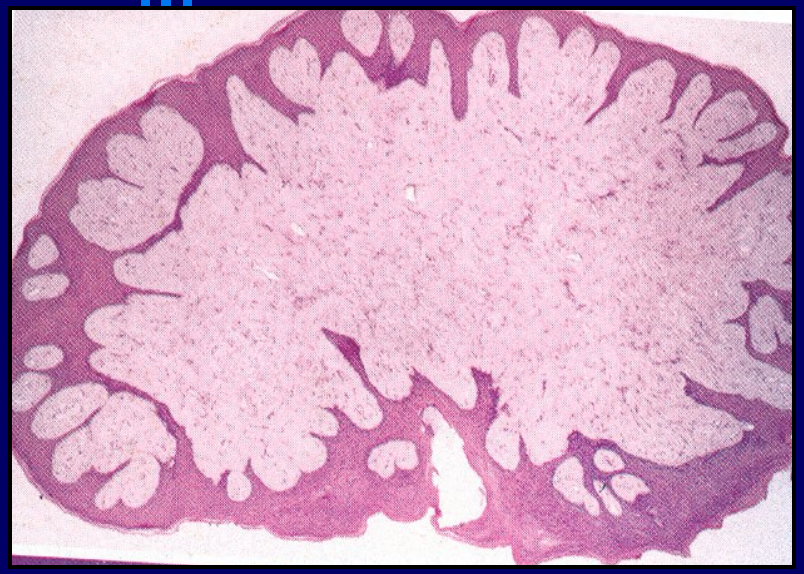
- Fibrous tumor not associated with chronic irritation
- Asymptomatic, sessile or pedunculated nodule, <1cm in size, papillary surface
- Usually in first three decades of life
- Predominantly in gingiva – mandible
- D/D Retrocuspid papilla – developmental lesion, bilateral, anatomical variation that disappears with age.

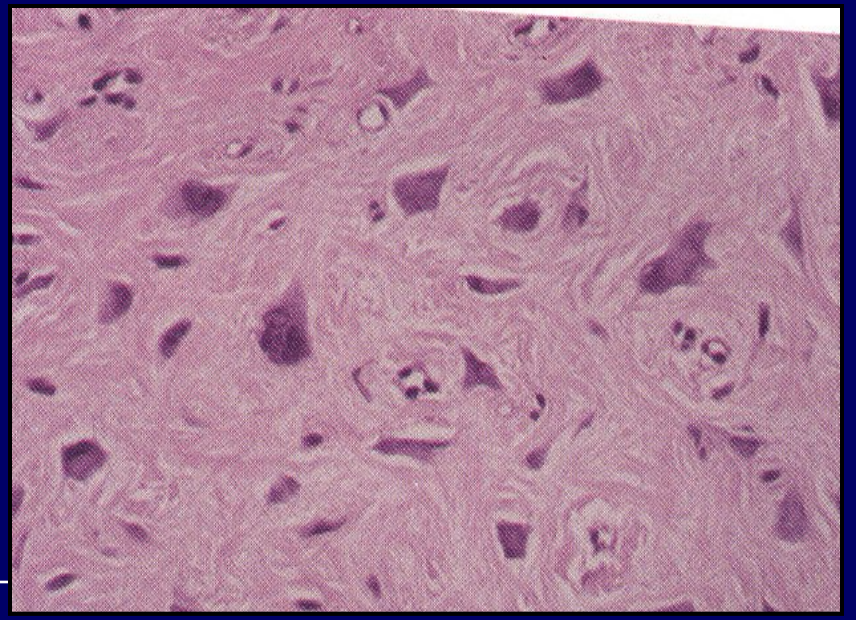


Histopathology

- Mass of vascular, loosely arranged, fibrous connective tissue
- Numerous large, stellate fibroblasts within the superficial connective tissue
- Cells may have multiple nuclei
- Overlying epithelium is thin and atrophic

GC fibroma





Ttt and prognosis

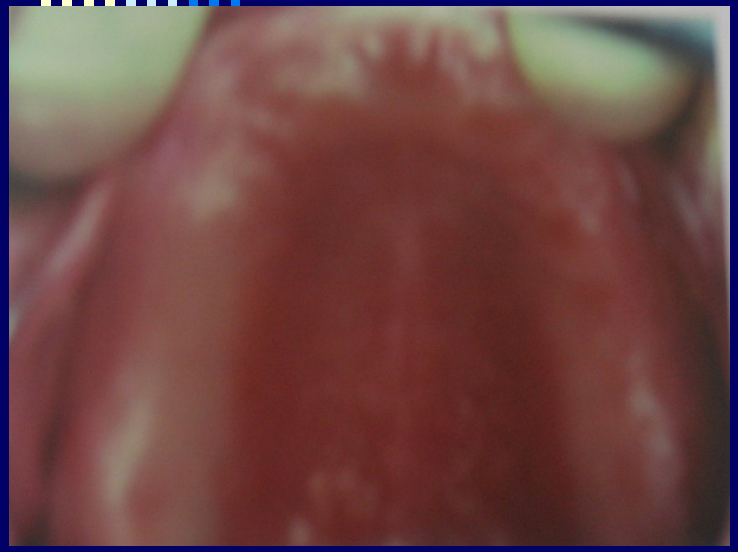
- Conservative surgical excision
- Recurrence is rare

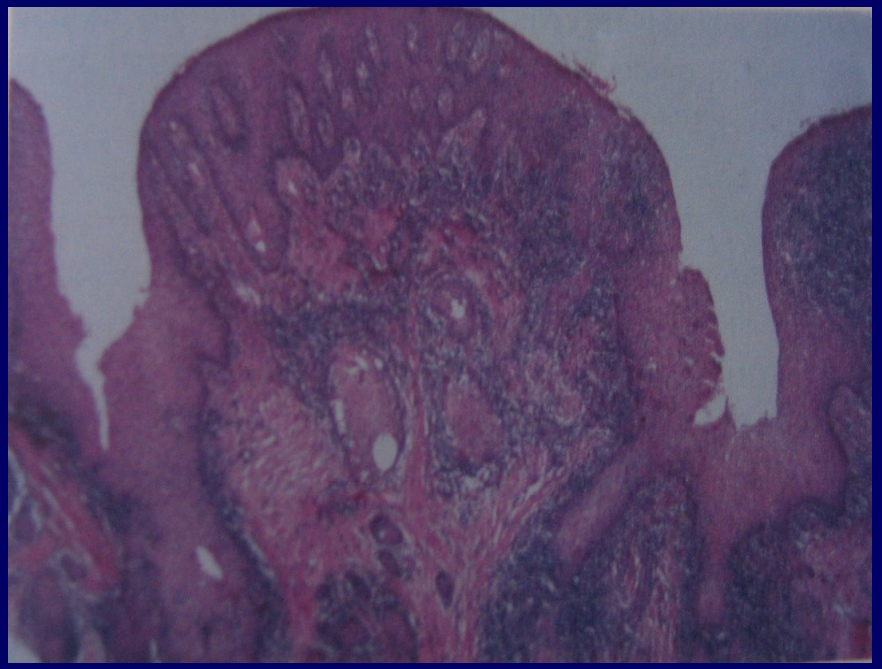
Inflammatory papillary hyperplasia

- Called denture papillomatosis
- Is a reactive tissue growth that usually develops beneath a denture
- Related to
  - Ill fitting denture
  - Poor denture hygiene
  - Wearing the denture 24hrs a day
- Could be related to candida

Clinical features

- In the hard palate beneath a denture base
- Can also be seen in
  - Mouth breathers
  - With high palatal vault
  - Candida associated with HIV
- Asymptomatic, erythematous and has a pebbly or papillary surface
- Early to advanced stages





Histopathology

- Numerous papillary growths on the surface
- Hyperplastic stratified squamous epithelium with pseudo-epitheliomatous hyperplasia – Mistaken for SCC
- CT is loose and edematous to densely collagenized
- Chronic inflammatory cell infiltrate with lymphocytes and plasma cells

Ttt and prognosis

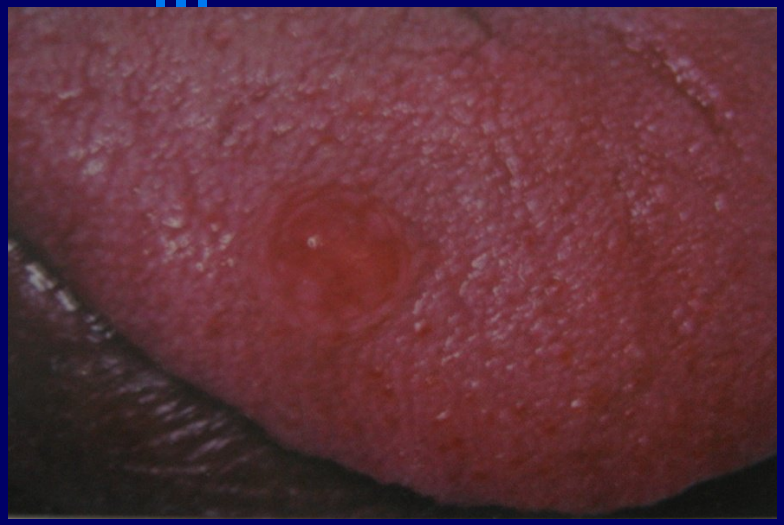
- Removal of denture – lesion subsides
- Excision in advanced stages
- Use a tissue conditioner beneath the denture to facilitate healing.

