



# Treatment Strategies for Class III Malocclusion

**Dr. Alireza Shamsi**

Assistant professor

Department of orthodontics

School of dentistry

AUMS

**Class III Malocclusion**

**Pseudo Class III**

**Dental**

**Orthodontic treatment**

**Class III mechanics**

**Extractions**

**Skeletal**

**Growing patient**

**Growth modification**

**Face mask**

**Chin-cup**

**FR-III**

**Adult patient**

**Orthognathic surgery**

**Maxillary advancement**

**Mandibular setback**

# Pseudo Class III Malocclusion

The interferences prevent posterior occlusion

Functional shift of the mandible in an effort to avoid the anterior interference

# Pseudo Class III Malocclusion

CO



CO



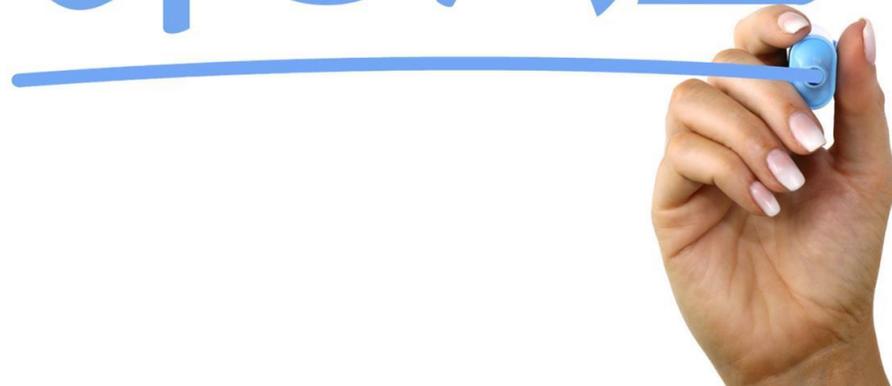
CR



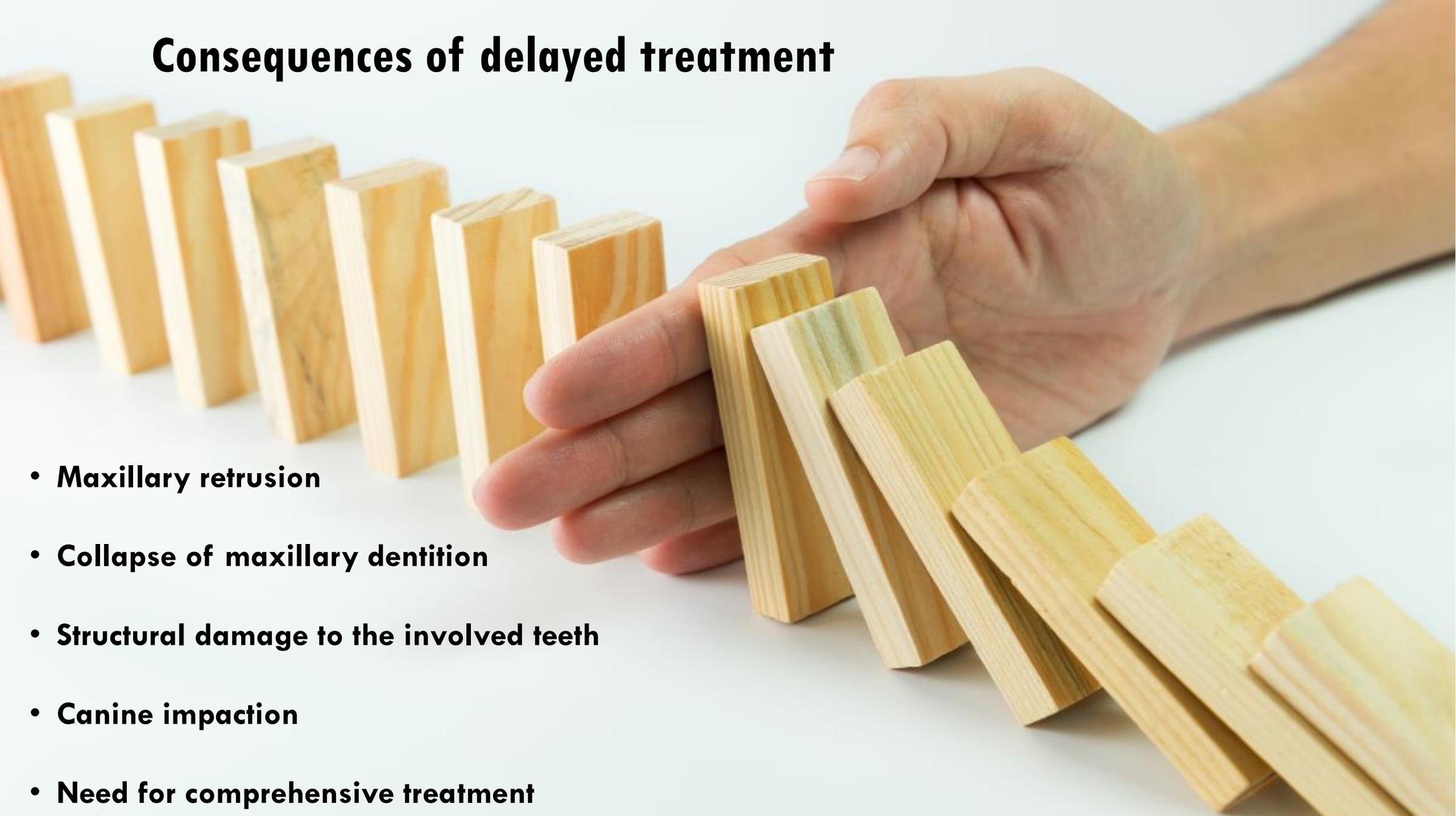
# Treatment of Pseudo Class III Malocclusion

