Early signs of malocclusion in the primary and mixed dentition

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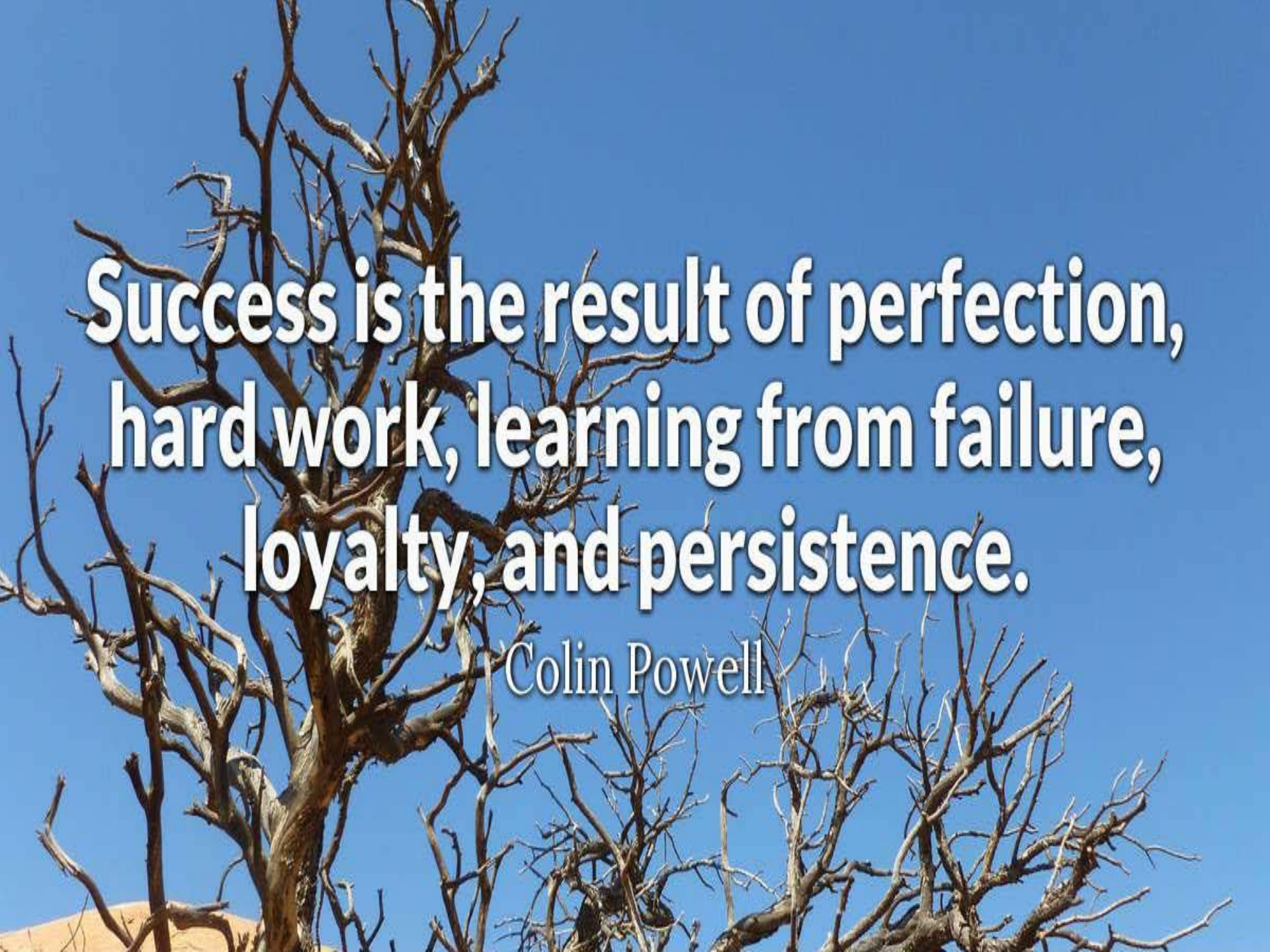
Success is the result of perfection, hard work, learning from failure, loyalty, and persistence.
Colin Powell

Malocclusion

Malocclusion- may be defined as a condition where there is deviation from the normal relation of the teeth to other teeth in the same dental arch and/or to THE teeth in the opposing arch.

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COMMON SENSE IS THE MOST LIMITED OF ALL NATURAL RESOURCES.

KUSHANDWIZDOM

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Self correcting anomalies	Correction (timing /factors involved in)
• Predentate period 1. Retrognathic mandible 2. Anterior open bite 3. Infantile swallowing pattern	Corrects with differential and forward growth of the mandible Eruption of primary incisors During the first year of the life with introduction of solid foods in diet
• Primary dentition 1. Anterior open bite 2. Flush terminal plane 3. Spacing 4. Edge to edge	Corrects with: •Eruption of deciduous molars •Attrition of incisal edges •Forward and downward growth of mandible •Eruption of first permanent molar •(late shift) Leeway space •Eruption of first permanent molar •Eruption of permanent molar
• Mixed dentition 1. Anterior open bite 2. Mandible anterior crowding 3. Ugly ducking stage 4. End on relation	•Proprioceptive response condition of patient •Tongue pressure •Increase in intercanine width •Maxillary canine eruption •With eruption of first permanent molars •Late mesial shift in non spaced dentition
• Permanent dentition 1. Overjet and overbite	•Decrease with eruption of all permanent molars •Differential growth of mandible

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Early signs of malocclusion in the primary and mixed dentition

- Premature tooth loss of the primary teeth, especially the molars, may lead to lack of space, malocclusion and midline discrepancies in the permanent dentition.
- The dental injuries and periodontal illness greatly influence the occurrence of tooth loss, but the decay continues to be the main villain of the high rate of loss.
- Premature loss of primary teeth reduces the arch length required for the succeeding tooth and, hence, predisposes crowding, rotation and impaction of the permanent teeth.

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Incidence

- **Prevalence** of early **loss** of **primary teeth** was high (40.54%), and was higher at 8 years of age.
- Majority of the children had one missing **tooth** (40%). More number of **teeth** was **lost** in the mandibular arch (53.5%).
- The lower left **primary** second **molar** was the most commonly missing **teeth** (13.5%).

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Distribution of school children with early loss of primary teeth according to gender

Gender	Children with teeth loss (%)	Children without teeth loss (%)	Total	Prevalence (%)
Male	104 (9.28)	457 (40.8)	561	18.5
Female	81 (7.22)	479 (42.7)	560	14.5
Total	185 (16.5)	936 (83.5)	1121	
Chi-square value 3.376	Degree of freedom 1	*P*-value 0.0662 (NS)		