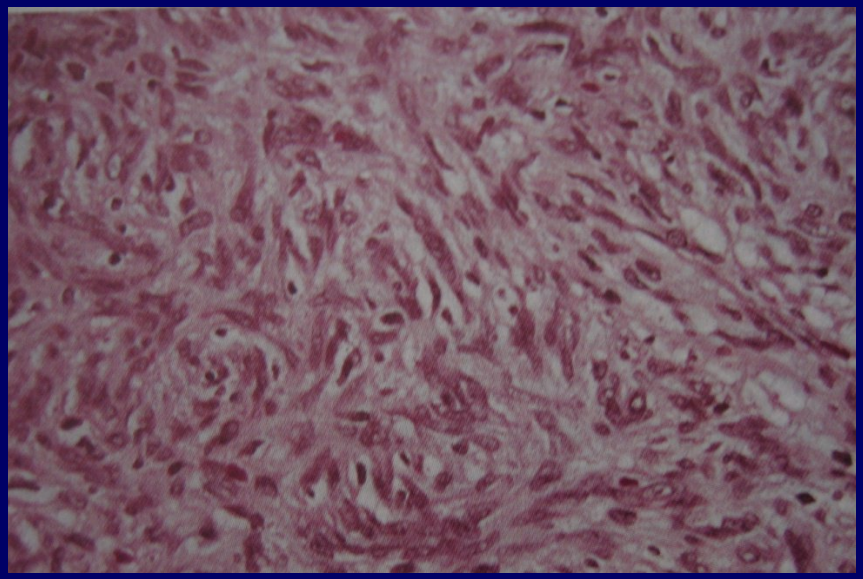
Fibrous histiocytoma

- Exhibits both fibroblastic and histiocytic differentiation
- Cell of origin is not certain – arise from the tissue histiocyte which then assumes fibroblastic properties
- It is a true neoplasm

Clinical features

- In middle aged and older adults
- Painless nodular mass
- Uncommon in Oral and peri-oral region
- Seen in buccal mucosa and vestibule





Histopathology

- Cellular proliferation of spindle shaped fibroblastic cells with vesicular nuclei.
- Tumor cells are arranged in short, intersecting fascicles – storiform pattern – resembling a straw mat
- Rounded histiocytic cells, xanthoma cells and multinucleated giant cells can be seen.

Ttt and prognosis

- Local surgical excision
- Recurrence is rare

Fibromatosis

- True neoplasm
- Intermediate between benign fibrous lesions and fibrosarcoma
- In children and young adults
- In paramandibular soft tissue region
- Spindle shaped cells in streaming fascicles, poorly circumscribed and infiltrates
- No pleomorphism or hyperchromatism
- Locally aggressive, wide excision and could recur.

Myofibromatosis

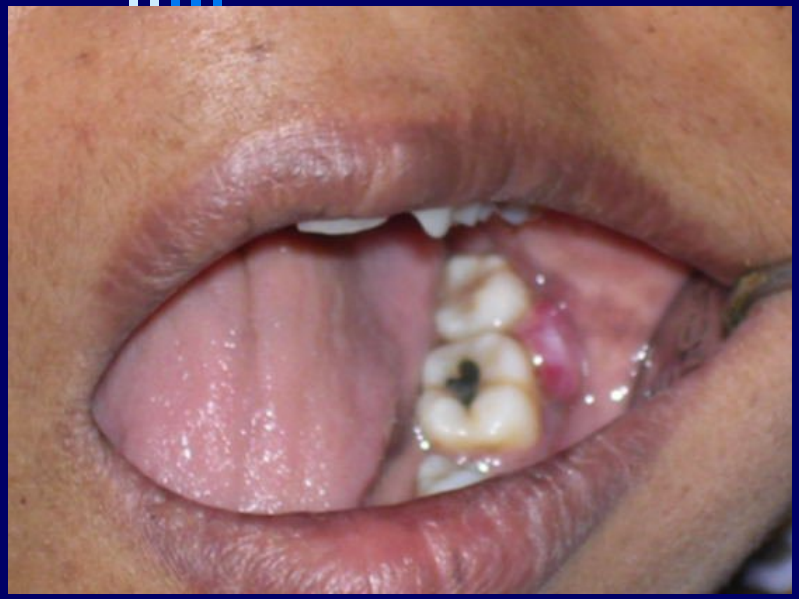
- Rare spindle cell neoplasm with myofibroblasts – both smooth muscle and fibroblastic features.
- Predilection for head and neck – mandible
- Biphasic with nodular fascicles with cellular areas.
- Spindle cells with tapered or blunt ended nuclei.
- Surgical excision.

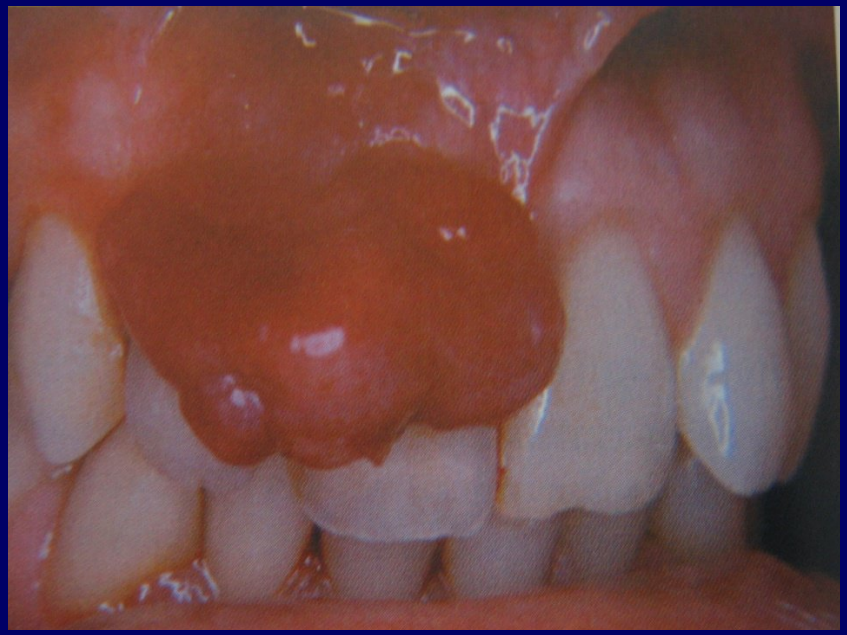
Pyogenic granuloma

- Common tumor like growth – non-neoplastic
- Thought to be caused by pyogenic organisms – now it is proven wrong
- Represents an exuberant tissue response to local irritation or trauma

Clinical features

- Most common in children and young adults.
- Smooth or lobulated, pedunculated mass with an ulcerated surface
- Pink to bright red to purple based on its duration
- Mass is painless, it often bleeds easily because of its extreme vascularity.
- Maxillary anterior gingiva, lips, tongue and buccal mucosa



