Oral & Maxillofacial Pathology II
DB 3702

Topic: Soft Tissue Tumors

Course Director: Dr. J. E. Bouquot
Room 3.094b; 713-500-4420
Jerry.Bouquot@uth.tmc.edu

Thursdays, 10:00 – 11:50 am
Room DB 132
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Disclaimer: Dr. Bouquot is Professor & Chair, Department of Diagnostic Sciences, University of Texas Dental Branch at Houston. The information and opinions provided herein are, however, his own and do not represent official opinion or policy of the University of Texas.
Fibrosarcoma
Fibrosarcoma

- Malignant neoplasm of fibroblasts
- Etiology = unknown

- **GALP:**
  - None
  - Children, teenagers, young adults
  - Palate > tongue > buccal
  - 10% of all are in H&N

- Painless, firm mass
- Often lobulated
- May have surface ulceration
- Slow-growing in beginning
- Moderate growth speed
  -- May be rapid
Fibrosarcoma
Histopathology

- Spindle cells in collagen
- Spindle cells may be dysplastic
- Grade is important for prognosis
  -- Grades I - IV
- Not encapsulated
- Mitotic figures
- Herring bone pattern
Fibrosarcoma
Pathophysiology, Treatment

- Can grow rapidly toward end
  -- Especially high grade lesions
- Destroys underlying bone
- **Fibrosarcoma of bone**
  -- Perforates through cortex

- Treatment:
  -- Radical surgical removal
  -- Including affected bone
- 5-year survival = 50%
Malignant Fibrous Histiocytoma
Fibroxanthoma; Dermatofibroma

- Malignant neoplasm of histiocytes
  -- With fibrous differentiation

- **GALP:**
  - None
  - Middle-age and older (but skin lesions: young adults)
  - Buccal< vestibule
  -- Rare in mouth

- Painless, firm mass
- May be lobulated
- May be ulcerated
Malignant Fibrous Histiocytoma
Histopathology

- Numerous spindle cells
- Open nuclei (like histiocytes)
- Storiform pattern
- Maybe rounded histiocytic cells
- May look benign!
Pyogenic Granuloma
Pyogenic Granuloma
Pyogenic Granuloma Type Hemangioma

- Lack of reduction of granulation tissue during normal healing process
  -- Not an infection, no pus
  but “pyogenic” = pus producing
  -- Not a granulomatous infection

- GALP:
  – None (although strong female predilection in biopsied cases)
  – Children & young adults
  – Gingiva (75%), lips, tongue, buccal
  – 50th most common mucosal lesion
  -- Prevalence = 1/10,000 adults
Pyogenic Granuloma

- Edematous granulation tissue
- Neovascularity
- Chronic inflammatory cells
- Acute inflammatory cells
- Surface ulceration, often
- Lobular (locular) capillary hemangioma

Lobular hemangioma
Pyogenic Granuloma

- Painless erythematous mass
- Often hemorrhagic
- Often lobulated surface
- Often ulcerated
- Often pedunculated
Pyogenic Granuloma
Special Variants

- **Pregnancy tumor:**
  - PG of gingiva
  - In pregnant woman
  - Papilla involved
  - May be multiple
  - Poor oral hygiene

- **Epulis granulomatosum:**
  - PG within poorly healed extraction socket
  - Curette thoroughly

- **Parulis (gum boil):**
  - PG at opening of dental fistula
  - Check for abscess in bone
  - Treat the tooth
Pyogenic Granuloma

- May shrink over time
- May become irritation fibroma
  -- Fibrotic pyogenic granuloma
- Pregnancy tumor:
  -- Often disappears after birth of baby
- Treat: Surgical excision
  -- Remove cause
- For pregnancy tumor:
  -- Wait until after birth
- May recur
  -- If original cause is not removed
  -- More infection, trauma
Look-Alike: Traumatic Eosinophilic Ulcer
Traumatic Ulcer with Stomal Eosinophilia

