

## Orthodontics/ Lecture#16

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Before starting any treatment we should assess the patients' situation and take proper history for a proper diagnosis and treatment planning.

First of all, in order to diagnose a patient we need to collect information; history, study models, radiographs, photographs.

Second of all, we analyze the collected data, we introduce the problems list.

Finally we diagnose.

### A-History:

- Personal details; name and age.
- Chief complaint
- Medical History
- Dental History
- Social and family history
- Habits

### **Personal details:**

Greet the patient, ask about the name and age then start noticing the specific details, whether the patient came by himself or dragged by a family member or a friend.

Try to recognize any obvious lesions, growth retardation, general development of the patient and compare them to their parents or their siblings.

Monitor the patient's attitude toward the dental visit.

We ask about the age because the chronological age and dental age have individual's variations.

*The best time to start orthodontic treatment is during the growth modification span (mixed dentition stage).*

### **Chief complaint:**

Ask these questions :

"What is the problem?"

What don't you like about the appearance of your teeth?"

The main chief complaint is **Aesthetic** (big diastema, crowding, and rotated lateral incisors)

Another chief complaint is **Function** (increased overjet, impacted teeth, ectopic teeth and rotated teeth).

Remember even if your treatment main goal is to correct functional problems you have to satisfy the patients expectations which means you should write the chief complaint in the patients' own words.

When starting to treat a patient be aware of:

1- Compliance and motivation of the patient.

2 Types of motivation:

\*Internal: Patient is motivated by himself (better compliance).

\*External: patient is motivated by a family member, a friend or a spouse.

2- Expectations of the patient.

3- Treatment options.

4- prioritize the problem list.

### **Medical History:**

We take medical history in order to:

- Protect the dental team from any contagious infections.

- Protect the patients from high risk situations, examples:

***Prosthetic heart valve patients:*** avoid gingival bands and extractions.

Risks: bacteremia and infective endocarditis.

Management: Replace bands with brackets on molars.

***Patient with Leukemia or on radiotherapy:***

Treatment is going to be in these ways:

- Before radiotherapy

- After successful treatment by radiotherapy

- During radiotherapy but the orthodontic treatment should be presented for a short period of time.

### ***Diabetes:***

Should be controlled in order to make sure that the patient have a good oral hygiene because such patients are more prone to infections, periodontal diseases, gingival diseases and poor oral hygiene.

### ***Cystic Fibrosis:***

This is an autosomal recessive disease that leads to Xerostomia and thick viscous saliva and this will increase the caries index and reduce the oral hygiene.

### ***Juvenile Arthritis:***

Such patients can't open their mouths properly and they have a small mandible, we can't place a functional appliance for treatment.

### ***Hay fever:***

Such patients can't tolerate functional appliances or any appliance that makes their mouth full.

### ***Epilepsy:***

Those patients take a Phenytoin as a medication that its main side effect is gingival hyperplasia and this will lead these patients to have recurrent procedures of gingivectomy.

Removable appliances are contraindicated because the patient might swallow them during status epilepticus.

### ***Syndromes:***

#### ***Cleidocranial syndrome***

#### ***Ectodermal dysplasia***

#### ***Cleft lip/cleft palate.***

Those syndromes come in packages of dental anomalies such as, microdontia, hypodontia, spacing, multiple cysts and impactions.

After taking the medical history we have to consult the patient's physician before starting any treatment.

### **Dental History:**

- 1- Dental visits ( to see if the patient is concerned about his oral health)
- 2- Oral Hygiene methods.
- 3- Previous dental treatment:

-Previous extractions

- previous Root canal treatment: because such teeth are more prone to root resorption since they have a history of trauma, in order to avoid that you have to :

\*Avoid high forces

\* Depend on simple tipping movement

\* Periapicals should be taken before treatment, during treatment (after 3-6 months) and look if there are any signs of resorption.

\* If resorption in the root was seen after 3 months the treatment on that tooth should be terminated.

-Previous orthodontic treatment:

Ask the patient about it in details; when, how long, type of appliance, why it was terminated and any problems with their retainers

### **Family and Social history:**

1- The patient's place of residence

2- Any member of the family who had a previous orthodontic treatment ( the family will know what an orthodontic patient needs; headaches, toothaches and special cleaning of the mouth.

3- Malocclusions running in the family; class III, cleft lip, cleft palate, impacted teeth, ectopic teeth, hypodontia and any other dental anomalies.

### **Habits:**

Ask about any previous habits and persistent habits:

1- Thumb sucking (leads to asymmetrical open bite)

2- Dummy (pacifier) sucking (leads to symmetrical open bite)

3- Nail biting, increases the risk of root resorption because it's traumatic.

### **Remember :**

**During taking history look at the patients face, features and look for any neurological problem. Facial asymmetry, tooth showing on smiling and lip competency when the patient is at rest.**

## B- Oral Examination:

### Extra oral examination:

#### **1-Soft tissues:**

A point: the deepest concavity of the anterior maxillary soft tissues.

B point: the deepest concavity on the soft tissues of the anterior mandible within the sagittal plane.

