

## From the Files of Oral Pathology.....!

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### CASE 1

25 year old female with a hyperplastic gingival overgrowth between #20 and #21

### The Four "P"s

- Peripheral Fibroma
- Pyogenic Granuloma
- Peripheral Giant Cell Granuloma
- Peripheral Ossifying Fibroma

### Peripheral Ossifying Fibroma

- Reactive growth of the gingiva with uncertain histogenesis
- Believed to be a matured pyogenic granuloma that ultimately undergoes calcifications
- It does not represent central ossifying fibroma
- Occurs exclusively on the GINGIVA
- Nodular mass that is either pedunculated or sessile usually of the interdental papillae and appears red to pink and frequently ulcerated
- Younger adults and teens with F > M
- Maxilla > Mandible; >50% cases occur in the incisor/canine area

### Peripheral Ossifying Fibroma

#### Histology:

- Fibrous proliferation associated with formation of mineralized product
- The surface if ulcerated, shows a fibrinopurulent membrane
- The mineralized component varies from bone, cementum-like material or dystrophic calcifications

#### Treatment:

- Local surgical excision down to the periosteum
- Scaling of the adjacent teeth to remove irritants
- Recurrence rate of 16%

### Case 2

20-year-old female complained to her primary physician  
"My face has been swollen for a month."

### Differential Diagnosis

- Odontogenic Cyst
- Odontogenic Tumor
- Lesions associated with the sinus

### Calcifying Odontogenic Cyst

- Most of the cases (~ 90%) are cystic, but rare neoplastic variants reported (dentinogenic ghost cell tumor or epithelial odontogenic ghost cell tumor)
- COC may also be associated with odontomas, adenomatoid odontogenic tumors and ameloblastomas
- Predominantly intraosseous however extraosseous cases also reported
- 65% of cases in the incisor-canine areas
- Usually occurs as a unilocular, well-defined radiolucency

### Unicystic Ameloblastoma

- Generally in younger people than the average age of 33 for ameloblastomas
- Luminal, intraluminal and mural types
- If truly unicystic (all ameloblastoma is within the cyst lumen) can be treated by curettage of the cyst
- If ameloblastoma is in the wall of the cyst, treatment must be standard for ameloblastoma, resection

### Case 3

A 24 year old female presented with a complaint of lesions all over the mouth

3-16-06: Pt reports having "allergic reaction," after eating dinner out with father in Texas. Pt reports significant swelling of lips.

3-17-06: Pt presents to ER w/ reports of trouble breathing. ER gave low dose Prednisone.

3-18-06: Pt flew back to MPLS, pt beginning to get ulcers in mouth.

3-19-06: Pt admitted to Hospital due to Dehydration

3-21-06: Pt saw allergist, who prescribed low-dose Prelone (prednisone liquid). Vaginal Lesions also reported.

Pt referred to dental school for evaluation regarding lip/mouth lesions. Intraoral photos taken.

### Differential Diagnosis

(based on clinical presentation)

- Erythema Multiforme Major (Stevens-Johnson Syndrome)
- Erythema Multiforme
- Pemphigoid
- Behcet's Syndrome
- Orofacial Granulomatosis
- Allergic Reaction (drug-induced)
- Mucosal Burns

Diagnosis: Erythema Multiforme  
 Patient on high dose prednisone (80 mg/day) for 3 days and taper down

Viscous lidocaine to relieve the pain

### Erythema multiforme (EM)

- Acute blistering self-limiting disease of the skin and mucous membrane
- Young adults and male predilection
- Unknown cause but a trigger usually found in 50% of cases – classified into 2 large categories: infections (HSV) and drugs (sulfonamides)
- Classic skin lesions called **target** or **iris** lesions occur in the extremities: concentric erythematous rings separated by skin of normal color

- Prodromal symptoms (1wk prior)
  - Fever, malaise, headache, cough, sore throat
- Ulcerations of oral mucosa with irregular borders
- Diffuse sloughing of mucosa and skin in severe cases