Prevalence of early loss of primary teeth according to the arches

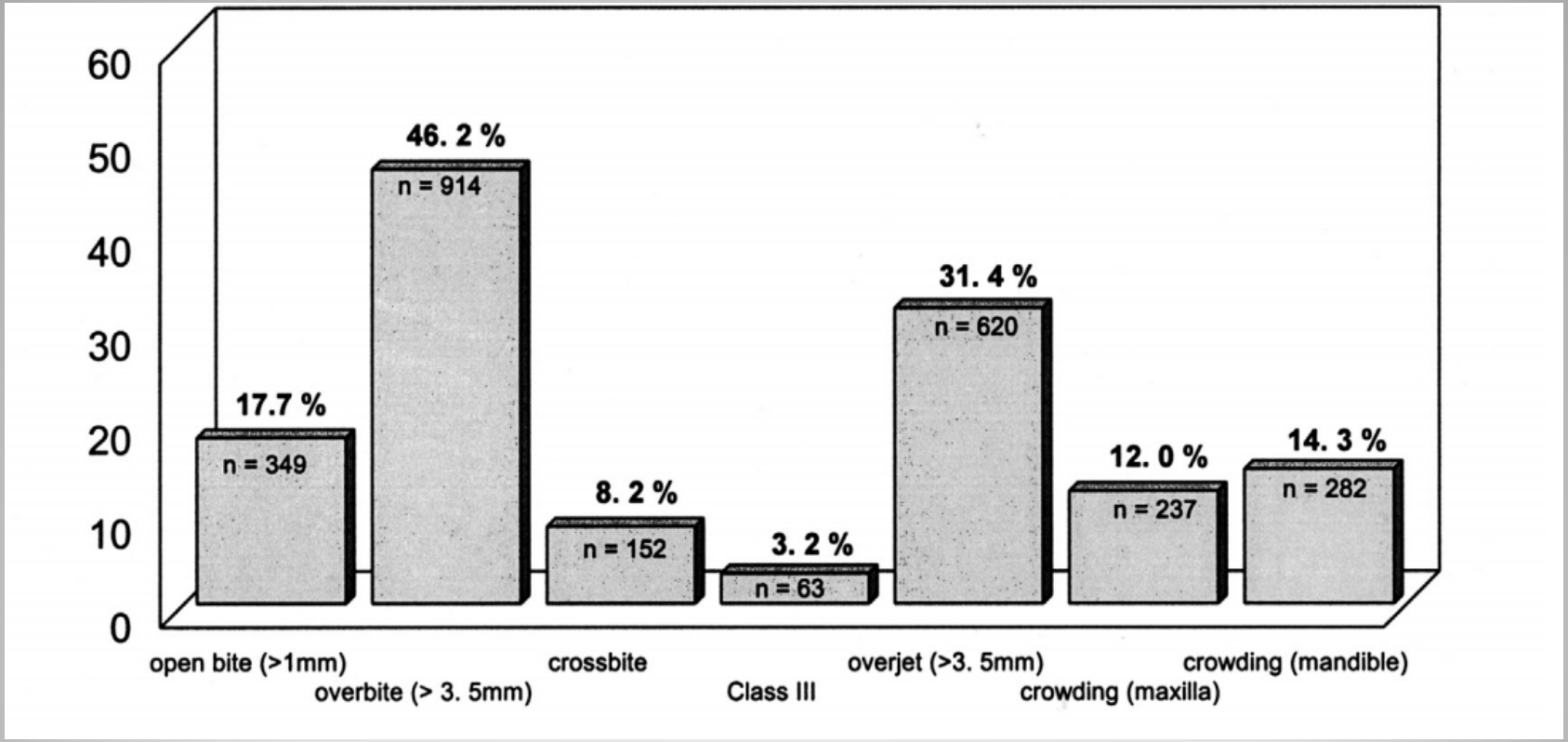
Arches	Children with teeth loss	Percentage (%) (in 1121 children)
Maxilla	66	5.89
Mandible	98	8.74
Both	21	1.87
Total	185	16.5

Distribution of early loss of primary teeth according to dental groups

Dental group	Number of teeth lost	%
1st molars	201	60.36
2nd molars	99	29.72
Canines	12	3.60
Incisors	21	6.30
Total	333	100.00

Prevalence of early loss according to the sides

Sides	Children with teeth loss	Prevalence (%) (in 1121 children)
Right	69	6.16
Left	54	4.81
Both	62	5.53
Total	185	16.5



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Early signs of malocclusion in the primary and mixed dentition

- Opinions on the optimal timing of orthodontic treatment vary greatly among clinicians and researchers.
- The college of diplomats of the American board of orthodontics held workshop discussions on early treatment during their meeting in 1997, concluding that almost all types of malocclusions could benefit from early treatment (Bishara et al. 1998).
- On the other hand, it has been suggested that the best time for orthodontic treatment would be in early permanent dentition (Gianelly 1995, Proffit 2002).
- The opinions of orthodontists concerning the timing of treatment are largely based on clinical experience.

Early signs of malocclusion in the primary and mixed dentition

- http://www.aapd.org/media/policies_guidelines/g_developdentition.pdf
- The American Academy of Pediatric Dentistry (AAPD) recognizes the importance of managing the developing dentition and occlusion and its effect on the well-being of infants, children, and adolescents.
- Management includes the recognition, diagnosis, and appropriate treatment of dentofacial abnormalities. This guideline is intended to set forth objectives for management of the developing dentition and occlusion in pediatric dentistry.

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Diagnosis & treatment planning

- Chronological/mental/emotional age of the patient and the patient's ability to understand and cooperate in the treatment
- Intensity, frequency, and duration of an oral habit
- Parental support for the treatment
- Compliance with clinician's instructions

Early signs of malocclusion in the primary and mixed dentition

- Craniofacial configuration
- Craniofacial growth
- Concomitant systemic disease or condition
- Accuracy of diagnosis
- Appropriateness of treatment
- Timing of treatment

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Dentition

- Primary dentition: Beginning in infancy with the eruption of the first tooth, usually about six months of age, and complete from approximately three to six years of age when all primary teeth are erupted
- Mixed dentition: From approximately age six to 13, primary and permanent teeth are present in the mouth
- Adolescent dentition: All primary teeth have exfoli-ated, second permanent molars may be erupted or erupting, and third molars have not erupted
- Adult dentition: All permanent teeth are present and eruptive growth is complete

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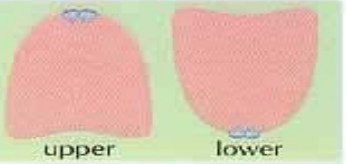
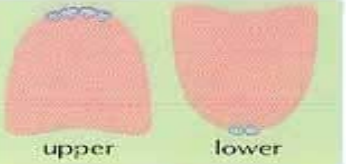
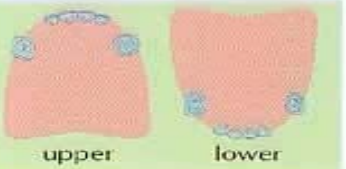
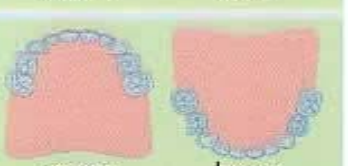
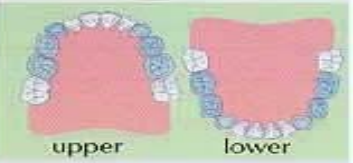
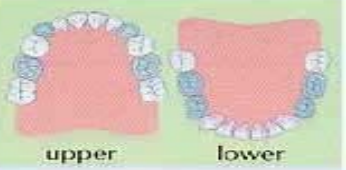
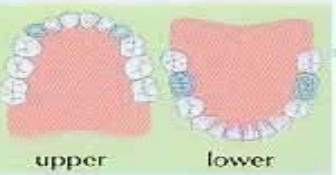
Tooth Arrival Chart

Use this chart to identify the number and location of teeth at a given age. Baby teeth are shaded in blue and permanent teeth are shown in white.

When?	How many?		Where?
5-12 months	4 baby teeth	0 permanent teeth	
8-13 months	6 baby teeth	0 permanent teeth	
13-19 months	12 baby teeth	0 permanent teeth	
16-23 months	16 baby teeth	0 permanent teeth	
2-3½ years	20 baby teeth	0 permanent teeth	
6-7 years	20 baby teeth	4 permanent teeth	
6-8 years	16 baby teeth	8 permanent teeth	
7-9 years	12 baby teeth	12 permanent teeth	
9-11 years	8 baby teeth	16 permanent teeth	
10-12 years	4 baby teeth	20 permanent teeth	
11-12 years	0 baby teeth	24 permanent teeth	
12-13 years	0 baby teeth	28 permanent teeth	
17-22 years	0 baby teeth	32 permanent teeth	

Your teeth and what they do

Each of your teeth is different because they perform different functions to help you eat.