May mimic pyogenic granuloma
Peripheral Ossifying Fibroma
Peripheral Ossifying Fibroma
Peripheral Cementifying/Ossifying Fibroma

- Inflammatory proliferation of fibrous tissue
- From periodontal fibers
- Primitive stroma
- Bone or cementum

GAL:
- 2/3 females
- Teenagers and young adults
- Gingival papilla
  (must be in this location)
- Edentulous alveolus also
Peripheral Ossifying Fibroma
Histopathology

- Primitive spindle cells in fibrous stroma
- Immature bone formation
  -- Often with active osteoblasts
- Maybe cementoid globules
  -- Few cementoblasts
  -- Almost no cementocytes
Peripheral Ossifying Fibroma

- Painless mass of papilla
- Firm, red/pink
- May be lobulated
- May be ulcerated
- May show radiopacities
- Can separate teeth
- May develop in socket
Peripheral Ossifying Fibroma
Can Spread Teeth Apart
Peripheral Ossifying Fibroma

- Usually < 2 cm.
  -- Occasionally up to 3 cm.
- Treat:
  -- Conservative surgical excision
  -- With curettage of base
  – Cleaning/scaling adjacent teeth
- 15% recur
Peripheral Ossifying Fibroma (In Socket)
Epulis Granulomatous
Peripheral Ossifying Fibroma
Can (Rarely) Produce Massive Sclerosis Above the Crest
Peripheral Ossifying Fibroma
Can Occur on Edentulous Ridge (From Residual Periodontal Fibers)
Peripheral Giant Cell Granuloma
Peripheral Giant Cell Granuloma
Peripheral Giant Cell Lesion; Giant Cell Epulis

- Inflammatory proliferation of phagocytic cells from:
  - Irritation
  - Trauma
  - Infection

- GAL:
  - 60% in females
  - Fifth-sixth decades
  - Gingiva
  - Alveolar mucosa
Peripheral Giant Cell Granuloma

Histopathology

- Immature fibrous stroma
- Multinucleated giant cells
- Extravasated erythrocytes
- Spindled, oval mesenchymal cells
Peripheral Giant Cell Granuloma
Clinical Features

- Painless mass
- Perhaps hemorrhagic
- Often red/bluish/brown
- Somewhat soft to palpation
- May cup out underlying bony cortex
  -- **Saucerization** (from pressure)
- Maybe calcifications on radiograph
  -- Near lower border
- Often ulcerated
- In socket = **epulis granulomatous**
Peripheral Giant Cell Granuloma
Pathophysiology; Treatment

- Generally remain less than 2 cm.
- May become more than 4 cm.
- No malignant transformation
- Treat: Conservative surgical excision
  --With curettage of base
  – And cleaning/scaling of adjacent teeth
- 10% recur
- Caution: large or multiple or recurring lesions might be brown tumor of hyperparathyroidism
Hyperparathyroidism

- ↑ PTH >> ↑ calcium taken from bone
- Primary: ↑PTH from tumor
  -- 90%: from parathyroid adenoma
  -- 10% from parathyroid hyperplasia
  -- Rare: from parathyroid carcinoma
- Secondary: chronic ↓ calcium >> ↑ PTH
  -- Usually: chronic renal disease
  -- ↓ vitamin D made by kidney >>
  -- ↓ calcium GI absorption >>
  -- ↓ serum calcium (hypocalcaemia)
  -- Severe: renal osteodystrophy

- GALP:
  -- 1:4 male:female ratio
  -- >60 y/o
  -- Kidneys, bone
Hyperparathyroidism

- “Bones, moans and abdominal groans”
- **Renal calculi** (kidney stones, *nephrolithiasis*)
  - From ↑ serum calcium
- **Metastatic calcification**
  - Dystrophic calcification of soft tissues
  - From ↑ serum calcium
- **Subperiosteal resorption of phalanges**
  - Index & middle fingers
- **Ground glass** bone
  - ↓ trabeculae
  - Blurred radiograph
- **Loss of lamina dura** (early sign)
- **Brown tumor**
- **Osteitis fibrosa cystica**
  - Severe variant of bone change
  - Marrow degeneration
  - Fibrosis of brown tumors
Hyperparathyroidism