- **Urgent intervention** is needed to prevent structural damage and adverse effects on the maxilla
- **Early treatment is easy and efficient**
- **The main goal: to stimulate well-balanced growth and occlusal development**

GOAL



# Consequences of delayed treatment

A hand is shown tipping over a row of wooden blocks, illustrating the domino effect of delayed treatment. The blocks are arranged in a line, and the hand is positioned to tip the first block, which is causing a chain reaction of blocks falling over. The background is a plain, light color.

- **Maxillary retrusion**
- **Collapse of maxillary dentition**
- **Structural damage to the involved teeth**
- **Canine impaction**
- **Need for comprehensive treatment**

# Early treatment strategies of pseudo class III malocclusion

No  
Image

Tongue blade



Fixed acrylic  
resin inclined  
plane



Bonded  
composite  
resin slope



Removable  
appliance with  
springs and  
occlusal  
coverage



2x4 appliance



# Tongue blade

- When cross bite is seen at the time the permanent teeth emergence
- It's 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.
- 1-2 hours (?) for about 2 weeks

No  
Image



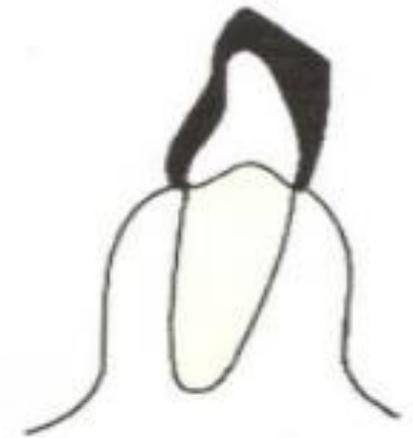
# Tongue blade

## DISADVANTAGE

1. Only effective till the clinical crown not completely erupted in the oral cavity
2. Used only if sufficient space is available for the correction
3. Patient co-operation is required

# Fixed acrylic resin inclined plane (Catlan's Appliance)

- **Used only in those cases where the crossbite is due to a palataly placed maxillary incisors.**
- **Constructed at 45 degree angulation on the lower anterior teeth by acrylic.**



# Bonded composite resin slope



# Removable appliance with spring

- **Z-spring**
- **Posterior bite plate (if it's needed)**
- **Patient cooperation**
- **Expansion / SR**