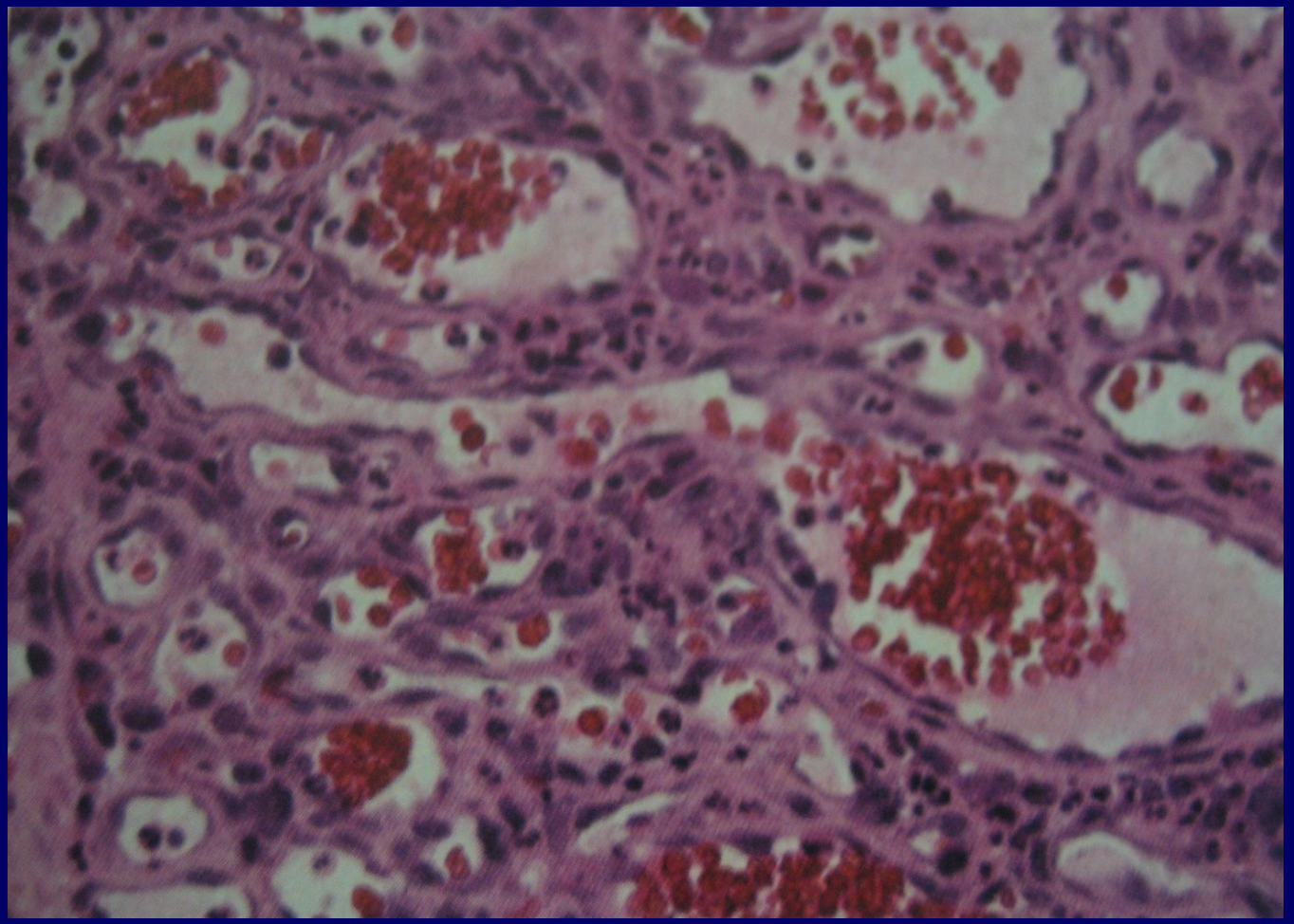


Clinical features

- In pregnant women – Pregnancy tumor or Granuloma gravidarum. Could be related to altered hormone levels.
- Hyperplastic growth of granulation tissue from the healing extraction sockets – Epulis granulomatosa

Histopathology

- Highly vascular proliferation resembling granulation tissue
- Numerous small and large endothelium lined channels with red blood cells
- Surface is usually ulcerated and replaced by a thick, fibrinopurulent membrane
- Mixed inflammatory infiltrate with
  - Neutrophils near the surface
  - plasma cells and lymphocytes in the deeper regions
- Gingival fibromas could be matured pyogenic granulomas.



Ttt and prognosis

- Conservative surgical excision
- Proper oral hygiene maintenance

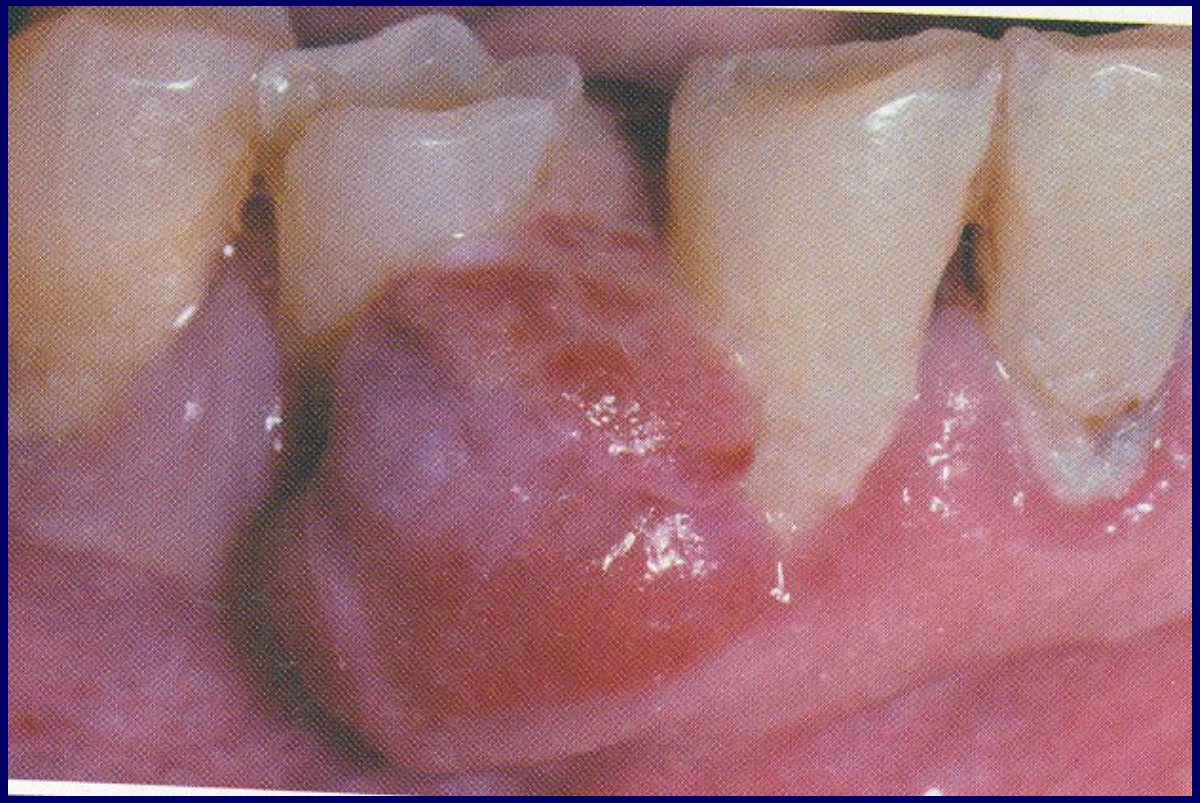
Peripheral giant cell granuloma

- Reactive lesion to local trauma or irritation
- The giant cells shows features of
  - Osteoclasts
  - From mononuclear phagocyte system
- May represent the peripheral counterpart of central giant cell granuloma

Clinical features

- Exclusively in the gingiva or edentulous alveolar ridge
- Red or reddish blue or bluish purple nodular mass
- Peak prevalence in fifth and sixth decades – predominantly females
- Cupping resorption of underlying bone could be seen.