- Duodenal ulcers (painful)
- Weakness
- Lethargy
- Confusion
- Dementia

- Brown tumor
  - Multinucleated giant cells
  - Extravasated RBCs
  - Hemosiderin deposits
  - Radiolucency (often multilocular)
  - Bony expansion
  - May be multiple
  - Like central giant cell granuloma of jaws
Hyperparathyroidism
Ground Glass Bone; Loss of Lamina Dura
Hemangioma
Hemangioma
Cavernous Hemangioma; Capillary Hemangioma

- Benign developmental growth of vessels
- Benign neoplasm of blood vessels

- **GALP:**
  - 3x females
  - Children and teenagers
  - Seldom congenital, but develop shortly after birth
  - Tongue > buccal > lips
  - 6th most common mucosal lesion
  - Prevalence = 6/1,000 adults
  - Head and neck:
    most common location
Hemangioma
Histopathology

- Dilated vessels: cavernous hemangioma
- Small vessels: capillary hemangioma
- Endothelium-lined channels
- Endothelial nuclei are enlarged
  -- Plump; bulge into lumen
  -- If flat: inactive lesion
- Blood-filled lumina
- Without blood: lymphangioma
- No encapsulation
- Port wine stain = capillary hemangioma
Capillary & Cavernous Hemangioma
Hemangioma
Clinical Characteristics

- Sessile, lobulated
- Soft red mass
- Often lobulated
- Painless
- Smooth-surface
- Fluctuates and blanches
- Blue color if venous blood
- Red if arterial
- Deep lesions: no surface color
- On skin: port wine stain,
  -- Berry angioma
  -- Sturge-Weber syndrome
Deep Hemangioma
Deep lesions may only disolor surface
Hemangioma
Pathophysiology

- Infancy lesions:
  -- Often spontaneously regress
  -- Later lesions do not
- Some lesions continue to enlarge
  -- Until adulthood
  -- Perhaps even after
- No cancer development
- Problems:
  -- Hemorrhage
  -- Clots (from stagnant blood)
Intramedullary Hemangioma
Endosteal Hemangioma
Central sunburst pattern
Hemangioma
Treatment

- Often left alone
- Childhood lesions:
  -- Corticosteroids
  -- Interferon-\(\alpha\)-2a
- Laser therapy can be effective
- Injection of sclerosing solutions
  -- Sodium morulate
  -- 95% ethanol
Mucoepidermoid Carcinoma

Hemangioma Look-Alike Lesions

Kaposi’s Sarcoma (AIDS)

Hematoma (Does not Blanch)

Lingual Varicosities

Mucoepidermoid Carcinoma (Blue Color from Mucus)
Traumatic Angiomatous Lesion
Acute trauma to subepithelial vein
-- With focal dilation or “aneurysm”

GAL:
– None
-- Middle-aged and older
-- Lips, buccal

Small, painless red bleb
– Blanches

Micro: single dilated venous structure
Perhaps with thrombus (may calcify)

Remains indefinitely
– Usually remains less than 4 mm
– No malignant development

Treat: conservative surgical removal
OK to leave alone, except for esthetics
Sturge-Weber Angiomatosis
Vascular plexus forms around cephalic part of neural tube at six weeks
-- Regresses after the ninth week
-- Doesn’t regress with S-W syndrome
– Not inherited
GALP:
– None
– Congenital
– Face, buccal, maxilla
-- Rare
Sturge-Weber Angiomatosis
Sturge-Weber Syndrome,
Encephalotrigeminal Angiomatosis