# 2x4 appliance



# Early treatment of class III malocclusion



**To provide a more favorable environment for growth**

**To improve facial esthetics**

**To avoid surgical intervention**

# Indications and Contraindications for Early Class III Treatment



○ Growing patient with expected good cooperation

○ Good facial esthetics

○ Mild skeletal disharmony

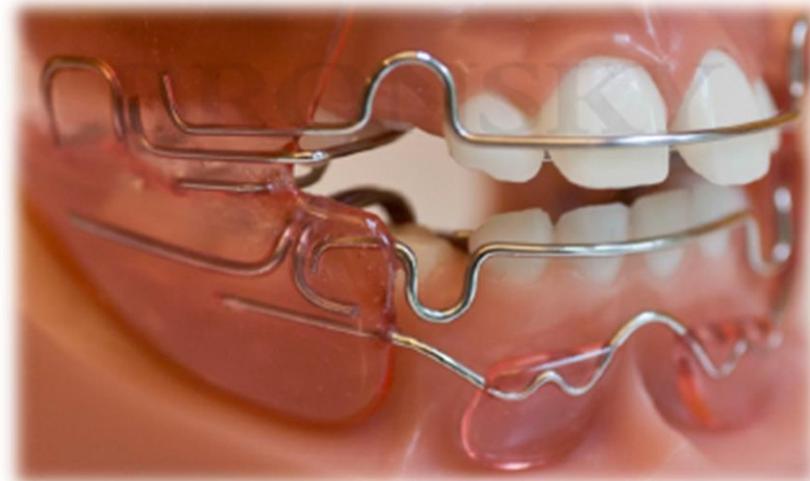
○ No familial prognathism

○ Presence of anteroposterior functional shift

○ Convergent facial type

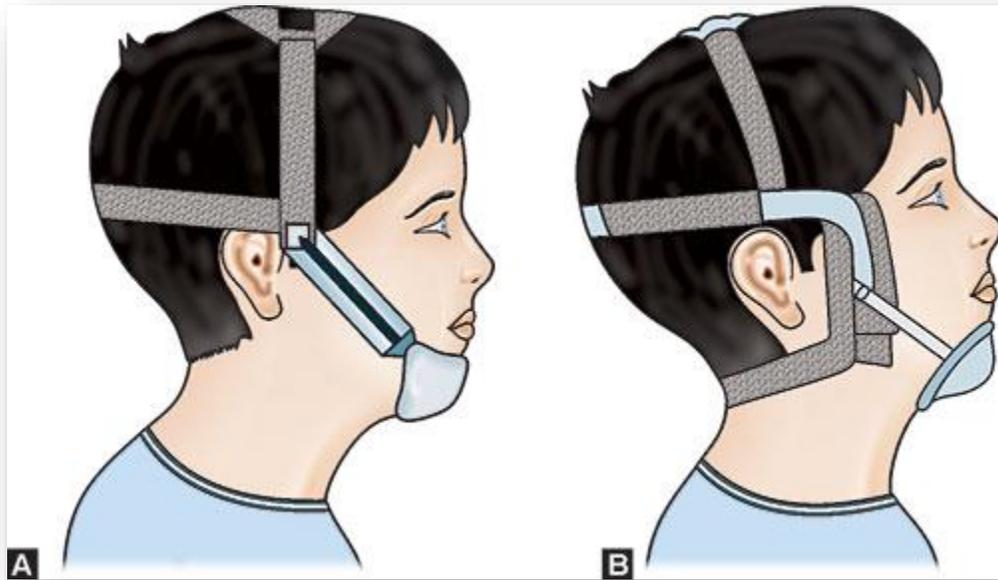
○ Symmetric condylar growth

# Class III Growth Modification

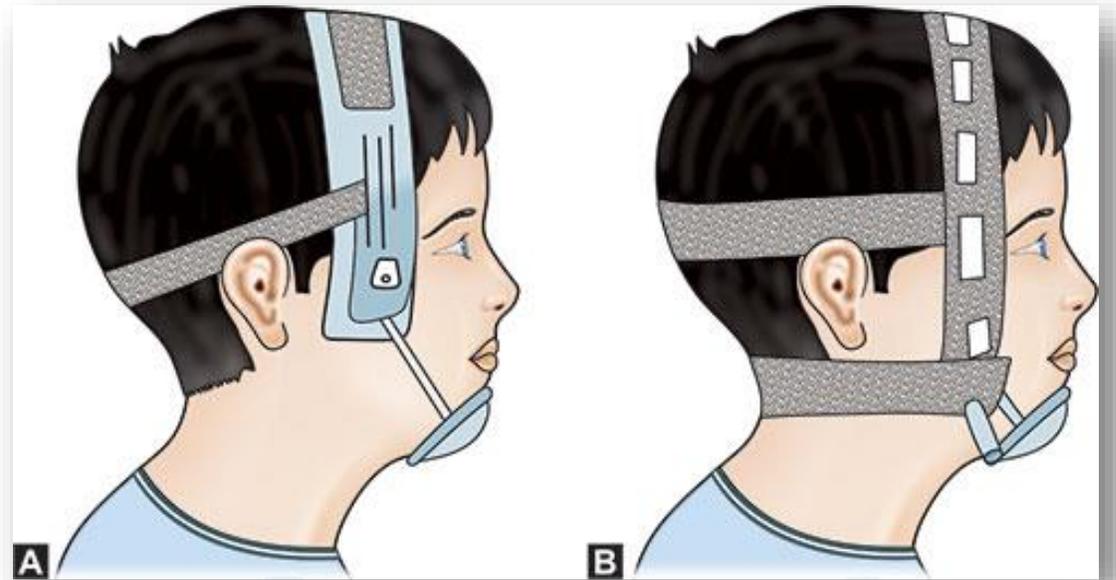


# Chin-cup appliance

**Occipital-pull chin-cup**



**Vertical-pull chin-cup**



# Chin-cup appliance

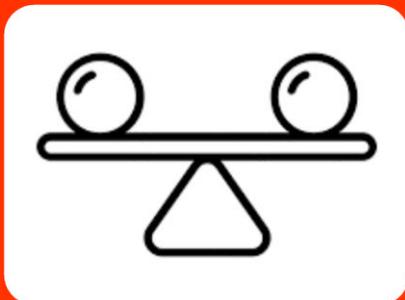
Treatment timing:



More successful when it is started in the primary or early mixed dentition



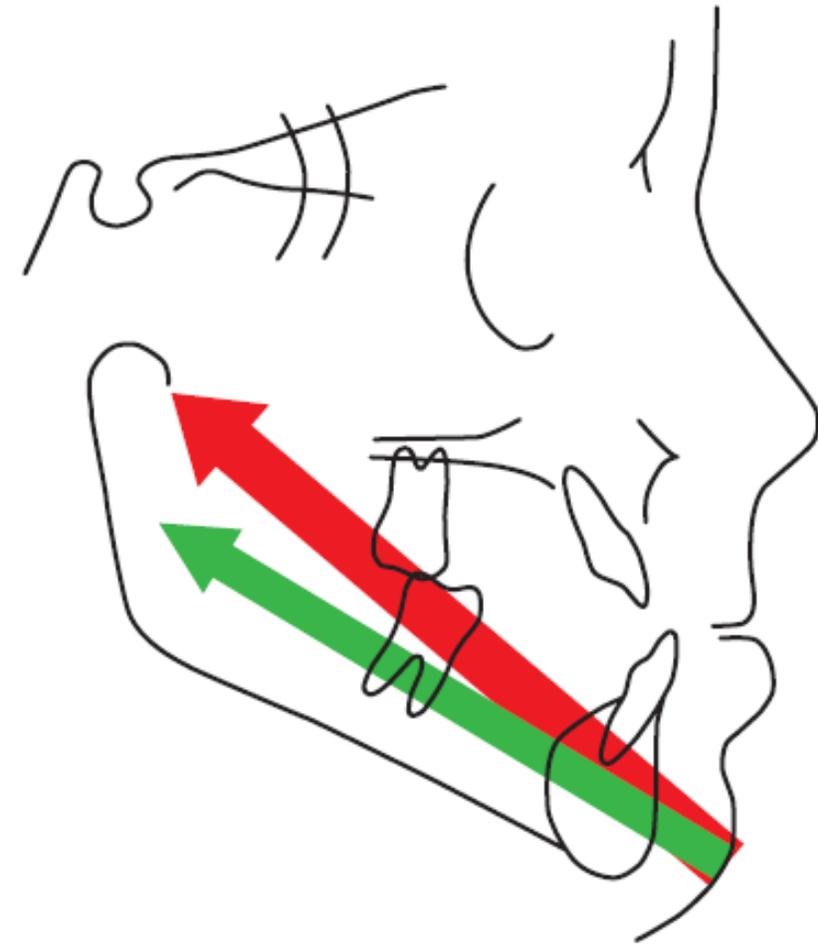
Treatment duration:



Long-term stability:

# Chin-cup appliance

- **Change in the direction of mandibular growth, rotating the chin down and back**
- **Lingual tipping of lower incisors**
- **16 Oz (300-500 gr) per side/ 14 hours per day**
- **Optimal force: Less than 16 Oz and below condyles**

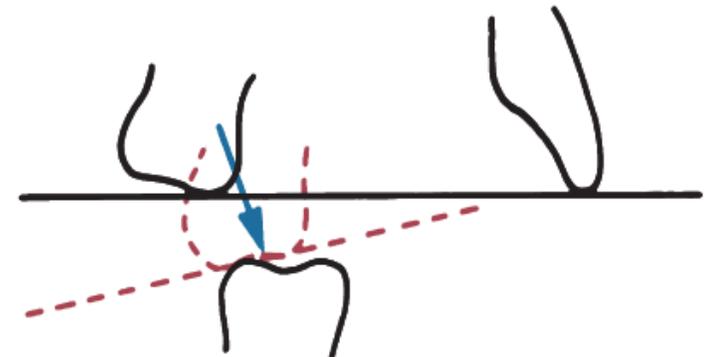


# **Chin-cup appliance**

- **Chin cup therapy does the same thing as a Class III functional appliance, but offers at least a slim chance of some growth inhibition**
- **For children with a large mandible, chin-cup treatment is essentially transient camouflage**

# FR-III functional appliance

- Made with the mandible positioned posteriorly and rotated open
- Pads to stretch the upper lip forward
- The appliance allows the maxillary molars to erupt and move mesially while holding the lower molars in place
- Tips the maxillary anterior teeth facially and retracts the mandibular anterior teeth
- Should be used in mild cases
- long treatment and retention periods



# **Functional appliances for mandibular excess**

- **The general guideline is that the mandible should be rotated at least 3 and not more than 5 to 6 mm beyond its postural rest position**
- **Applicable for mandibular excess and short facial height**

# Reverse-pull headgear (Face Mask)

- Patient's age is critical
- The chance of true skeletal change appears to decline beyond age 8
- The chance of clinical success begins to decline at age 10 to 11
- Tooth change is inevitable
- Hooks for attachment (C-D area above the occlusal plane)





