**Orthodontics, Sheet 9**

**Written by Siwar Alashhab**

In orthodontics, we have two treatment options:

1. early treatment (it takes more time)
2. late treatment

**-Early treatment:**

Case: 8 years’ child who is still in the mixed dentition attended the clinic and he was complaining that his anterior teeth are big and proclined (overjet = 6-7 mm), and he insisted on starting the treatment, So

-stage number one of treatment: twin block (functional appliance) to reduce the overjet, then we must wait until all the permanents erupt (at 12-14 years of age) but during this period he must be wearing an appliance during sleeping to get retention

We start the treatment when he was 8 years, the first stage took 1 year, retention for 5 years then fixed appliance for 1-2 years, so 7 years of treatment.

Benefit of early treatment: patients concern and we reduced the incidence of trauma.

* **Late treatment:**

We start our treatment at growth spurt, females 10-12 years and males 12-14 years, so we start the treatment before the full permanent dentition. It takes less time than the early treatment (we shifted directly from functional to fixed appliance without the need of retention period).

Research showed little if any difference in outcome between those treated early and those treated in late however more compliance problems appeared in early treatment group, since patients lost interest due to the long periods of treatment which lead to patients skipping appointments and not brushing their teeth. In conclusion, we always prefer late treatment except in cases of bullying and teasing we might go for early treatment.

* a study was carried out in different schools in Jordan and they came to a conclusion that the most common cause of bullying is increased overjet, some kids refused to go to school because they are afraid of bullying so we have to start the treatment as soon as possible in those cases.

* A patient with proclined incisors, incompetent lips, with his lower lip entrapped behind the upper centrals, this patient is at high risk of trauma and the evidence here is debatable to whether we should treat this case early or late. They brought students with characteristics mentioned above and divided them into two groups early vs. late, they found that patients with late treatment had more incidence of trauma and another epidemiological study was carried out, 500 students of the sample experienced trauma (300 out of 500 had increased OJ) so we have supporting evidence to correct OJ early to prevent trauma but the doctor doesn’t consider it as a reason so in the end its debatable depending on your personal opinion.
* The cases you have to **refer** them to an orthodontist:

1- Any change in symmetry and sequence of eruption.

2-Big carious lesion (to help in taking a decision of extracting the tooth or treat it endodontically and place a crown)

1. IF Canine is not palpable at age of 11 because at this age I have to do interceptive treatment.

4-Hypodontia.

Why do we need to refer a case of hypodontia? To do a proper intervention.

Case: a patient with missing lateral we extracted the B&C and the canine took the place of the lateral.

5-a patient with supernumerary teeth (ex. Tuberculate)

6-Infraoccluded molar.

7-ectopic molar (we may use separators but if it needs an appliance, we have to refer the patient to an orthodontist)

-Management of infraoccluded molar: first we have to take an x-ray to make sure if there’s a permanent successor or not

* if there’s a permanent, we wait and we don’t do extraction because most of the time we get spontaneous correction but there will be delay in the exfoliation but in severe cases when its submerged under the gingiva we have to do extraction.

We refer **adults** (13, 14 years and above) in two cases :

1- Severe esthetic problems

2- Perio-restorative reasons.

\*What you have to write in the referral letter to a specialist?

1. Patient’s information.
2. The cause of referral.
3. Features of malocclusion.
4. Any previous treatment that was done.
5. Radiographs.

**Orthodontic emergencies**

* chapter 23 in Laura Mitchell

***we have different types of appliances :***

1. ***Fixed appliance***

* Components :

- **ligature**: the arch wire is held to each bracket with a **ligature** which can be either metal or elastic

-**arch wire**

-**brackets** which are bonded to the teeth

-**metal band .**

**Emergencies in orthodontic:**

1. **protruded wire (most common)**

**Causes :**

1. Ends of wire are not trimmed (orthodontist’s mistake)
2. Due to space closure the teeth are moving.
3. Debonding of the most distal bracket so we’ll have a free end.
4. the arch wire will move to the other side (sliding) so we have check length of wire on the other side, the cause here is due to patient eating hard and sticky food. (patient’s mistake)

**Management:** first thing you have to diagnose the reason behind the protruded wire.

* If it’s due to sliding, then I reposition the wire back to its original place. How? Be pulling it using forceps.
* If the cause is due to debonding, iatrogenic or space closure then we trim it by a distal end cutter or bur (make sure you use a gauze so that the cut end won’t slip to patient’s throat)

But if the patient called you because of that reason and he can’t attend the clinic let him cut it by a nail cutter but we don’t prefer that because it’s very difficult to do it (usually this works in early stages NiTi wires but it won’t work with SS wires or late stages NiTi wire)

**B) Irritation from the bracket**, we can avoid this by putting a piece of wax on the bracket (the canine area is the most annoying area for the patient)

**C)** If the patient come to the clinic and the ligature is not in its place we either put a new one or reposition the same one using needle holder; if it wasn’t available we can use a probe or tweezer.

