OBJECTIVES

1. Define interceptive orthodontics and identify any clinical manifestations that would represent interceptive orthodontics, i.e., ectopic eruption of a maxillary first permanent molar.

2. Define anterior crossbite.

3. Define the following types of posterior crossbites, and discuss the procedures necessary to diagnose them:
   a. Unilateral
   b. Bilateral
   c. Dental
   d. Skeletal
   e. Functional

4. Define and discuss treatment alternatives for the following irregularities in the developing dentition:
   a. Anterior crossbite
   b. Posterior crossbite
   c. Ectopic eruption of first permanent molars
   d. Ankylosis of primary molars
   e. Thumb or finger habit
   f. Premature loss of primary canine
LECTURE OUTLINE

1. ANTERIOR CROSSBITE IN PRIMARY AND MIXED DENTITION
   TONGUE BLADE THERAPY LOWER CEMENTED BITE PLANE
   PALATAL APPLIANCES

2. POSTERIOR CROSSBITE IN PRIMARY AND MIXED DENTITION
   SOLDERED W ARCH CROSS-ELASTIC TECHNIQUE

3. PROBLEMS RELATED TO THE ERUPTION OF TEETH: ECTOPIC
   ERUPTION OF THE FIRST PERMANENT MOLARS IMPACTED
   SECOND PERMANENT MOLARS ECTOPIC ERUPTION OF THE
   PERMANENT LATERAL INCISORS IMPACTION AND DELAYED
   ERUPTION OF PERMANENT CANINES

4. SUPERNUMERARY TEETH AND ACCOMPANYING MALOCCLUSION

5. ANTERIOR DIASTEMAS

6. CONGENITALLY MISSING TEETH

7. APPLIANCES TO REGAIN SPACE

8. SERIAL EXTRACTION FOR THE PEDIATRIC PATIENT
INTERCEPTIVE ORTHODONTICS

PHASE OF THE SINGS AND ART OF ORTHODONTICS EMPLOYED TO RECOGNIZE AND ELIMINATE POTENTIAL IRREGULARITIES AND MALPOSITION IN THE DEVELOPING DENTAL FACIAL COMPLEX.
COMPLETE anterior crossbite may indicate a skeletal growth problem and developing class III malocclusion.

ONE OR MORE of the permanent incisors may be evidence of a localized discrepancy, which in most cases should be treated as soon as it is discovered.

Delayed treatment can lead to serious complications:
Loss of arch length, traumatic occlusion, wear facets, stripping of gingival tissue and pocket formation.
ANTERIOR CROSSBITE IN PRIMARY AND MIXED DENTITION

AETIOLOGY

Anterior crossbite is the result of a variety of conditions, including the following:

1. A labially positioned supernumerary tooth.
2. Trauma to an anterior primary tooth.
3. Delayed exfoliation of primary incisor (overretained) because of a necrotic pulp resulting from trauma or caries.
4. Thumb-sucking habit.
5. An arch-length deficiency.
6. The premature eruption of permanent canines in instances of arch-length deficiency can cause a lateral incisor to be squeezed lingually and to erupt in crossbite.
ANTERIOR CROSSBITE IN PRIMARY AND MIXED DENTITION

TREATMENT

FACTORS:

1. patient cooperation,
2. degree of overbite that can be expected after correction,
3. state of the development of the occlusion,
4. sequence of eruption.
TREATMENT METHODS

1. Tongue Blade Therapy.
2. Lower Cemented Acrylic Bite Plane.
3. Palatal Appliances.
CROSSBITE OF FRONT TEETH
POSTERIOR CROSSBITE IN PRIMARY AND MIXED DENTITION

Posterior crossbite in the primary dentition, involving the second molar or even all of the teeth anterior to it.

Prevalence is common in the primary and mixed dentition 7.7%.

Cause of crossbite is obscure can be:

1. Skeletal.
2. Dental.
3. Functional.
4. Combination.
POSTERIOR CROSSBITE IN PRIMARY AND MIXED DENTITION

DIAGNOSIS

A careful clinical examination.

Models

An observation of the mandible at rest

Posterior crossbite in primary dentition is not self-corrected.

Develop into a true skeletal defect if untreated.
SKELETAL CROSSBITE

Discrepancy in the structure of the mandible or maxilla, discrepancy in the width of the arches. A narrow maxillary or wide mandibular arch is associated with a buccal crossbite.

W arch

quad helix

palatal expansion (acrylic jackscrew appliance)
DENTAL CROSSBITE

Faulty eruption pattern.
No irregularity in the basal bone.
Low tongue position
Mouth breathers.
Pressures (thumb sucking and other habits).
FUNCTIONAL CROSSBITE

shift of the mandible into an abnormal.
observation of the relationship of the arches in the rest position.
models of the upper and lower arches are symmetric when examined separately.
midline discrepancy.