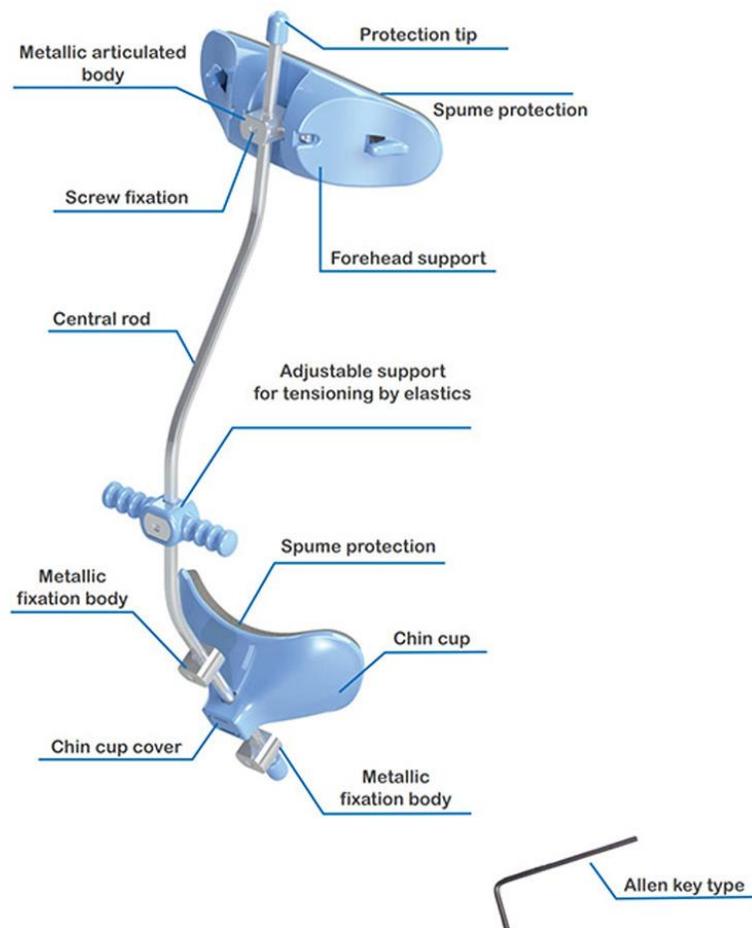
**Petit type**

**Delair type**



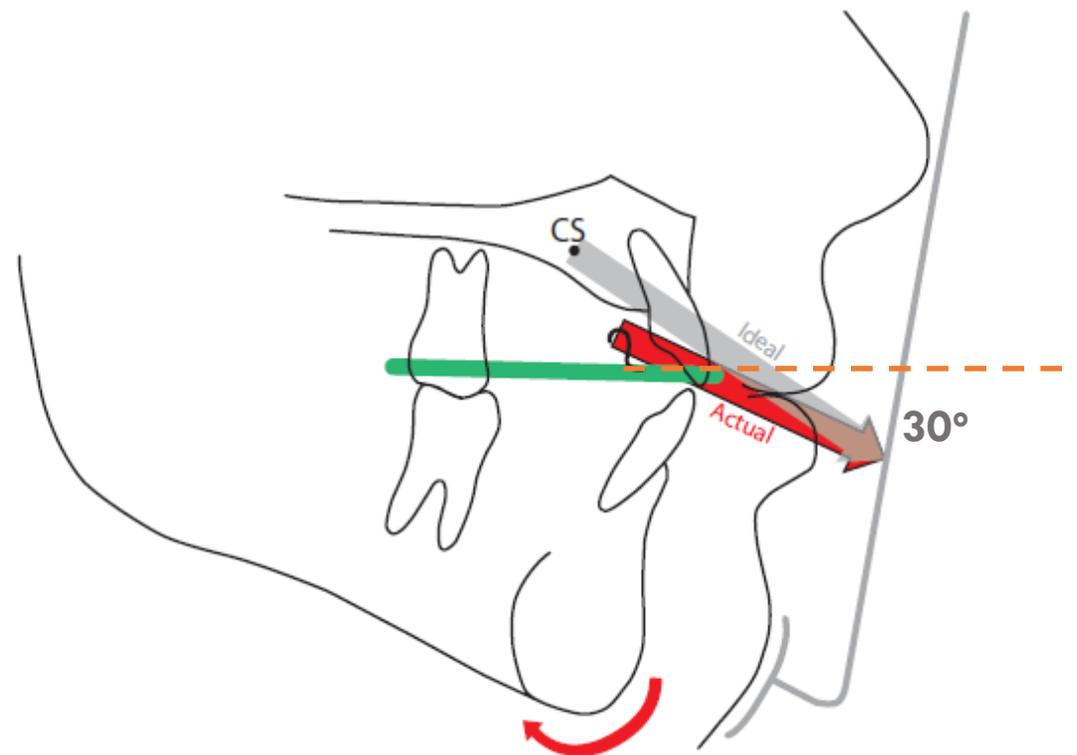
# Petit Facial Mask

The Petit Facial Mask, is produced in thermoplastic polymer with excellent resistance. Its metal components, are made in stainless steel, providing high resistance and excellent anchorage to central rod.



## Recommendations for adjustments of Facial Mask

The forehead support, the traction support and chin cup, may need their positions changed, in this case use the Allen key supplied with the product. After components properly positioned, retighten the screw, until the components remain properly fixed to the metal rod. When the adjustments are completed, it's necessary to remove the "excesses". After that, introduce the protection tips in the metallic rod, in order to avoid possible accidents.



# Face mask

- **For minor to moderate problems**
- **It is better to defer maxillary protraction until the permanent first molars and incisors have erupted**
- **There is no benefit, however, from expanding the maxilla just to improve the protraction**
- **Alt-RAMEC?**



# Face mask

- **350-450 gr for 12-14 hours/day**
- **Correction of class III occurs due to :**
  - **Forward movement of the maxilla**
  - **Forward displacement of the maxillary teeth**
  - **Backward displacement of the mandibular incisors**

