

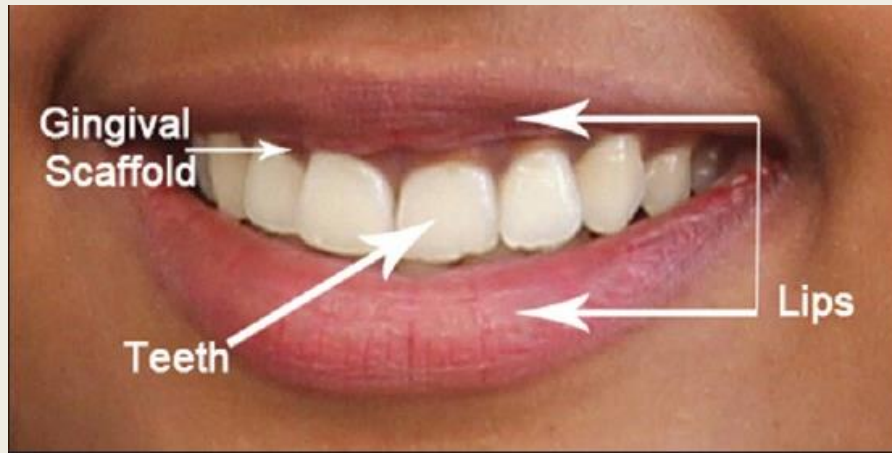
# ESTHETIC CROWN LENGTHENING IN THE TREATMENT OF GUMMY SMILE

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Harmonious smile is considered a symbol of beauty in modern society.

- A) teeth form and position
- B) gingival tissue levels
- C) lips position



# What is esthetics?



- Harmony or balance in color, form, relationship, and function of facial soft and hard tissue components including teeth and gingival tissues

# Sequences of esthetics analysis

- Facial analysis
- Labial analysis
- Gingival analysis
- Dental analysis



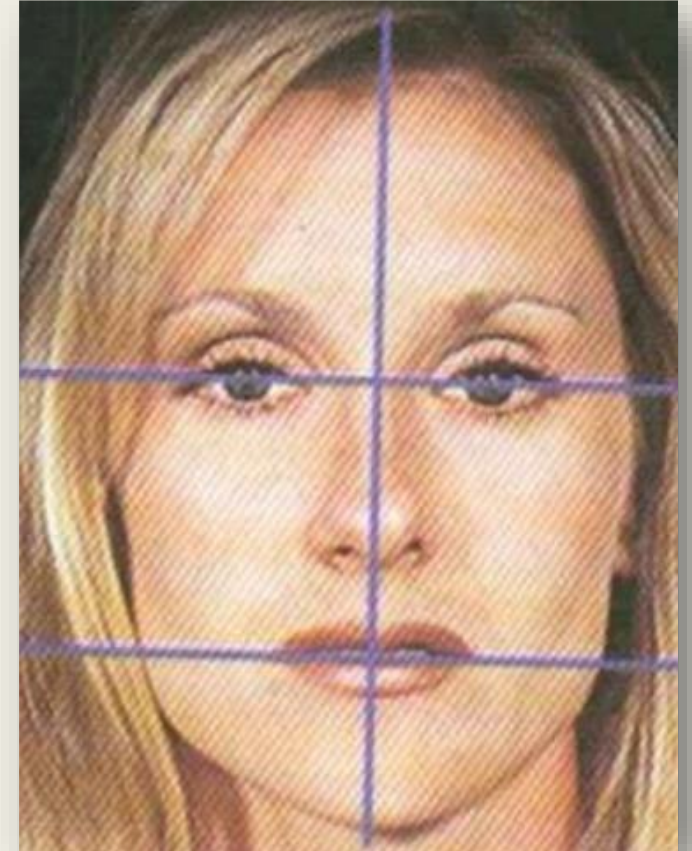
# A) Facial Analysis

## ■ Facial midline:

A line drawn between the nasion and the base of the philtrum should coincide with the incisal midline

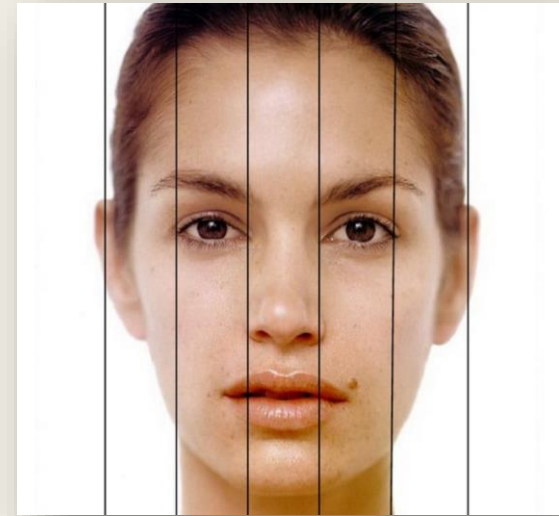
## ■ Interpupillary line:

Should be perpendicular to the midline of the face



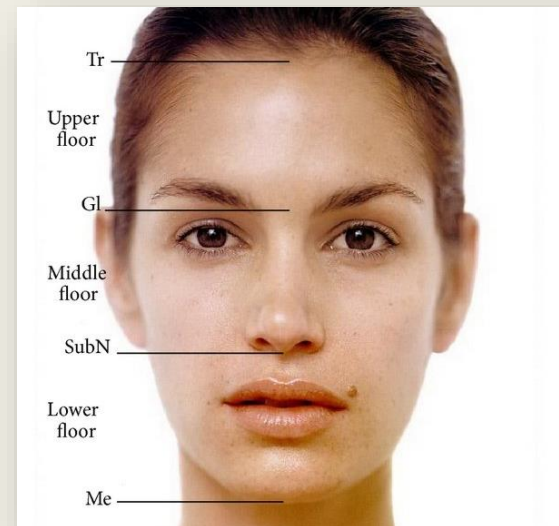
## ■ Horizontal proportions (Rule of fifth):

the width of the face should be the width of five “eyes”



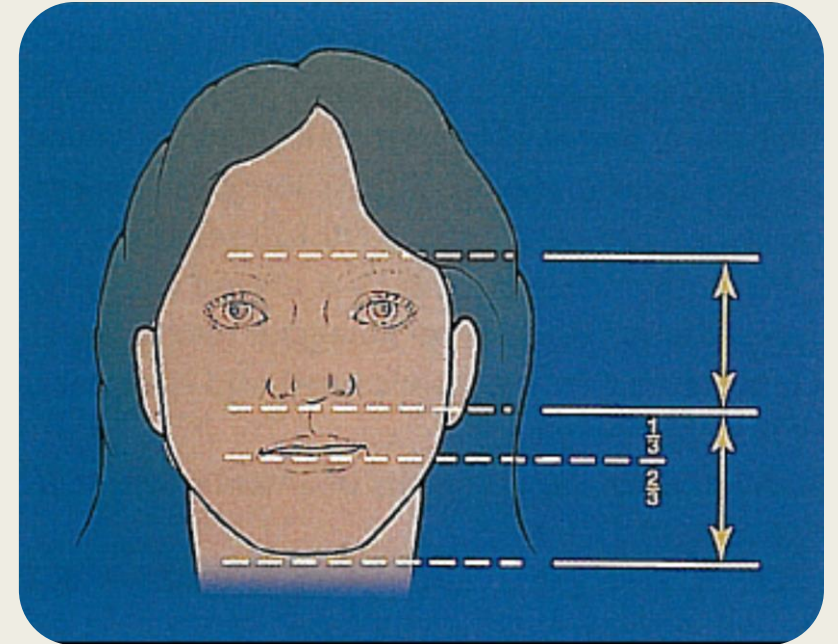
## ■ Vertical Proportions (Rule of third):

facial height is divided horizontally into 3 equal parts





- Middle third of the face = lower third of the face



- long lower face is most common, vertical maxillary excess = excess gingival display

