LOCALIZED AGGRESSIVE PERIODONTITIS (LOCALIZED JUVENILE PERIODONTITIS)

This condition presents a classic pattern and occurs in otherwise healthy children and adolescents without clinical evidence of systemic disease. It is characterized by the rapid and severe loss of alveolar bone around more than one permanent tooth, usually the first molars and incisors. It appears self-limiting and bone loss around the primary teeth can be an early finding in this disease.

Clinically:

1. Localized aggressive periodontitis patients have less tissue inflammation and very little supra-gingival dental plaque or calculus.
2. They present with evidence of Sub-gingival plaque accumulation, both tissue-associated and tooth-associated.
3. Progression of bone loss is three to four times faster than in chronic periodontitis.

TREATMENT OF AGGRESSIVE PERIODONTITIS

Successful treatment of aggressive periodontitis depends on early diagnosis:

1. The use of antibiotics against the infecting microorganisms
2. The provision of an infection free environment for healing.
3. Consultation with the patient's physician if necessary
4. Mechanical removal of supragingival and subgingival microbial agents via nonsurgical and/or surgical treatment modalities with adjunctive antimicrobial therapy.
5. Surgical removal of infected crevicular epithelium and debridement of root surfaces during surgery while the patient is on a 14 day course of doxycycline hyclate (1 g. per day) is considered the best effective treatment modality.

PERIODONTITIS AS A MANIFESTATION OF SYSTEMIC DISEASE

In 1999 the American Academy of Periodontology introduced a new classification, classifying periodontitis as a manifestation of systemic disease as a separate category. Several of these conditions are identified in the pediatric population:

A. Associated with hematological disorders

1. Acquired neutropenia
2. Leukemias

B. Associated with genetic disorders

1. Familial and cyclic neutropenia
2. Down syndrome
3. Leukocyte adhesion deficiency syndromes
4. Papillon-Lefèvre syndrome
5. Chédiak-Higashi syndrome
6. Histiocytosis syndromes
7. Glycogen storage disease
8. Infantile genetic agranulocytosis
9. Cohen syndrome
10. Ehlers-Danlos syndrome (types IV and VIII)
11. Hypophosphatasia
12. Other

PREMATURE BONE LOSS IN THE PRIMARY DENTITION

Advanced alveolar bone loss associated with systemic disease occurs in children and adolescents, as well as in adults. In the primary dentition, this is rare. Although most premature tooth loss from non-systemic disease results from trauma or caries, the cause of advanced alveolar bone loss is often not readily apparent.

Local factors (periodontitis, trauma, and infection secondary to caries) account for the majority of cases of premature bone loss. Bony destruction in the primary dentition in the absence of local factors is highly suggestive of systemic disease.

PAPILLON-LEFÈVRE SYNDROME

The syndrome is rare, and the cause is unknown. However, in the families of affected children in which a familial predisposition to the disorder is noted, an autosomal-recessive mode of inheritance has been identified.

Characteristics of the syndrome:

1. There is no racial or gender predominance.
2. The primary teeth erupted at the normal time.
3. As early as 2 years of age, the child rubbed the gingival tissues and acted as if they were painful.
4. There was a tendency toward gingival bleeding when the teeth were brushed.
5. Hyperkeratosis of the palms and soles was present. The first evidence was erythema and scaliness noted initially at 8 months of age.
6. Hyperkeratotic lesions of the elbows and knees may be observed

7. At 2½ years of age, all the primary teeth showed looseness, and full-mouth radiographs revealed severe horizontal bone resorption.
8. Because of gingival inflammation, patient discomfort, and the presence of infected periodontal pockets, all the primary teeth were removed by 3 years of age.
9. Complete dentures were constructed 3 months after the removal of the primary teeth. The child tolerated the dentures well, both functionally and psychologically
10. The first permanent molars and mandibular central incisors erupted at the expected time, and the denture base was adjusted to allow for the emergence of the teeth.

Although previous reports have indicated that the permanent dentition will also be affected, tetracycline therapy as an adjunct to meticulous subgingival debridement in the management of periodontal disease may have been responsible for eliminating pathogens and preventing the destructive process from being carried into the permanent dentition. However, attempts at conventional therapy have been unsuccessful in preventing tooth loss.

GINGIVAL RECESSION

Gingival recession is often observed in children. Several factors predispose patients to gingival recession. These factors include:

1. The presence of a narrow band of attached or keratinized gingiva
2. Alveolar bony dehiscence
3. Toothbrush trauma
4. Tooth prominence
5. Impinging frenum attachment
6. Soft tissue impingement by opposing occlusion
7. Orthodontic tooth movement
8. Use of impression techniques including subgingival tissue retraction
9. Oral habits
10. Periodontitis, pseudorecession (extrusion of teeth)
11. Intraoral piercings, such as tongue piercings.