1. Debonding of the bracket, failure of the bond its either the orthodontist’s mistake or the patient’s mistake

**IF** the bracket is detached from tooth **with** the composite then it’s the orthodontist’s mistake, while if part of the composite stays on the tooth and the other is detached with the bracket then due to patient’s mistake.

**Management:** ideally, we remove the wire, clean the tooth, acid etch, bonding agent then composite and bond a new bracket again,

but if you are at the emergency clinic one of the options is to remove the bracket without replacement; the problem with this is that if patient didn’t go to an orthodontist as soon as he can the teeth will move and this is esp. a problem in anterior teeth since they are usually severely rotated however this can be an option with premolars since they are less rotated. 3rd option (better than the option above) etching and bonding and repositioning the broken bracket to prevent any movement of teeth until definitive treatment can be given.

* **E)** If the patient come with a loose band, we do cementation again but first we remove the wire , bracket , and the band then we clean it and re-cement it again , But if you are at the emergency clinic we only put glass ionomer on the edges of the band and recement it again until he can go to a specialist .
* **F)** Pain, its common to occur during the initial stages of treatment, he can take painkillers (theoretically, the patient is not advised to take ibuprofen because it works on prostaglandin which is have a role in bone remodeling and reposition so it may inhibit tooth movement) so Panadol is a good option.
* If a patient came to you with severe inflammation/caries ( bad oral hygiene ) you have to stop the ortho treatment but sometimes what we can do is remove the wire, do scaling and polishing, and give him oral hygiene instructions and dismiss him with the wires taken off, then re-evaluate OH in the next visit in this case the patient will feel that things are getting serious and he’ll be motivated to brush his teeth more often( there will be a bit of relapse due to removal of wires but here we are looking at risk vs. benefit)

***2-Removable appliance***

* Hyper salivation: it’s normal because the RA is considered as a foreign body, just reassure the patient.
* Speech problem: reassure the patient and advise that it will resolve once the mouth adapts to it
* Clasp fracture: it’s difficult to do soldering if the clasp is made from stainless steel, so we can use pick-up impression technique alginate and the technician will redo the appliance.
* The last stage in orthodontic treatment is to give the patient a retainer after you remove the appliance, **its either**

**1- removable:** the patient must wear it every night during the first year, then every other night in the following year.

1. **Bonded retainer:** a wire fixed to the teeth (etching, bonding and composite)

When you place it, **always check** that it: is **passive** and not active, bonds to all teeth, does not interfere with the occlusion.

So, if one day, a patient attends the clinic and the wire is broken, the management depends on how much the wire is broken, if:

1. It’s broken on one tooth and there’s no deformation in wire, we should replace it **passively** (clean the wire from the composite on that area, acid etching, bonding agent then flowable composite between the gap and the wire) without pushing wire to its place.
2. Its broken on all the teeth except the canine,

Option 1: we remove the bonded retainer, take an impression immediately for the essix retainer and then tell him to come back after few hours to take the essix retainer, then he can go a specialist whenever he can to put another bonded retainer.

So, never ever leave a patient without a retainer!

Option 2: if there’s no deformation, and you can replace it **passively**, clean it, acid etch, bonding agent then flowable composite on each tooth and bond it then you can add composite on it to make sure that it will not break again .

* Reopening of the extraction space does happen a lot if the patient does not wear the retainer, some doctors put a bonded retainer from the canine to the palatal surface of the 4 with an essix retainer to guarantee that the space will not open but it’s very annoying to the patient.

But other doctors if they extract, they put bonded retainer, and they give the patients essix retainer. The patients should be informed that both retainers are of high importance, if one of them fails the other takes its place.

* Sometimes you may need to do endo treatment after you put the fixed appliance in these cases:

1. Bad oral hygiene 🡪 caries
2. Trauma
3. Heavy force from the appliance itself

You refer the patient to an endodontist, he will come back to us with a gutta percha as a permanent filling. And what we need the most is to get a good coronal seal as quick as possible!

(we always prefer gutta percha as a permanent filling)

* If you put fixed appliance for a patient, then he come back after 3 months with a periapical lesion and abscess due to a trauma, you refer him to an endodontist, and you stop the orthodontic treatment until you see signs of improvement (healing), and when the lesion get smaller you can go ahead and continue.
* But if the patient come back with an avulsed tooth, and the trauma caused resorption to it, you remove the wire and stop for 6 months because any movement will cause more resorption.
* The orthodontic treatment delays the healing but doesn’t inhibit it,

( for example if it needs 1 year to heal , with the orthodontic treatment may need 1 year and 3 months .