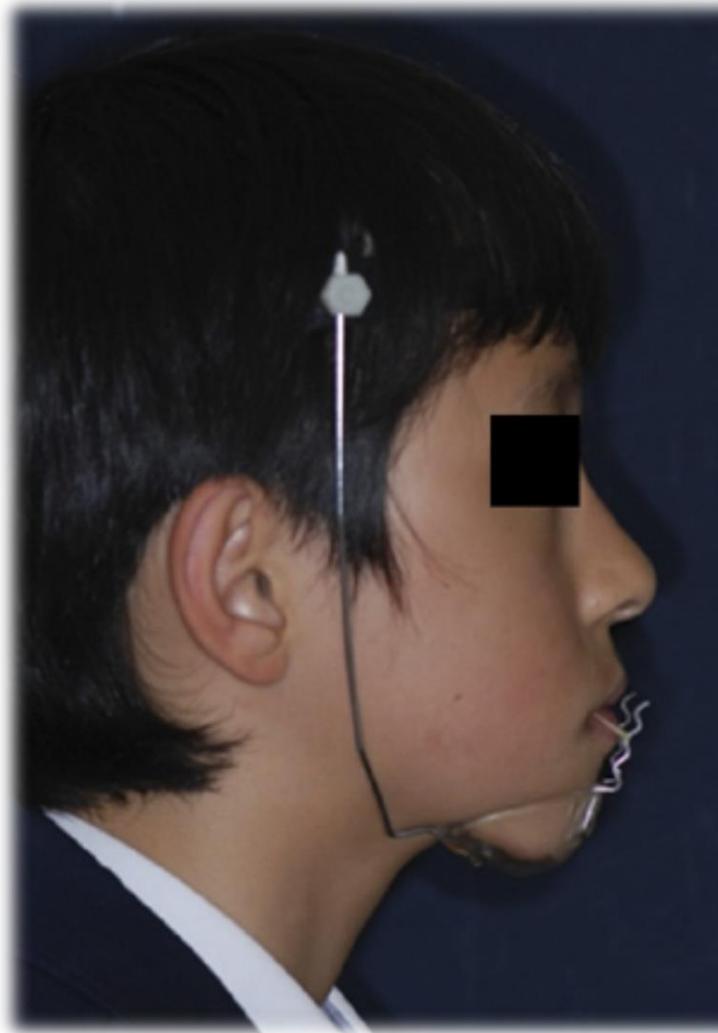
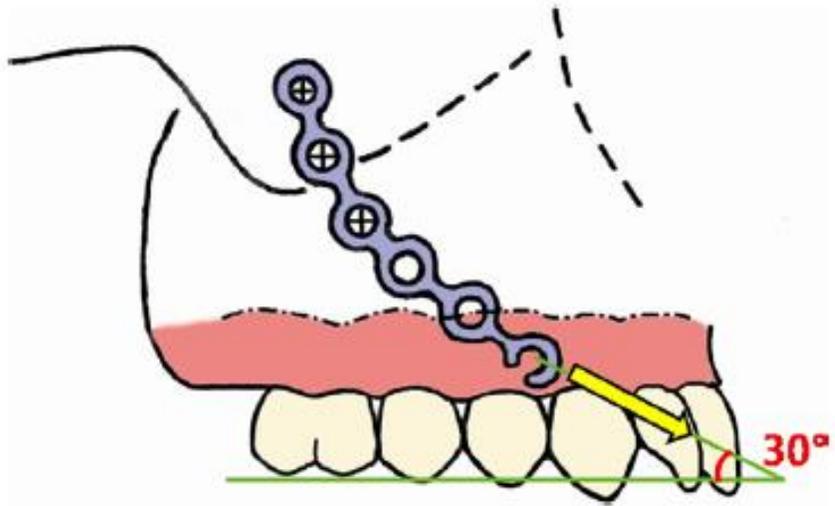




# WARNING

In patients who initially responded well, there is a **25% to 33%** chance 8 years later of recurrence of anterior crossbite because of excessive mandibular growth.

# Skeletal anchorage for protraction of the maxilla



# Skeletal anchorage for protraction of the maxilla



# Skeletal anchorage in maxilla and mandible



# **Skeletal anchorage for treatment of class III malocclusion**

- 1** • **More skeletal effects**
- 2** • **Less dentoalveolar compensations**
- 3** • **Less unwanted vertical changes**
- 4** • **Less need to patient compliance (?)**
- 5** • **More invasive procedure**

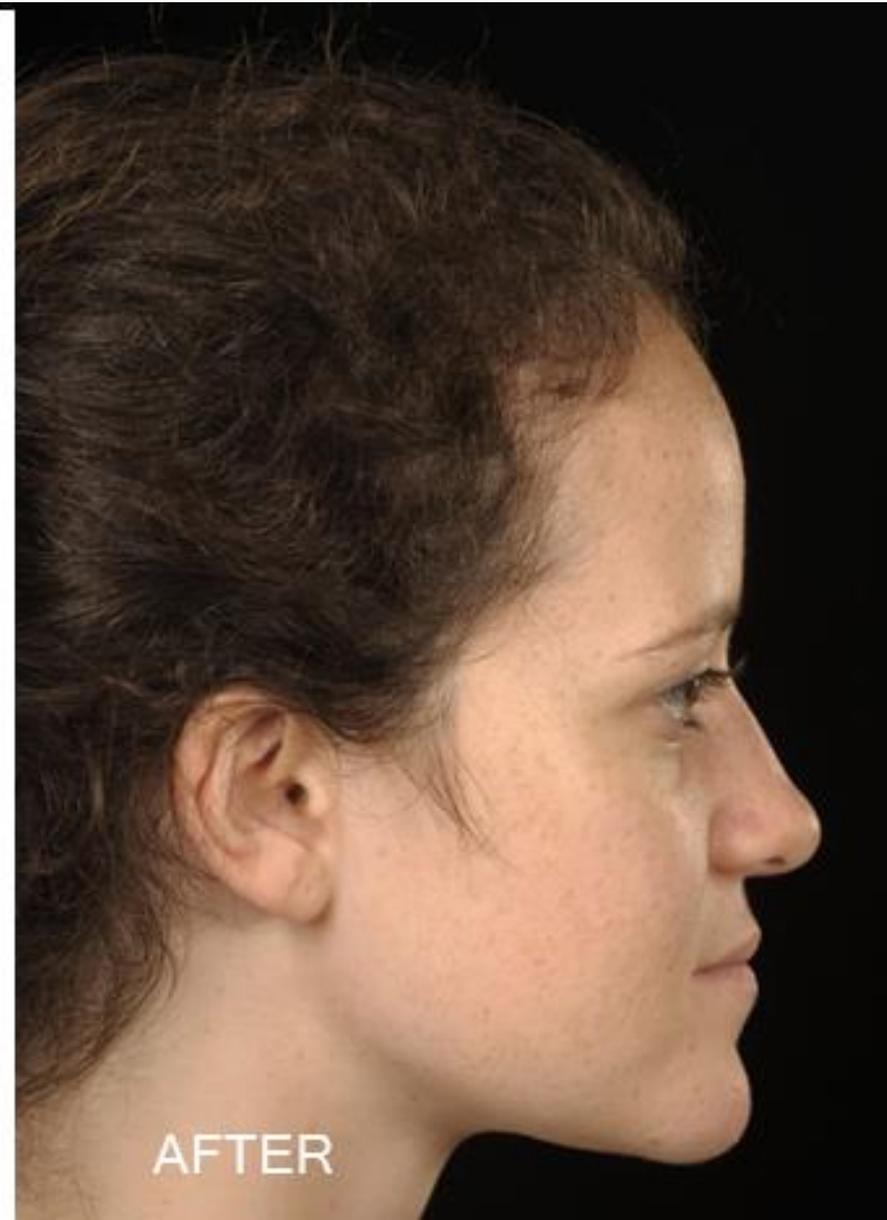
# Prediction of long-term success of orthopedic treatment in skeletal Class III malocclusions