- Purple/red macule(s) of face
  -- Port wine stain
  -- Nevus flammeus
  -- Trigeminal nerve distribution, usually
- Often with involvement of oral mucosa
- Angiomas of ipsilateral leptomeninges
  -- May cause seizures
  -- May cause mental retardation
- Calcifications of gyri
Angiosarcoma
Angiosarcoma
Malignant
Hemangioendothelioma

- Vascular neoplasm of endothelium
- Looks like hemangioma
  -- More rapid growth
- No pain
- Destroys adjacent structures
- Mets via blood (to lungs)
- Poor prognosis
  -- 10-year survival = 21%
- Hemangioendothelioma
  -- Histology may look OK
  -- Can’t predict from micro.
Kaposi Sarcoma
In AIDS

- Vascular proliferation (neoplasm?)
  -- Usually in AIDS
  -- Non-AIDS cases usually in old men
- Stimulated by herpesvirus 8
  -- Kaposi’s sarcoma-associated herpesvirus
- **GAL:**
  - Strong male predilection
  - Young adults and middle-aged
  - Tongue, lips, gingiva
- Soft-to-firm red or purple nodule
  -- May be macular
  - Painless
  - Nonhemorrhagic
  -- May be multiple
  -- May be lobulated or granular
Kaposi Sarcoma
Histopathology, Pathophysiology, Treatment

- Combination of proliferating spindled & endothelial cells
  - Extravasated erythrocytes
  - Staghorn clefts (veins)
- Slowly enlarge
- New lesions developing over time
- Treat: lesions disappear with successful AIDS treatment
  -- Protease inhibitors, antivirals, etc.
Kaposi Sarcoma
Lymphangiom
**Lymphangioma**

- Benign neoplasm of lymph vessels
- Hamartoma of lymph vessels
- **GAL:**
  - None
  - Children and teenagers
  - Tongue (produces *macroglossia*)
- Soft painless cluster of clear blebs
- Often with outlying or satellite blebs
  - Several mm from main mass
- May be scattered clear blebs
Lymphangioma
Histopathology

- Same appearance as hemangioma, but without blood in the lumina
- Cavernous type, usually
- Plump endothelial nuclei
  -- If flat: inactive lesion
- May be admixed with blood vessels
- No encapsulation
Lymphangioma
Pathophysiology, Treatment

- Slowly enlarges with body growth
- No spontaneous regression
  - As with hemangioma
- No cancer development
- Treat: conservative surgical removal
  - Usually deliberately leave tumor behind (debulking)
- Repeat surgery is not uncommon
  - Congenital cases: average = 4
Cystic Hygroma
Developmental Cavernous Lymphangioma
Developmental Lymphangioma
Lymphangioma
Look-Alike Lesions

Inflammatory Papillary Hyperplasia
(Early, Edematous Lesions)

Benign Lymphoid Aggregates
Lymphangiosarcoma
Lymphangiosarcoma

- Malignant neoplasm of lymph vessels
- Very rare
- Dysplastic endothelial cells
- No blood in vessels
- Treat: radical surgery
- Poor prognosis
Lipoma
Lipoma

- Benign neoplasm of fat cells
  - Some are developmental
- **GALP:**
  - None
  - Middle-aged
  - Buccal, vestibule
  - Most common soft tissue tumor in the body, but not so common in the mouth
  - 38th most common mucosal lesion in adults
  - Prevalence = 3/10,000
Lipoma
Clinical Features

- Sessile, yellowish mass
- Very soft
- Painless
- Encapsulated: freely movable
Lipoma
Histopathology

- Micro: mature adipocytes
  -- With collagen trabeculae
- May or may not be encapsulated
- May “infiltrate” great distances into surrounding stroma
- Sometimes admixed with fibrous tissue (fibrolipoma)
- Problem: herniated buccal fat pad
Lipoma
Pathophysiology, Treatment

- Slowly enlarge
- Usually remain < 3 cm.
- No malignant transformation
- Treat: conservative surgical excision
  - Usually do not recur, except the infiltrating types
Familial Lipomatosis