Incisors (front teeth)
-have sharp, thin edges for cutting food.

Canines/Cuspids
(corner teeth)
-designed for cutting and tearing food.

Premolars/bicuspids
(back teeth)
-have cusps for grasping and tearing food.

Molars
(back teeth)
-have short, blunt cusps for grinding solid food.

'Making dental care possible: a mutual affair'

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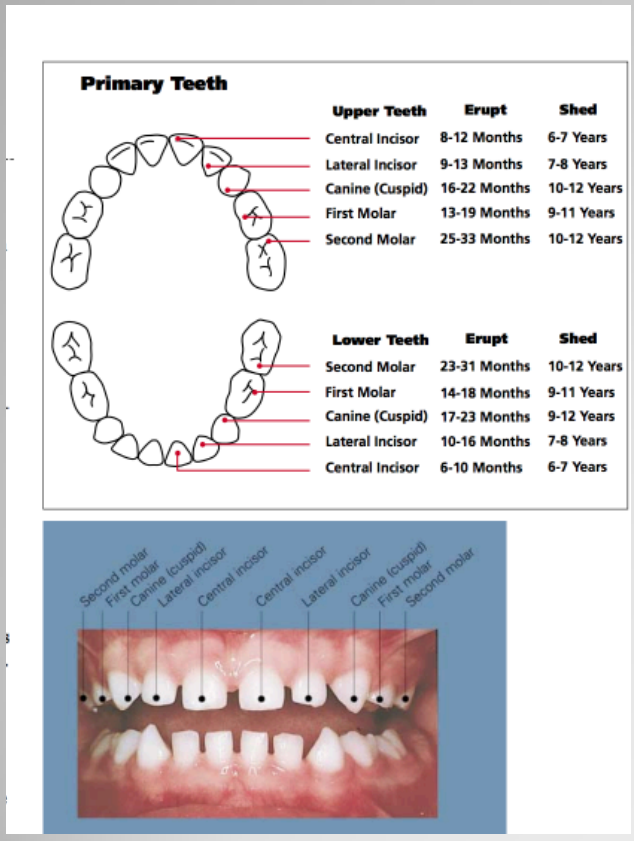

- The chart and photograph identify the names of the primary teeth and provide the approximate ages at which you can expect the teeth to erupt and shed.
- Primary teeth may be temporary, but they deserve good care. A child needs strong, healthy primary teeth not only to chew food easily, but to pronounce words properly.

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What is Interception?

Any procedure that eliminates or reduces the severity of malocclusion in the developing dentition.

All simple measures that eliminate the developing malocclusion. (Proffit)

When To decide about intervention

The AAO recommends that all children should be seen by a specialist no later than 7 years.

Screening of for orthodontic problems seems to be suitable in children between the age of 9-11.

Why to Intervene?

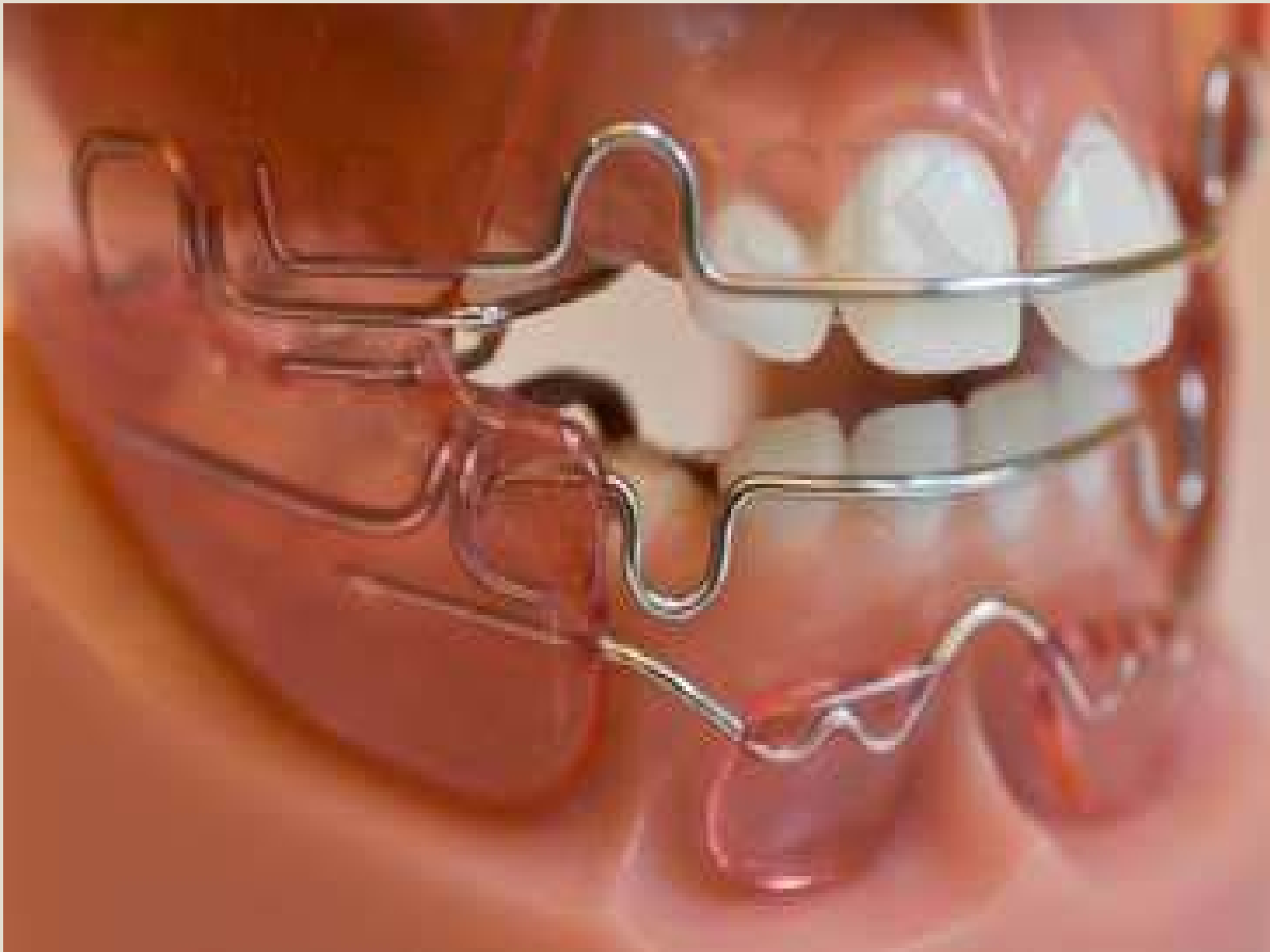
- Decrease the risk of trauma.
- Decrease comprehensive treatment time.
- Eliminate future centerline, A-P, vertical, and transverse discrepancy.
- Improve social and psychological well-being.

- Recognition of dental pathology or related conditions and commencing treatment appropriately.
- Eliminate habits and airway abnormalities that contribute to malocclusion.
- Space management in the developing dentition.