## B) Labial Analysis

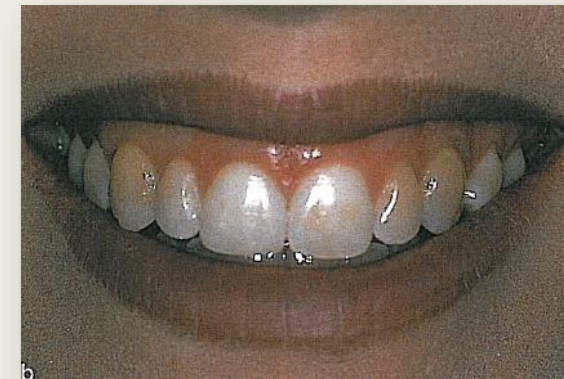
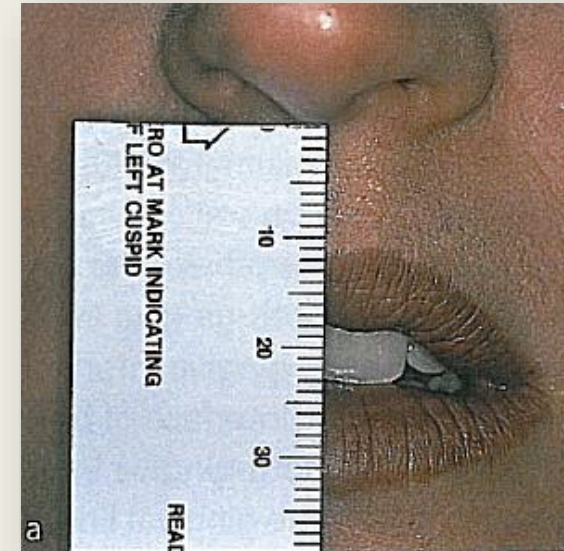
### ■ Lip length

Female: 20 – 22 mm

Male: 22 – 24 mm

- Upper lip tends to lengthen with age

- Short lip length = excess gingival display





## ■ Lip line(smile line):

position of the inferior border of upper lip during smiling



### ■ Normal smile line (69%)

75% to 100% cervicoincisal length of maxillary anterior teeth and interdental papilla exposed.

### ■ High smile line (11%)

display all of the interdental papilla and more than 2 mm of tissue above the cervices of the teeth

### ■ Low smile line (20%)

< 75% cervicoincisal length of maxillary anterior teeth exposed

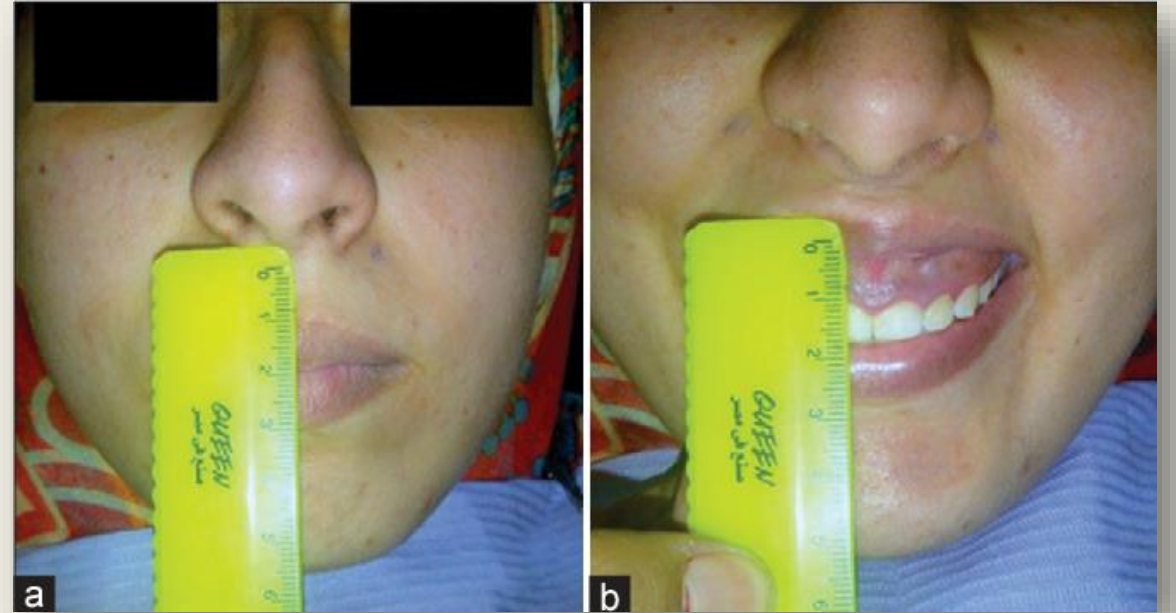


*High smile line*  
(Excessive gingival display)

*Low smile line*



- **Lip Mobility:** Average 6 – 8 mm



- Upper lip hypermobility = Excess gingival display

## ■ Lip symmetry

- Upper lip asymmetry during full smile
- Upper lip asymmetry with excess gingival display in one side ( esthetic CL)
- Lower lip asymmetry (Botox)



## C) Gingival analysis

### ■ Gingival level and harmony

- correct gingival level for each tooth

level of cervical gingival height of

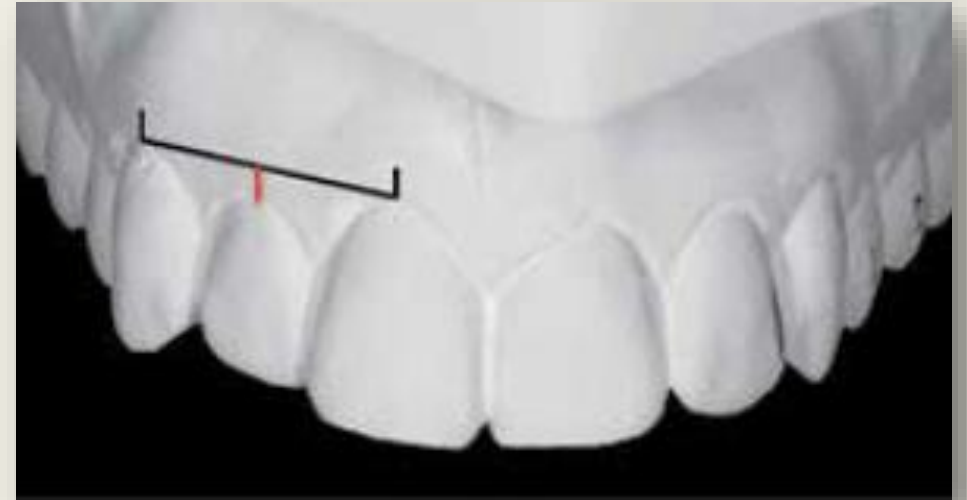
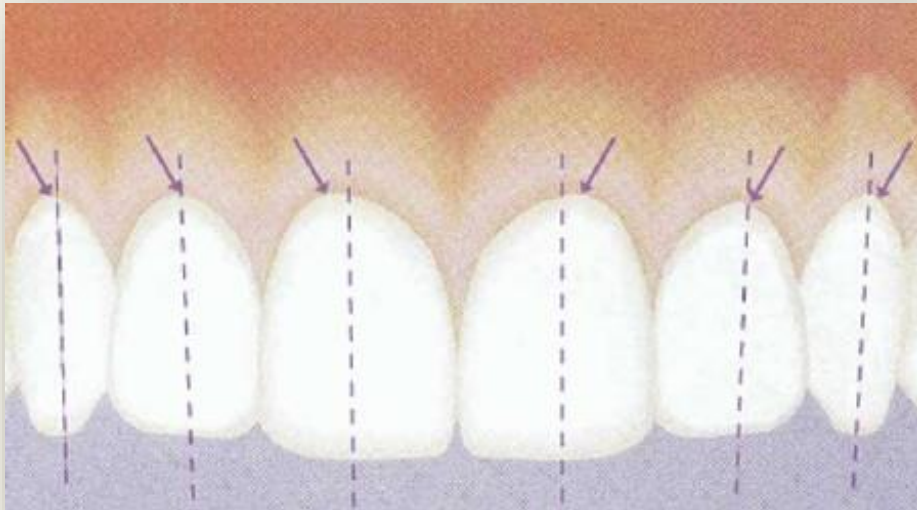
- the **centrals** should be symmetrical and also match that of canines.
- the **lateral** should be 1 mm below that of the central