Photo: Dr. J. Bouquot, University of Texas, Houston, Texas
Traumatic Neuroma
Traumatic Neuroma

- Reactive proliferation of neural tissue
  -- After nerve injury

- **GAL:**
  -- None
  -- Middle-aged
  -- Mental foramen

- Smooth-surfaced nodule
- Soft, nonulcerated
- Less than half are tender or painful, may be burning
- Micro: Intertwining, tortuous nerve fibers in a fibrous stroma
- Usually remain less than 1 cm.; no malignant transformation
- Treat: conservative surgical excision
  -- With small part of affected nerve
- May lead to paresthesia and pain
- May recur
Neurofibroma
Neurofibroma

- Benign neoplasm of Schwann cells
  -- And perineural fibroblasts
- **GALP:**
  - None
  - Young adults
  - Tongue, buccal
  - The most common peripheral nerve tumor
  -- 1/1,000 adults
- Smooth-surfaced soft, nonulcerated nodule
- Painless
- May be huge and pendulous
Neurofibroma
In Inferior Alveolar Canal

Photo: Dr. J. Bouquot, University of Texas, Houston, Texas
Neurofibroma

- Well circumscribed interlacing bundles of spindle-shaped cells with wavy nuclei
  -- In a fibrous stroma
- Usually < 2 cm.
  -- May become huge
- Oral lesions seldom become malignant
  -- Less likely than skin lesions
- Treat: conservative surgical excision
  – Recurrence is rare
Schwannoma
Schwannoma
Neurilemmoma

- Benign neoplasm of Schwann cells
- **GALP:**
  - None
  - Young adults and middle-aged
  - Tongue, hard palate
  - Up to half occur in head and neck area
- Smooth, soft nodule
- Nonulcerated
- Painless
- Moveable
- Normal color or yellowish white
Schwannoma
Histopathology

- Encapsulated
- Two tissue types:
  - **Antoni A**: streaming fascicles of spindle Schwann cells forming *Verocay bodies*
  - **Antoni B**: disorganized neurites in loose fibrous stroma
Schwannoma
Pathophysiology, Treatment

- Usually remain less than 2 cm
- Oral lesions seldom become malignant
- Skin lesions can but it is uncommon
- Treat: conservative surgical excision
  - Recurrence is rare
Neurofibrosarcoma
Neurofibrosarcoma
Malignant Peripheral Nerve Sheath Tumor

- Dysplastic spindle cells
- Few recognizable nerves
- Treat: radical surgery
- 5-year survival = 40-50%
Neurofibromatosis
von Recklinghausen Neurofibromatosis
Multiple Endocrine Neoplasia I (MEN I)

- Multiple neurofibromas
  - Some schwannomas
  - Throughout body
  - Maybe hundreds
  - Oral lesions in 1/4 of cases
- Autosomal dominant inheritance
  - Gene is on chromosome 17
von Recklinghausen Neurofibromatosis
Multiple Endocrine Neoplasia I (MEN I)

- Café au lait spots (brown skin patches)
- Abnormal bone development
- Lisch nodules (brown spots on iris)
- 5-10% chance of malignant development
  -- Usually neurofibrosarcoma
     (malignant peripheral nerve sheath tumor)
Multiple Mucosal Neuroma Syndrome
Multiple Endocrine Neoplasia IIB
Multiple Mucosal Neuroma Syndrome; MEN III

- Autosomal dominant inherited disease
  -- Multiple tumors or hyperplasias of neuroendocrine tissues

- Mutation of RET protooncogene
  -- On chromosome 10

- GALP:
  – None
  – Teenagers and young adults
  – Tongue, lips
  -- Rare
Multiple Endocrine Neoplasia IIB
Clinical Features