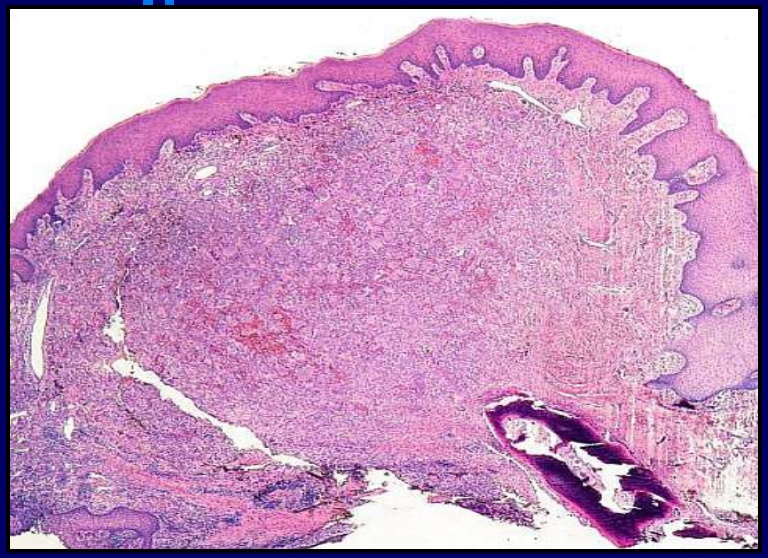
Peripheral GCG

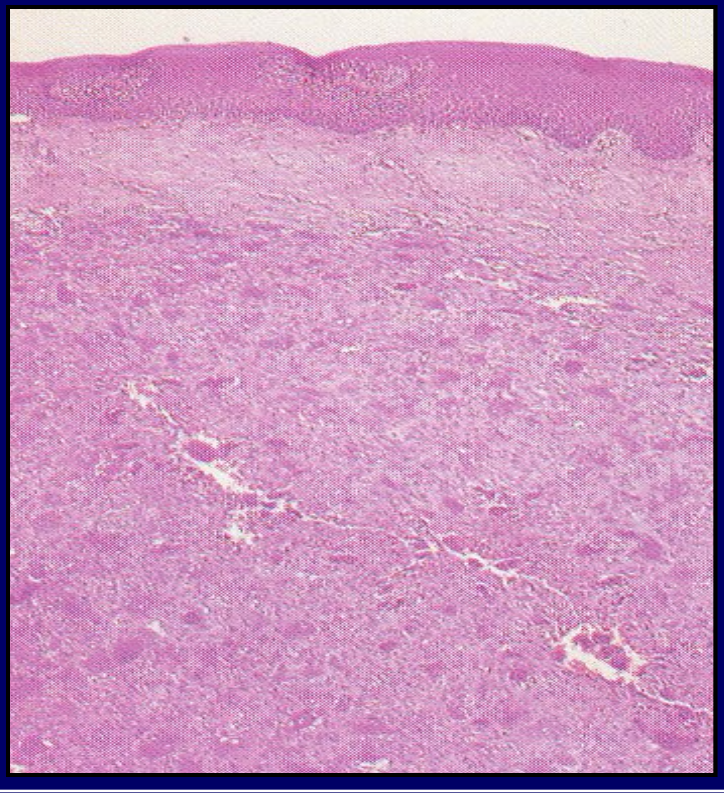


Histopathologic features

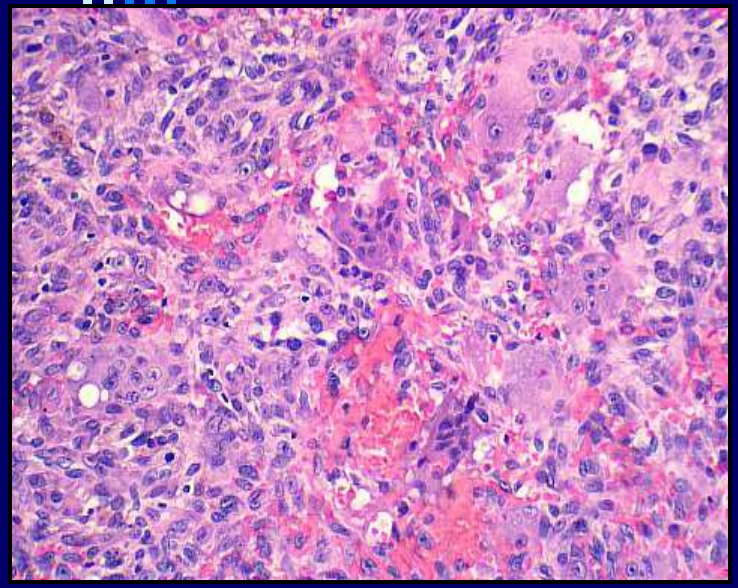
- Proliferation of multinucleated giant cells within a background of plump ovoid and spindle shaped mesenchymal cells
- Giant cells may have few nuclei upto several dozen nuclei
- May have large, vesicular to small, pyknotic nuclei
- Abundant hemorrhage throughout the mass, especially at the periphery
- Zone of dense connective tissue between the overlying epithelium and the giant cell proliferation.

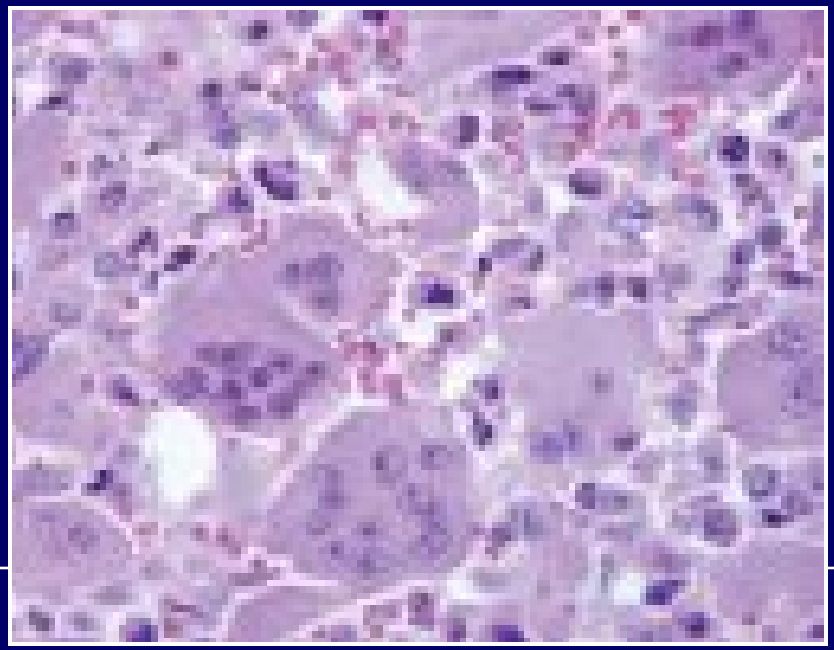
Peripheral GCG





Peripheral GCG





Ttt and prognosis

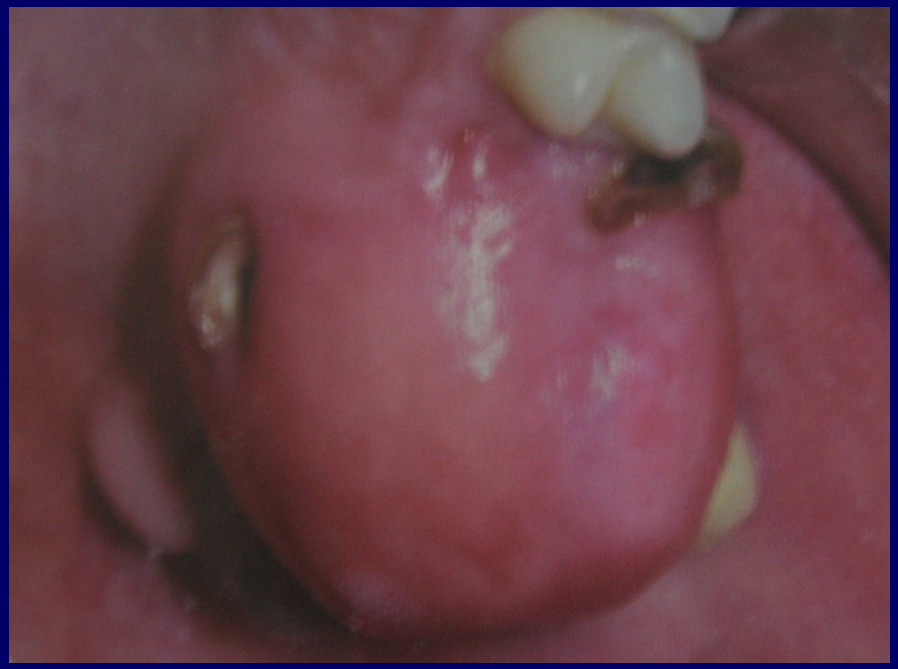
- Local surgical excision
- Rule out hyperparathyroidism – brown tumors

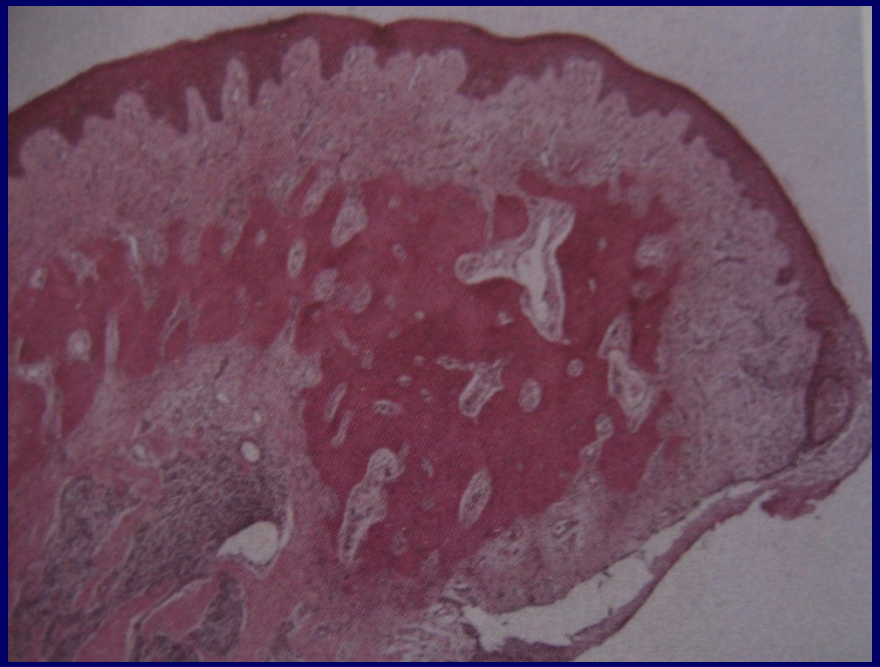
Peripheral ossifying fibroma

- Relatively common gingival growth
- Mineralized product probably originates from cells of periosteum or periodontal ligament
- Does not represent the soft tissue counterpart of the central ossifying fibroma

