CLASS II MALOCCLUSION

Class II malocclusion can be divided into two types:

1. Class II Division 1
2. Class II Division 2

Class II division 1 malocclusion: It can be defined according to the angle's classification that the mesiobuccal cusp of upper 1st permanent molar pass half cusp or complete to the mesiobuccal groove of the lower first permanent molar, there will be increase in the overjet and overbite, and according to the British Standards classification defines a Class II division 1 incisor relationship is that the lower incisor edges lie posterior to the cingulum plateau of the upper incisors on the other hand the upper canine is either half cusp or completely anterior to the lower canine (in the mesial slope of the lower canine).

- ❖ Prominent upper incisors, particularly when the lips are incompetent, are at increased risk of being traumatized. It has been shown that children with an overjet greater than 3 mm have twice the risk of injury to their anterior teeth than those with overjets less than 3 mm and that the risk increases as the overjet increases.
- ❖ The class II occlusal relationship provides the major load of orthodontic appliance treatment in many communities.

<u>There are many etiological factors that affected in cl II div 1:</u>

1. **Skeletal pattern**: A Class II division 1 incisor relationship is usually associated with a Class II skeletal pattern, commonly due to a retrognathic mandible. However, proclination of the upper incisors and/or retroclination of the lower incisors by a habit or the soft tissues can result in an increased overjet on a Class I or even Class III.
    - ✓ That means >>> Patient with cl II sometimes is seem to have the molar classification cl I but there is proclination of anterior teeth.

2. **Soft tissue factor**: The influence of the soft tissues on a Class II division 1 malocclusion is mainly mediated by the skeletal pattern (by the relationship of the basal bone of the jaws, to which they are attached), both anteroposteriorly and vertically. In a Class II division 1 malocclusion the

lips are typically incompetent owing to the prominence of the upper incisors and/or the underlying skeletal pattern. If the lips are incompetent, the patient will try to achieve an anterior oral seal in one of the following ways:

- Circumoral muscular activity to achieve a lip-to-lip seal
- The mandible is postured forwards to allow the lips to meet at rest
- The lower lip is drawn up behind the upper incisors
- The tongue is placed forwards between the incisors to contact the lower lip, often contributing to the development of an incomplete overbite;
- A combination of these.
    - ✓ ***Where the patient can achieve lip-to-lip contact by circumoral muscle activity or the mandible is postured forwards, the influence of the soft tissues is often to moderate the effect of the underlying skeletal pattern by dento-alveolar compensation.***

3. **Dental factors**: A Class II division 1 incisor relationship may occur in the presence of crowding or spacing. Where the arches are crowded, lack of space may result in the upper incisors being crowded out of the arch labially and thus to exacerbation of the overjet. Conversely, crowding of the lower labial segment may help to compensate for an increased overjet in the same manner.

4. **Habits**: A persistent digit-sucking habit will act like an orthodontic force upon the teeth if indulged in for more than a few hours per day. The severity of the effects produced will depend upon the duration and the intensity.

Treatment objectives in class II division 1:

1. Relief crowding and local irregularities.
2. Reduction of incisal overbite.
3. Reduction of incisal overjet.
4. Correction of class II relationship.

Treatment of class II division 1:

There are many factors that must be taken in mind during treatment:

1. Age of the patient…??

2. The patient’s facial appearance.
3. Severity of the cases.
4. Patient's cooperation.

TREATMENT PROTOCOL OF CLASS II MALOCCLUSION

There are three possible approaches of treatment:

1. **<u>Growth modification:</u>** A growing patients with a mild to moderate Class II skeletal pattern, should be treated by growth modification appliances by restrainting the maxillary growth, or by encouraging mandibular forward growth, or by a combination of the two approaches according to the etiology of class II malocclusion and as follows:

- In Class II malocclusion with maxillary prognathism and normal mandible, headgear can be used to restrain growth of the maxilla horizontally and/or vertically, depending upon the direction of force relative to the maxilla.
- In Class II due to mandibular deficiency, functional appliances should be used to enhance mandibular growth rather than restricting the maxillary growth.
- In Class II due to maxillary prognathism and mandibular retrognathism a combination of headgear and functional appliance should be used.

2. **<u>Orthodontic camouflage</u>**: Camouflage treatment is indicated for non-growing patients with mild to moderate class II skeletal relation.

The goal of dental camouflage is to accept the unacceptable skeletal relationships by orthodontically repositioning the teeth in the jaws so that there is an acceptable dental occlusion and an esthetic facial appearance. Generally maxillary first premolars can be extracted and using fixed appliances to achieve bodily retraction of the upper incisors, the case can be finished with molars in full Class II relationship.

❖ **NOTE:** always correct the overbite before the overjet in class II 1.

3. **<u>Surgical correction</u>** (Orthognathic surgery): In cases with a severe Class II skeletal pattern, a combination of orthodontics and surgery may be required to produce an aesthetic and stable correction of the malocclusion.

<u>Regarding the retention phase,</u> unfortunately it is not possible to accurately predict those patients who will relapse and so retention must be discussed with, and planned, for every patient. To aid stability, full reduction of the overjet and the achievement of lip competence are advisable.

☒ **Is it possible that the treatment of Class II 1 malocclusion by orthodontic camouflage be achieved by proclination of the lower labial segment??**

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GOOD LUCK