In an educational leaflet targeting the parents, the AAO stated nine signs to look for in a growing individual;

1. Anterior crossbite
2. Posterior crossbite
3. Crowding of the permanent dentition
4. Spacing
5. Anterior openbite
6. Deepbite
7. Reverse overjet
8. Proclination of the upper labial segment
9. Oral habits

- Skeletal Problems
- Dental problems
- Soft tissue and Habits

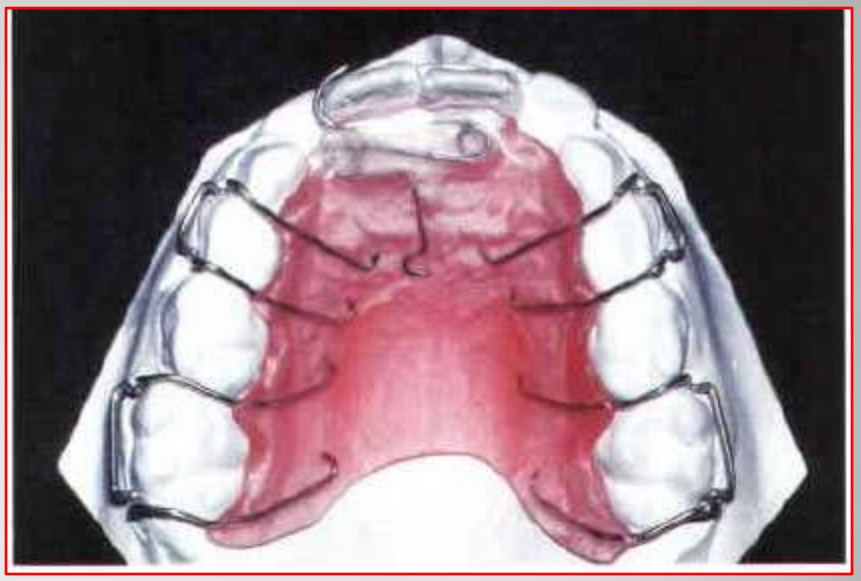


Dental problems

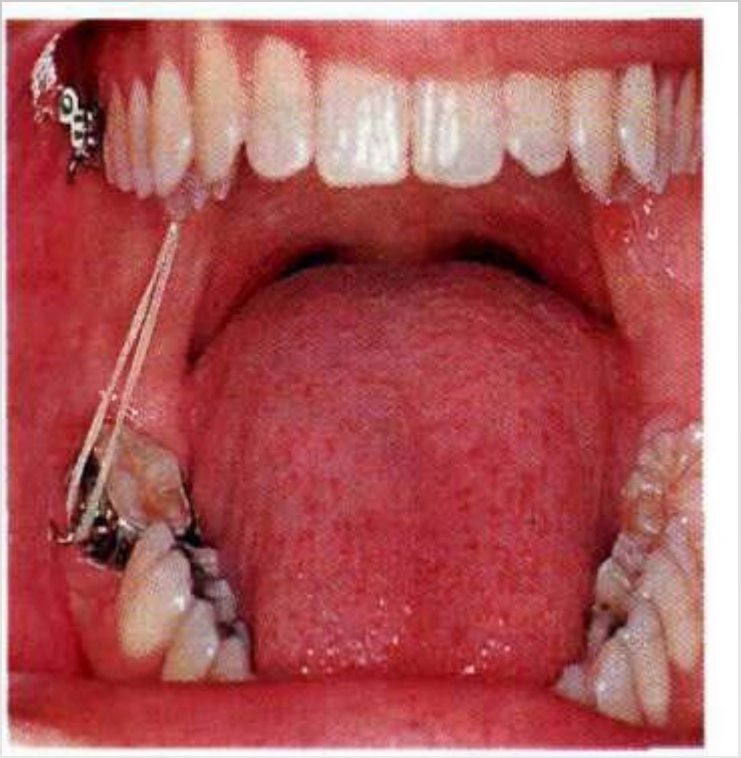
Minor canine interference leading to mandibular shift

Non skeletal anterior Crossbites

Non skeletal anterior Crossbites



Dental posterior cross bite



Dental posterior cross bite

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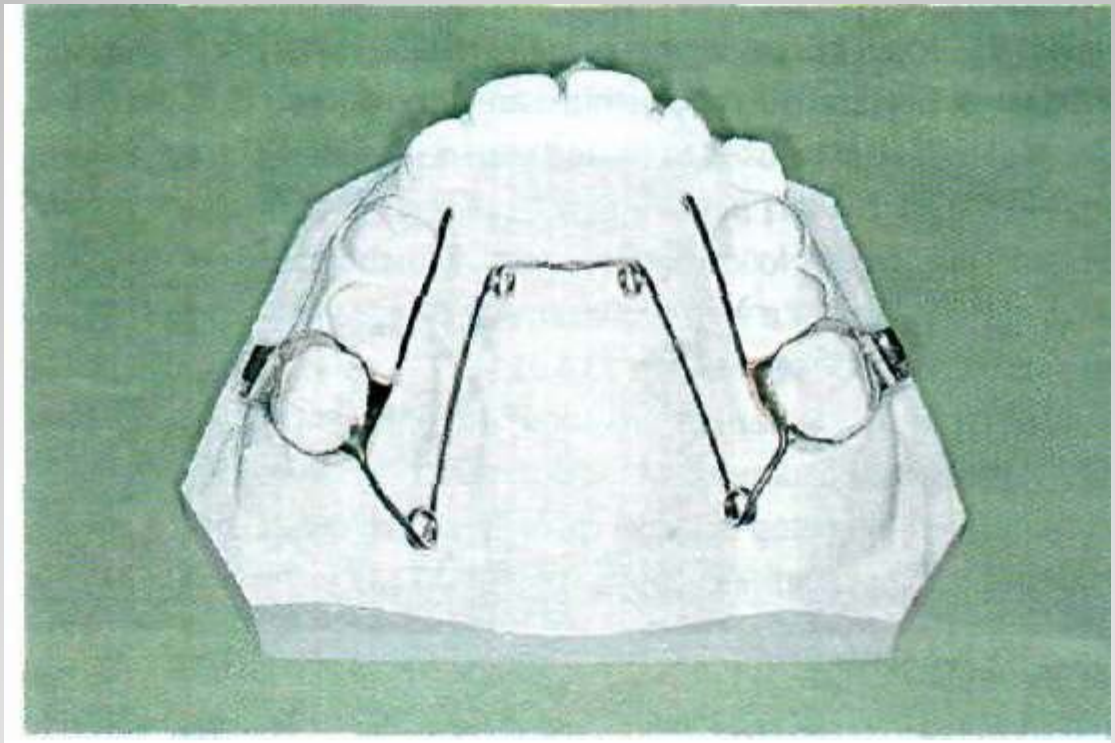

Effects of Sucking Habits

Effects of Sucking Habits

As long as the habit stops before the eruption of the permanent incisor, most of the changes resolve spontaneously.

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Eruption problems

- Over-Retained Primary Teeth
- Supernumerary teeth
- Delayed Incisor eruption
- Ankylosed Primary Teeth
- Ectopic eruptions
- Transposition
- Primary failure of eruption
- Roots shortened by radiation therapy

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Over-Retained Primary Teeth

Once the primary tooth is out, if space is adequate, moderately abnormal facial or lingual positioning will usually be corrected by the equilibrium forces of the lip, cheeks and tongue

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Supernumerary teeth

Supernumerary teeth can disrupt both the normal eruption of other teeth and their alignment and spacing.

