13 y/o male with red highly vascular gingival lesions
1½ year duration

What is the most likely diagnosis?

A. Pyogenic granuloma
B. Peripheral giant cell granuloma
C. Peripheral ossifying fibroma
D. Verruca vulgaris
E. Localized juvenile spongiotic gingival hyperplasia

Localized Juvenile Spongiotic Gingival Hyperplasia (LJSGH)

- Age range 7 to 39 years
- Female to male ratio 2.3:1
- Race distribution 82% Caucasian, 14% Hispanic, 4% Asian

Localized Juvenile Spongiotic Gingival Hyperplasia (LJSGH)

- Mostly single lesions
  - 60% facial gingiva
  - 84% anterior maxillary gingiva
- Clinical Presentation
  - 88% Bright Red
  - 94% Raised Mass
  - 19% asymptomatic and bleed easily
Localized Juvenile Spongiotic Gingival Hyperplasia (LJSGH)

- Distinct subtype of gingival hyperplasia
- Unclear pathogenesis
  - Viral etiology
  - Mouth breathing
  - Local irritation and dryness
- Slight tendency of recurrence
- Conservative surgical excision recommended

Case Presentation

- 48 year old Caucasian female was referred to oral surgeon for evaluation of and treatment in ant mand vestibule
- Firm and freely mobile mass
- Asymptomatic of unknown duration with recent increase in size
- Medical history was non-contributory and no apparent history of trauma

What is the most likely diagnosis?

1. Sebaceous glands (Fordyce granules)
2. Salivary gland/duct stone (sialolith)
3. Lipoma
4. Salivary gland tumor
5. Foreign body granuloma
**Foreign body reaction**
To displaced dermal filler
(Radiesse ® calcium hydroxylapatite)

**Needle is deep enough: can’t see metal**

**Granuloma 3 months after hyaluronan injection; if untreated it will remain for 6-12 months**

**ULCERS: STEPS TO DIAGNOSIS**
- Appearance
- Symptoms
- Duration
- Age
- Medications
- Medical history

**WHICH LESION IS CANCEROUS ?**

**CASE STUDY**
HIV+ patient who had lymphoma (post-chemo) and large necrotic area of the gingiva adjacent to the LL molar area.
CASE STUDY

Thirty seventy old male first noticed lesion 1 month ago. Very painful can’t eat went to ER and given antibiotics 2 weeks ago. Thought it was a cancer.

Clinical impression: squamous cell carcinoma vs fungal

REACTIVE LESIONS

- Traumatic ulcers
- Traumatic granuloma
- Traumatic ulcerative granuloma with stromal eosinophilia (TUGSE)

TRAUMATIC ULCERS/GRANULOMA

- Common on tongue, lips & buccal mucosa
- Traumatic granuloma –
  - Ominous appearing benign ulcer
  - Unique histologic variant - slow to heal
  - Associated with deep mucosal injury
CASE STUDY

• This 70y/o male complains of a painful ulcer on his gingiva. It has been present 3 months and is enlarging. Medications include anti-hypertensives, oral hypoglycemics, cyclosporine and azothioprine.

BIOPSY SPECIMEN

20 X

40 X

Epstein-Barr virus encoded small RNA (EBER)

POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER (PTLD)

• Incidence of lymphoma increased in transplant and any immunosuppressed patients
• Viruses play a role

POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER (PTLD)

• E-B Virus-strong B cell mitogen associated with Burkitt's lymphoma and PTLD

POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER (PTLD)

• See after solid organ or bone marrow transplant
• Can be self limited with decreased immunosuppression or go on to be full blown monoclonal lymphoma.
CASE STUDY
This 26 y/o male complains of a sore mouth & inability to eat or drink for 3 days

What is the most likely diagnosis?
A. Aphthous stomatitis
B. Erythema Multiforme
C. Recurrent Herpetic ulcers
D. Pemphigus
E. Erosive Lichen planus

