Objectives for Section C-1

Periodontal Disease

Upon successful completion of this section the student will:

- a) Describe the structures of the periodontium
- b) Differentiate clinically between the periodontium in health and in disease
- c) Outline the process of periodontal disease
- d) Compare and contrast the diseases of periodontitis and gingivitis
- e) Describe the inflammatory response in periodontal disease
- f) Recognize the signs of gingivitis and periodontitis
- g) List the possible etiologies of periodontal disease
- h) Describe dental plaque biofilm
- i) Identify local and systemic risk factors for periodontal disease
- j) Discuss the possible treatment interventions for periodontal disease

Objectives for Section C-2

Caries

Upon successful completion of this section the student will:

- a) Identify the different tissues that compose the teeth
- b) Explain the caries process
- c) Identify the factors that contribute to the development of caries
- d) Discuss risk factors for caries
- e) Describe the stages of the caries process
- f) Discuss the symptoms of caries
- g) Discuss the possible treatment interventions for caries

Objectives for Section C-3

Pathology

Upon successful completion of this section the student will:

- a) Recognize intraoral deviations from normal
- b) Use terminology to describe intraoral lesions
- c) Discuss common oral pathologies
- d) Identify symptoms of common oral pathologies
- e) Discuss ideal treatment options for common oral pathologies
- f) Recommend practical treatment options for common oral pathologies

Objectives for Section C-4

Trauma

Upon successful completion of this section the student will:

- a) Recognize signs of common soft tissue oral trauma
- b) Recognize symptoms of common soft tissue oral trauma
- c) Recognize signs of common dental trauma
- d) Recognize symptoms of common dental trauma
- e) Recommend methods of preventing oral/dental trauma
- f) Discuss ideal treatment for oral/dental trauma
- g) Recommend practical treatment options for common oral/dental trauma

Manual for Section C-1

Periodontal Disease

Ref: Darby & Walsh Ch. 15, 17, Foundations of Periodontics for the Dental Hygienist Ch. 10, 11, 12



The periodontium is called the supporting tissues of the teeth. The periodontium tissues include:

- The gingiva
 - o provides a seal around the "neck" of the tooth
 - o covers the alveolar bone
 - o boundaries are the gingival margin and the Alveolar mucosa
 - made up of the free gingiva, the attached gingiva and the interdental gingiva, and the gingival sulcus

Free gingiva- not attached to alveolar bone and nearest to the crown of the tooth

Attached gingiva – is attached to the alveolar bone and is continuous with the free gingiva that extends into the alveolar mucosa.

- The free gingiva and attached gingiva are separated by the free gingival groove
- The attached gingiva and alveolar mucosa are divided by the mucogingival junction (MGJ).
- Alveolar mucosa is the moveable tissue the lines the alveolar bone *Interdental gingiva or gingival papilla* is located in interproximally between two teeth

Gingival sulcus – the space between the free gingiva and the tooth Darby web new edition ch 19

- The periodontal ligament (PDL)
 - o suspends the tooth in its socket
- Cementum
 - \circ anchors the PDL to the tooth
 - protects the dentin
- Alveolar bone
 - o supports the roots of the tooth

(Darby Ch 19 new edition)

- *b)* Differentiate clinically between the periodontium in health and in disease The gingiva in health is:
 - e gingiva in nealth is
 - Pale pink
 - Has an orange peel texture-stippled and smooth
 - Is firm to pressure
 - The gingival sulcus in health is 1-3mm in depth (from the crest of the gingiva to the junctional epithelium)

- The gingiva is 1-2 mm coronal to the Cemento Enamel Junction (CEJ)
- The tooth is tightly anchored in the bone by the PDL fibers not mobile
- The junctional epithelium is at or only slightly apical to the CEJ
- There is no bleeding of the gingiva upon light instrumentation



The gingiva in disease is:

- Red or purplish blue
- Is shiny and smooth in texture
- Is spongy to pressure
- The gingival sulcus in disease progressed beyond 4 mm in depth
- The gingiva may swell to several mm coronal to the CEJ
- The gingiva may recede so that the CEJ is visible
- The junctional epithelium migrates apically The gingiva bleeds easily on light instrumentation

Clinical signs of gingivitis could include any of the following:

- Red and sore gums
- Bleeding gums
- Loose teeth
- Long appearing teeth

c) Outline the process of periodontal disease

- Periodontal disease includes gingivitis (inflammation of the gingiva) and periodontitis (inflammation of the whole periodontium).
- Periodontal disease begins to occur as an immune response to pathogenic bacteria.
- Periodontal disease occurs more quickly in people with various risk factors (discussed later).
- The body responds to the bacteria by an immune response which causes the symptoms of gingivitis to occur.
- If this inflammation isn't reversed, periodontitis will develop.



d) Compare and contrast the diseases of periodontitis and gingivitis

Gingivitis – gingival inflammation caused by bacterial infection that is reversible. There are two classifications

- 1. Plaque induced caused by:
 - Bacteria
 - Systemic factors like endocrine disorders ie pregnancy gingivitis and blood dyscrasias

- Medications drugs anti-seizure, calcium channel blockers, and oral contraceptives
- Malnutrition like vitamin C deficiency
- 2. Non -plaque induced caused by:
 - Viral herpes virus
 - Specific bacterial streptococcal, gonorrhoeae
 - Fungal candida
 - Genetics hereditary
 - Allergic reactions dental fillings, toothpaste, mouth rinse, food
 - Trauma chemical and physical injuries

Periodontitis – If gingivitis is not controlled it can progress to periodontitis. An irreversible bacterial infection where there is a loss of attachment of the gingiva and resorption of the alveolar bone. There are seven categories of periodontitis from the American Academy of Periodontology.

1. Chronic Periodontitis

- Most seen in adults
- Categories of slight, moderate and severe
- 2. Aggressive Periodontitis
 - A rapid loss of tissue and happens before the age of 35
 - Categories of prepubertal periodontitis and localized aggressive periodontitis
- 3. Periodontitis as manifestation of systemic disease
 - Hematologic and genetic disorders
- 4. Necrotizing periodontal disease
 - Necrotizing ulcerative gingivitis destruction of gingival papillae characterized by pain and fetid breath, and bleeding
 - Necrotizing ulcerative periodontitis- destruction of periodontal tissues
- 5. Abscesses of the periodontium
 - Gingival, periodontal, and pericoronal abscesses
- 6. Periodontitis associated with endodontic lesions
- 7. Developmental or acquired deformities and conditions

Gingivitis:

- Red, swollen, shiny, bleeding gingiva
- Gingival sulcus is slightly deeper due to slight swelling
- The junctional epithelium is slightly apical to the CEJ
- Teeth are not mobile

- CEJ is not visible
- Normal mouth odor
- Interdental papillae may be slightly swollen

Periodontitis:

- Purplish blue, fibrotic, gingiva
- Gingival sulcus can be significantly deeper
- The junctional epithelium is migrating apically
- Teeth may be mobile
- CEJ may be visible
- Strong, bad odor from the mouth
- Interdental papillae may be blunted or missing
- Gingiva may bleed or there may be white pus coming out of the sulcus when pressing on the gingiva
- Gingiva may have a grey film
- There may be a very strong bad odor
- Rarely is there pain associated with Periodontal disease
- *e)* Describe the inflammatory response in periodontal disease See notes in section C
- *f) Recognize the signs of gingivitis and periodontitis* See notes in sections B & D
- g) List the possible etiologies of periodontal disease

Other than local etiologies (objective i) of periodontal diseases, the primary etiologic agents for the inflammatory disease of periodontitis are bacteria (plaque). Bacteria with the following characteristics:

- In gingivitis: both gram positive and gram negative bacteria (mostly aerobic and facultative anaerobic bacteria).
- In periodontitis: high numbers of pathogenic bacteria and high proportions of gram negative bacteria.

Bacterial plaque in a mouth is normal but it is the type of bacteria that are important, and the susceptibility of the host. Specifically the following types:

- Actinobacillus actinomycetemcomitans-strongly associated with aggressive periodontitis, may be resistant to normal host response
- Fusobacterium nucleatum-also associated with aggressive periodontitis, found in deep periodontal pockets
- Porphyromonas gingivalis-found in early stages of gingivitis and areas with severe attachment loss
- Bacteroides forsythus-associated with periodontitis

h) Describe dental plaque biofilm

• Well organized community of bacteria that adhere to surfaces (teeth)