- Sessile, soft nodules
  -- Smooth-surfaced
  -- Painless
  -- Yellowish white
  -- Moveable
- Oral signs: often first evidence of disease
- Narrow face
Multiple Endocrine Neoplasia IIB
Clinical Features

- Long extremities
- Abraham Lincoln appearance
- Weak muscles
- **Pheochromocytomas** (50%)
- **Medullary thyroid carcinomas** (90%)
- Elevated serum and urinary calcitonin
  -- From thyroid tumor
- Elevated urinary vanillylmandelic acid (VMA)
- Increased epinephrine-to-norepinephrine ratio
  -- From adrenal tumor
Multiple Endocrine Neoplasia IIB
Histopathology, Pathophysiology, Treatment

- Micro: intertwining, tortuous nerve fibers
  -- Thick perineurium
  -- Spaces (artifactual) around nerves
- Oral neuromas remain small
  -- Less than 5 mm
- Oral neuromas do not become malignant
- Treat: no treatment needed for oral lesions
  -- Except for esthetics
- Treat systemic problems and tumors prn
Neuroectodermal Tumor of Infancy
Neuroectodermal Tumor of Infancy
Progonoma; Retinal Anlage Tumor

- Neoplasm of neural crest cells

- GALP:
  - None
  - Infancy; newborns
  - Anterior maxillary alveolus
  - Very rare

- Rapidly expanding blue/black painless mass

- Usually destroys underlying bone

- Elevated urinary vanillicmandelic acid (VMA)
  -- From oral tumor
Neuroectodermal Tumor of Infancy
Histopathology

- Micro: two cell types:
  - Small dark round neuroblastic cells
  - Large epithelioid cells with melanin
Neuroectodermal Tumor of Infancy
Pathophysiology, Treatment

- May reach alarming size
- May destroy anterior alveolar bone
- Malignant variants (very rare)
- Treat: Moderately severe surgical excision
  - 15% recurrence
Granular Cell Tumor
Granular Cell Tumor
Granular Cell Myoblastoma

- Benign neoplasm of Schwann cells
- Originally thought to be from striated muscle cells

- **GALP:**
  - 2x females
  - Fourth-sixth decades
  - Tongue
  - 50% of all body cases are oral

- Sessile mass
  - Painless
  - Firm
  - Pale
Granular Cell Tumor
Granular Cell Myoblastoma (Schwann Cell Origin)
Granular Cell Tumor
Histopathology

- Large, polygonal cells
  -- Like histiocytes
  -- Granular cytoplasm
  -- Small nuclei
- In sheets and globules
- May be spindled cells
- Not encapsulated
Granular Cell Tumor
Histopathology

- May infiltrate between muscle fibers
- Problem:
  - Pseudoepitheliomatous hyperplasia
  - Mimics squamous cell carcinoma
Granular Cell Tumor
Pathophysiology, Treatment

- Usually remain 1-2 cm.
- Seldom enlarge after initial notice
- No malignant transformation risk
- Treat: conservative surgical excision
  -- Recurrence is very rare
Granular Cell Epulis
Granular Cell Epulis
Congenital Epulis

- Developmental tumor of unknown histogenesis
- GAL:
  - 90% females
  - Newborn
  - Anterior maxillary alveolus
- Pedunculated, soft, nodule
- Smooth-surfaced
- Pink or pale
Granular Cell Epulis
Histopathology

- Large, polygonal cells
  -- Granular cytoplasm
- Like cells in granular cell tumor
  -- But different immunohistochemistry
- Atrophic epithelium
  -- No pseudoepitheliomatous hyperplasia
Granular Cell Epulis
Pathophysiology, Treatment

- Usually remains less than 2 cm
  -- May become up to 9 cm
- Treat: conservative surgical excision
  -- As soon as baby can tolerate surgery
    – Does not recur
- If left untreated: small lesions shrink
  -- Often disappear
  -- Does not interfere with tooth eruption
Leiomyoma
Leiomyoma