Yoon Jeong Choi,<sup>a</sup> Jeong Eun Chang,<sup>b</sup> Chooryung J. Chung,<sup>b</sup> Ji Hyun Tahk,<sup>c</sup> and Kyung-Ho Kim<sup>b</sup>  
*Seoul, Korea, and Boston, MA*

---

**Conclusions: No particular method or factor can predict the long-term success of orthopedic treatment for skeletal Class III malocclusion.**

# Orthognathic surgery



**Pre-surgical orthodontics**

**Alignment and leveling**

**Dental decompensation**

**Orthognathic surgery**

**Maxillary advancement**

**Mandibular setback**

**Combination**

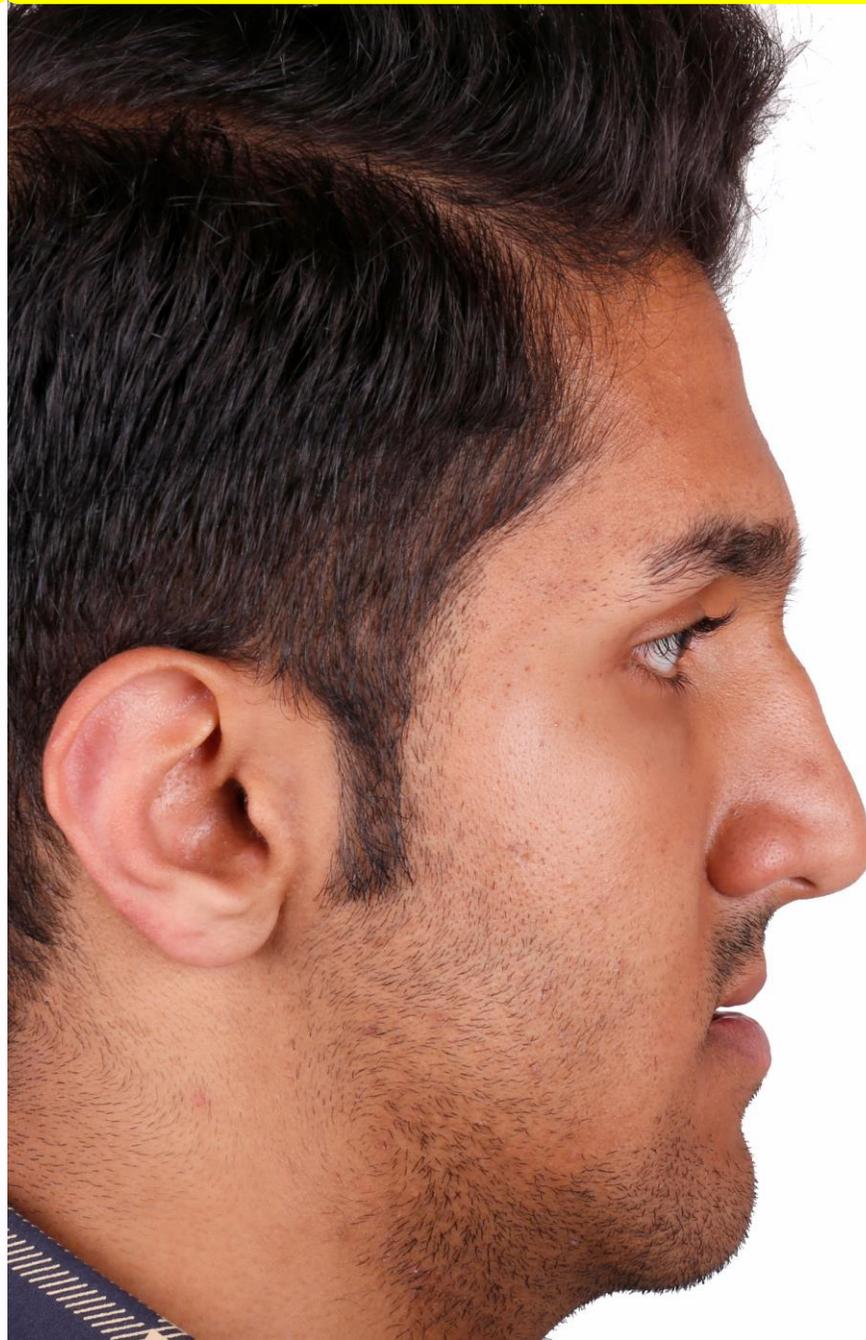
**Post-surgical orthodontics**

**Settling the occlusion**

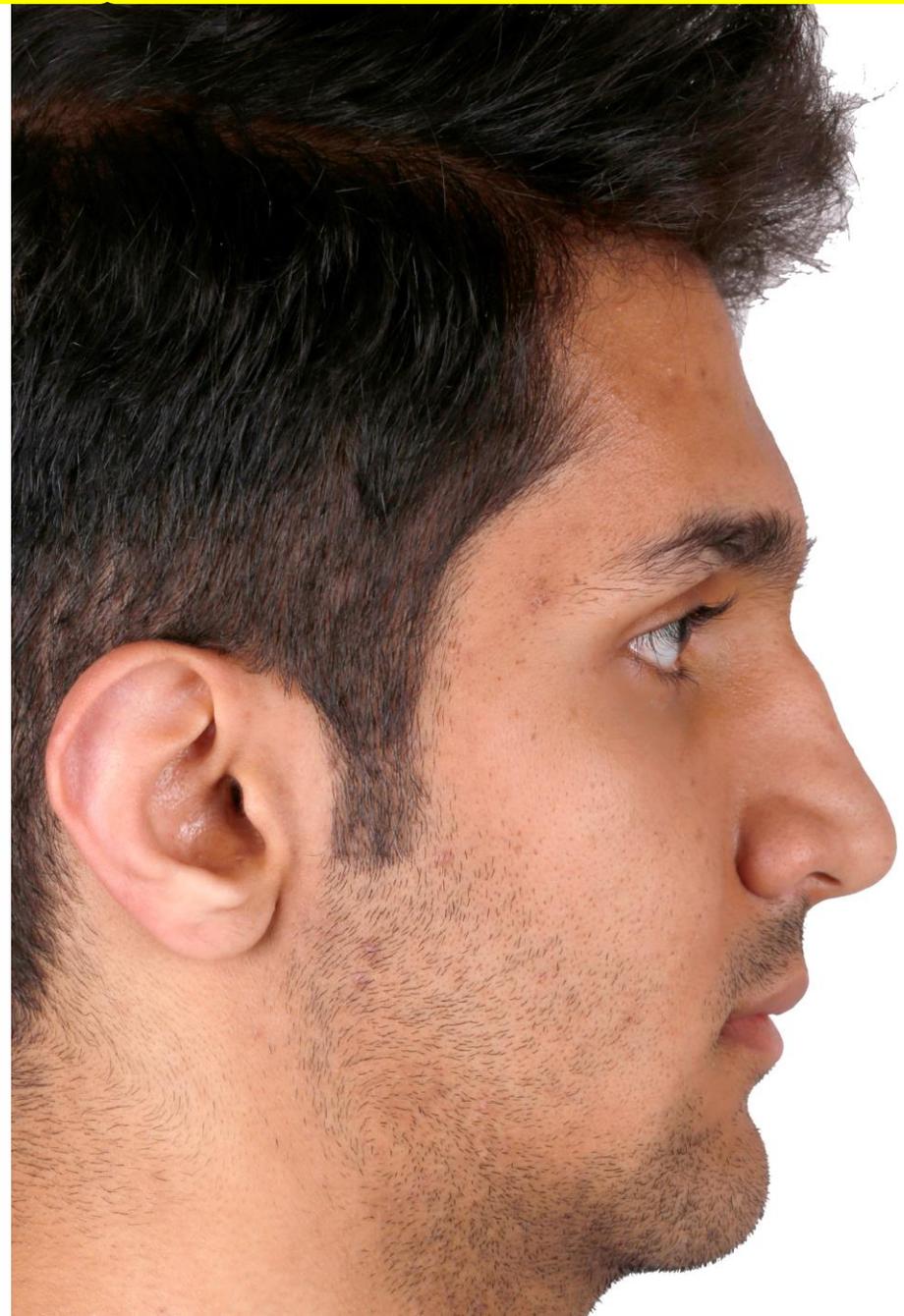
**Before**



**Progress**



**After**



## Before



## Progress



## After





**Before**

**Progress**

**After**

Peak of Mandibular Growth

2 years

1 year

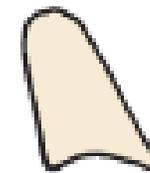
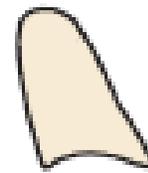
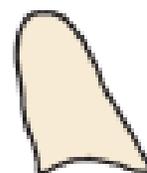
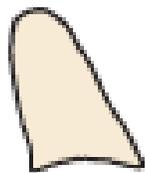
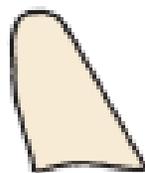
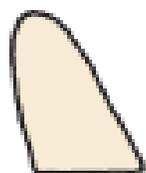
<1 year

>1 year

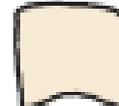
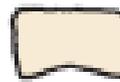
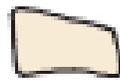
>2 years

<1-2 years

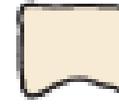
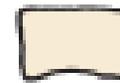
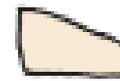
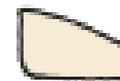
C2



C3



C4



A

CS1

CS2

CS3

CS4

CS5

CS6

Face mask therapy

Orthognathic surgery



# Thank you



dr.alireza.shamsi



dr.alireza.shamsi@gmail.com