

Interceptive treatment

Any treatment procedure which eliminate or reduce the severity of developing malocclusion (while the patient is growing or in mixed dentition), that make the treatment in the future much easier or won't need treatment at all.

To understand that the Dr showed this case:

15 year old female patient has supernumerary teeth prevent the central incisors from erupting.

If her dentist in the **past** tried to take an x-ray and extract the supernumerary teeth, then the central incisors would :

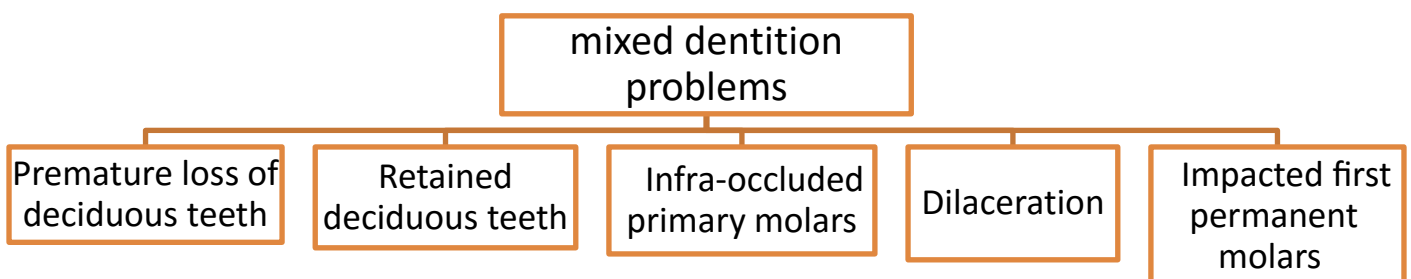
1. Erupted in their correct place so she won't need ortho treatment at all OR
2. Erupted with slightly crowding, so the treatment will be easier and less complicated.

Unfortunately **now** we have to do :

- Surgery to extract the supernumerary teeth
- Retraction gold chain
- Ortho treatment to open space for the impacted central incisors
- Extraction of 2 premolars one on each side because we have space loss.

Results: She lost 2 teeth and the most important thing she lost self-confidence. She is shy and trying to hide her teeth all the time.

Mixed dentition problems



1) Premature loss of deciduous teeth:

Example (1): there is a mesial drift of 1st molar due to the premature loss of E in the lower right quadrant.

Eventually we will have impaction in the lower right 5 .

Example (2): there is upper midline shift to the right (about 4 mm) due to early loss of C .

Effects of premature loss :

1. Loss of space and crowding.
2. Midline shift (mainly C).

These effects depend on which and when tooth is extracted and the pre-existing crowding.

As the degree of crowding increases so does the effect of early loss.

If early loss of C happened in an uncrowded arch these effects won't occur and no need to balance. But if it happened in crowded arch, we will have a midline shift.

The solutions / the interceptive treatment:

- 1) **Balancing extraction:** is the removal of the contralateral tooth to avoid midline shift problems
- 2) **Compensating extraction:** is the removal of the equivalent opposing tooth to maintain occlusal relationships between the arches
- 3) **Space maintainers**

Let's discuss each tooth alone:

- **Deciduous incisor:** premature loss of a deciduous incisor has little impact, **no** need for balancing or compensating extraction.

Rarely, in young children for psychological and speech reasons we might use spoon denture.

- **Deciduous canine:** unilateral loss of a primary canine in a crowded mouth will lead to a midline shift. To avoid this is necessary to consider balancing extraction of the contralateral tooth. No need for compensating extraction.

- **Deciduous first molar:**

In most cases a balancing extraction is not necessary (it's between E and C). But in severely crowded arch we will have midline shift.

So we need balancing extraction. No need for compensating extraction because the amount of space loss is not as severe as in E loss.

We don't have to extract exactly the same contralateral tooth, as if the contralateral C is carious and D is sound we extract the C and keep the D.

- **Deciduous second molar:**

if a 2nd primary molar is extracted, the 1st permanent molar will drift forwards/severe migration.

Balancing extraction won't help me to correct the problem.

Of course we won't do compensating extraction leading to another impaction in upper 5 too!, even though the relationship won't stay class 1 but so what, no need to let the patient has another impaction .

Almost in all cases we don't need compensating extraction :P

So the solution here is space maintainer .

Space maintainers considered a big dilemma between orthodontics and pediatrics.

Let's discuss this case:

6.5 year old patient has poor prognosis of lower E's, we decide to extract the E's in both side.

Consider we put lingual arch SM at this age and the full permanent dentition in lower arch is completed at age of 12.

Now from 7 to 12 there is a 5 years, the patient had the SM for 5 years. It needs compliance, good OH and maintenance

The question is: Do we guarantee that when he reaches 12 years old, he will not need further orthodontic treatment?

And if he needs ortho Tx, add another 2 years for the plan

So in total the duration is 7 years. Basically we are burning his compliance!

In general:

If the space maintainer will guarantee that won't need ortho treatment later then use SM . this is according to Dr opinion and Laura Mitchell too.

Whereas according to pediatrics, they take the decision depending on bone resorption and root development and this is not right. They should look for the malocclusion in general.

2) Retained deciduous teeth.

case (1): retained C and ectopic eruption of canine lingually .