Some functional crossbites can be corrected by reducing cuspal interference.
crossbite can be corrected more quickly and easily with an appliance.
POSTERIOR CROSSBITE IN PRIMARY AND MIXED DENTITION

TREATMENT

The time to treat a posterior crossbite is determined by several factors:
Cooperative patient. Otherwise, it is best to wait until the patient is more mature. If the permanent molars have not erupted but are no longer covered by bone, treatment should be delayed until the permanent molars can be banded.
The absence of teeth to be used for abutments also affects treatment timing and appliance design. In some instances the early loss of primary molars may require a delay of treatment until the late mixed or early permanent dentition stage.
Soldered W palatal Arch (Porter appliance)
Removable W arch appliance.
Quad-helix appliance.
Cross-Elastic Technique (only single tooth).
CROSSBITE OF BACK TEETH
PROBLEMS RELATED TO THE ERUPTION OF TEETH

Ectopic Eruption of the First Permanent Molars.

Impacted Second Permanent Molars

Ectopic Eruption of the Permanent Lateral Incisors

Impaction and Delayed Eruption of Permanent Canines

Supernumerary Teeth and Accompanying Malocclusion

Anterior Diastemas

Congenitally Missing Teeth.
ECTOPIC ERUPTION OF THE FIRST PERMANENT MOLARS

Radiographic Examination

Resorption of the distal root of the second primary molar. The permanent molar may become completely locked and may cause the premature exfoliation of the second primary molar or make it necessary to extract the affected tooth. In some instances the ectopically erupting first permanent molar may correct itself and erupt into its normal position after causing only minor destruction of the primary molar. Treatment of choice is watchful waiting because more than half of the teeth will eventually erupt into normal position. Halterman fixed, and removable appliances. Humphrey appliance.
IMPACTED SECOND PERMANENT MOLARS

Less frequently than impaction of first permanent molars
In the mandibular arch.

Causes: insufficient arch length, excessive tooth mass, abnormal eruption path.

Treatment goals are to upright the tooth and achieve complete eruption. Appliances like those an ectopically erupting first permanent molar. Elastic orthodontic separator in the contact area.
Kesling spring.
De-impactor.
PROBLEMS RELATED TO THE ERUPTION OF TEETH

ECTOPIC ERUPTION OF THE PERMANENT LATERAL INCISORS

Premature loss of the primary canine when the permanent lateral incisor erupts.
If not detected and treated in time, transposition of the permanent lateral and canine may occur. Because of excessive tooth mass or inadequate arch length, resorption begins on the mesial aspect of the root of the primary canine. The process continues until the canine is prematurely lost.

If loss of the primary canine is unilateral and no shift in the midline has occurred, use of a space maintainer is indicated. If the unilateral loss is accompanied by severe crowding of the incisors and if a shift in the mid-line toward the areas of the loss is evident, the corresponding canine on the opposite side of the arch should be extracted, and a passive lingual arch should be placed.
PROBLEMS RELATED TO THE ERUPTION OF TEETH

IMPACTION AND DELAYED ERUPTION OF PERMANENT CANINES
Mandibular third molars are the most frequently impacted teeth. Next in frequency are the maxillary permanent canines. longest period of development.
Generally, this information should have been obtained from palpation of the canine crypt or from radiographs by the time the patient is 8 or 9 years of age.
A delay in the eruption can allow adjacent teeth to encroach on the space for the canine and contributes to the impacted condition.
If the maxillary permanent canine is definitely impacted, surgical intervention is indicated.
PROBLEMS RELATED TO THE ERUPTION OF TEETH

SUPERNUMERARY TEETH AND ACCOMPANYING MALOCCLUSION

Result from the continued budding of the enamel organ of the preceding tooth or from excessive proliferation of cells. Prevent the eruption of adjacent permanent teeth or cause their ectopic eruption.

Irregularity of the developing occlusion.

If the supernumerary tooth does not interfere with the symmetric development and eruption of adjacent teeth and no evidence of the formation of a cyst exists, the correct decision may be to observe the tooth until the child is old enough to tolerate the procedure better.
PROBLEMS RELATED TO THE ERUPTION OF TEETH

ANTERIOR DIASTEMAS

Active treatment should be postponed until the complete eruption of the permanent canines. Will close as the laterals and canines erupt. After the canines erupt, the condition can be reevaluated and appropriate treatment undertaken as needed. Sometimes a heavy labial frenum prevents the natural closure of a diastema. In these instances, if orthodontic closure is advocated, it should occur before surgery to reduce the chance that scar tissue will impede tooth movement.
CONGENITALLY MISSING TEETH

Missing lateral incisor (reshaped, prostheses, implant).

In some instances the primary molar may be left intact, may be retained, and may function well for many years. In many cases, however, the larger mesiodistal width of the primary molar may cause incorrect occlusal relationships with the permanent teeth. Sometimes, slicing the mesial and distal surfaces of the primary molar allows the proper permanent molar interdigitation, but often the bulbous, divergent roots of the primary second molar prevent the mesial movement of the permanent molar.
APPLIANCES TO REGAIN SPACE

The distal movement of first permanent molars can be obtained satisfactorily with a headgear appliance.

Several removable appliances have been recommended for regaining space (tipping), particularly when the first permanent molars have drifted mesially. A fixed intraoral appliance with coil-spring activation has been used successfully for this procedure.
THANKS FOR YOUR KIND ATTENTION