- Usually consist of many species of bacteria
- Bacteria cluster together to form a mushroom shaped microcolony
- Extracellular slime layer protects the biofilm from microbials
- Fluid channels provide nutrients and remove waste
- Are removed/destroyed by physical removal
- As the biofilm is allowed to be undisturbed for days at a time, the biofilm with become more mature and cause more damage
- i) Identify local and systemic risk factors for periodontal disease

Ref: Foundations of Periodontics, Ch. 7, 8

- Local risk factors:
 - o Dental Calculus-plaque retention
 - o Tooth morphology (shape)-plaque retention
 - o Undisturbed plaque growth
 - Occlusal forces-can cause direct damage to the periodontium
 - Food impaction-can direct damage to the periodontium
 - \circ $\,$ Tongue thrusting and mouth breathing-can cause direct damage to the periodontium
 - \circ $\;$ Faulty restorations (fillings)-can cause direct damage to the periodontium
- Systemic Risk factors:
 - Tobacco use-smoking cigarettes, chewing tobacco
 - Diabetes Mellitus-disease associated with overweight people and the body's processing of sugar
 - Osteoporosis-brittle bones
 - Hormone alteration-pregnancy, puberty, menopause
 - Psychosocial stress-may cause neglect in oral self care, but may also lead to necrotizing periodontitis or gingivitis
 - o Genetic influences-rare but possible, for example Downs syndrome
 - AIDS-Periodontitis may be severe in this case, grey membrane on the gingiva, interdental papillae may be ulcerated, very strong bad odor
 - Systemic medications-may cause dry mouth which may make someone more susceptible, may cause an overgrowth of gingiva
- *j)* Discuss the possible treatment interventions for periodontal disease Ref: Foundations of Periodontics, Ch. 17, Where there is no Dentist

Normally called Non Surgical Periodontal Treatment: The goals are:

• To control the bacteria-oral self care, removal of calculus (calcified plaque which is caused by saliva washing continuously over the plaque if not removed)

- To minimize the impact of systemic factors-deal with diseases that make the host susceptible to the bacteria. For example-getting the smoker to quit smoking
- To eliminate or control local risk factors-deal with occlusion, faulty fillings, grinding habits...

Remedies when no professional dental treatment is available:

- Cleaning the teeth despite soreness and bleeding to remove harmful plaque-using a soft brush gently
- Eat fresh fruits and green leafy vegetables and fewer sort sticky foods from the store
- Rinse the mouth with warm (boiled) water and salt once a day

For more serious gum disease:

- If the person is sick AND has gum disease give penicillin
- Do your/their best to clean off the food and plaque
- They may rinse at home for 3 days with hydrogen peroxide-use this rinse once every hour
- After 3 days rinse with warm salt water 4 times a day
- Cook food that is soft and not spicy; eat fresh fruits and vegetables
- If possible take vitamin C and Zinc
- Stop smoking and chewing betel nut

Manual for Section C-2

Caries

Ref: Illustrated Dental Embryology, Histology and Anatomy, Bath-Baglogh and Fehrenbach, Primary Preventive Dentistry, Where there is no Dentist Ch. 4, 7, 12, Dental Hygiene Theory and Practice, Darby and Walsh 2nd Edition Ch. 16

a) Identify the different tissues that compose the teeth

(Ref: Darby and Walsh 2nd edition, Ch. 241)

- The tooth is made up of four layers:
 - 1. The outermost layer is called the enamel-white, translucent, covers the dentin on the clinical crown, very hard
 - 2. Cementum-rough, not as hard as enamel and covers the dentin on the root
 - 3. The enamel covers the second layer which is the dentin-yellow, softer, surrounds the pulp on both the crown and root
 - 4. The middle or core is called the pulp-contains the blood supply and the nerves
- The enamel of the crown and the cementum of the root meet at the CEJ (Cemento Enamel Junction) the neck of the tooth
- The root is usually covered by gums or gingiva
- The crown is usually exposed in the mouth

Dental Diseases Section C



b) Explain the caries process

(Ref: Darby and Walsh 2nd edition, Ch. 238)