Solution: extraction of C and the canine will come to its place by tongue.

case (2): retained A and central incisor erupted palatal so we extract A.

case (3): crowding in lower arch, we extract C and B to prevent forward eruption of laterals because they are narrower than lateral incisors.

3) Infra-occluded primary molars

Etiology: ankylosis.

Resorption of deciduous teeth is not a continuous process. In fact, resorption is interchanged with periods of healing. If a **temporary** predominance of healing occurs, this can result in temporary ankylosis and infra-occlusion of the affected primary molar.

Infraoccluded tooth: is erupted but below the occlusal level.

We called it submerged when the tooth is erupted but under the gingival level .

Infra-occlusion is the big umbrella and the submerged is a subtype.

Solution :

It depend if there is successor under it or not.

So 1st : take periapical x-ray

We have to see in x-ray:

1- If there is a successor tooth or not

2- And if it's within the roots of E or not(causing resorption or not).

A Sweden study was done on 150 children with infra-occluded E and follow up them.

Dr showed x-rays for one of these cases:

The patient has infra-occlusion in the right side but no infra-occlusion on the left side

- At age **10.5** , the 5 is within the roots of E so we need just observation .
- At age **11.5**, the contralateral tooth(left 5) is erupted but the other side(right 5) is even sinking more and no eruption yet.
- At age **12.5** eventually the eruption happened on the right side.

So basically infra-occlusion **delays** the eruption rather than preventing it, so we don't need extraction of E. extraction is not easy due to the ankylosis, we need just observation.

we need extraction when:

- the 5 is not within the roots of E .
- Sever infra-occlusion, it almost reaches the CEJ of the adjacent teeth.(submerged)

If there is missing 5 at all what should we do? We build up the E by :

- SSC
- Porcelain crown(better esthetic)

But first we need to do uprighting of adjacent teeth.

Sometimes we plan for **spontaneous space closure** if we have missing permanent tooth, we do extraction for the E to get spontaneous space closure. (orthodontics decision)

4) Impacted first permanent molars

Its most commonly occur in the upper 6 more than lower 6.

Example the in x-ray is erupting underneath E

The etiology :

1. Mesial angle for eruption of 6
2. Small maxilla
3. Retrognathic maxilla

Usually it's an indication for crowding in future.

Management depends on:

1. Age of the patient
2. Amount of the overlap between the 6 and E

General speaking:

- if the patient is under the age of 8, 60% will have spontaneous eruption within 6 months so just observation.
- If patient come after the 6 months or he is above the age of 8, we need to do interception.

The interception depends on the amount of overlap:

- 0-2 mm (mild), place elastic separator(used nowadays) or brass metal wire separator (old fashioned)

- >2 mm, we make dis-impaction appliance (adam clasp on E and palatal finger spring on 6) to distalize and pushing it away from the E so we maintain the space.
- Extraction of E if it becomes symptomatic (abscess or pulpitis), the resultant space loss can be dealt with depend on the malocclusion of the patient either we extract the E and leave it or we put the same appliance to distalize the 6 and get back the lost space.

Dr showed a case:

8-9 years old patient has non restorable 6's .

Orthodontists they don't prefer to extract the 6's they rather prefer 4 or 5. But badly destructed 6 we have to extract it.

Maximum spontaneous space closure

Extraction of 6 and the 7 takes the place of 6 .

Two factors in order to take the decision of extraction:

- 1) Radiographic factor**
- 2) Clinical factor**

1) Radiographic factors :

- Should be **no hypodontia** (no missing 5 or 7), 8 still not calcified yet at that age so we don't know about it.
- **Furcation** of lower 7 should be just started(not continued or completed) (in upper 7 I don't care at any age whenever we extract 6 the 7 will take the place of 6 even if the roots of 7 are completed because the upper 7 is erupting in mesial angle .
- **Angle** between lower 6 and 7, should be between (15-30)^o if less or more we won't have spontaneous space closure
- **Overlap** between 6 and 7(we should have it).

2) Clinical factors:

Case:

Patient with Class 3 malocclusion in order to convert it to class 1 we need to do extraction for 2 PM's(5 usually) in lower arch and use this space for the retraction of lower incisors so we achieve +ve overjet.

If the patient at age of 10 years with badly destructed lower 6's, we don't extract them, we temporize them until she reaches 13 years old when she is ready for definitive treatment, now we extract 6's and use its space to correct the overjet.

(Because if we extract them at that age we will have spontaneous space closure and when she reaches 13 years old, she will need again another extraction of PM's for the retraction of lower incisors)

But if in upper arch we can extract the 6's because we want to push the incisors forward so we don't need space.

The opposite if the patient in class 2 or has crowding.

Notes:

- If we extract the lower 6 in one side, do we have to do balancing extraction in the other side to maintain the midline? NO
- Do we need to do compensating extraction?

If extraction happened in **lower** 6 we will have over eruption of upper 6, to prevent that we either hold the upper 6 in its place (using wire and composite) or we do compensating extraction.

If the extraction happened in **upper** 6, the lower 6 won't over erupt because it occludes with the upper E. Also the upper 7 drift mesially within bone 1st then erupt in place of 6. So we don't do compensating extraction.

At the end :

There is no general guidance rule to follow, these are just a basic information use them to take your clinical decision.

Sorry for being late but I hoped the Dr send us the handout earlier to attach the photos :/

the reference for this lecture is Laura Mitchell. Sorry for any mistake / Best wishes 😊