SHEET 7

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Review for the last sheet is in red

“ \*Classifications of space maintainers:

1) Fixed / Removable

2) Unilateral / Bilateral

3) Maxillary / Mandibular

*\*\*fixed space maintainers: (most common used)*

Advantages: 1) the appliance is worn continuously

2) pt. compliance isn’t required

3) Providesufficient space for permanent tooth to erupt

Disadvantages: 1) bounded tooth is susceptible to caries

2) Opposing tooth over eruption

3) Doesn’t restore function

*\*\*removable space maintainers:*

Advantages: 1) provide functional space maintenance

2) Prevent opposing tooth from over eruption

Disadvantages: 1) pt. compliance maybe a problem

2) Appliance maybe not worn

3) Appliance breakage or loss

If 6’s are erupted usually the removable space maintainersisn’t used, the pt. can eat on 6’s. Fixed can be used, sure if they are indicated.

*\*\*\*Types of fixed space maintainers\*\*\**

1. Lingual arch 🡪

Indications: 1-bilateral loss. 2-loss of more than one tooth in a quadrant.3-loss of primary canines.

If we extract more than one tooth in the quadrant (long span) we use bilateral appliance.

1. Band &loop 🡪

Indication: loss of one unit in a quadrant.

e.x: extracted D, band on E, loop extend mesially touching canine, preventing E from moving mesially, the space will be kept until eruption of 4.

1. Crown &loop 🡪

Indication: loss of single unit in a quadrant.

Crown on a tooth with a welded loop, the same principle of band and loop.

First we crown the tooth, impression taking, and then send it to lab to cement the loop part.

If the extracted tooth has been erupted, we can cut the loop part and keep the crown in place.

Most common problem is breakage from weakest place (welding point) what we can do?? It is difficult to remove the stain less crown from primary teeth. So we consider the crown as a tooth, and put a band around it, take an impression and send to lab, for cementation we must roughen the inside part of band. If failure; just remove the band and redo.

1. Bilateral band and loop 🡪

Indication: bilateral loss of a single tooth. Especially when two D’s are extracted we put bands on two E’s with their loops.

*\*Bilateral appliances for upper arch: (2 options):*

5) NANCE appliance🡪

Small acrylic button will rest against palatal tissue

Problems: needs good oral hygiene, may cause tissue irritation.

The pt. is advised to use dental floss under acrylic button.

But still an excellent space maintainer, in the upper arch when the space loss is critical use NANCE not Transpalatal arch, cause it will prevent 6’s from moving or rotating. But Transpalatal arch may cause rotation againstpalatal root of upper 6’s.

6) Transpalatal arch🡪

Its clearer ( no direct touching with palate) , so the wire reverses the palate directing without touching it, it may allow teeth to move and tip mesially resulting in space loss. Movement prevention depends on the rigidity of the wire. But still used because *critical oral hygiene in NANCE (NANCE only used when critical space loss).*

*\*\*Removable space maintainers: (just like partial dentures)*

Indication: bilateral loss of multiple teeth in upper jaw or lower jaw.

We never use unilateral removable space maintainer, too small maybe swallowed or chocking dangers.

# each 3 months we must see the pt. to check cementation, when the permanent tooth start eruption, just remove the appliance. ”

*Now we will start talking about each primary tooth when lost, which space maintainer is used!*

\*Early loss of primary incisors:

Mostly upper A’s & B’s, result in little space loss, especially if canines are erupted. We must assure the parents not to worry that much. Unless, little child and canines are still un-erupted or thumb sucking habit present.

Prosthesis maybeconstructed if desired, space maintenance is questionable, mainly for aesthetic and speech development. Also fixed space maintainers maybe used {fixed bands on E’s & wire& anterior part fixed to the wire with teeth}. We don’t like them that much; in case of too youngpt.they may affect the growth of maxilla and cooperation is questionable. If older children, we may use removable, but the compliance is problem: loss, breakage…

Loss of permanent incisors (due to dental trauma or avulsion) needs immediate space maintenance. If not; space loss and midline shift may occur.

Loss of Cs : bilateral loss leads to lingual collapse, decreased arch length and increased overjet and overbite , unilateral loss leads to the above plus midline shift . so we use ligual arch as a space maintainer .

Loss of Ds : the effect of losing them after the eruptions of 6s is much less than losing them before the eruption of 6s , so less space loss . if we have unilateral loss we use band and loop space maintainer , and if we have bilateral loss we use band and loop bilateral space maintainer , we don’t use the lingual arch space maintainer until the eruption of permanent central incisors , because the lingual arch rests against the cingulum of lower anteriors , if we use it on primary anteriors , it won't work , they're about to exfoliate so won't offer enough resistance , so it's a contraindication to use the lingual arch on primary anteriors.