PRIMARY HERPETIC GINGIVOSTomatitis

• Clusters of vesicles form and coalesce into irregular shallow ulcers, Herpes=creep
• Vesicles occur on all mucosal surfaces and sometimes skin
• Always (almost) ulcerates marginal gingiva
• Fever, lymphadenopathy & swallowing difficulties

PRIMARY HERPES

• Usually affects young children
• Lesions heal completely if not traumatized

PRIMARY HERPES

• Initial lesions prefer inflamed tissues i.e. erupting thirds and palatal of max. centrals
• Often cause gingival hypertrophy (opposite of ANUG) and lip ulcers
PRIMARY HERPES

• In adults can present with primarily pharyngeal involvement
• Coated tongue is constant for all primary HSV patients

Case 6
26 y/o female with sore throat and swollen glands

TREATMENT PRIMARY HERPES
CHILDREN

• Acyclovir elixir 200mg/5cc (banana flavored)
• 1tsp rinse 30 seconds and swallow 5x/day for 7 days
TREATMENT PRIMARY HERPES

ADULTS

- Valacyclovir 1 Gram BID for 10 days
- Significantly reduces incidence of recurrences

Secondary or Recurrent Herpes

- Pain within 1-2 days of dental appointment think RAU vs HSV
- Attached gingiva/palate, multiple small ulcers-HSV
- Soft tissues 1-3 larger ulcers with red halo-RAU

CASE STUDY

Middle aged patients with lesions of the attached gingiva, vestibule and buccal mucosa

ORAL LICHEN PLANUS (LICHENOID MUCOSITIS)

- Common mucocutaneous disorder- 1-3% of population.
- Increasing frequency
- 60-75% women
- Average age 50-60
**LICHEN PLANUS**

- 90% bilateral reticular lesions posterior buccal mucosa.
- Tongue next most commonly involved then gingiva and alveolar ridge.

---

**EROSIVE LICHEN PLANUS**

- 80% of patients on medication.
- Usually painful.
- Invariably have peripheral striae.

---

**Factors in the Etiopathogenesis of LichenOID MUCOSITIS**

- Foreign body (gingiva) – prophy jet
- Dental materials
**FOREIGN BODY GINGIVITIS**

**DENTAL MATERIALS**

**AMALGAM REMOVED 3 MONTHS AGO**

**LICHENOID MUCOSITIS IS OFTEN MULTIFACTORIAL IN ORIGIN.**

4 TRIGGERS-S.T.A.Y.
- STRESS
- TRAUMA
- ASPIRIN(NSAIDS)/AMALGAM
- YEAST

**TRAUMATIC LICHENOID MUCOSITIS**

**TRAUMATIC LICHENOID MUCOSITIS**
TRAUMATIC LICHENOID MUCOSITIS

Lichenoid Drug Eruption

- Takes an average 12 months to develop.
- Can develop after 10 years on same drug
- Ebbs and flows while on drug.
- Asymmetric eruption

TRIUMATIC LICHENOID MUCOSITIS

LICHENOID DRUG ERUPTIONS

- Loves lips/anterior buccal mucosa.
- May take up to 24-months to clear.
- Usually improves in 2-8 weeks.
Yeast

- Red, fuzzy lesion
- Exacerbate the condition

Yeast + Lichen Planus

Patient Worsens

- Yeast
- Cancer

Treatment

- Not entirely satisfactory
- No cure available
- Goal is symptom relief decrease scaring
- No pain no gain
- Immune suppression is the key
- Only 1 out of 15 resolve spontaneously.

Lichen Planus Treatment

- Clobetasol gel 0.05%
- Dsp. 15 or 30 gm
- Dry involved area
- Sig. apply sparingly b.i.d.
- Always precede each application with chlorhexidine rinse or will get Candidiasis

Topical steroids are the mainstay of therapy.
**SECOND LINE THERAPY**

- Patients do not respond to topical steroids
- Tacrolimus 0.1% ointment
  - Apply sparingly to dried area
  - 2-4 x/day for 4 weeks
  - May be repeated
- Expensive
- May cause burning which resolves with use
- Black box cancer warning??