A point is 2-3 mm anterior to the B point ( class I) when the patient is in the natural head position (as if the patient is looking into his eyes in the mirror)

When the B point is too far posteriorly from A point (**more than 2-3 mm**) then this is **class II**

And when the B point is way too anterior to the A point (**less than 2-3mm**) then this is **class III**

#### **2- Convexity of the face:**

Remember:

Glabella: the prominent part of the forehead ( between eyebrows).

Subnasale: between the nose and the upper lip.

Pgonion: the most prominent part of the chin, it is the synthesis of the mandible.

Menton: most inferior part of the chin.

If the face was:

Straight: Class I

Convex face: class II.

Concave face: Class III

#### **3- Vertical dimension of the face:**

The face is divided into three thirds:

Hair line, glabella, subnasale and menton.

If the labiomental fold was highly prominent then this is a Class II division II with reduced lower facial height.

If the lower lip line was low (incompetent lips) then the lower vertical height is increased.

#### **4-Frankfort plane (angle proportions):**

It is an angle that is between two lines:

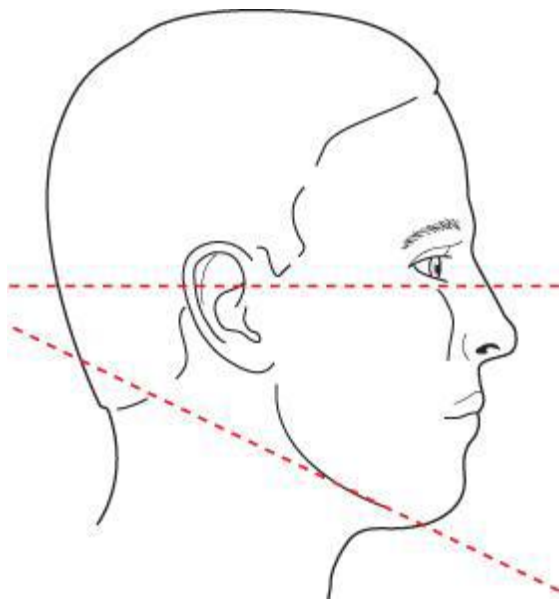
Frankfort plane line: a line between the lower border of the orbit and the upper border of the tragus (external auditory meatus)

The 2<sup>nd</sup> line is:

The line is extending along the lower surface of the mandible way back to the occipital area.

If the angle ended ahead of the occipital area : Increased Angle.

If the angle ended behind the occipital area: Decreased angle.



If the patient was chubby then we have to use the mirror and go intraorally to locate the exact place of the mandible.

#### **Facial symmetry:**

You have to look exactly from behind the patient when the patient is in the supine position, remember those notes:

- Nose is not symmetrical don't depend on it.
- Chin is the best reference for facial symmetry, if the chin is shifting then the face is asymmetrical.
- Teeth midline when the patient smiles.
- Depend on the eyes, eyebrows and cheeks.

Remember to check:

\* The lip competency, and the lip morphology; thick lips, thin lips, long, short lips, inverted and everted lips.

\* The anterior oral seal: whether both lips are competent with each other.

\* Resting lower lip line and tongue.

\* Lower facial height:

should be  $\frac{1}{3}$  of the whole vertical height.

It is a line between the subnasale and the vermillion border of the upper and lower lip.

This can help you to know:

\* Long lips and short upper lips.

\* Teeth relations according to the lip length.

\* Lower lip line can be used to know the etiology of:

1- Short lips which caused by incompetent lips.

2- Gummy smile which is cause by short lips.

***Patients with long face, incompetent lips and they don't like to smile they tend to have dimpling on their chins due to the activation of Mentalis Muscle.***

**Overbite has 2 types:**

Complete overbite: when the lower incisors touch anything presented palatally on maxillary teeth during maximum intercuspation.

Incomplete overbite: even after MIC there is still space, the lower incisors are not touching and the lower lip is trapped behind the upper centrals.

**Lower lip line at rest covers:**

$\frac{1}{3}$  of the upper incisors if it was more than that it is considered as a high/long lip that leads to class II division II and retrocline the upper centrals.

**Lower lip line helps in:**

1- Etiology of malocclusion.

2- Stability (low lower lip line reduces stability and increases the incidence of relapse)

3- Treatment planning

**Anterior oral seal:**

If it was opened then the tongue will continue the anterior oral seal and touch the lower lip these patients will have impacted lower incisors.

### **Tongue:**

#### **Adaptive tongue thrust:**

The patient has no anterior oral seal the tongue is very active.

#### **Endogenous tongue thrust:**

Rare.

The tongue thrust patients are going to have:

- 1- Macroglossia.
- 2- Lipping (the patient can't pronounce all the letter properly).
- 3- Proclined upper and lower incisors the tongue is pushing them.
- 4- Impression of the teeth on the tongue.
- 5- Reversed curve of spee.

### **Nasolabial Angle:**

An angle between the lower border of the nose and the anterior border of the upper lip.  
more than 100 then it is increased.

Between 90-110 it is normal.

Less than 100 then the angle is reduced.

### **Aesthetic smile:**

The whole length upper incisors and 1mm of the gingiva should be shown.

The 1<sup>st</sup> premolar is also shown.

There should be no gap between teeth and cheeks visible.

And the lower lip line is covering the lower incisors.

### **Gummy smile:**

When there is a vertical excess of the maxilla with small teeth.