Clinical features

- In teenagers and young adults – 2/3rd in females
- Exclusively on the maxillary anterior gingiva
- Pedunculated or sessile mass and it emanates from interdental papilla
- Red to pink in color, frequently ulcerated surface
- Most are <2cm in size





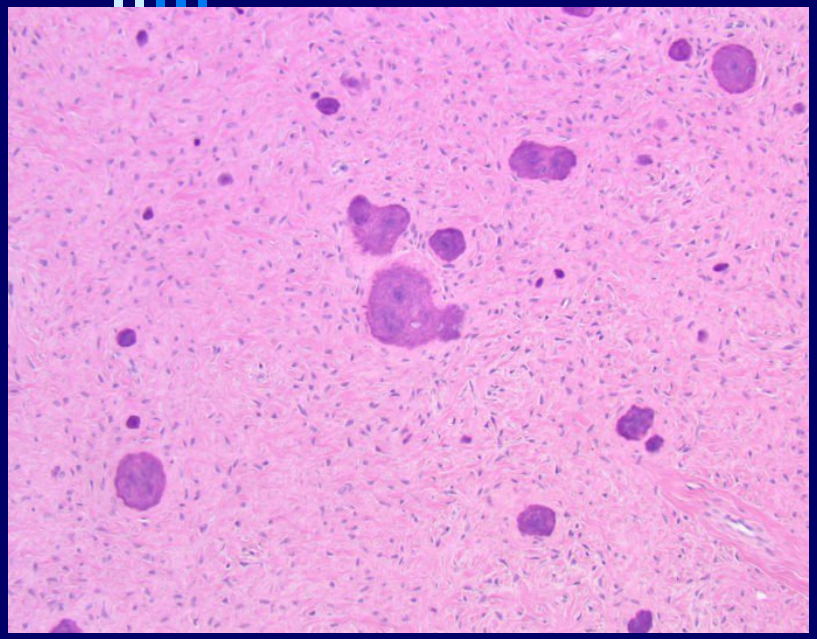
Histopathology

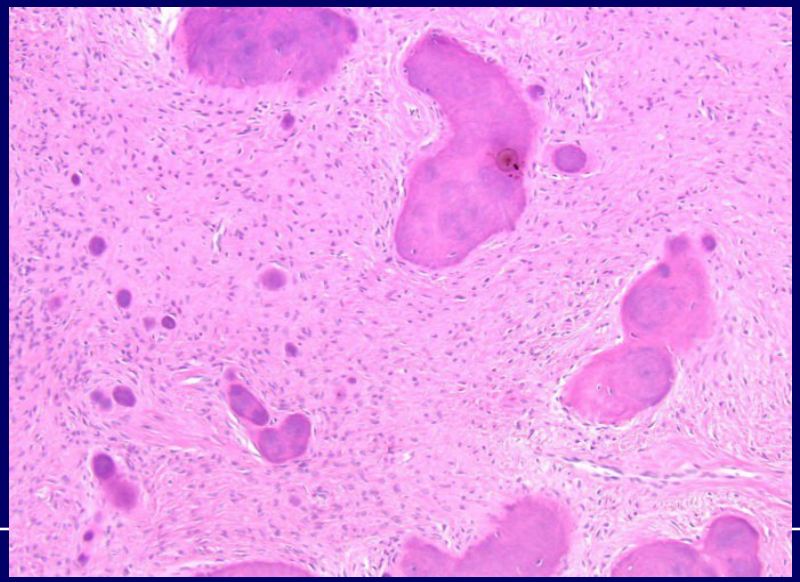
- Fibrous proliferation associated with formation of mineralized product
- If ulcerated, the epithelium is replaced by fibrinopurulent membrane
- Increased cellularity in areas of mineralization

Histopathology

- Mineralized component consists of bone, cementum like material or dystrophic calcifications
- Usually occurs in combinations
  - Bone is woven and trabecular in type
  - Ovoid droplets of basophilic cementum like material
  - Dystrophic calcifications – multiple granules, tiny globules or large, irregular masses of basophilic mineralized material.

Histopathology





Ttt and prognosis

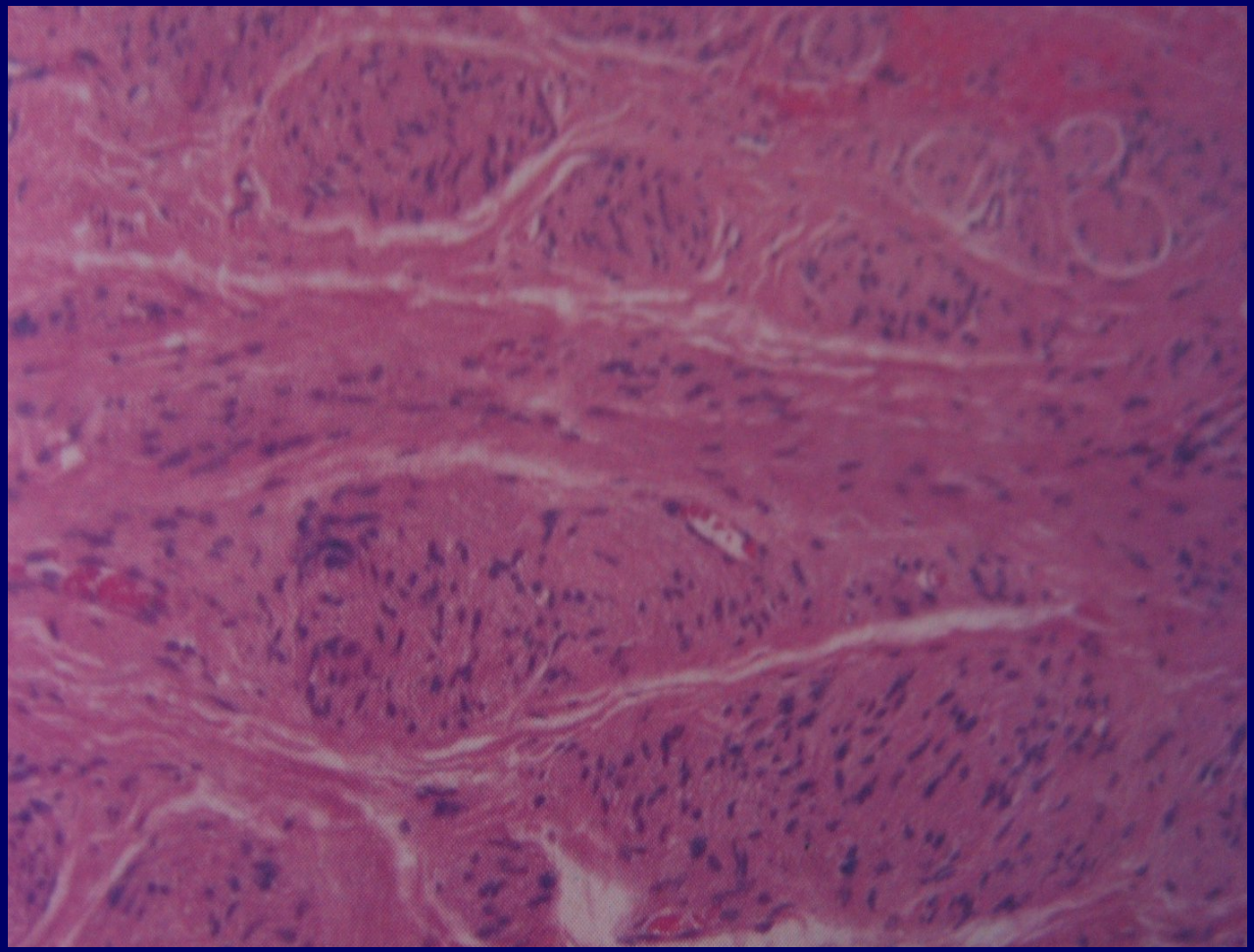
- Local surgical excision till the periosteum

Traumatic neuroma

- Reactive proliferation of nerve tissue after damage to the nerve bundle,
- The proximal portion attempts to regenerate and re-establish innervation with the distal segment by growth of axons through tubes of proliferating schwann cells.