- Infectious and transmissible (may be passed on by bacteria from person to person with contact with saliva)
- Also called dental caries, tooth decay or cavities
- Acid created by the combination of specific types of oral bacteria (Strep Mutans and Lactobacillus) and sugars (natural and refined) from the diet
- This acid, once created may stay on contact with the teeth for between 20-40 minutes
- This causes removal of minerals from the tooth surface
- This demineralization progresses slowly through the enamel but moves faster through the dentin, cementum
- May be accompanied by pain
- Once the demineralization (the carious lesion) has reached the pulp the patient will experience prolonged pain and eventually infection
- Infection will be seen by a blister on the gums, or more severely by a draining blister on the face
- Appearance of cavities is a hole in the tooth and often dark spots
- Most common areas to find cavities are on the biting surfaces of the teeth or in between, with small children they can be seen on the facial surfaces of the anterior (front) teeth
- c) Identify the factors that contribute to the development of caries

3 main factors contribute to the development of caries:

- 1. A diet high in sugar-the sugar combines with the cariogenic (cavity causing) bacteria to cause the acid environment
- 2. Poor plaque control-if plaque is left on the teeth many foods will use it to combine with sugars to produce the acid environment
- 3. Dry mouth-saliva is useful to wash out the mouth and remove the acidic environment in the mouth. If the saliva is reduced (from medications usually) then the acid environment will last longer

d) Discuss risk factors for caries

- Choosing foods that are high in sugar such as candy, sugar cane, Coke, sweets, rice and grains will put a person at risk for the development of cavities
- Not removing plaque biofilm regularly by proper brushing technique for the recommended length of time, not removing the plaque between the teeth, will put a person at risk for the development of cavities
- Living with a mouth that is consistently dry will put a person at risk for the development of cavities

e) Describe the stages of the caries process

(Ref: Primary Preventive Dentistry)

- The initial carious lesion starts as the removal of mineral from the outer surface of the tooth
- If the lesion is allowed to progress through repeated exposure to acid, it will slowly advance in a triangular shape into the enamel (seen on an X-ray as a dark area)
- Once the lesion reaches the dentin, it spreads in to a mushroom shape and moves much quicker (seen on an X-ray as a dark area)
- The lesion will eventually reach the pulp where it will cause the tooth to become infected (seen on an X-ray as a dark area)
- This infection will cause severe pain and will need to be released through a white substance called pus (seen on an X-ray as a dark area on the tooth and at the apex of the root)
- This leaves the pulp through the apex of the root and travels out to the gums where it will open up through a blister (fistula) into the oral cavity
- If left without treatment for a long period of time, this infection will travel to the outside of the face where it will open up through a blister (fistula)

f) Discuss the symptoms of caries

Symptoms in order of severity include:

- Rough surface
- Small dark spot or chalky white spot
- Break in the enamel (cavitation)
- Widening dark area
- Slight sensitivity to temperature or sugar
- Larger visible hole in the tooth

- Pain that is longer lasting and more intense
- Infection seen through blister on the gums (usually affected tooth is adjacent to the blister (Fistula)
- Decrease in pain due to the death of the pulp
- Tooth starts to break apart
- Tooth no longer visible in the mouth (the root is still present)
- Infection seen through blister on the face (usually affected tooth is adjacent to the blister (fistula)

g) Discuss the possible treatment interventions for caries

(Ref: Where the is no Dentist)

Treatments include:

- If the carious lesion is small and not yet through the enamel it's progress may be stopped with the use of fluorides
- If the carious lesion is through the enamel but not yet all the way through the dentin to the pulp, a simple restoration (filling may be placed-the decay is removed by the dentist and a stable and hard material is filled in to the empty space)
- If the carious lesion is into the pulp there are two options:
 - The pulp can be removed through a procedure called a Root Canal and then a filling is placed into the tooth
 - The tooth can be extracted
- If no professional dental treatment is available:
 - If there is swelling, treat the swelling first-give antibiotics (Penicillin) if available (chart on p.94 Where There is no Dentist)
 - Give aspirin or acetaminophen for pain

Manual for Section C-3

Pathology

Ref: Oral Pathology for the Dental Hygienist, Ibsen and Phalen 4th Ed; Where There is no Dentist, Dickson, 2010.

a) Recognize intraoral deviations from normal

Normal intraoral anatomy was also covered in Section B-4 Variants of normal include:

- Fordyces Granules yellow clusters on lips and buccal mucosa
- Palatal Torus (torus palatinus) hard structure on the palate
- Mandibular Tori (plural) hard structures on the lingual aspect of the mandible, felt in the floor of the mouth adjacent to the lingual of the mandibular bicuspids
- Melanin pigmentation dark appearance of the oral mucosa and/or gingival, it is generalized
- Retrocuspid papilla nodule on the lingual of the mandibular canines