If the 6s have erupted and we have bilateral loss of Ds , we can use Trans Palatal Arch or NANCE .

Loss of Es : we prefer not to lose them , if we have unilateral loss we use band and loop , and consider the eruption sequence , because the 4 will erupt before the 5 , we have to replace the band and loop at some point , so we prefer to use bilateral space maintainer . if we have bilateral loss of Es in the upper jaw , we use TPA or NANCE , and the lingual arch in the mandible .

SPECIAL CONDITION : Sometimes we have to extract the E before the eruption of the 6 ,we use distal shoe space maintainer , to prevent mesial movement or tipping of the 6 . so this is an indication for the use of distal shoe space maintainer , distal segment is extended into the tissue ( gingiva ) , and attached to the 6 subgingivally to guide its eruption . DISADVANTAGES: 1- very hard to construct , we have to take an xray ( pre,op and post.op ) , it's going to be hard to determine where to place the distal arm , it need s a good technician . 2- it's invasive , it goes into the tissues , so we have to give the pt LA before cementation , and the pt may not be cooperative . 3-after the eruption of 6 we have to replace the distal shoe with band and loop on the 6 . CONTRAINDICATIONS : 1- medically compromised pts with congenital heart defects are contraindicated because it'll lead to infective endocarditis . so if we can't use the distal shoe we try to save the E as much as possible, by : 1- doing pulpetomy which has a high success rate . 2- pulpectomy if the roots are sound . 3- wait until the eruption of 6 which will be mesially tipped or moved and then use a space maintainer later on . 4- pressure concept : using an appliance that has an acrylic part to exert pressure on the soft tissues mesial to the 6 to maintain the space and guide the 6 to erupt vertically .

Adverse effects of space maintainers : 1- caries . 2- impeding tooth eruption . 3- undesirable tooth movement . 4- soft tissue impingement and pain .

How to construct a space maintainer at the clinic : 1- design and band selection before taking the impression . 2- band adaptation . 3- taking the impression with band around the tooth . 4- pour the impression . 5- appliance construction . 6- appliance fitting and cementation .

Band selection : takes sometime for beginners , we choose the smallest band that fits the height of contour of the tooth , you can use band seater , or use your finger or mirror to set the band around the abutment tooth . so you wrap the band , push it so its margins adapt the tooth morpohology , the occlusal margins of the band are apical to the interproximal ridges ,and the gingival margins are in the sulcus of the tooth to prevent food impaction , it should be out of occlusion . then you take an alginate impression , and if we're using band and loop we take an impression for half of the arch . after taking the impression we remove the band from the patients mouth then place it on the impression as if it's in the patients mouth . stabilize the band on the impression by sticky wax then pour the impression by plaster or stone .we prefer to use stone if we intend to extract a tooth in order for the technician to cut the tooth from the cast . then construction of a flat base to prevent dropping the cast during application of the appliance , make sure that the loop part touching the mid part of the tooth mesial to the space . you check the appliance for fitting or not , if not well fitted you need to adjust it , then you cement using GIC or Polycarboxylate Cement , but we prefer GIC to release fluoride , remove excess cement, then give instructions to the patient an parents .

INSTRUCTIONS after cementation : 1- avoid hard or sticky food . 2- appliance should be brushed after everymeal ,and the band and loop should be clean . 3- we need to see the patient every 3 months . 4- ask the patient not to manipulate the wire with fingers or tongue . 5- set an emergency appointment if the appliance is loose or it's broken . 6- if the tooth has erupted before its time also it needs to be checked . 6- long term follow up to remove the space maintainer once the tooth has erupted .

Chairside fabricated space maintainers : 1- ortho wires , used as interim space maintainer . 2- band and loop chairside fabricated . 3- fibery-reinforced composite resins : glass or polyethylene fiber reinforced , used in removable prosthodontics , fixed partial dentures , orthodontic appliance as retention splints , periodontial splints and as space maintainers . composed of densely packed glass fibers in a gel matrix .

ADVANTAGES : no need for a cast model , can be made in one session , no second visits, easy to apply , esthetically desirable .

DISADVANTAGES : retention is less , so less success rate . polyethylene fiber-reinforced composite resins are better than glass fiber .

قاعدتي في الحياة: لا تؤجل عمل اليوم إلى الغد

Good Luck ☺