Clinical features

- In middle aged adults
- Smooth surfaced, non-ulcerated nodule
- Common in mental foramen area, tongue and lower lip
- May be associated with pain



Histopathology

- Haphazard proliferation of mature, myelinated nerve bundles within a fibrous connective tissue
- With inflammation, it is more likely to be painful.
- Treated by surgical excision.

Palisaded encapsulated neuroma

- Benign neural tumor of superficial nerves
- Considered to be a reactive lesion
- Striking predilection for the face – nose and cheek
- In the 5^{th} – 7^{th} decades
- Smooth surfaced, painless, dome shaped nodule
- Oral lesions – hard palate and labial mucosa

Histopathology

- Well circumscribed, encapsulated
- Moderately cellular, interlacing fascicles of spindle cells – schwann cells
- Nuclei are wavy and pointed
- S100 positivity
- Treated by local surgical excision.

Neurilemoma

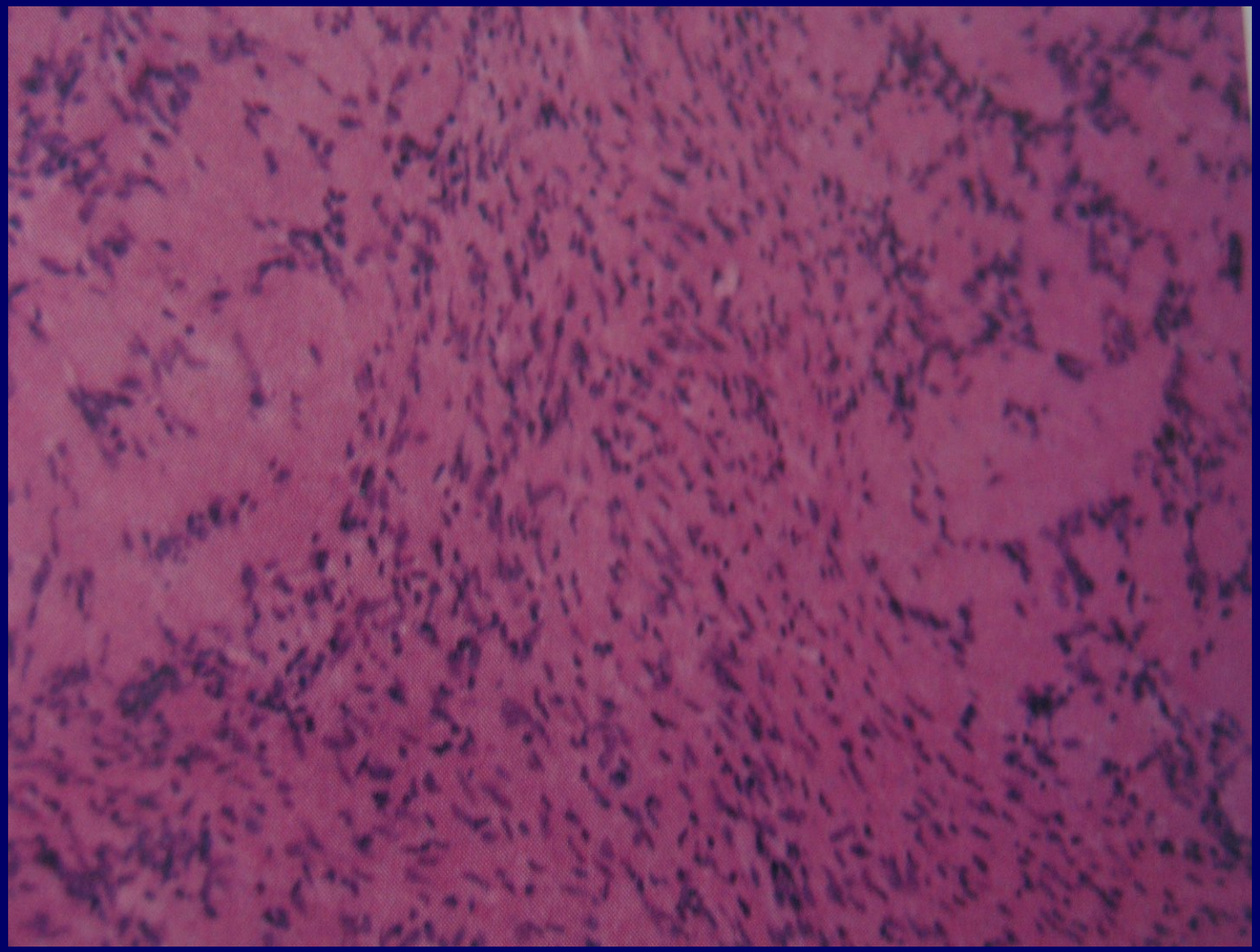
- Also called schwannoma
- Benign neural neoplasm of schwann cell origin
- Slow growing, encapsulated tumor arising within the nerve trunk
- As it grows, it pushes the nerve aside
- Usually asymptomatic
- Tongue – most common location

Histopathology

- Encapsulated tumor
- Antoni A –
  - Streaming fascicles of spindle shaped schwann cells.
  - Palisaded arrangement around central, acellular, eosinophilic areas – Verocay bodies
  - Reduplicated basement membrane and cytoplasmic areas
- Antoni B
  - Less cellular and less organized spindle cells randomly arranged in a myxomatous stroma

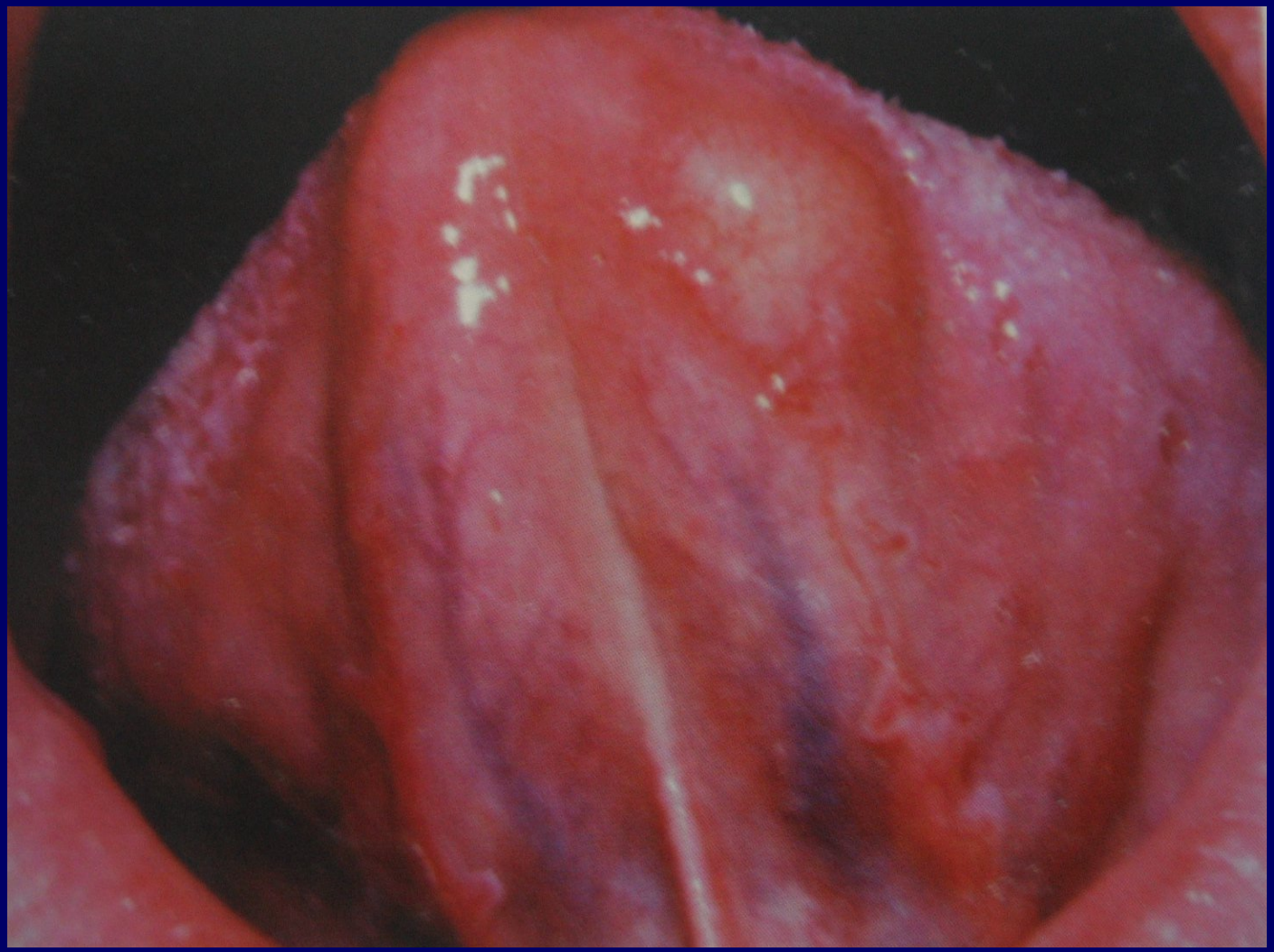
Histopathology

- Diffuse immunoreactivity to S100 protein
- Older lesions – Ancient neurilemomas – has hemorrhage, hemosiderin deposits, inflammation, fibrosis and nuclear atypia.
- Treated by surgical excision