- Lingual varicosities prominent lingual veins on the ventral and lateral surfaces of the tongue
- Linea alba white line on the buccal mucosa, extends from posterior to anterior
- Leukoedema generalized opalescence on buccal mucosa
- b) Use terminology to describe intraoral lesions

To describe clinical appearance:

- Bulla looks like a blister, more than 5mm in diameter, usually contains fluid
- Lobule segment of a larger lobe, may be several fused together
- Macule color difference from the surrounding skin or mucosa, is flat, example: a freckle
- Papule small lesion that protrudes above the surface of the skin or mucosa
- Pustule elevations containing pus
- Vesicle elevated lesion that contains fluid, less than 1cm in diameter

To describe Consistency:

- Nodule solid lesion, up to 1cm on diameter
- Palpation technique of using the fingers to feel and determine the texture of the area or lesion

To describe Color:

- Most oral lesions are: red, pink, white, blue, black, brown, grey
- Erythema abnormal redness of mucosa or gingiva
- Pallor paleness of skin or mucosa

To describe surface texture:

- Corrugated wrinkled
- Fissure groove that is deep in the skin or mucosa
- Papillary small nipple-shaped elevations in clusters
- c) Discuss common oral pathologies
- d) Identify symptoms of common oral pathologies
- e) Discuss ideal treatment options for common oral pathologies
- f) Recommend practical treatment options for common oral pathologies

• Tooth abscess symptoms:

- Usually related to a large carious lesion (cavity) seen in the mouth
- o Accompanied by pain
- Accompanied by swelling
- Ideal treatment options:
 - o Tooth extraction

- o Root canal treatment
- o Filling placement

Practical Treatment options:

• See section C-2 (g)

• Infected Sinus Symptoms:

- o Toothache in several upper teeth
- o Accompanied by a head cold or plugged nose
- o Bone under eyes is slightly painful
- o Tooth feels different when patient bends forward

Ideal treatment options:

- o Penicillin for 5 days
- o Usually resolves when head cold improves

Practical treatment options:

- o Drink lots of water
- o Breathe steam from boiling water
- o Warm wet cloth held against the face

• Loose Tooth Symptoms:

- \circ You can feel the tooth move
- o Sometimes the tooth hurts

Ideal treatment options:

- If the loose tooth is because of a new tooth growing under it, inform the parent and either wriggle the tooth out or wait until it falls out on its own
- If the loose tooth is because of gum disease, remove the tooth and follow instructions in Section C-1 to prevent further tooth loss
- o If the loose tooth is because of a broken tooth, remove all parts of the tooth
- If the bone around the tooth has been broken, leave the tooth in place and have wires placed to hold the tooth in place (splint)

Practical treatment options:

 If professional help for removing the tooth is not available, follow instructions in sections C-1 or C-2 and help relieve pain by warm water rinses or aspirin or acetaminophen

• Symptoms for new tooth growing in:

- o Toothache in the area of the new tooth
- If the tooth growing in is in the back (in older ages) the mouth will not open properly
- o A bad taste coming from the area of the new tooth

- o Sometimes a sore throat
- o Gums (gingiva) over the new tooth is sore and red

Ideal treatment options:

- \circ $\;$ While the tooth is growing in rinse with warm water and salt $\;$
- \circ $\;$ Hold a warm wet cloth against the mouth in the sore area
- Take aspirin or acetaminophen for pain
- If infected, take a radiograph and possible extraction of the tooth (most often with the third molars)

Practical treatment options:

o Same as above

Fever Blisters (cold sores/Herpes) symptoms:

- Form in the mouth or on the lips
- o Sore throat
- o Fever
- Drooling

Ideal treatment options:

- o Get enough to eat and drink
- Will resolve on their own in about 10-14 days
- o Treat fever with aspirin or acetaminophen

Practical treatment options:

- Wipe milk or yogurt over the sores before eating for protection
- Eat soft, non-spicy foods
- $\circ \quad \text{Drink lots} \\$
- Can be contagious
- Holding ice on sores for several minutes per day, they may heal faster
- Thrush (Candidiasis) symptoms:
 - o Often seen in people who are malnourished or weak from sickness
 - o Can occur on the tongue, palate, cheeks
 - White patches that wipe off, usually bleeding under patches
 - o If nursing mother, she may also have sore painful nipples