The most common location for supernumerary teeth is **the anterior maxilla .**

Treatment is aimed at:

Extraction of the supernumeraries before problems arise

OR at minimizing the effect if other teeth have already been displaced

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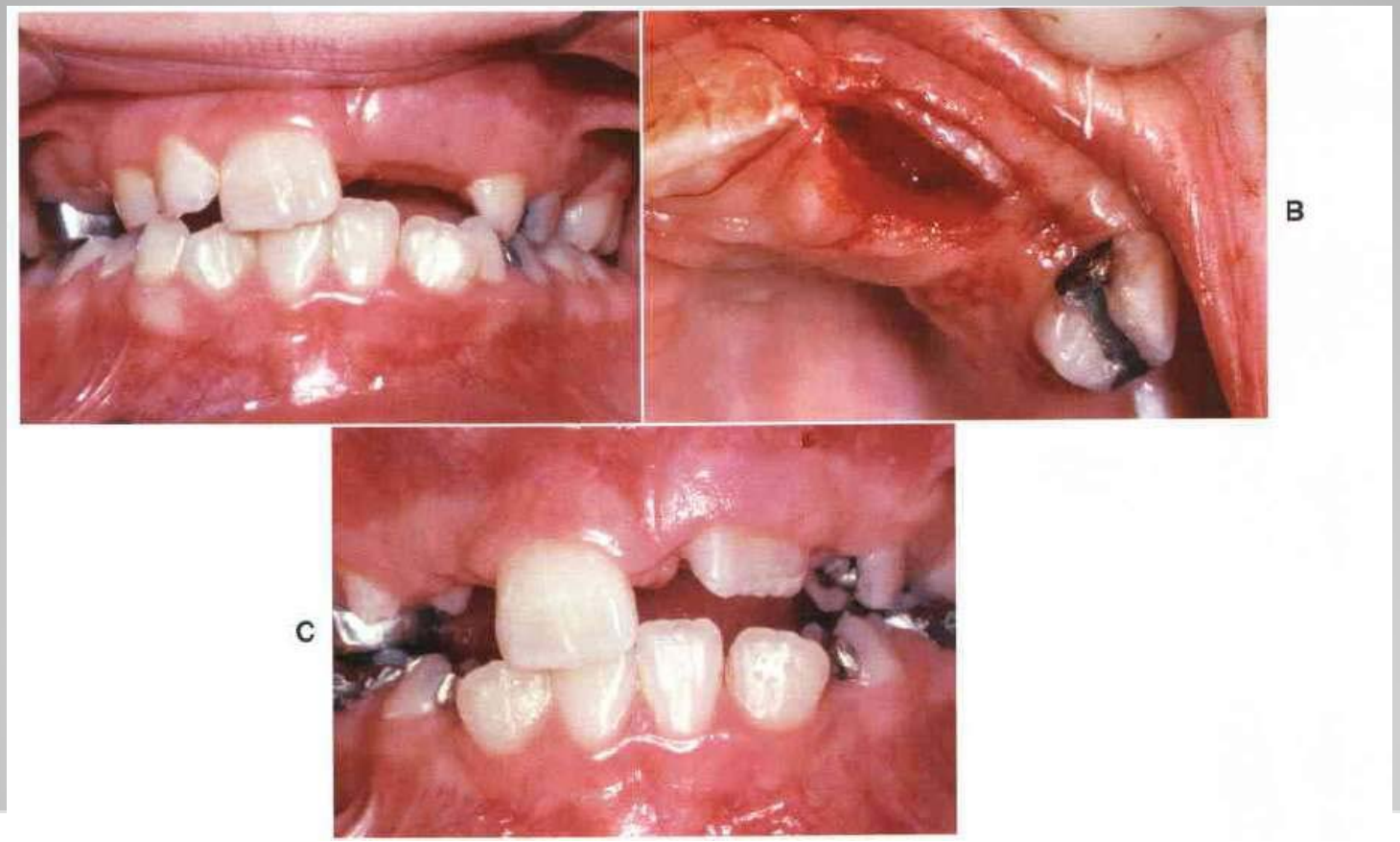
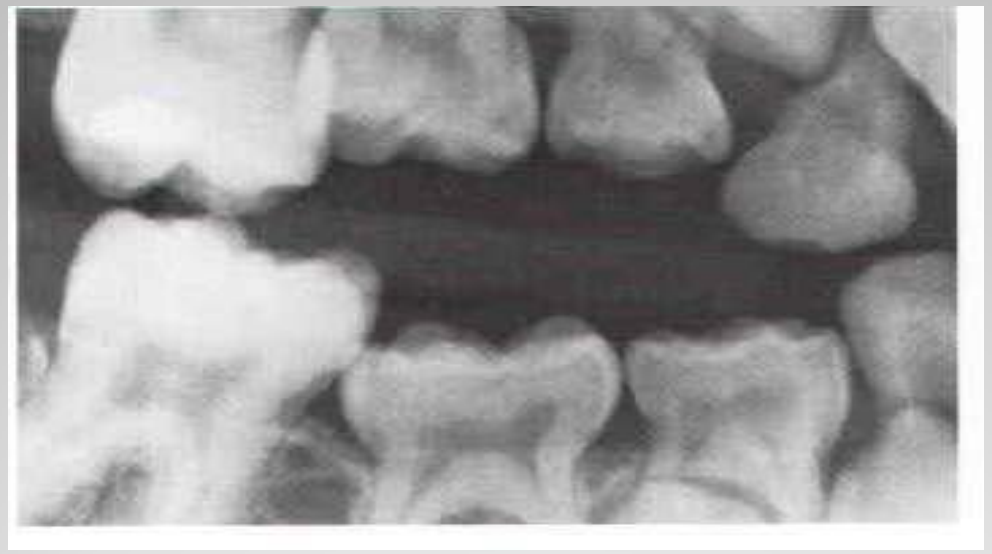
Delayed Incisor Eruption



Ankylosed Primary Teeth



This radiograph demonstrates both anterior and posterior teeth tipping over adjacent ankylosed primary molars. The ankylosed teeth should be removed if significant tipping and space loss are occurring

Ectopic eruption

Eruption is ectopic when a permanent tooth causes either:

Resorption of a primary tooth other than the one it is supposed to replace

OR resorption of an adjacent permanent tooth.

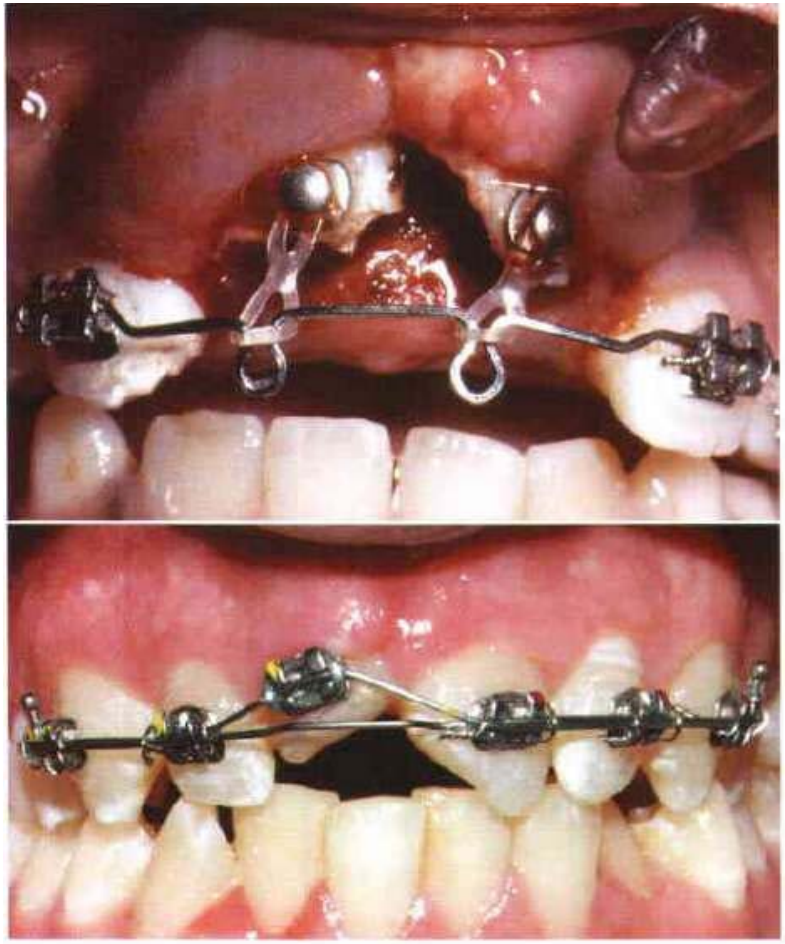
Ectopic eruption of Maxillary Canines

Ectopic eruption of maxillary canines occurs relatively frequently and can lead to either or both of two problems:

(I)impaction of the canine and/or (2) resorption of permanent lateral incisor roots.