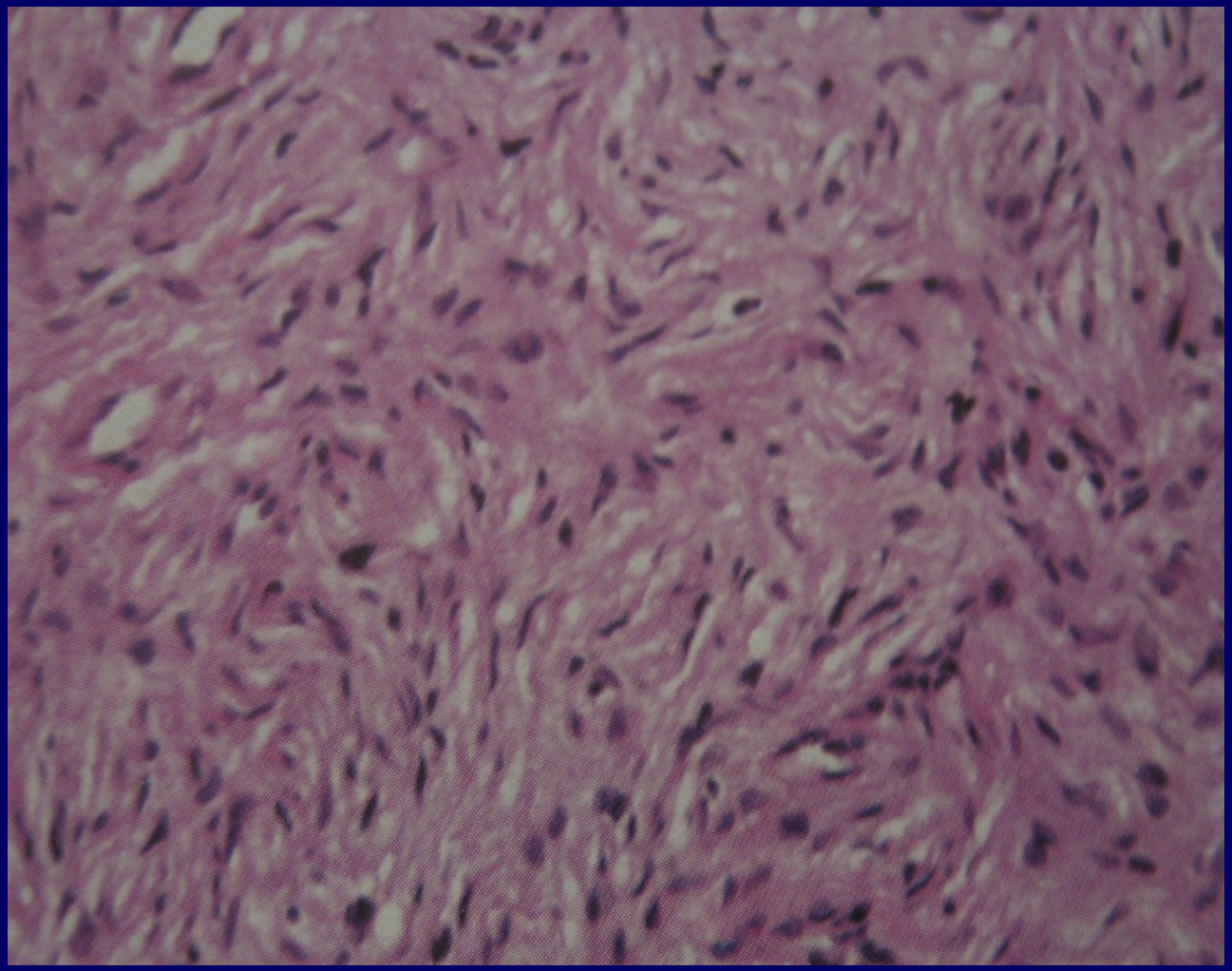
Neurofibroma

- Most common peripheral nerve neoplasm
- Arises from mixture of cell types including schwann cells and perineural fibroblasts.
- Arise as solitary tumors or multiple lesions in neurofibromatosis.
- Slow growing, soft, painless lesions involving the skin, tongue and buccal mucosa.



Histopathology

- Well circumscribed, if proliferates within the perineurium of the involved nerve
- If it is outside the perineurium, it is not well demarcated and blends with the surrounding connective tissue
- Has interlacing bundles of spindle shaped cells with wavy nuclei along with delicate collagen bundles and myxoid matrix.
- Numerous mast cells and scattered S100 positivity.
- Treated with surgical excision.



Neurofibromatosis

- Also called Von RecklingHausen's disease of the skin
- Hereditary condition (autosomal dominant) mapped to chr17– 1:3000 births
- 8 forms – Neurofibromatosis Type I is the most common.
- These patients have multiple neurofibromas.
- Enlargement of fungiform papillae in the tongue

Diagnostic criteria

- 6 or more café au lait macules – Coffee with milk pigmentation of skin, smooth edges, yellowish to dark brown macules
- Two or more NF or one plexiform NF (feels like bag of worms)
- Freckling in axilla (Crowe's sign) or inguinal regions
- Two or more lisch nodules (pigmented spots on the iris)
- Osseous lesion
- First degree relative (parent, sibling or offspring) with NF-1, based on the above criteria

Complications

- As multiple lesions – no specific treatment
- High risk for malignant transformation – Malignant peripheral nerve sheath tumor (Neurofibrosarcoma, Malignant Schwannoma)

Multiple endocrine neoplasia

- Rare condition with 3 forms,
  - Type I – benign tumors of pancreas, adrenal cortex, parathyroid and pituitary glands
  - Type 2A – Sipple syndrome – Adrenal pheochromocytomas and medullary thyroid carcinomas
  - Type 2B – along with 2A, mucosal neuromas

MEN type 2B

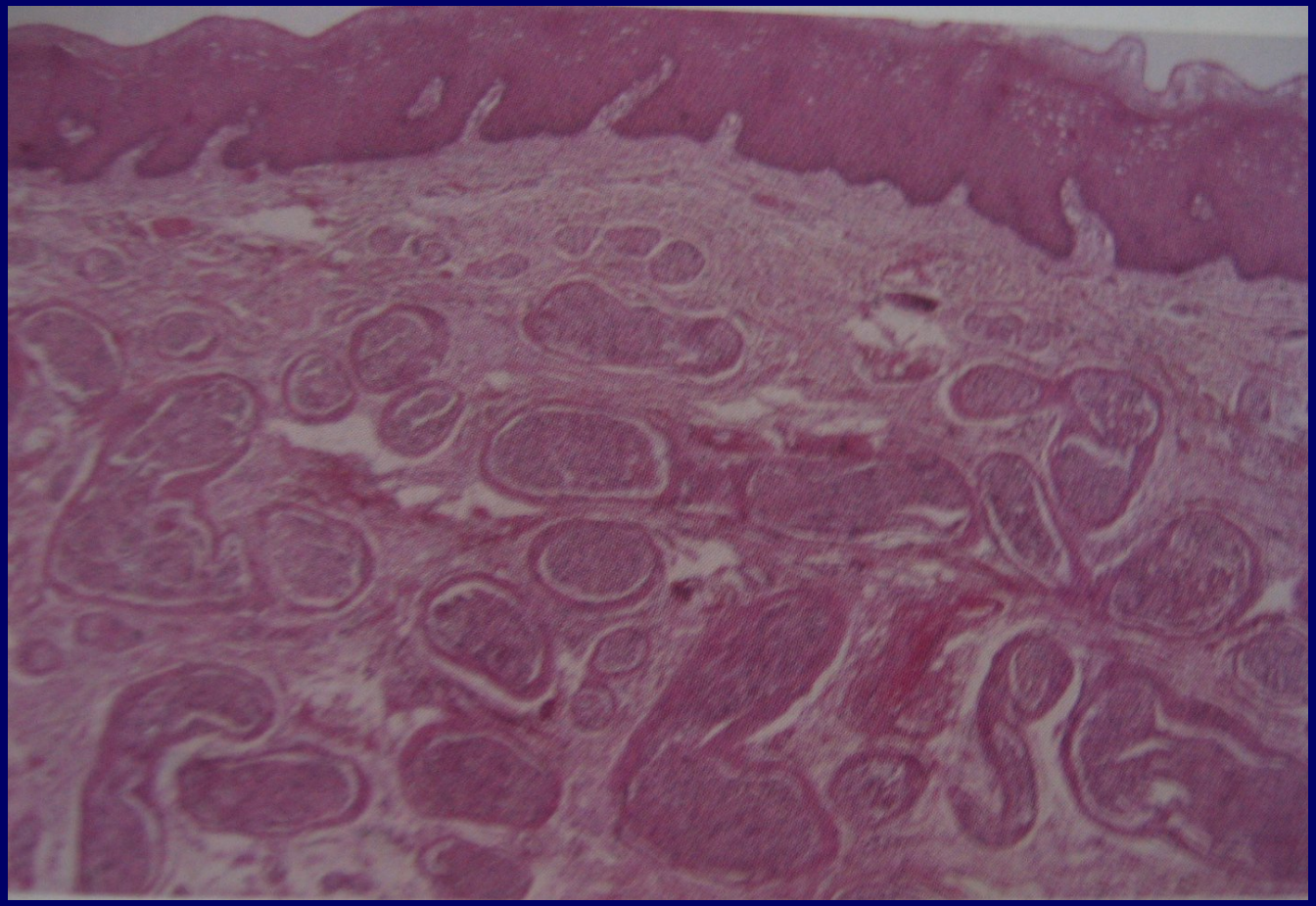
- Inherited as autosomal dominant
- Mutation in RET gene in Chr 10
- Marfanoid body build – thin, elongated limbs with muscle wasting
- Face is narrow, lips are thick and protruberant – proliferation of nerve bundles
- Oral mucosal neuromas – soft, painless papules of lips and anterior tongue