Ideal Treatment Options:

- o Treat the malnutrition or illness, stop antibiotics
- Use dropper of Nystatin

Practical Treatment Options:

- \circ $\:$ If no Nystatin soak a piece of cotton in Gentian Violet and dab on patches
- o Antibiotics makes the Thrush worse
- o Make food soft and easy to chew

- If white lines appear on the inner cheeks or roof on the mouth, stop smoking and/or chewing betel nut-these lines may become cancer if they are sore and do not get better with treatment
- Canker Sores (aphthous ulcers) symptoms:
 - o Of unknown cause
 - Sores are white or yellow with red borders
 - o Appear on the inner cheeks, lips, tongue, floor of the mouth or palate
 - o Painful especially when food touches the sore
 - Ideal Treatment Options:
 - Heals on its own in about 10 days
 - Practical Treatment Options:
 - \circ Eat foods that are soft
 - Don't eat spicy foods
 - o Drink lots of water
 - Chew food away from the sore
 - \circ $\;$ If the sore gets infected and does not heal, penicillin may be given
 - \circ $\;$ If it does not heal after antibiotics, see a doctor-it may become cancer
- Sores at the corners of the mouth (angular cheilitis) symptoms:
 - o Cracks often occur in those elderly people with no teeth or few teeth
 - Can occur in combination with Thrush
 - Can occur with malnutrition

Ideal Treatment Options:

- Include the following foods in the diet:
 - Beans, milk, eggs, fish, oils, fruits, and green leafy vegetables
- Treat as thrush (see above)

Practical Treatment Options:

- o Wash the sores with soap and hot water
- Mix 1 part sulfur with 10 parts petroleum jelly (Vaseline)
- Smear some on sores 3-4 times/day
- Pain in the Temporomandibular Joint symptoms:
 - o Possibly because of tension causing the muscles to be tight
 - Possibly because of fractured jaw bone
 - Possibly because the teeth don't fit together properly (malocclusion)
 - Ideal and Practical Treatment Options:
 - Tension-eat only soft foods, hold a hot wet cloth against the jaw to relax the muscles, take aspirin or acetaminophen for the pain

- Fracture-will need professional help from a doctor or dentist, fracture will be seen on an X-ray
- Malocclusion-assess the presence of malocclusion, advise not to open too wide, take small bites of food, may need to see a dentist for professional help
- Swollen gums from epilepsy symptoms:
 - o Gums so swollen that they cover the teeth
 - Caused by a drug used to treat epilepsy (Dilantin/Phenytoin)
 - Ideal Treatment Options:
 - o Consult with the doctor to possibly change the medication
 - Professional dental hygiene cleaning
 - Practical Treatment Options:
 - Brush the teeth carefully after every meal
 - o Carefully clean between the teeth with floss
- Infection in the salivary gland symptoms:
 - \circ $\;$ May be from a stone in the salivary duct
 - Swelling in the area of the salivary glands (parotid, submandibular or sublingual)
 - o Pain which is worse when person is hungry or smells food
 - o Opening of the salivary duct is red, swollen and hurts when touched
 - Ideal and Practical Treatment Options:
 - Give penicillin for 5 days
 - Give aspirin or acetaminophen for pain
 - Apply a wet hot cloth to the swelling
 - o Eat soft food in small amounts
 - Consult a dentist or doctor to remove the stone

• Noma symptoms:

- \circ $\,$ $\,$ Occurs when the person is sick or malnourished $\,$
- Start as a gum infection that spreads
- o Often a problem in people with HIV/AIDS
- Sore mouth with itching gums
- Swollen, sore gums
- Gums bleed easily
- Bad breath, spits a lot
- \circ $\;$ When it reaches the jaw, teeth can become loose as well as pieces of the bone
- When it reaches the cheek, skin becomes tight with dark red swelling, black spot on the cheek breaks open leaving a hole in the mouth, a line separates the dead tissues from the healthy tissue

Ideal and Practical Treatment Options:

- Give fluids and Oil/Milk Drink (9 cups of clean water, 3 cups of milk powder, 150ml of peanut or coconut oil, ½ cup of honey or 1 cup of sugar)
- Give ferrous sulfate (iron) tablets for 3 months
- Give food rich in iron (meat, fish, eggs, dark green leafy vegetables, peas and beans
- o Start antibiotics (Metronidazole is best, but also clindamycin)
- o If person also has malaria, treat with antimalarial drugs
- Treat any underlying illnesses
- Clean the sores by pulling the dead skin away carefully, wish the sore with hydrogen peroxide, put on a wet dressing
- o Have loose teeth and dead bone by consulting a doctor or dentist
- \circ Keep the mouth clean with a soft brush 3 times a day
- Wipe the gums with hydrogen peroxide every 2 hours for 5 days and then start rinsing with salt water 3 times a day

Prevention of Noma:

- Keep the teeth and mouth of a sick person clean
- Eat foods as listed above
- \circ $\;$ Rinse the mouth of a sick person with warm salt water 2 times a day

• Tumor Symptoms:

- Lump that grows under the skin or inside the bone
- o Grows slowly and steadily without any pain
- If swelling does not get better after 5 days of antibiotics and heat it may be a tumor

Ideal and Practical Treatment Options:

o Consult with a doctor or dentist

• Cancer Symptoms:

- A sore or bump that does not heal within 2 weeks
- Commonly found on the lips, the tongue, the floor of the mouth, the soft palate, and the gums
- May look red, white or mixed red and white lesion

Ideal and Practical Treatment Options:

- Consult with a doctor or dentist
- \circ A biopsy (cut a piece of the lesion out for diagnosis) may be done

Manual for Section C-4

•

Trauma

Ref: Oral Pathology for the Dental Hygienist 4th Edition, Ibsen & Phelan Ch. 2, Where There is no Dentist Ch. 7

- a) Recognize signs of common soft tissue oral trauma
- b) Recognize symptoms of common soft tissue oral trauma
 - Aspirin burn
 - \circ $\;$ Caused by holding aspirin against soft tissues or tooth
 - o Tissue dies (necrotic) and appears white
 - o Lesion is painful
 - Overlying tissue may be shed off resulting in an ulcer
 - Will usually heal on its own in 7-21 days
 - Electric burn
 - o Caused by biting an electrical cord (usually kids)
 - \circ $\,$ May cause permanent damage to soft tissues or teeth buds $\,$
 - May result in permanent scarring
 - Treatment involves surgery
 - Burns from hot foods
 - Occur most often on the tongue or palate
 - Self induced injuries
 - Chronic cheek, tongue or lip biting
 - o Lesions may be ulcers or whitish firm tissues (hyperkeratosis)
 - Lesions cause by cocaine use
 - o Caused by crack pipe directing hot smoke to the palate
 - May appear as ulcers or hyperkeratosis
 - Hematoma
 - o Accumulation of blood beneath the tissues
 - Most frequent on buccal mucosa (inner cheek) or labial mucosa (inner lip)
 - Lesion will clear up on its own
 - Traumatic ulcers
 - Many causes: biting, irritation from a denture, sharp edges of foods, vigorous tooth brushing
 - \circ $\;$ Identified partially by discussing oral history and relating it to the lesion
 - Healing will usually be on its own in 7-14 days

Dental Diseases Section C

- Frictional Keratosis
 - Chronic rubbing against mucosa
 - o Results in thickening of the mucosa
 - o Similar to a callus on the skin
 - o Can result from cheek biting or lip chewing
 - Not associated with malignancy
- Linea Alba
 - White raised line along the occlusal plane on the inner cheeks (Buccal musoca)
 - o More prominent in people who have grinding or clenching habits
 - o No treatment indicated
- Nicotine stomatitis
 - Lesions on the hard palate
 - Cause by pipe, cigar or cigarette smoking
 - o Will be more pronounced in heavy smokers
 - Clusters of little red lesions surrounded by white halos
 - o Inflammation of the minor salivary glands on the palate
- Tobacco pouch keratosis
 - Results from holding chew tobacco in the mouth
 - o Most often in the mucobuccal fold
 - Appears white with a wrinkled appearance
 - Lesions disappears when the tobacco habit stops
- Melanosis
 - May be normal dark pigmentation in dark skinned people
 - o Melanin pigmentation may also occur after inflammation
 - Appears as flat, brown lesions of unknown cause
 - May also be associated with smoking
 - The intensity of the smoking melanosis is linked to the amount and duration of the smoking habit
- Solar Cheilitis
 - May occur in fair skinned individuals
 - o Normally occurs on the lips
 - Caused by long term exposure to the sun
 - Appears as pale pinkish, mottled edges (vermilion) of the lips
 - o No treatment indicated