## ■ Gingival zenith

- The apex of the gingival height of contour on the teeth



- *Central: distal third*
- *Lateral: central*
- *Cuspid: distal third*
- *Bicuspid: central*



## ■ Gingival symmetry

For maximum esthetic it is preferable  
For the gingiva to be symmetrical



## ■ Gingival Enlargement:

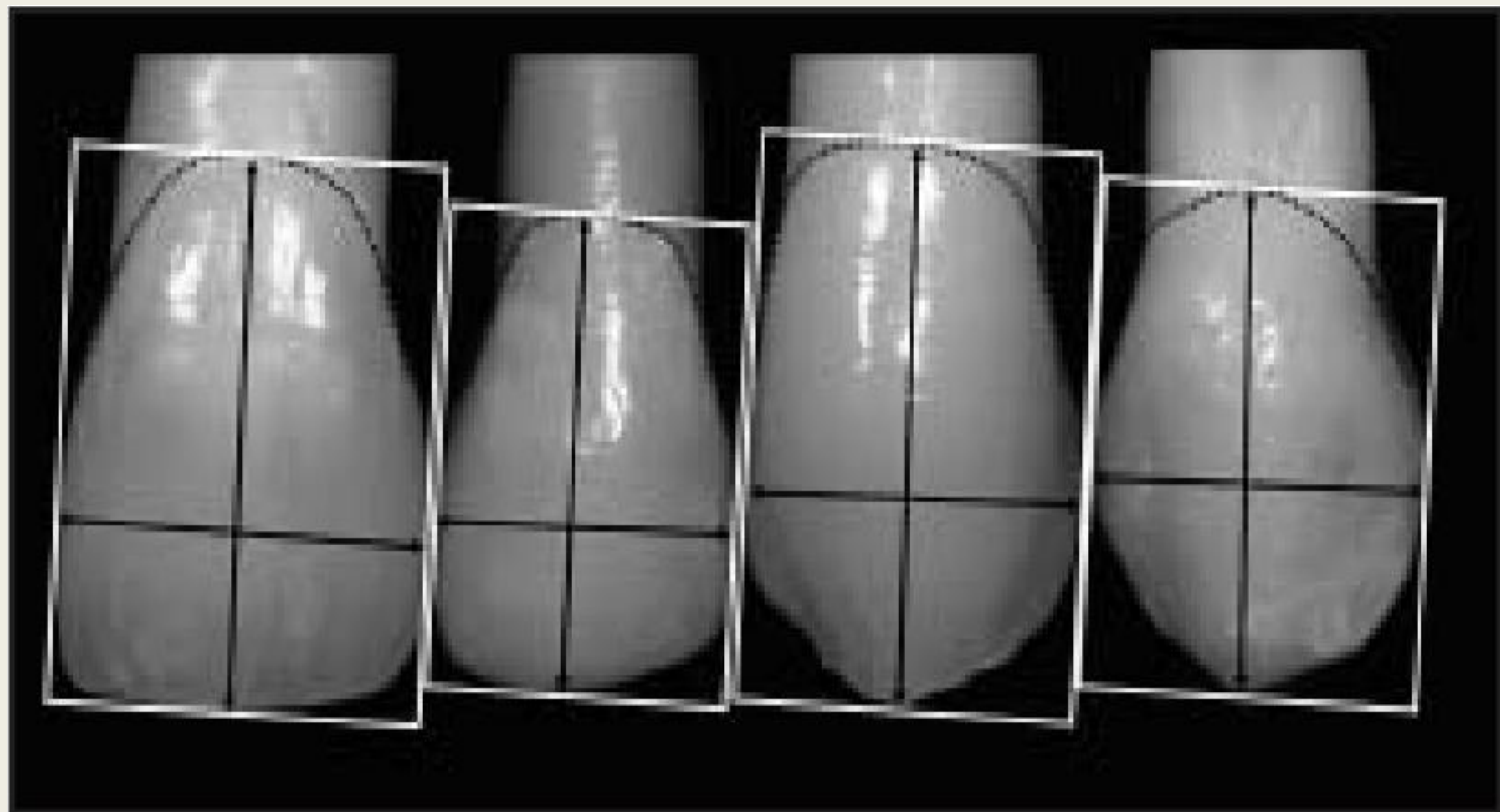
The increased sized gingiva can be treated by gingivectomy surgically or by laser



## ■ Gingival Recession:

The best line of treatment is soft tissue grafting







## D) Dental analysis

- **Dental symmetry**
- Maxillary centrals must be the dominant teeth in the smile and mirror images of each other



## ■ Dental midline

- Perpendicular to the incisal plane/ horizon
- Parallel and coincident to the facial midline

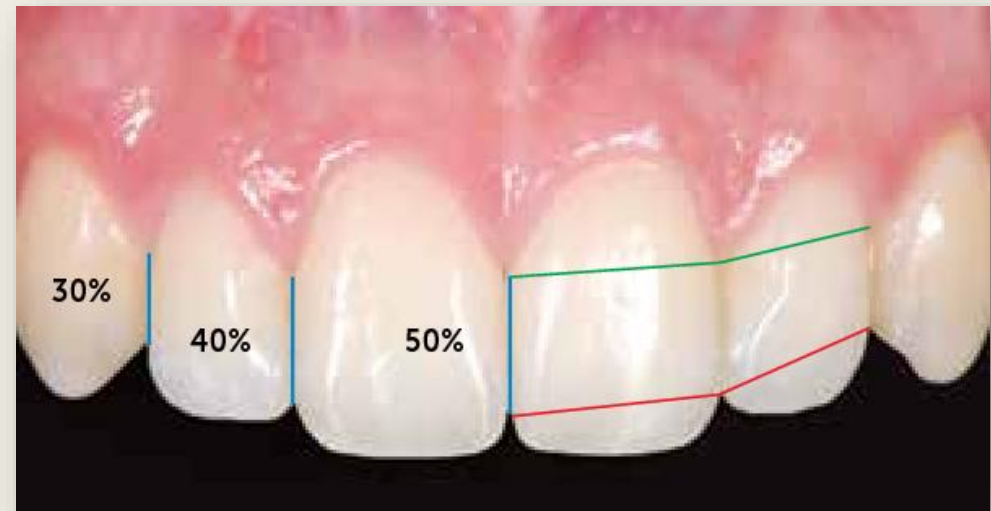
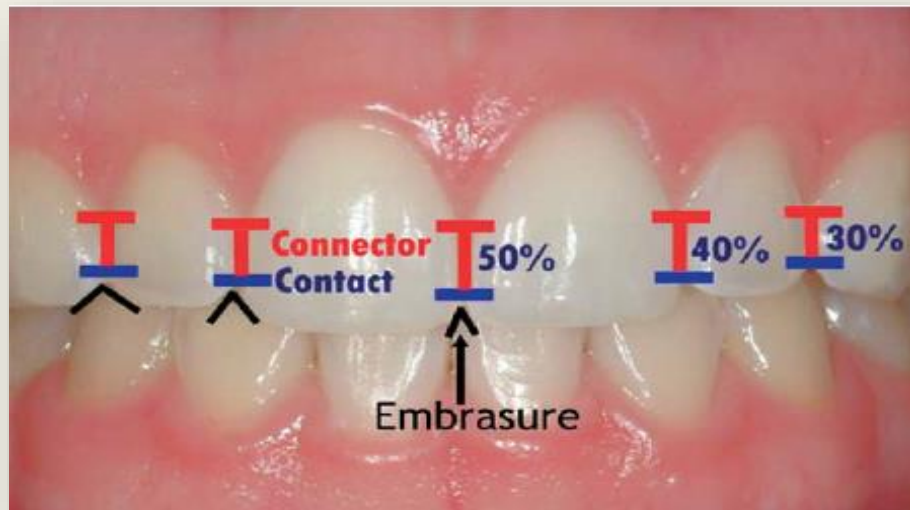