Lab investigations

- Medullary carcinoma of thyroid – increase in serum and urinary levels of calcitonin
- Pheochromocytomas – Increase in Vanillyl Mandelic Acid (VMA), alterations in epinephrine to norepinephrine ratios

Histopathology

- Marked hyperplasia of nerve bundles in a normal connective tissue background
- Prominent thickening of perineurium
- Prognosis depends on the severity of the associated diseases.



Melanotic neuroectodermal tumor of infancy

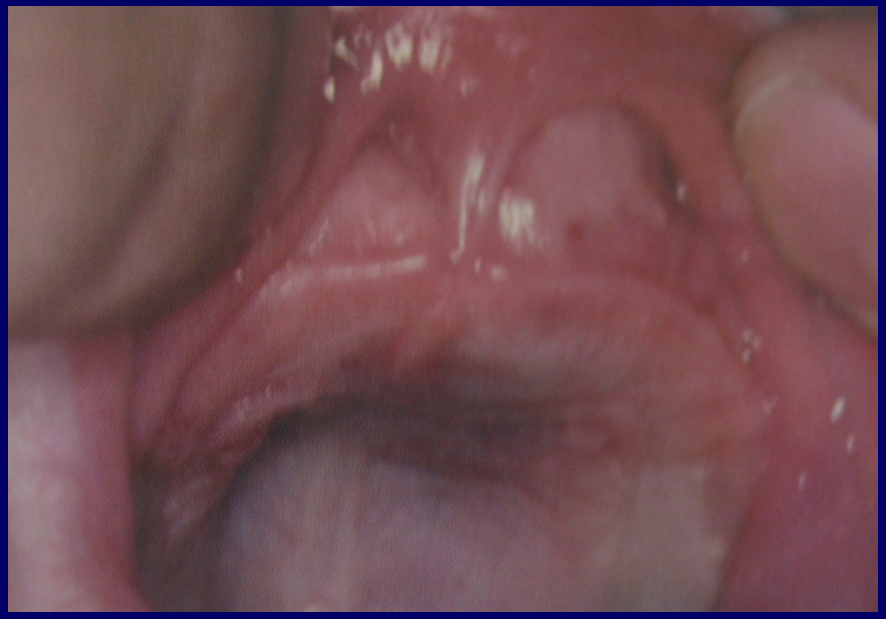
- Rare pigmented neoplasm in the first year of life.
- Of neural crest origin
- Older terms - pigmented ameloblastoma, retinal anlage tumor, melanotic progonoma

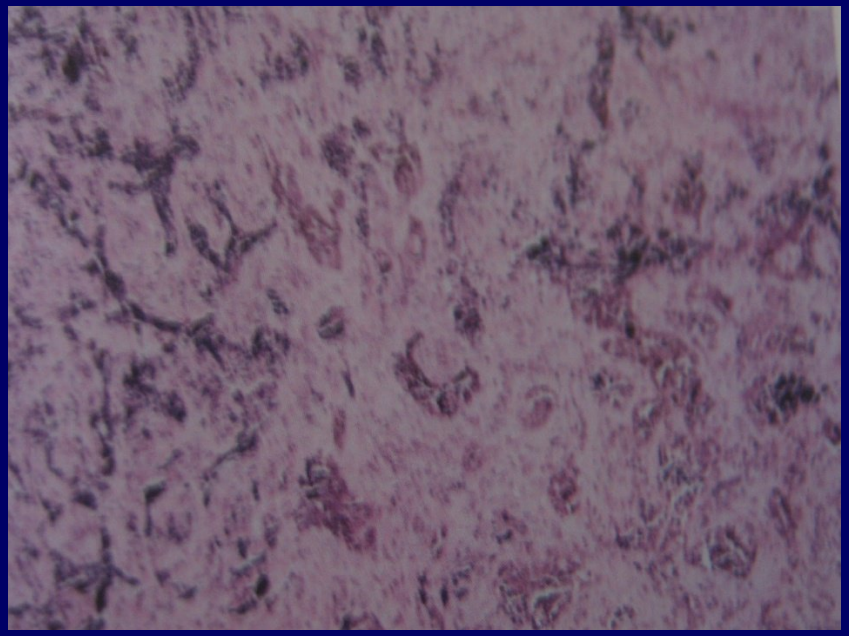
Clinical features

- Develops during the first year of life
- Predilection for maxilla anterior region
- Rapidly expanding mass – blue or black
- Often destroys the underlying bone
- Can occur in skull, mandible, brain and testes
- Increase in VMA – neuro-crestal origin

Histopathology

- Biphasic population in the form of nests, tubules or alveolar structures within a dense, collagenous stroma
- 2 cell groups
  - Cuboidal cells with vesicular nuclei and granules of melanin
  - Small, round cells with hyperchromatic nuclei and little ctyoplasm – neuroblastic appearance
- Round cells in loose nests surrounded by larger, pigmented cells.





Ttt and prognosis

- Benign – inspite of their rapid growth and involvement of bone
- Surgical removal
- Recurrence can occur.

Leiomyoma

- Benign tumors of smooth muscle
- Seen in uterus, GIT and skin.
- Oral presentation is rare
- Arise from vascular smooth muscle.

Clinical features

- Three types
  - Solid – normal in color
  - Vascular / angiomyomas / angioleiomyoma – bluish hue
  - Epithelioid (leiomyoblastomas)
- Slow growing, asymptomatic, firm, mucosal nodule
- Involve tongue, palate, cheek

H/P

- Solid –
  - Well circumscribed tumors with interlacing bundles of spindle shaped smooth muscle cells
  - Nuclei are elongated, pale staining and blunt ended.
- Angio
  - Multiple, tortuous blood vessels
  - Thickened walls – hyperplasia of their smooth muscle coats.
- Epithelioid type – has epithelioid cells.

Special stains

- Demonstrated with
  - Masson trichrome
  - PTAH
  - Vimentin
  - Smooth muscle actin
  - Muscle specific actin
- Local surgical excision

Rhabdomyoma

- Benign neoplasm of skeletal muscle
- Extremely rare
- Cardiac – seen in tuberous sclerosis
- Extra-cardiac – present in head and neck
- Two types
  - Adult
  - Fetal

C/F

- Fetal
  - In young children
  - In face and peri-auricular region
- H/P
  - Less mature appearance
  - Haphazard arrangement of spindle shaped cells
- Treated by local surgical excision.

C/F

- Adult
  - In middle aged and older men
  - Pharynx, oral cavity and larynx
  - In floor of mouth, soft palate and base of tongue
  - Appears as a nodule or mass
- H/P
  - Well circumscribed lobules of large, polygonal cells – granular, eosinophilic cytoplasm
  - Peripheral vacuolization – spider web appearance
  - Focal cells with cross striations can be seen