- Erythema multiforme (EM)**
- Oral lesions vary from a few aphthous-like ulcers to multiple, superficial widespread ulcers
  - Symptoms range from mild to severe pain
  - Most common sites affected are lips, buccal mucosa, palate and tongue
  - Lips show hemorrhagic crusting - CLASSIC
  - Stevens-Johnson syndrome: severe form of the disease with intense involvement of mouth, eyes, skin, genitalia and respiratory tract

- Erythema multiforme (EM)**
- Should be differentiated from herpes, aphthous ulcers, pemphigus, cicatricial pemphigoid and erosive LP
  - Self-limiting which lasts around 2 to 4 weeks
  - 20% will have recurring episodes
  - Symptomatic treatment, topical and systemic corticosteroids
  - Acyclovir for recurring cases due to HSV

**Stevens-Johnson Syndrome (Erythema Multiforme Major)**  
More severe form of the disease

Usually triggered by drugs

For diagnosis genital and ocular lesions must accompany oral lesions

Occurs in approximately 5 cases per million population/year

**Treatment**

Hospitalization – usually patient is seen in the ER

High dose systemic corticosteroids – 80 to 120 mg/day

Discontinue causative agent (if known)

Intravenous rehydration (if needed)

Topical anesthetics to decrease discomfort

**CASE 4**

70 year old female with a history of osteoporosis on Fosamax for 4 years and Boniva for 6 months

History - Cardiovascular disease  
Myocardial infarction  
Hypertension  
Asthma  
Hypothyroidism

No history of smoking or alcohol

- Underwent RCT (# 28, 29) 6 months prior to developing ONJ in the lingual region of tooth #29-31 along the area of lingual torus
- Lesion Size - 3cm x 9mm
- Signs/symptoms –inflammation, pain
- No biopsy done
- BP discontinued after ONJ diagnosis
  
- Treatment - Penicillin - 500 mg , peridex mouth rinse, irrigation

- ### Bisphosphonate Related Osteonecrosis of the Jaws (ONJ) – AAOMS definition 2006
- Current or recent treatment with a bisphosphonate (intravenous or oral)
  - Exposed bone in the maxillofacial region that has persisted for more than 8 weeks  
(8 weeks is consistent with a time frame where most trauma, extractions, and oral surgical procedures would have resulted in soft tissue closure, and exposed bone would no longer be present)
  - No history of radiation therapy to the jaws
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- ### What is a bisphosphonate?
- Used to treat cancer related conditions
    - Multiple myeloma
    - Solid tumors
      - Breast, prostate, lung
  - Osteoporosis/Osteopenia  
More than 190 million oral bisphosphonate prescriptions dispensed worldwide
  - Other bone turnover diseases (Paget's disease) and osteogenesis imperfecta
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- ### Estimated Incidence of ONJ
- IV bisphosphonates and incidence of ONJ
- Retrospective studies with limited sample sizes
  - Varies from 0.8% to 12%
  - > 900 cases reported in literature
- Oral bisphosphonates and ONJ
- Approximately 61 cases reported (57 osteoporosis and 4 Paget's disease patients)
  - Of the osteoporosis patients: 4 men and 53 women  
Less than 1 in 100,000 to 1 in 250,000 patient treatment years
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- ### Clinical Presentation of ONJ
- Painful, exposed bone in mandible and/or maxilla
  - ONJ has only been reported in maxillofacial bones and not in long bones
  - Symptoms resemble dental abscesses, "tooth aches", denture sore spots and osteomyelitis
- Swelling  
Paresthesia  
Suppuration  
Soft tissue ulceration  
Intra- or extra-oral sinus tracks  
Loosening of teeth  
Radiographic variability (ranging from no radiographic alterations to varying radiolucencies or radiopacities)
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- Woo et al. Ann Intern Med 144:753-61 (2006)  
Reviewed published reports as part of a position paper from American Academy of Oral and Maxillofacial Pathology
- 65% of ONJ cases manifested as exposed bone in mandible  
26% in maxilla  
9% in both jaws
- 31% of cases present as multifocal or bilateral cases in maxilla as opposed to only 23% in mandible
- Majority of ONJ cases seen posterior to the canines
- Most common site is the posterior mandible followed by posterior maxilla
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**ONJ-Risk Factors**