## ■ Dental cant



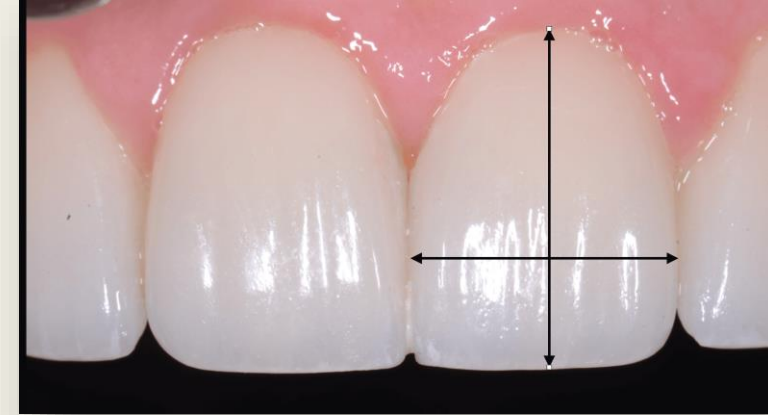
## ■ Interproximal contact areas

Progressively more gingival from central incisors to canine

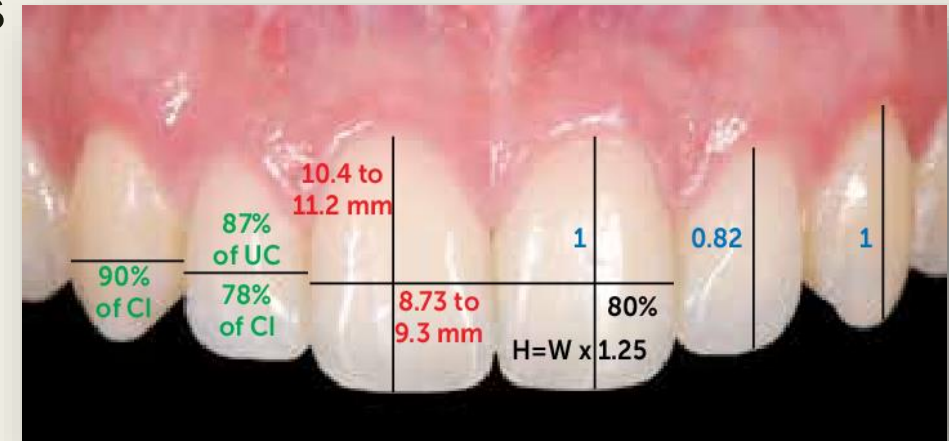


## ■ Individual tooth length and width proportion

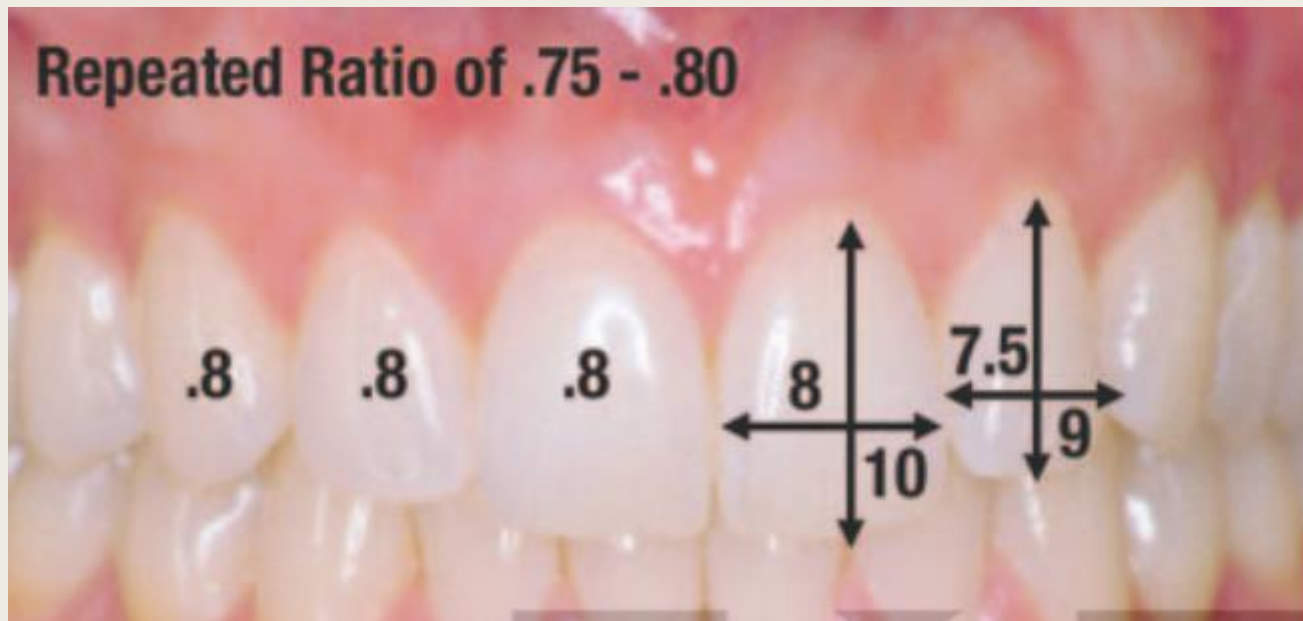
- Width to height in central incisor: **75% - 80%**
- 1. Average width of 8 to 9.3 mm
- 2. Average length of 10 to 11.2 mm
- 3. Average width-to-length ratio of 0.75 to 0.80



- Average vertical crown height of the maxillary central incisor is 10.6 mm in males and 9.8 mm in females