**Treatment Mechanical**

- Soft tooth brush
- Stringent oral hygiene and prophylaxis procedures Q 3-6 months.

**Follow-up**

- Patients must be seen 1-2 times a year.
- Return if condition worsens.
- Erosive / atrophic types much more risky.
- Biopsy IF lesions change clinical appearance or resist Tx.
Case History


What is the most likely diagnosis?

1. Chronic gingivitis
2. Lichen planus
3. Benign mucous membrane pemphigoid
4. Squamous cell carcinoma
5. Mechanical/traumatic injury related

Gingival Carcinoma

- Gingival and alveolar ca usually painless
- Most frequently arise from keratinized mucosa in a posterior mandibular site
  - Mimics benign inflammatory changes normally seen on gingiva
  - Become clinically evident after tooth extraction
  - Hyperplastic tissue arises from the socket

SCCa of the Gingiva

- Account for 10% of all oral SCCas
- May present as an exophytic mass, ulceration or white speckled patch
- Proximity to underlying periosteum leads to early bone invasion & tooth mobility

Table II. Summary of clinical impression or differential diagnosis.

<table>
<thead>
<tr>
<th>Clinical impression</th>
<th>No. cases</th>
<th>Percent of total (%)</th>
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<td>5</td>
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<tr>
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<td>Others</td>
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<td>3</td>
</tr>
<tr>
<td>Unknown</td>
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<td>6</td>
</tr>
</tbody>
</table>

CASE STUDY

64 y/o male with white lesion marginal gingiva that cannot rub off. Patient feels a rough spot... Been there at least a month.... Not anywhere else in mouth. Negative medical history...

What is the most likely diagnosis?

A. Frictional keratosis
B. Leukoplakia
C. Squamous cell carcinoma
D. Verrucous carcinoma
E. Proliferative verrucous hyperplasia

VERRUCOUS CARCINOMA
VERRUCOUS CARCINOMA

80-90% on gingiva or buccal mucosa
Slow growing and do not metastasize
20% have co-existing SCCa
Elderly snuff dippers/smokers
Associated with HPV?? Not recently

CASE STUDY

76 y/o female one year history of sore "gums" which bleed easily. Gums peel easily and she often gets blood filled blisters.

HISTOLOGY SUBEPITHELIAL SEPARATION

IMMUNO-HISTOCHEMISTRY

IgG hob nail BMZ positive
What is the most likely diagnosis?

1. Erythroplakia
2. Lichen planus
3. Mucous membrane pemphigoid
4. Lupus erythematosus
5. Pemphigus vulgaris

MUCOUS MEMBRANE PEMPHIGOID

- 50-75% of desquamative gingivitis patients
- Bloody blisters pathognomonic
- 2/3 of pts lesions limited to gingivae
- Difficult to diagnose- perilesional Bx, DIF
- 14% eye affects (symblepharon), can cause blindness

DESQUAMATIVE GINGIVITIS

BLOOD BLISTER PATHOGNOMONIC

EYE LESIONS WITH EXTENSIVE DISEASE

SKIN LESIONS
TREATMENT

- Dapsone is effective but decreases level of hemoglobin
- Prophys and good OHI can work well
- MMP inhibitors (periostat), peridex, topical clobetasol (in trays bid x 2 weeks)
- Must get eyes checked

TREATMENT MMP

- Peridex rinse BID
- Doxycycline 20 mg BID (for six months)
- Clobetasol gel 0.05%, use sparingly
- Place over lesions and cover with tray for 15 minutes
- BID for two weeks only.

TREATMENT MMP

- After two weeks use Clobetasol without tray.
- Rub in for 30 seconds to areas still present/painful.
- Get optho consult – check for eye lesions.

CUSTOM TRAYS TWO WEEKS ONLY

- Sulca brush only once a day but every day!!!
CASE STUDY

• This 40 year old female has had crowns on her anterior teeth for six years without any problems. Both crowns do have open margins. One year ago she developed HBP and was Rx Lotrel. She immediately noticed gingival swelling in association with the crowns. Six months ago the dose was doubled and the swelling increased noticeably.