There appears to be a genetic basis for this eruption phenomenon, and in some cases it is related to small or missing maxillary lateral incisors

Traumatic displacement of teeth

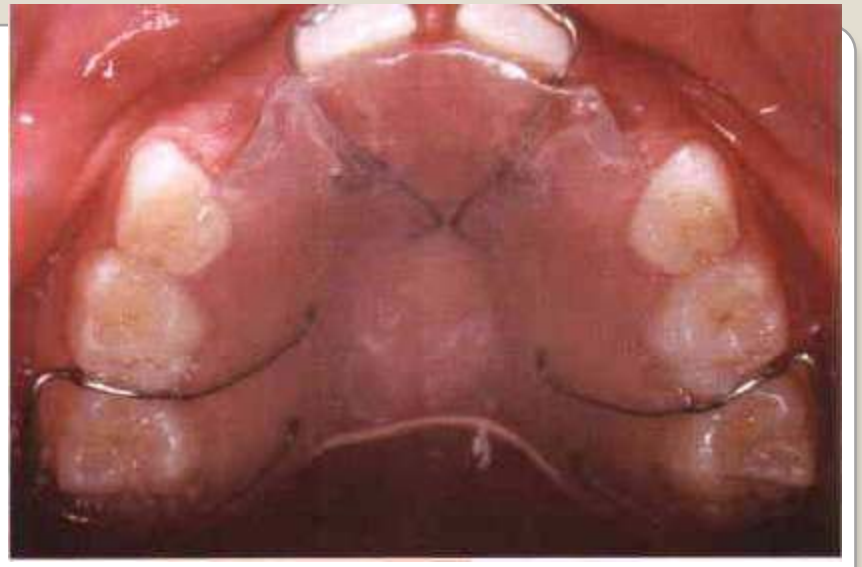


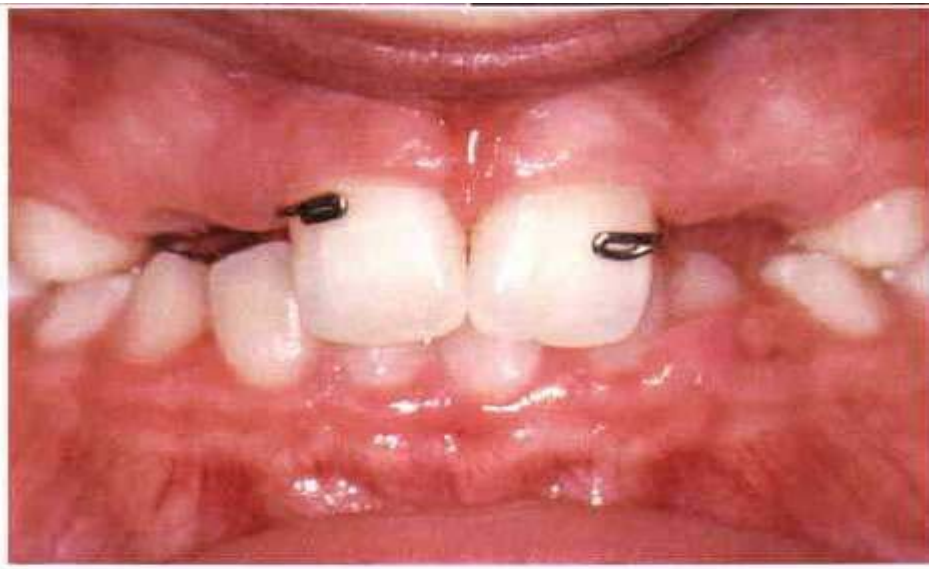
Ugly duckling stage

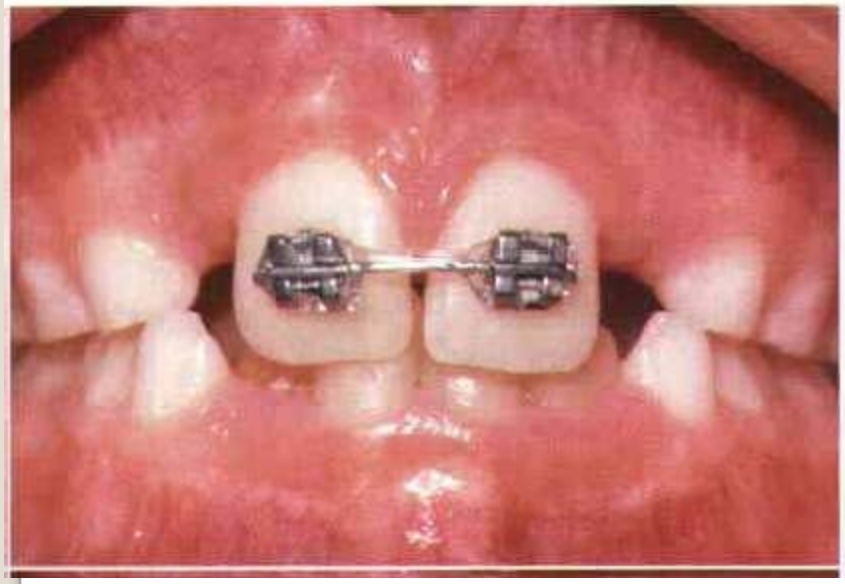
The spaces between the incisors, including the midline diastema, decrease and often completely disappear when the canines erupt .

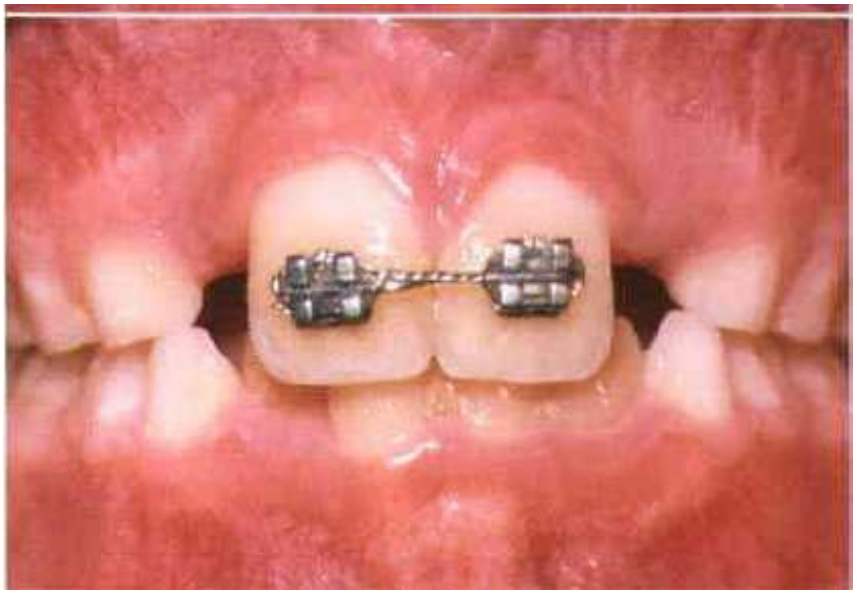
while their crowns diverge distally this condition of flared and spaced incisors is called the "**ugly duckling**" stage of development