Repeated Ratio of .75 - .80





**Gummy  
Smile**



# Excessive Gingival Display (Gummy Smile)

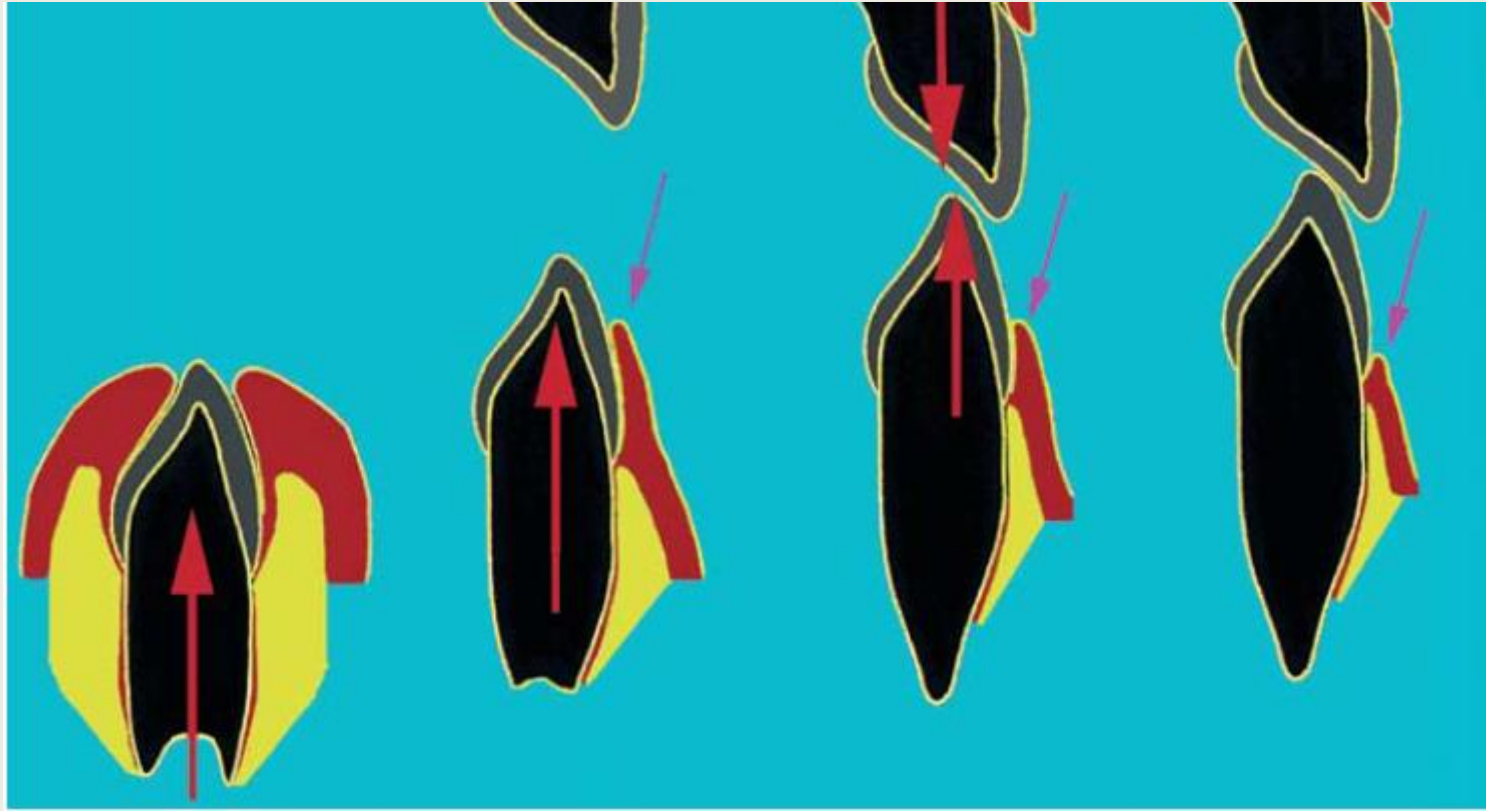


- overexposure of the maxillary gingiva during smiling or speaking
- occurs in 10.57% of the population
- affecting people (predominantly **females**) of 20 to 30 years of age

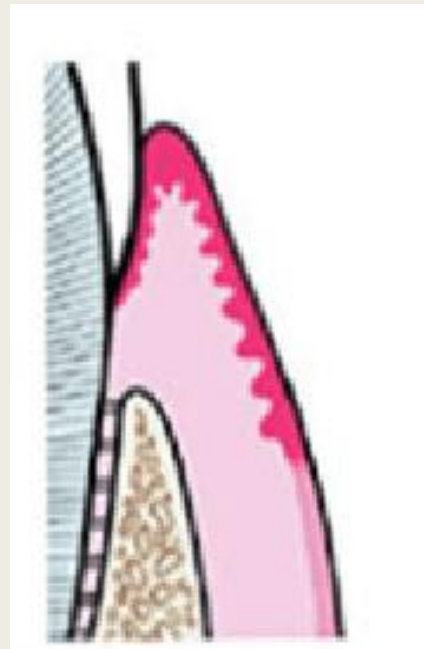
# Etiologic Factors of Gummy Smile

- *Drug-induced Gingival Enlargement*
- *Altered Passive Eruption*
- *Short clinical crown*
- *Vertical Maxillary Excess*
- *Hyperactive/ short upper lip*
- *dentoalveolar extrusion*

- **Active eruption** is the process by which a tooth moves from its germinative position to its functional position in occlusion with the opposing arch.
- **Passive eruption** is defined as tooth exposure secondary to apical migration of the gingival margin to a location at or slightly coronal to CEJ .



- **Altered passive eruption** is a genetic or developmental condition, frequently associated with excessive gingival display and short clinical crowns . This condition is characterized by a coronal position of gingival tissue over enamel

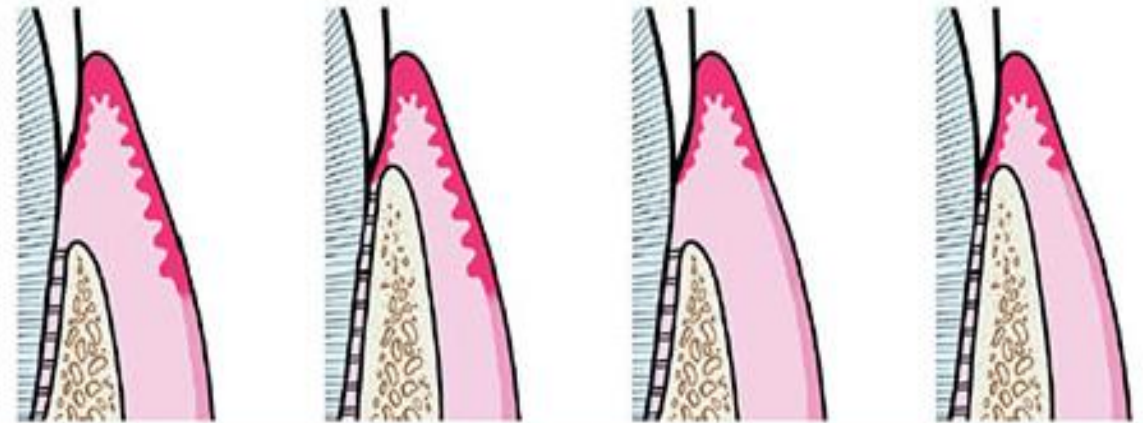




## The classification proposed by Coslet et al.(1977) : suggested treatment for each condition

This classification takes into consideration :

- ❑ the amount of keratinized gingiva
  - type I: wide
  - type II: narrow
- ❑ the distance from the CEJ to the alveolar crest
  - subgroup A : 1.5 mm
  - sub-group B : alveolar crest is at the level of the CEJ



**Figure 2: Four types of altered passive eruption (Coslet)**

*(All types present with the free gingival margin located occlusal to the CEJ)*

**Type 1A** – wider band of dekeratinized tissue, alveolar crest  
– CEJ normal (~1.5 mm)

**Type 1B** – wider band of dekeratinized tissue, alveolar crest  
– CEJ (~0 mm)

**Type 2A** – normal band of dekeratinized tissue, alveolar crest  
– CEJ normal (~1.5 mm)





**Type 2B** – normal band of dekeratinized tissue, alveolar crest  
– CEJ (~0 mm)



**Table 1** Adapted from Costlet's classification of altered passive eruption and treatment recommendations [20•]. *APF*, apically positioned flap