- Benign neoplasms of smooth muscle
- **GALP:**
  - None
  - Infancy or childhood
  - Tongue, lips
  - Very rare
- Usually sessile, firm, painless mass
- Normal surface color and smooth surface
- Micro: cellular proliferations of smooth muscle cells
- Usually encapsulated
- Usually remain less than 2 cm.
- No cancer transformation
- Treat: conservative surgical removal
  - Few recurrences
Leiomyosarcoma
Leiomyosarcoma

- Malignant neoplasm of smooth muscle
- Etiology: unknown
- **GALP:**
  - None
  - Young adults & middle age
  - No location predilection
  - Rare

- Lobulated mass
- Relatively firm
- May be ulcerated
Leiomyosarcoma
Histopathology, Treatment

- Dysplastic spindle cells
  -- blunt, cigar-shaped nuclei

- Treat: radical surgery
- Overall: poor prognosis
- High grade = worse prognosis
Rhabdomyoma
Rhabdomyoma

- Benign neoplasm of striated muscle
- Etiology: unknown
- **GAL:**
  - None
  - Infancy or childhood
  - Tongue, lips
  - Very rare
- Usually sessile, firm, painless mass
- Normal surface color and smooth surface
Rhabdomyoma

- Micro: cellular proliferations of striated muscle cells
  -- Usually encapsulated
- Usually remain less than 2 cm.
- No cancer transformation
- Treat: conservative surgical removal
  – Few recurrences
Rhabdomyosarcoma
Rhabdomyosarcoma

- Malignant neoplasm of striated muscle
- **GALP:**
  - None
  - Childhood/young adults
  - Tongue
  - Rare
- Firm mass
- Often lobulated
- Sometimes ulcerated
Rhabdomyosarcoma
Histopathology

- Dysplastic striate muscle cells
- Embryonal type
- Alveolar type
- Treat: radical surgery
- 70% 5-year survival
Choristoma
Cartilaginous Choristoma
Soft Tissue Chondroma

- Tumor-like proliferation of normal cartilage
  -- But in wrong place
- GAL:
  - None
  - Teens and young adults (probably started much earlier)
  - Tongue
- Sessile, firm, painless mass with normal surface color or pallor
- Micro: Normal cartilage (hyaline or fibrous) in a fibrous stroma
Cartilaginous Choristoma
Soft Tissue Chondroma

- Usually remain 1-2 cm
- No cancer transformation
- Treat: conservative surgical removal
  - No recurrence
- Special variant: **Cutright tumor:**
  - Presumably secondary to continuing, low-level trauma
  - Older persons
  - Anterior maxillary alveolar midline
  - Firm, sessile nodule under denture
  - Treat: conservative surgical removal and fix denture
    (seldom recurs)
Osseous Choristoma
Soft Tissue Osteoma

- Tumor-like proliferation of normal bone
  -- But in wrong place
- **GALP:**
  - None
  - Teens and young adults (probably started much earlier)
  - Tongue
    -- Rare
- Sessile, firm mass
- Normal surface color or pallor
- Painless
- Micro: Normal but immature bone
  -- Perhaps with marrow
  -- In fibrous stroma
- Usually remain 1-2 cm
- No cancer transformation
- Treat: conservative surgical removal
  -- No recurrence
Metastasis to the Mouth
Metastasis to the Mouth

- Metastatic spread from extraoral source
  - Almost always carcinoma
- Usually from lung, breast and GI
- **GALP:**
  - Moderate male predilection
  - Middle-aged and older
  - Gingiva, tongue
  - 1-2% of all oral cancers
- Firm, smooth-surface nodule
  - Often with normal color
- Often ulcerated
- May be painful
- May destroy bone
Metastasis to the Mouth

- Micro: same appearance as primary cancer
- Enlarge rapidly
- Eventually with surface ulceration, pain

Treat:
- Radical surgical excision
- Radiotherapy
- Chemotherapy
  - Depends on condition of the primary tumor
  - Depends on other metastases