Recession is dealt with conservatively by elimination of the etiology if possible, while excellent oral hygiene is maintained in the affected areas. If the recession of the affected area remains unchanged (non-progressive) or improves, continued periodic monitoring is recommended.

SELF-MUTILATION

Occasionally children purposely traumatize their oral structures. Self-mutilation probably occurs more frequently than is realized because relatively few children will admit to the act unless they are observed practicing it. Therefore the self-inflicted lesions may be incorrectly diagnosed. Dentists should be aware of the possibility of this condition and should approach the problem in the same manner as they do thumb sucking.

An attempt should be made to determine the cause. If it is found to be the result of local dental factors, it can be corrected. However, in the majority of children an emotional problem is involved, and the family must be directed to competent counseling services.

ABNORMAL FRENUM ATTACHMENT

A frenum is a membranous fold that joins two parts and restricts the individual movement of each. It is a mucous membrane fold containing epithelium and connective tissue fibers but no muscle.

A normal frenum attaches apically to the free gingival margin so as not to exert a pull on the zone of the attached gingiva, usually terminating at the mucogingival junction.

An abnormal or high frenum is present when there is inadequate attached gingiva in the terminal insertion area.

- A frenum attached too closely to the gingival margin (high frenum) may interfere with proper toothbrush placement, may cause opening of the gingival crevice during function, or may interfere with speech. High frenum attachments may also be associated with isolated gingival recessions and diastemas.
- An abnormally short lingual frenum and the inability to extend the tongue constitute a congenital condition known as ankyloglossia (tongue-tie). Normal function can occur with this mild form, and the frenum may lengthen with normal growth and maturation of the child.
- A mandibular anterior frenum occasionally inserts into the free or marginal gingival tissue and causes subsequent recession and pocket formation.

Indications for treating a high frenum include the following:

1. A high frenum attachment associated with an area of persistent gingival inflammation that has not responded to root planing and good oral hygiene
2. A frenum associated with an area of recession that is progressive.
3. A high maxillary frenum and an associated midline diastema that persist after complete eruption of the permanent canines

4. A mandibular lingual frenum that inhibits the tongue from touching the maxillary central incisors. This would interfere with the child's ability to make /t/, /d/, and /l/ sounds.

As long as the child has enough range of motion to raise the tongue to the roof of the mouth, no surgery would be indicated. Most children cannot normally make these sounds until after 6 or 7 years of age.

FRENOTOMY AND FRENECTOMY

A **frenotomy** involves an incision of the periosteal fiber attachment and possibly suturing of the frenum to the periosteum at the base of the vestibule. It is associated with less postoperative discomfort than a frenectomy and will usually suffice.

A **frenectomy** involves complete excision of the frenum and its periosteal attachment. The need for a frenectomy or frenotomy should be based on the individual's ability to maintain gingival health.

EXTRINSIC STAINS AND DEPOSITS ON TEETH

Staining is generally believed to be caused by extrinsic agents, which can be readily removed from tooth surfaces with an abrasive material. The agents responsible for staining are deposited in enamel defects or become attached to the enamel without bringing about a change in its surface.

Pigmentation, in contrast to extrinsic staining, is associated with an active chemical change in the tooth structure, and the resulting pigment cannot be removed without alteration of the tooth structure.

GREEN STAIN

The cause of green stain, which is most often seen on the teeth of children, is unknown, although it is believed to be the result of the action of chromogenic bacteria on the enamel cuticle. It tends to recur even after careful and complete removal. The enamel beneath the stain may be roughened or may have undergone initial demineralization.

ORANGE STAIN

The cause of orange stain is likewise unknown. Orange stain occurs less frequently and is more easily removed than green or brown stain. The stain is most often seen in the gingival third of the tooth and is associated with poor oral hygiene

BLACK STAIN

A black stain occasionally develops on the primary or permanent teeth of children, but it is much less common than the orange or green type.

- A thin black line of dots or band of stain may be seen following the gingival contour.
- It is difficult to remove, especially if it collects in pitted areas.
- Many children who have black stain are relatively free of dental caries and have excellent oral hygiene.

CALCULUS

Calculus is not often seen in preschool children, and even in children of grade-school age, it occurs with much lower frequency than in adult patients.

- A low caries incidence is related to high calculus incidence.
- Children with mental retardation often have accumulations of calculus on their teeth. This accumulation may be related to abnormal muscular function, a soft diet, poor oral hygiene, and stagnation of saliva.
- Supragingival deposits of calculus occur most frequently and in greater quantity on the buccal surfaces of the maxillary molars and the lingual surfaces of the mandibular anterior teeth. These areas are near the openings of the major salivary glands.
- A child that chews mostly on one side partially accounts for the greater cleanliness on that side and cause calculus accumulation.