Condition	Treatment
Type I-A	Gingivectomy
Type I-B	Gingivectomy and osseous surgery
Type II-A	APF
Type II-B	APF and osseous surgery

# Modified Coslet`s classification(2016)

APE	TYPE I >2mm	TYPE II ≤2mm
ALONE	<div>A</div> 	<div>B</div> 
AAE	<div>C</div> 	<div>D</div> 

APE	TYPE I >2mm	TYPE II ≤2mm
ALONE	External Bevel Incision <i>or</i> Internal Bevel Incision	Internal Bevel Incision + Apically Positioned Flap
AAE	Internal Bevel Incision + Osseous Resective Surgery	Internal Bevel Incision + Apically Positioned Flap + Osseous Resective Surgery

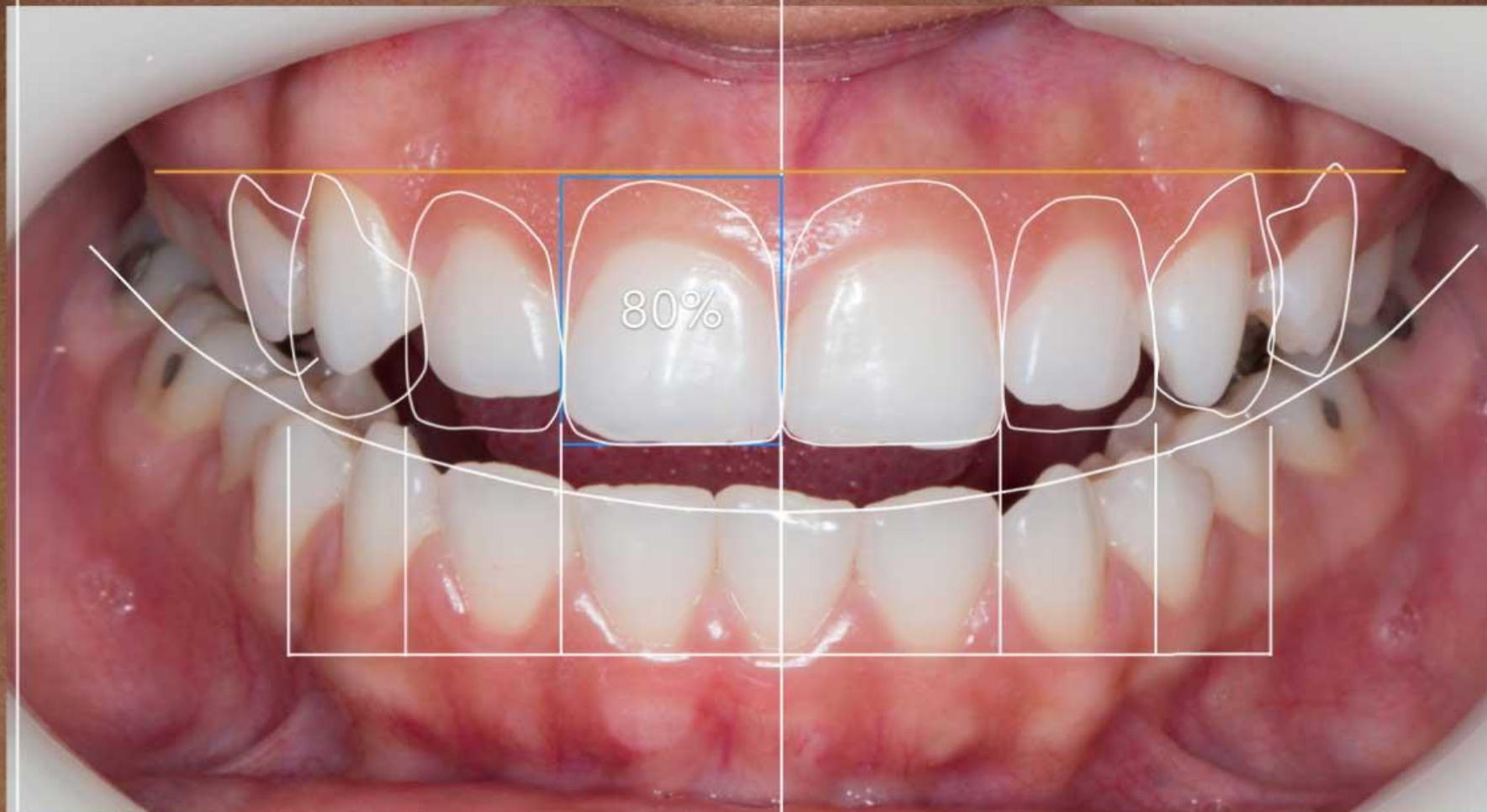




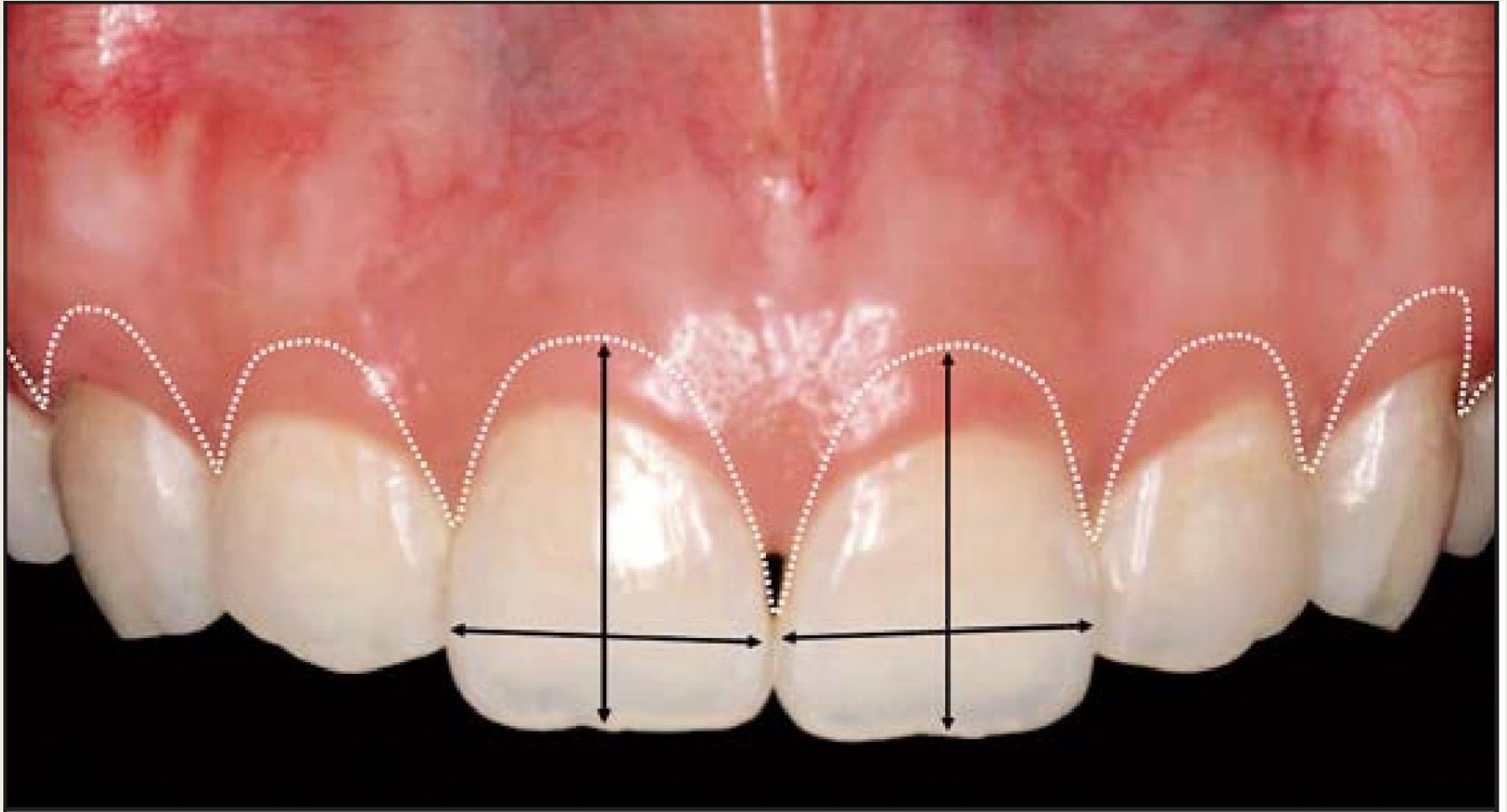


# Esthetic Crown lengthening









# Case 1 (Free hand surgery)







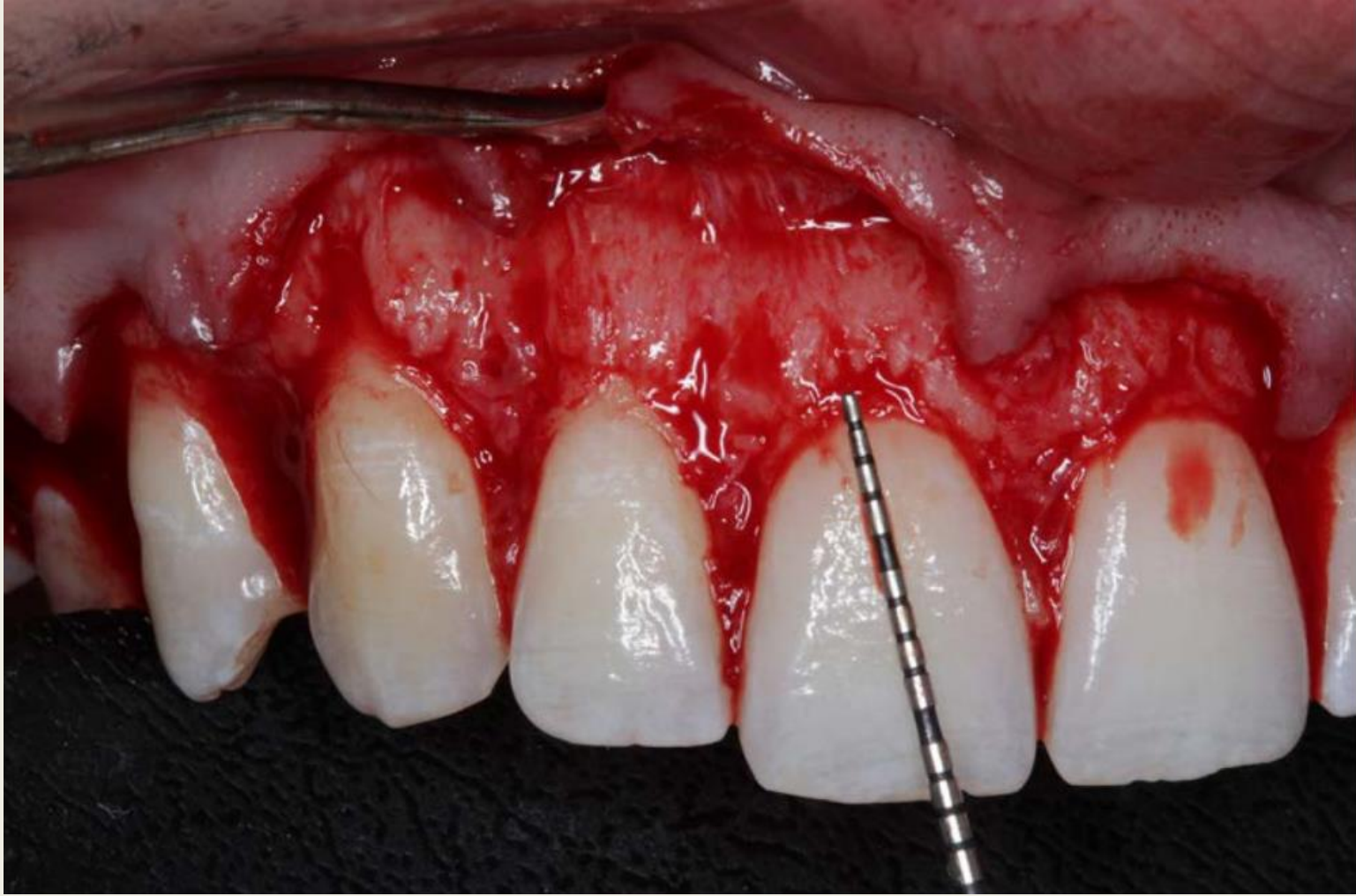


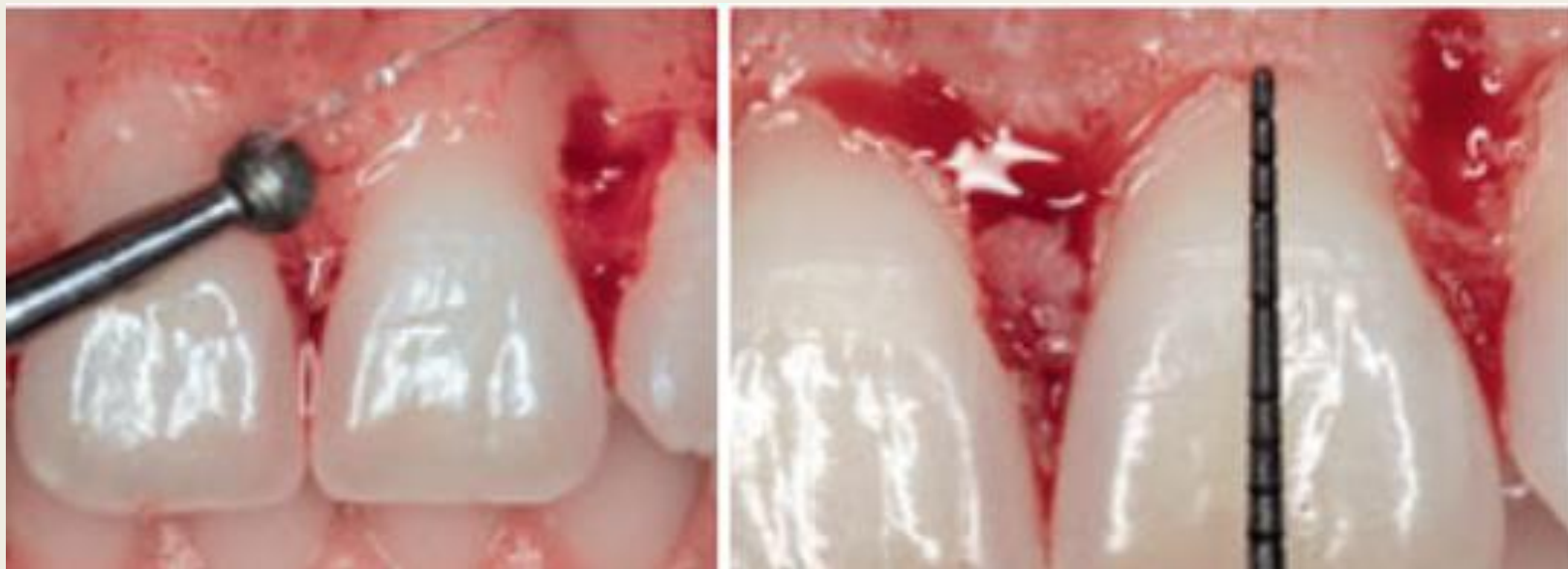


