What is the most likely diagnosis?
1. ANUG
2. Mouth breathing associated gingival hyperplasia
3. AIDS associated periodontal disease
4. Drug-induced hyperplasia
5. Plasma cell gingivitis

DIAGNOSIS

• Drug induced (Lotrel) gingival hyperplasia
• Lotrel combination drug ACE inhibitor (benazepril) and calcium channel blocker (amlodipine-Norvasc)
• Drug effects are additive and dose is important also.
• Combination of inflammation and drug needed for full development.

DRUG INDUCED GINGIVAL HYPERPLASIA

• Mouth breathing exacerbates the problem
• Gingival tissues nodular and not inflamed
• Dilantin hyperplasia starts as overgrowth of interdental papillae
DRUGS CAUSING GINGIVAL HYPERPLASIA

- Calcium channel blockers (dihydropyridines)
  - Nifedipine-25%
- Immunosuppressive drugs
  - Cyclosporine 25%
- Phenytoin-50%
- Additive effects
AN UPDATE ON ORAL PATHOLOGY

Potpourri of Oral Pathology Challenging & Fun Cases From Everyday Practice Part 2

SOFT TISSUE LESIONS BY REGIONS
IMPROMTANT BONE LESIONS
HPV: EPIDEMIC OF OROPHARYNGEAL CANCERS

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CASE 1

MULTIFOCAL

68 y/o female 3 year history of recurring white lesions. All diagnosed as hyperkeratosis or atypical epithelial hyperplasia. Keep recurring and spreading to new areas.

MULTIFOCAL LESIONS

What is the most likely diagnosis?
A. Lichen planus
B. Erosive lichen planus
C. Squamous cell carcinoma
D. Proliferative verrucous leukoplakia
E. Erythema multiforme

Proliferative Verrucous Leukoplakia (PVL)
• Middle aged females (4:1 F>M)
• Mean age 63.9 (over 62)
• Little relation to smoking
• Little known of etiopathogenesis
• No specific treatment modality has proven effective

Proliferative Verrucous Leukoplakia (PVL)
• Recurrent (71%)/persistent
• Progresses to multiple sites
• ?? HPV 16,18 positive (0-80%)
• High (64%) risk for malignant transformation
• Verrucous carcinoma or squamous
• 39% of 277 patients died of disease within 7 year follow up

Proliferative Verrucous Leukoplakia (PVL)

- 2 not so recent papers no association with HPV
- But surgery alone 18/25 recurrences within 6 months
- Surgery plus antiviral (anti-HPV immunomodulatory agent) isoprinosine or methisoprinol-- 2/25
- 18 months post op 2 additional recurrences in anti viral group(4/25) none in surgery group(18/25)

CASE 7

Twenty year old male bit his lip several months ago. The lesion has persisted for all this time but it does occasionally swell and then almost disappear.

What is the most likely diagnosis?

A. Mucocoele
B. Mucous retention cyst (ranula)
C. Salivary gland tumor benign
D. Salivary gland tumor malignant
E. Focal fibrous hyperplasia

MUCOCELE

- Common lesion from rupture of salivary gland duct and spillage of mucin
- Result of local trauma.
- Not a “true” cyst lacks an epithelial lining.
- Dome-shaped submucosal swellings
- Children and young adults
- Lower lip most common site (75%)

FIBROMA-LIKE MUCOCELE

Pedunculated or sessile “fibroma” of lower lip think mucocoele
Make sure to remove underlying salivary gland tissue along with “fibroma”. 
CASE 8

82 y/o male with enlarging lesion over last 3 years. Lesion swells and painful then drains. Lesion is indurated and freely moveable. On palpation mucoid material was expressed.

What is the most likely diagnosis?

