

Name: Muhammad ishtiaq

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Instructor: Mam Salma Ishaq

Q1: Describe the procedure for mandibular and maxilla uses of acrylic in activator.

Answer:

It was first developed by William Clark in 1977. Originally, it was made of acrylic Blocks cut at 45 degrees to the occlusal plane; this has since been modified to 70 Degrees to provide better engagement of the blocks and more positive Forward positioning. Forces are not applied directly to the upper incisors. Retention of The upper appliance is achieved by Adams cribs on the maxillary first molars and Additional cribs on maxillary first premolars if they are erupted. The lower appliance Has Adam's cribs on the mandibular first premolars and first molars, typically made From 0.7mm stainless steel. Additional retention afforded by ball clasps on the lower Incisors.

Activator appliance initially started out as one block of acrylic which fit in both maxillary and mandibular arch. The lower arch would see the horseshoe shaped lingual plate acrylic extending from distal of the last erupted molar. In the upper arch, initially the anterior portion is covered from canine to canine, but that was later modified, as seen with appliances such as Bionator Appliance which placed its emphasis on the tongue function.

Wire

The wire components of activator included a labial bow which was usually placed 1mm away from the front incisors and extended from canine to canine. The bow would be 0.9 – 0.8mm thick. Additional wire elements were later added to stabilize the appliance.

Q2: Illustrate the management of anterior cross bite.

Anterior cross bite

- Anterior cross bite due to maxillary retrognathism.
- Anterior crossbite due to mandibular prognathism.

- Anterior crossbite due to maxillary due to maxillary retrognathism and mandibular prognathism.

Dental cross bite

Causes

1. Trauma.
2. Retained deciduous causing lingual eruption of permanent teeth.
3. Supernumerary teeth.
4. Lingual eruption path of maxillary anterior teeth.

Functional cross bite.

Habitual forward positioning of mandible.

Diagnosis:

1. History
2. Clinical examination
3. Study models
4. Radiograph

Management of anterior crossbite:

Stages

1. In primary dentition
2. In mixed dentition
3. In permanent dentition
4. In post permanent dentition.

In primary dentition

Elimination of the factors that may lead to the anterior cross bite.

Eg.

Removal of occlusal prematurities.

Extraction of supernumerary tooth before they cause displacement of the other tooth.

Habit breaking appliance.

In mixed dentition:

Interceptive orthodontics

Anterior crossbite should be treated at an early stage because if a cross bite present in the deciduous dentition, it may manifest in the mixed and permanent dentition as well.

If a simple anterior cross bite is not treated in early stage. It may progress into skeleton malocclusion that later need complicated orthodontic treatment or surgical treatment.

Use of tongue blade.

Indications:

☐ Used when a cross bite is seen at the time the permanent teeth are making an appearance in the oral cavity.

☐ It is placed inside the mouth contacting the palatal aspect of the maxillary teeth.

Upon slight closure of jaw the opposing side of the stick come in contact with the labial aspect of the opposing mandibular tooth acts as a fulcrum.

This is continued for 1-2 hours for about 2 weeks.

1. Drawbacks of using tongue blade.

☐ Only effective till the clinical crown not completely erupted in the oral cavity.

☐ Used only if sufficient space is available for the correction.

☐ Patient cooperation is required.

2. Catlan's appliance or lower anterior inclined plane.

Indications:

Used only in those cases where the cross bite is due to a palataly placed max incisor.

Disadvantages of catlan's appliance.

1. Difficulty in speech and chewing.
2. Patient cooperation required
3. Require frequent recommendation

3.double cantilever spring/z-spring.

Indication.

Used when anterior cross bite involving 1 or 2 max anterior teeth.

Disadvantage.

Effective only in enough space for aligning the teeth.

4. Screw appliance.

☐ Micro screw.

Used on individual tooth.

Multiple micro screw can be used to correct individual tooth in segmental cross bite.

☐ Mini screw.

Capable of moving up to 2 teeth.

☐ Medium screw

Used to correct segmental cross bite.

☐ 3-D screw

Capable of correcting posterior as well as anterior cross bite.

5. Face mask

Indication:

Used to correct skeletal anterior cross bite

6. Frankel iii appliance.

Used to correct class iii malocclusion.

7. Chin cap appliance.

Used to correct or prevent the anterior cross bite due to a prominent mandible.

3. in permanent dentition.

(i) Screw appliance.

☐ Mini screw:

used to correct single.

☐ Medium screw:

used to segmental cross bite.

(ii) fixed appliance

Used to correct tooth or multiple tooth.

(iv) in post permanent dentition.

Surgical orthodontist.

Q3: Summarize the division 1 and division 2 of the Class II malocclusion?

Class II malocclusion:

Class II Division 1:

Low- to moderate- quality evidence suggests that providing early orthodontic treatment for children with prominent upper front teeth (class II division 1) is more effective for reducing the incidence of incisal trauma than providing one course of orthodontic treatment in adolescence. There do not appear to be any other advantages of providing early treatment when compared to late treatment. Low-quality evidence suggests that, compared to no treatment, late treatment in adolescence with functional appliances is effective for reducing the prominence of upper front teeth.

Class II Division 2:

Treatment can be undertaken using orthodontic treatments using dental braces. While treatment is carried out, there is no evidence from clinical trials to recommend or discourage any type of orthodontic treatment in children. A 2018 Cochrane systematic review anticipated that the evidence base supporting treatment approaches is not likely to improve occlusion due to the low prevalence of the condition and the ethical difficulties in recruiting people to participate in a randomized controlled trials for treating this condition.

Q4: Demonstrate the recent trend modification of oral screening?

Oral screening:

Oral screen is a mayofunctional appliance introduced by Newell in 1912. It is a thin sheet of acrylic base material which is fit into the buccal or labial vestibule of the mouth which acts as a screen between the teeth & the surrounding musculature. It is also known as vestibular screen.

The oral screen can be used for the correction of the following conditions:

- Thumb sucking, tongue thrusting and lip biting,
- Mouth breathing
- Open bites in deciduous and mixed dentition
- Incompetent lips.

Modification of oral screening:

- The oral screening can be fabricated by a metal ring projecting between the upper and the lower lip. This ring can be use to carry out various muscles exercises.
- In patient who has tongue thrust habit an additional screen is placed to the lingual aspect of teeth.
- In case of mouth breather the vestibular screen should be fabricated with a number of hole that are gradually closed in a phased manner.

Q5: What is finger spring ? Why Z spring is called double cantilever spring?

Finger spring:

It is also called single cantilever spring as one end is fixed in acrylics and the other is free.

Finger spring It is constructed using 0.5 mm SS wire .

Helix (2 mm)

Active arm

Retentive arm

The helix is positioned opposite to the direction of intended tooth movement. It should also be placed along the long axis of the tooth to be moved and perpendicular to the direction of tooth movement

Uses:

It is used for mesiodistal movement of the teeth.

Can be used for labial movement

Z spring:

Z spring is also called double cantilever spring.

Construction:

It is made up of 0.5mm or 0.6mm.

It consists of 2 helices of small diameter can be made for 1 or more incisor.

The spring is positioned perpendicular to the palatal surface of the tooth with the long retentive arm.

Indication:

It is used for labial movement of incisors.

Used for correction of minor rotation.

Activation:

It is activated by opening helices by about 2-3 mm at a time .