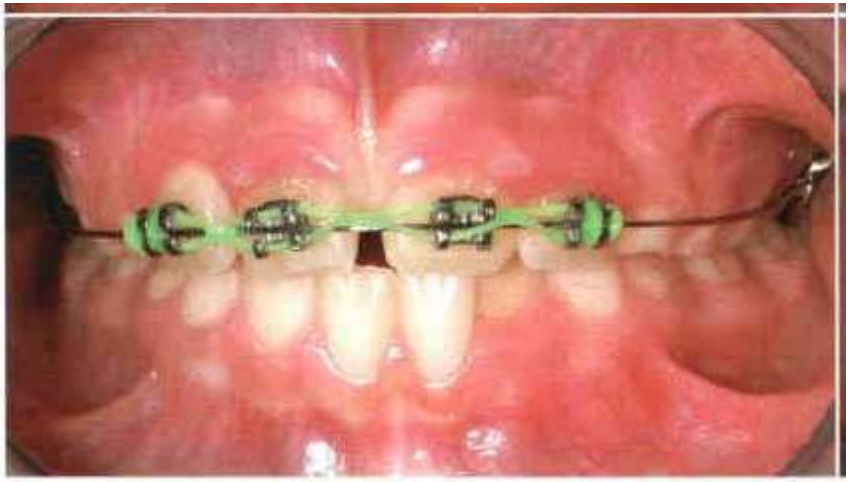
The ugly duckling phase





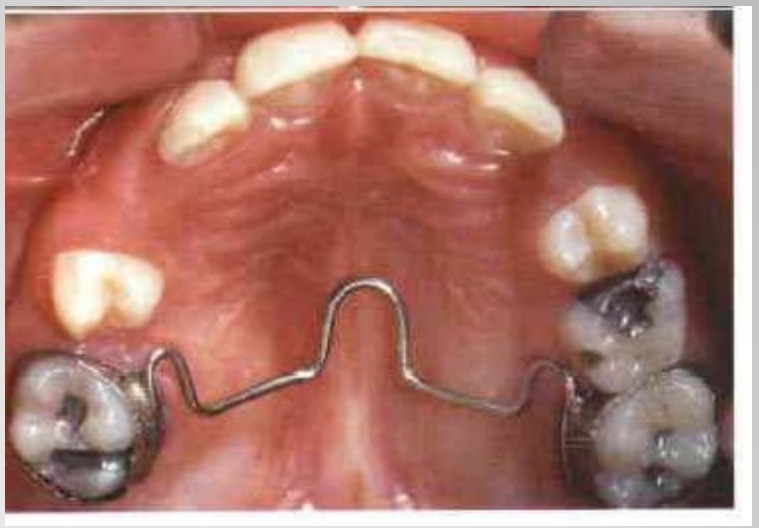


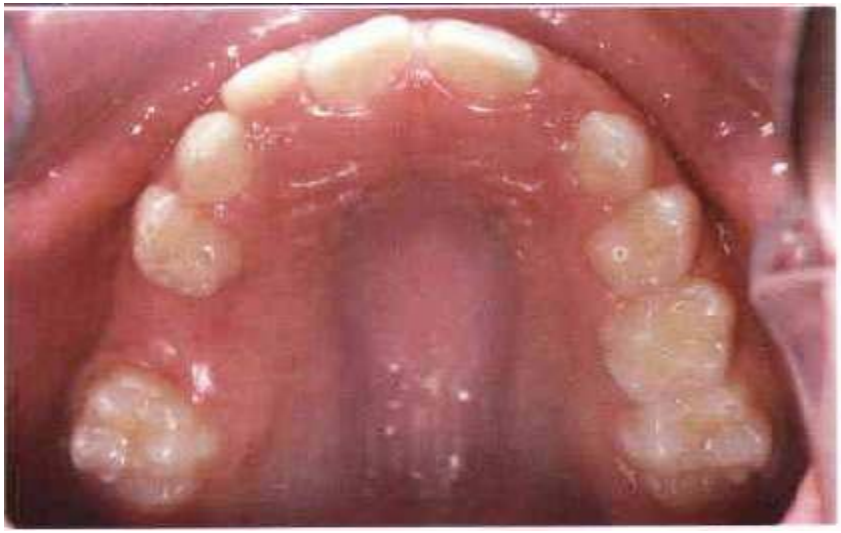




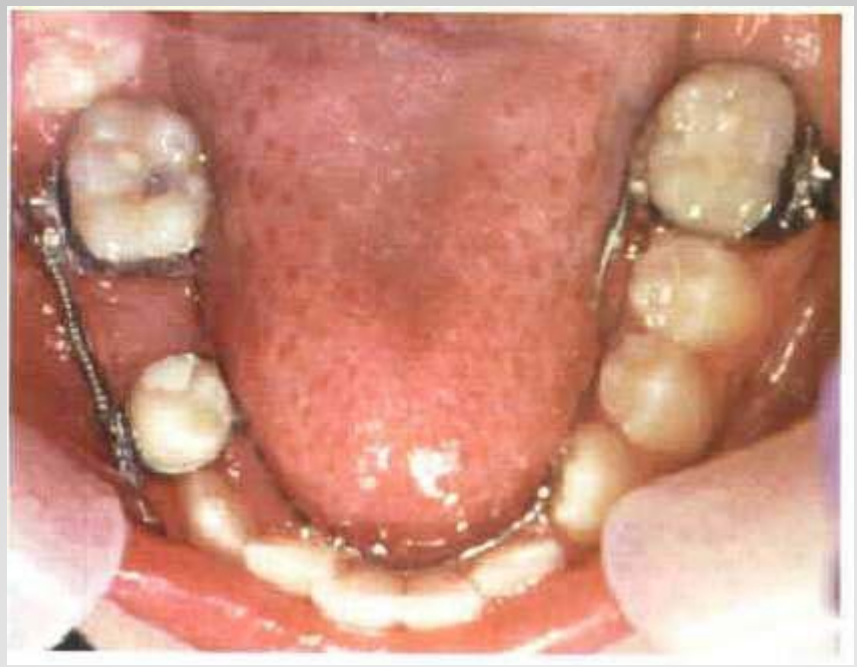
Maxillary Dental Protrusion and Spacing

Maxillary Space Regaining



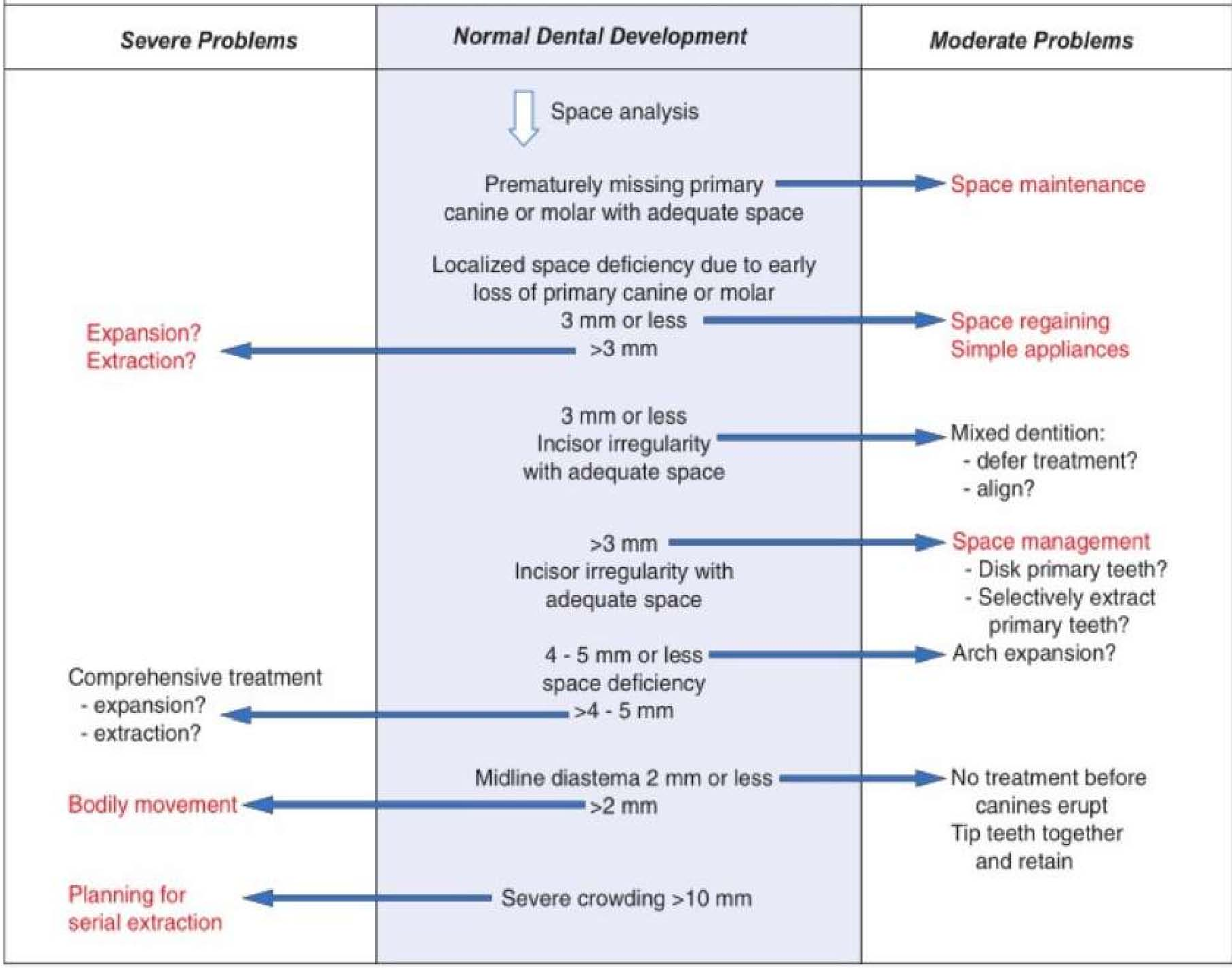


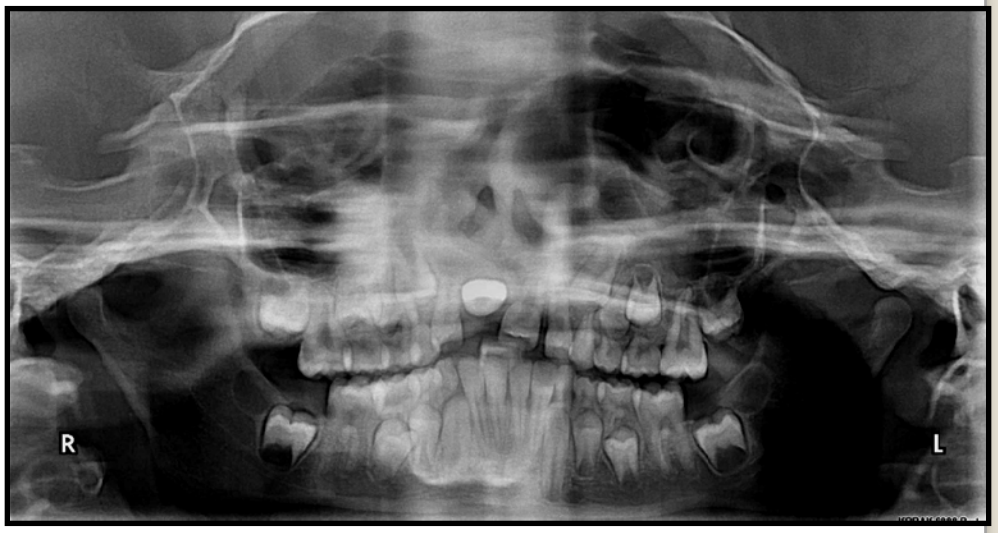
Mandibular Space Regaining



Mandibular Space Regaining

Mandibular Space Regaining


Severe Problems
Normal Dental Development
Moderate Problems
Space analysis
Prematurely missing primary canine or molar with adequate space
Space maintenance
Localized space deficiency due to early loss of primary canine or molar
3 mm or less
Space regaining
Simple appliances
>3 mm
Expansion?
Extraction?
3 mm or less
Incisor irregularity with adequate space