A. Mucocele
B. Mucous retention cyst (salivary duct cyst)
C. Salivary gland tumor (canalicular adenoma)
D. Salivary gland stone (sialolith)
E. Fibroma

CASE STUDY

• Mucoceles rarely develop on the upper lip.
• Mucous cysts and salivary stones are common in upper lip, rare in lower
• Mucous cysts are true epithelial lined cysts (actually dilated ducts)
• Many cysts are caused by stones or inspissated mucous blocking the salivary gland ducts

CASE STUDY

• Stones appear clinically as indurated, freely moveable submucosal masses as seen in this patient
• Treat by surgical excision or sialogogues for multiple recurrent lesions

SIALOLITHIASIS

• Most common in the submand, less in parotid
  — Long, tortuous path of the Wharton's duct
  — Thicker, mucoid secretions of the gland
• Present with episodic pain or swelling of the affected gland, especially at mealtime
MINOR SALIVARY GLAND TUMORS

- Also common in **upper** lip (21-25%)
- Second most common intraoral site
- **Canalicular Adenoma**
  - Striking predilection for upper lip (81%)
  - Nearly always in 50+ females
  - Slowly growing, freely mobile, painless mass

SALIVARY GLAND TUMOR

VENTRAL ANTERIOR TONGUE

DIAGNOSIS: Mucocele glands of Blandin-Nuhn

- High recurrence rate
- Glands deep in muscle of tongue
- Classical location: anterior ventral tongue
- Misdiagnosed clinically & microscopically as pyogenic granuloma or ulcer

CASE STUDY

Sixty-seven year old female referred for biopsy of suspicious growth on posterior lateral border of the tongue. Lesion is painful but then is asymptomatic for a long time. Patient has long history of allergies and rhinitis.

What is the most likely diagnosis?

A. Fibroma
B. Foliate papillitis (lymphoid hyperplasia)
C. Squamous cell carcinoma
D. Lymphoepithelial cyst
E. Lipoma
LYMPHOID HYPERPLASIA

- Lymphoid tissue - protective function
- Antigenic challenges - lymphoid cells proliferate
- Results in enlargement of lymphoid tissue clinically seen as **lymphoid hyperplasia**

LYMPHOID HYPERPLASIA

- Affects Waldeyer’s ring (aggregates of lymphoid tissue particularly oropharynx, soft palate, posterior-lateral tongue and floor of mouth).

LYMPHOID HYPERPLASIA

- Hyperplastic oral lymphoid aggregates - discrete, nontender, submucosal swellings <1 cm
- Normal or deep pink in color if deeper or creamy-yellow color if closer to surface.

LYMPHOID HYPERPLASIA

- **Treatment and Prognosis**
  - Once diagnosis is confirmed (+/- biopsy), no treatment is required
  - Periodic observation is usually recommended.

“FOLIATE PAPILLITIS”

- Enlarged lingual tonsil
**CASE 12**

57 y/o Cauc male 5 cm x 3 cm spongy mass hard palate. Lesion first noted by hygienist. Patient reluctant to go for a biopsy because lesion asymptomatic and he had multiple similar “lipomas” on his back. Lesion did not blanch with pressure. Swelling did not communicate with teeth in the area.

What is the most likely diagnosis?

A. Palatal abscess  
B. Lipoma  
C. Benign mesenchymal tumor  
D. Salivary gland tumor  
E. Lymphoma

**DIAGNOSIS: MANTLE CELL LYMPHOMA**

- One of four types of small B-cell lymphomas  
- Distinct subtype due to short survival and aggressive course  
- Predilection for elderly males, hard palate  
- Treatment: chemotherapy(RCHOP), radiation and possible BMT

**NON-HODGKIN’S LYMPHOMA**

- Occurs primarily in adults  
- Makes up 5% of oral malignancies  
- Second most common malignancy of oral cavity  
- Nontender slowly enlarging mass involves cervical, axillary or inguinal nodes

**ORAL NON-HODGKIN’S LYMPHOMA**

- Nontender, diffuse soft tissue swellings of buccal vestibule, gingiva, or posterior hard palate.  
- Appear erythematous or purplish and have "boggy" consistency.
MINOR SALIVARY GLAND TUMORS

- Almost 50% malignant
- "Smaller the gland, the greater the chances of malignancy"
- Palate - most frequent site (42 to 54%)
- Posterior lateral hard or soft palate
- Lips - second most common

What is the most likely diagnosis?