- Drug Related
  - Potency (Zometa>Aredia>oral)
  - IV route
  - Duration of therapy
- Local-DA surgery
  - Extractions
  - Dental implant placement
  - Periapical surgery
  - Periodontal surgery (osseous)
- Local- Anatomic
  - Exostoses and prominent mylohyoid ridge
- Concomitant Oral Disease
  - Periodontal and dental abscess
- Demographic/Systemic
  - Age
  - Cancer type
  - Dose of BP
  - Duration of BP
- Other Risk Factor
  - Corticosteroid Tx
  - Chemotherapy Tx
  - Smoking
  - Diabetes
  - Alcohol use
  - Poor oral hygiene

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**Management Strategies for Patients Treated with Bisphosphonates**

General Considerations

1. Free and complete communication between health care professionals (physicians and dentists) involved in treatment and between health care professionals and patients
2. All patients either starting or on bisphosphonates should be informed of the benefits of bisphosphonate Tx. They should also be informed of the risks of bisphosphonate treatment including ONJ – the signs and symptoms of ONJ and the risk factors of ONJ development
3. Patients taking bisphosphonates should be encouraged to maintain good oral hygiene, and to have regular dental visits. They should be urged to report any oral problems to their dentist or physician
4. Education of physician and other health care providers

**Orthodontic Considerations**

Am J Orthod Dentofacial Orthop 131: 311-20 (2007)  
Am J Orthod Dentofacial Orthop 131: 321-6 (2007)  
J Clin Orthodont XL (7) 425- 428 (2006)

- Ask all patients whether they currently take or have ever taken IV or oral BPs. I would recommend including this as a specific item on your medical history form
- Assess the risk of ONJ development
- Evaluate Tx plan based on risk
  - discuss with oncologist, dentist and patient to determine benefit vs risk

High Risk Patients (Patients on IV BP and serious medical complications)  
 - orthodontic treatment should be avoided

Low Risk Patients

- No orthodontic treatment should be considered

However if orthodontic treatment is elected then minimize tooth movement and pressures on tissues during treatment and retention

- Talk to the patients physician, dentist or other health care provider
- A specific consent form addressing the risks of limited tooth movement or ONJ development should be developed
- Consider discontinuing the bisphosphonate for a period of time before initiation of orthodontic treatment
- Avoid or minimize elective surgery and extractions
- Interproximation should be favored
- Passive retention
- Monitor for areas of necrosis

**CASE 5**

25 year old female smoker started developing lesions on her tongue and cheek within one month after quitting smoking

- Contact stomatitis from artificial cinnamon flavoring
- Concentrations of the artificial flavoring are up to 100 times that in the natural spice
- Most common in chewing gum, candy, toothpaste

**Case 6**

14 year old with enlargement of the left maxilla

**Segmental odontomaxillary dysplasia  
(hemimaxillofacial dysplasia)**

- Mistaken for fibrous dysplasia
- Childhood
- Unilateral maxillary enlargement
- Gingival soft tissue hyperplasia
- Maxillary premolars frequently missing
- Retained primary teeth with enamel abnormalities
- Smaller maxillary sinus
- Facial hypertrichosis, hyperpigmentation

**Segmental odontomaxillary dysplasia  
(hemimaxillofacial dysplasia)**

- Coarse trabecular pattern
- Vertical lines ("heavy rain")
- Histologically, totally different from fibrous dysplasia
- Bone does not show osteoblastic – osteoclastic activity

**THANK YOU**