- Lips are generally dry and cracked
- Mucocele
 - Caused by an injury to the salivary gland duct
 - o Presents as a swelling in the tissues that may increase and decrease over time
 - Most often occurs on the lower lip
 - May be bluish or the color of the surrounding tissues
 - Treatment may be done by surgery
- Necrotizing Sialomataplasia
 - o Painful swelling and ulceration of the tissue in the area of a salivary gland
 - Usually heals on its own
 - Most often at the junction of the hard and soft palates
- Sialolith
 - Stone in a salivary gland
 - May cause obstruction of the gland
 - Can be palpated and seen on an X-ray
- Sialadenitis
 - Inflammation of a salivary gland
 - May be the result of obstruction
 - o Presents as a painful swelling of the involved salivary gland
 - May be treated with antibiotics
- c) Recognize signs of common dental trauma
- d) Recognize symptoms of common dental trauma
- e) Recommend methods of preventing oral/dental trauma

Ref: Oral Pathology for the Dental Hygienist 4th Edition, Ch. 2

- Attrition
 - \circ $\;$ Wear of the hard tooth structure by tooth against tooth wear $\;$
 - o Involves the incisal edges and occlusal surfaces
 - \circ $\hfill\hfilt$
 - Result of grinding and clenching
 - Treatment involves using a night guard (splint-may be purchased in the store or professionally made)
 - o Tooth wear will stop when habit stops
 - o May also be linked to pain in the TMJ

- Abrasion
 - \circ $\;$ Wear of the hard tooth structure by a mechanical habit
 - \circ $\;$ Most often occurs on softer tooth structure like cementum or dentin
 - Pulp will not usually be exposed because a layer of secondary gets laid down over time
 - Most often occurs with aggressive tooth brushing
 - Also may result from holding hard objects in the teeth
 - o Treatment involves eliminating the mechanical habit
 - For severe cases restorative treatment may be needed
- Abfraction
 - Appears as wedge shaped defects at the cervical area of the teeth (along the gum line)
 - o Occurs in adults
 - May be related to flexing of the teeth under strong mastication pressure (biting or bruxing)
 - Lesions may need to be treated with restorative treatment
- Erosion
 - o Loss of tooth structure resulting from chemical reaction
 - May occur on any surfaces of the teeth
 - Area of erosion appears smooth and shiny
 - Usually involves several teeth
 - May be caused by acids in the air, in the diet or from the stomach (gastric reflux, vomiting)
 - Commonly seen extensively in people with eating disorders that involve regular vomiting

f) Discuss ideal treatment for oral/dental trauma

- *g)* Recommend practical treatment options for common oral/dental trauma Ref: Where There is no Dentist, Ch. 7
 - Broken tooth
 - If the nerve is exposed, the tooth must come out or be treated with a root canal by a dentist
 - Broken root-if the tooth moves but the surrounding bone does not; if this is the case the tooth must come out
 - If the nerve is not exposed and the root is not broken- use a file to smooth out the rough edges, protect the tooth by using other teeth to bite and eat, do not

drink things that are very hot or very cold, watch the tooth to see if it gets darker, watch the gums to see if a blister develops, if this happens the tooth must come out

- Tooth is knocked out
 - Primary tooth-no reason to try to replace it in the socket, bite on cotton to stop the bleeding, the permanent tooth may be later in erupting
 - o Permanent tooth-
 - if it was knocked out less than 12 hours ago it can be put back into the socket, the sooner it is replaced the better
 - wash the tooth with salt water, milk or clean water, keep the tooth wet in a cloth
 - gently push the tooth up into the socket, it may be painful
 - as you push use a slight turning motion back and forth
 - make sure the biting level of the tooth matches the tooth next to it
 - hold it in place for 5 minutes
 - make two thin rolls of bees wax, place one roll on the facial surface of the tooth (and 2 teeth on either side of it) and place the other roll on the lingual surface of the same teeth
 - the tooth should tighten in the socket.
 - Check it
- Infection in the saliva gland
 - o Give penicillin for 5 days
 - Give aspirin or acetaminophen for pain
 - Apply a wet hot cloth to the swelling as often as possible
 - Eat soft foods