Mixed dentition:
- defer treatment?
- align?
>3 mm
Incisor irregularity with adequate space
Space management
- Disk primary teeth?
- Selectively extract primary teeth?
4 - 5 mm or less
space deficiency
Arch expansion?
>4 - 5 mm
Comprehensive treatment
- expansion?
- extraction?
Midline diastema 2 mm or less
No treatment before canines erupt
Tip teeth together and retain
>2 mm
Bodily movement
Severe crowding >10 mm
Planning for serial extraction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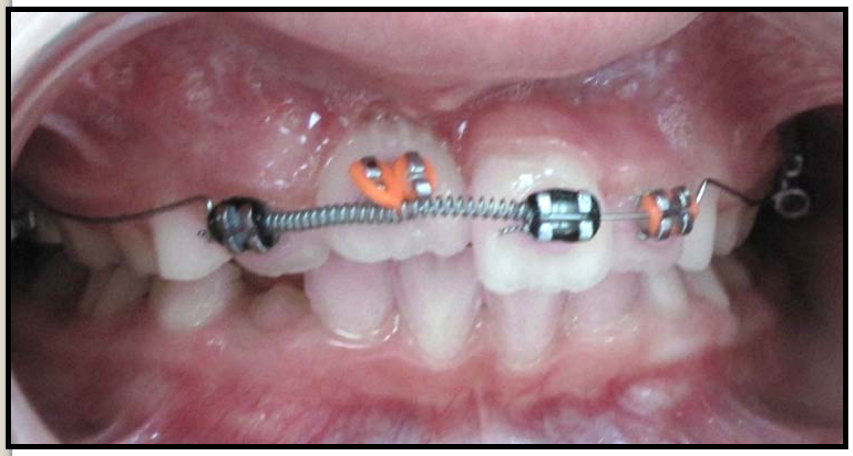

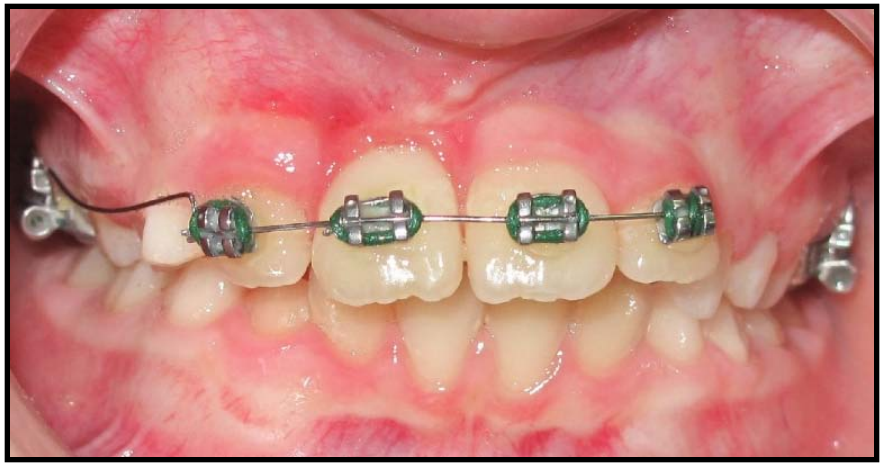


Catch them young !!!!!!
Watch them grow. . . . . .

conclusion

- Find the malocclusion
- Intervene if required
- Reduce the severity of the malocclusion
- Tooth eruption chart
- Referral