1. Chronic traumatic lesion
2. Lichen planus
3. Chemical burn
4. Squamous cell carcinoma
5. Viral (Koilocytic) dysplasia
SEVERE KILOCALYTIC DYSPLASIA

HPV & ORAL CANCER
NON-SMOKERS LEUKOPLAKIA

- 5-8 times risk of oral cancer
- More frequent on tongue/floor of mouth (64 vs. 11%)
- More dysplasia (38 vs. 5%)
- Younger patients

HPV & ORAL CANCER

- 85% of women will be + at some time
- 70% of sexually active males HPV positive
- Prevalence of genital HPV 16,18 10-25%
- Incidence of oral HPV in US population 7%
- 10% male, 3.6% female
- Peak incidence: 30-34 y/o - 7.37%
  60-64 y/o - 11.45%!!!
- Oro-pharyngeal cancer most common H & N cancer shortly

CHANGING EPIDEMIOLOGY OF OROPHARYNGEAL SQUAMOUS CELL CANCERS (OPSCC)
CHANGING INCIDENCE OF ORAL SEX IN USA

<table>
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<th>SM</th>
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<td>1950's</td>
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<td>Kinsey report</td>
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<tr>
<td>2000's</td>
<td>45%</td>
<td>90%</td>
<td>45%</td>
<td>90%</td>
</tr>
</tbody>
</table>

Average number of partners has only increased by 1 per decade from 4 (1980's), 5 (1990's), 6 (2000's)
BUT only 33% of single people use condoms

WHY MEN?

- Men have more lifetime oral sex partners than woman
- Per sex partner increase in high-risk oral HPV prevalence, 3 fold higher for men than women
- Therefore high transmission rate of women to men
- 50% of woman seroconvert to HPV 16 following genital infection protecting from subsequent oral infection
- Men prevalence of high risk oral HP 5.9% women 1.5%

HPV & ORAL CANCER

- Oropharyngeal cancers occur in younger age group (3-5 up to 10 years average).
- Especially troubling increase in non-smoking males with oro-pharyngeal ca
- Men 45-60 2-4 x more likely to get oro-pharyngeal cancer than women
HPV & ORAL CANCER

- Infection with high-risk HPV infection 2-4 x risk OPSCC
- Fortunately HPV associated cancers have a better prognosis
- HPV+HNSCC: Less chromosomal mutations (compared to smoking/drinking associated tumors)

HPV Positive Oro-pharyngeal Cancer
A Distinct Entity

- Early T stage with cervical metastasis
- Poorly differentiated and later stage yet better prognosis!!
- Often first presents as lump in neck
CASE STUDY
85y/o male with a large radiolucency and loose implant borne bridge in anterior maxilla
There is weird brown stuff coming out of sockets.

What is the most likely diagnosis?
1. Periapical cyst
2. Squamous cell carcinoma
3. Keratocystic odontogenic tumor
4. Incisive canal cyst
5. Osteomyelitis

KERATOCYSTIC ODONTOGENIC TUMOR
- Developmental odontogenic cyst
- Deserves special consideration because of its specific histopathologic features and clinical behavior
- Arises from cell rests of the dental lamina
**Clinical Features**

- 10-40 years of age, mandible - 60-80%
- Tendency to involve post body & ramus
- Tend to grow in AP direction within the medullary cavity without causing obvious bone expansion
- Multiple OKCs - suspect nevoid basal cell Ca (Gorlin-Goltz) syndrome

**Radiographic Features**

- Usually well-defined radiolucency
- Smooth and often corticated margins
- Large lesions, especially in the post body and ramus appear multilocular
- 25-40% - unerupted tooth involved
Treatment & Prognosis

- High recurrence after treatment
  - Due to friable lining
  - Or remaining “cystlets”
- Recurrence rate of approx. 30%
- Significant number of recurrences may not be manifested until 10 or more yrs.
- Long-term follow-up is necessary

CASE STUDY

- Not sure biopsy WILL HELP
- 60 y/o FM 1 year history progressive tongue enlargement
- Progressively worsening posterior open bite
- Possibly related to tongue enlargement but hard for me to attribute all this to the tongue
- Recurrent, episodic, purple lesions and sores on the tongue

Which of the following is the most likely diagnosis?