## Case 2 ( Free hand surgery)















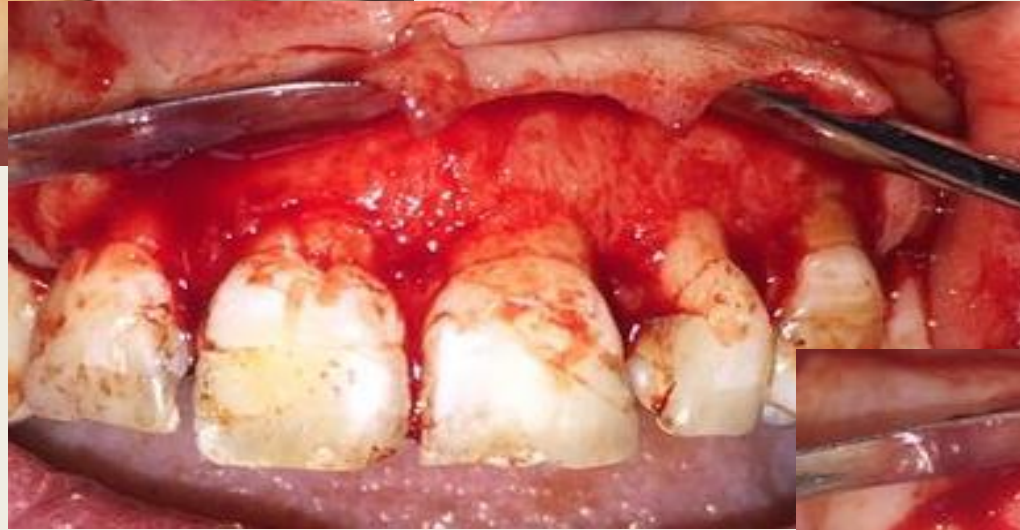




## Case 3 (Guided surgery)













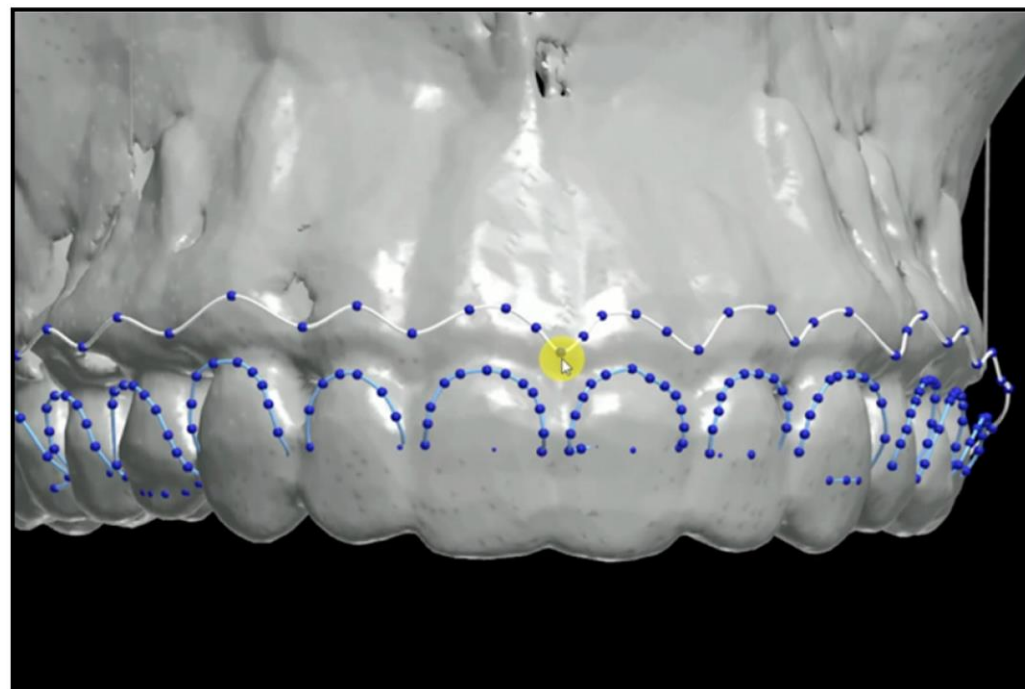
## Case 4 (Guided Surgery)







(a)



(b)

















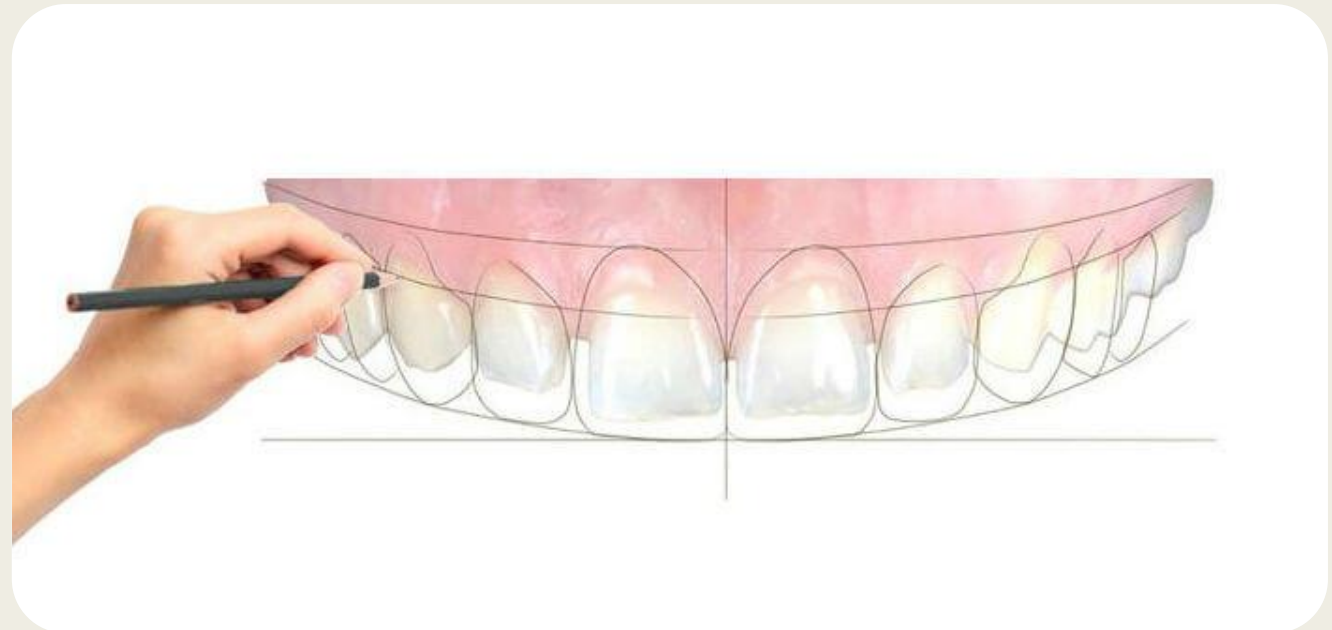






# Conclusion

- Determination of Analysis : Facial , Lips , Gingival , Dental
- Dental photographs & Diagnostic casts
- Free hand / Guided Surgery







Thank  
you