A. Edentulism related muscular hypertrophy
B. Vascular malformation/Lymphangioma
C. Amyloidosis
D. Myxedema of hypothyroidism
E. Angioedema
MY ASSESSMENT

- Judging from wear pattern in teeth something opened up vertical.
- I assume condyles are normal as is her thyroid function.
- I think acquired macroglossia from vascular malformation/hemorrhagic diathesis/clotting disorder amyloid accumulation
- Other signs of bruising or clotting problems on the skin??

AMYLOIDOSIS

- Heterogeneous group of conditions characterized by deposition of extracellular material called amyloid.
- Amyloid associated with: multiple myeloma, rheumatoid arthritis or chronic infections including tuberculosis.

Primary & Myeloma-Associated Amyloidosis

- Affect older adults (av. 65)
- Mucocutaneous lesions and macroglossia from amyloid deposits

Primary & Myeloma-Associated Amyloidosis

- Skin: smooth-surftaced, firm, waxy papules and plaques.
- Macroglossia 12-40%, diffuse or nodular enlargement of tongue.

CASE STUDY

58 y/o male dull ache posterior mandible. Persisted despite 3 RCT. Now notices purple swelling in buccal mucosa. Endodontist referred him to oral surgeon who does a biopsy since he can’t understand the clinical scenario.
MULTIPLE MYELOMA

- Rare malignancy of plasma cells, often of multicentric origin within bone.
- Cause is unknown.
- If metastatic disease is excluded, accounts for 50% of malignancies that involve bone.
- Abnormal plasma cells are monoclonal.

MULTIPLE MYELOMA

- Disease of older men, median age 70, rarely presents before age 40.
- **Bone pain** is most characteristic presenting symptom.
- Pain is similar to arthritic pain.
- Present with pathologic fractures caused by tumor destruction of bone.

MULTIPLE MYELOMA

- Multiple well-defined, "punched-out" or ragged radiolucent lesions.
- Especially evident on a skull film.
- Jaw involvement in 30% of cases.
- **Bence Jones proteins**, light chain products produced by malignant cells, found in urine 30 to 50%
MULTIPLE MYELOMA

- Deposition of amyloid in soft tissues
- This may be initial manifestation of disease.
- Sites that are classically affected include oral mucosa, particularly the tongue
- Monotonous sheets of neoplastic plasmacytoid cells invade normal tissue.

CASE STUDY

This 65 year old female complains of mild pain involving the area of the maxillary right first premolar.

CASE STUDY

79 y/o male 12 year history of mand trans-osseous implant(staple). Med Hx: stomach ulcer, glaucoma, 3week/week and smoking ½ pk/day for 40 +years. Pain and swelling rt. mand under prosthesis with marginal bone loss.

PERIAPICAL LESION?????

METASTATIC BREAST CANCER THREE MONTHS POST EXTRACTION
METASTATIC TUMORS TO THE JAWS - SYMPTOMS

- Pain
- Swelling
- Loosening of teeth
- Presence of a mass
- Paresthesia

METASTATIC TUMORS TO THE JAWS

- Usually present as radiolucent defects.
- Defect well circumscribed or ill defined ("moth-eaten" appearance).
- Some carcinomas (prostate and breast), osteoblastic resulting in radiopaque or mixed radiolucent and radiopaque lesions.

METASTATIC TUMORS TO THE JAWS - SYMPTOMS

- Breast 23%
- Lung 15%
- GI 8%
- Male Repro 7%
- Female Repro 3%
- Renal 3%
- Thyroid 3%

MRONJ

60 y/o FM on Boniva 3 yrs off 1. Ext # 19 socket healed after 6 months. Bone exfoliating in mouth right and left sides (both sides had recent extractions). PMH: COPD, anemia, pre diabetes, on prednisone, common variable immune deficiency and MVP.
DEFINITION MRONJ

- Current or previous treatment with anti-resorptive or anti-angiogenesis agent
- Exposed bone or probable bone through a fistula persisting for more than 8 weeks
- No history of radiation therapy or obvious metastasis to the jaws

DENOSUMAB (PROLIA, XGEVA)

- New fully human monoclonal antibody to RANKL (receptor activator of nuclear factor-kB ligand) the dominant promoter of bone resorption.
- Causes greater suppression of bone resorption than bisphosphonates.
- At 12 months increase bone density 1.9% vs 1% for Alendronate in post menopausal females (1.5 to 2.0 X as effective)

CASE STUDY


MECHANISM OF ACTION RANKL

- RANKL produced by osteoblasts in response to pro-resorptive stimuli (PTH, IL-1, TNF)
- Binds & activates RANK (receptor activator of nuclear factor-kB) receptor on osteoclasts and O-clast precursors
- Promptly signals proliferation of osteoclasts
- Key mediator of osteoclast formation, activity and survival
Prolia and ONJ

- In 2011, 46 pts on Prolia with ONJ were reported on this website; in 2012, 186 pts were reported.
- As of April 11, 2014, 5,775 people reported having side effects from Prolia. Of these, 232 (4%) have ONJ, and this also constitutes 0.12% of the 201,262 people who have ONJ on eHealth.
- Time on Prolia to ONJ is 27% in less than 1 month, 16% in 1-6 months, 25% in 6-12 months, and 31% in 1-2 yrs.
- Median time 14 months peak incidence 2-3 years.

http://www.ehealthme.com/ds/prolia/osteonecrosis

Epilogue

- 2 months after removal of sequestrum another piece of bone was detected in the same location.
- 4 months later a dental implant replacing tooth #30 began to cause discomfort
- Implant placed after post-extraction healing process of 6 months.
- Graft material placed at time of surgery.
- Implant was placed 3 months after first Prolia injection.

Epilogue (cont’d)

Implant had previously had good osteointegration and healed normally until the discomfort began.

Despite a well-intentioned and heroic plan to save the implant the surgeon removed it with a cotton forceps. (No more elective jaw surgery!!)

SUMMARY OF RADIOGRAPHIC FINDINGS

- Major finding (seen in 100% of the patients if lesion in tooth bearing areas)
  - Periodontal disease
  - Definite sclerosis limited to the alveolar process
- Less common findings:
  - Bony expansion
  - Increased periosteal new bone formation
  - Presence of bony sequestrum
  - Widening of the periodontal ligament space
  - Thickening of the lamina dura
  - Incipient bifurcation involvement

2005 2006
80 y/o FM Off Fosamax 10 years Extraction 1 year ago

IMPLANTS & OCN

- Generally no contraindication for implants in patients on a bisphosphonate
- Risk negligible < 4 years use
- Recent article 19 BF pts (15-47) with implant related BRONJ
- 3/19(15.8%) implant surgery triggered
- 9/19(47%) successful integrated implant & BRONJ
- Integration average 35 months, range 11-82 months
- Implants failed as en-block sequestration unlike with peri-implantitis associated failures

IMPLANT BONE FAILURE

68 y/o female implant placed 3 years ago
Developed peri-implantitis and osteonecrosis
Implant came out with bone attached
Started on Prolia 6 months ago

LATE TERM IMPLANT FAILURE

68 y/o female implant placed 3 years ago
Developed peri-implantitis and osteonecrosis
Implant came out with bone attached
Started on Prolia 6 months ago
LESSONS IN PREVENTION PTS ON BP FOR >/= 3-5 YRS, OTHER FACTORS

- Take x-ray and AVOID surgery if sclerosis etc present
- Give antibiotic within 2 hours of surgery and for 2 weeks following
- Chlorhexidine rinses may be helpful for prevention
- DRUG HOLIDAY-for elective surgery d/c bisphosphonate for 2 months, do necessary surgery then allow 3-more months for healing.