

# JAWS



<https://i.ytimg.com/vi/Zcnmabpt77M/maxresdefault.jpg>

# Development and growth of jaws

Clinical orofacial anatomy – 3rd year Dentistry

**MUDr. Michal Španko<sup>1,2</sup>**

**MUDr. Ivo Klepáček, CSc.<sup>1</sup>**

<sup>1</sup> Anatomický ústav 1.LF UK, U Nemocnice 3, Praha 2, 128 00

<sup>2</sup> Stomatologická klinika 1.LF UK a VFN – maxilofaciální chirurgie, U Nemocnice 2, Praha 2, 128 00

## Contents:

- Growth of jaws
- Development of teeth, eruption
- CBCT scans

Slide notes may be viewed by clicking  button in your PDF reader.

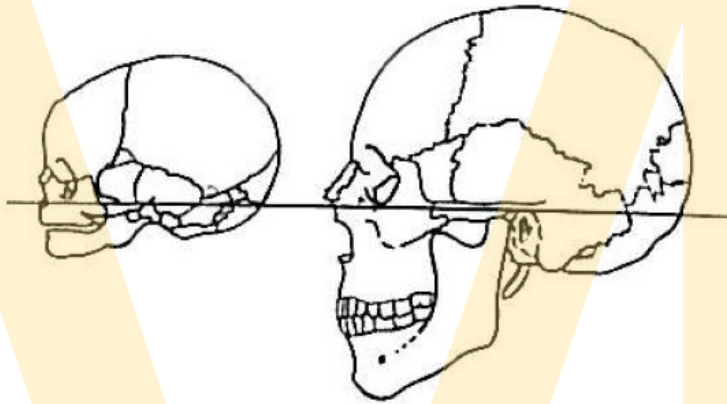


1. LÉKAŘSKÁ  
FAKULTA  
Univerzita Karlova

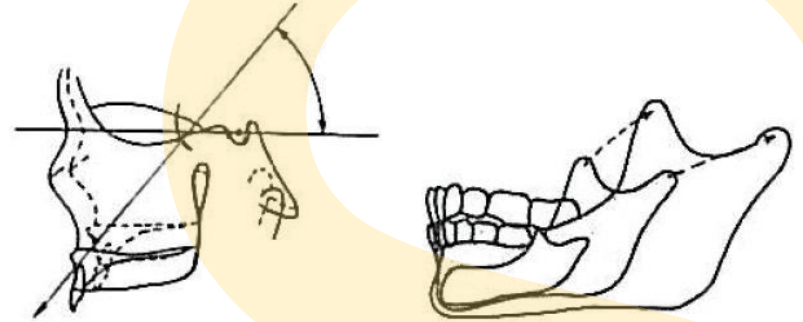


VŠEOBECNÁ FAKULTNÍ  
NEMOCNICE V PRAZE

## Growth of jaws



Newborn and adult skull



Direction of growth

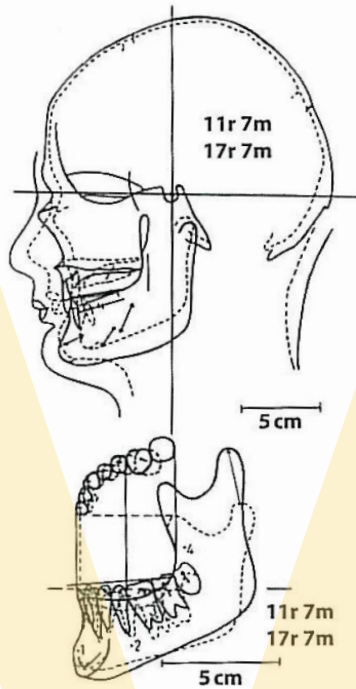
### Main growth mechanisms:

A) Condylar growth

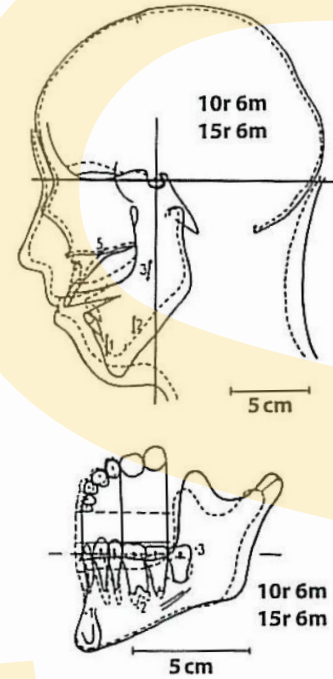
B) Bone apposition and resorption (!)

C) Growth in sutures

# Growth of jaws



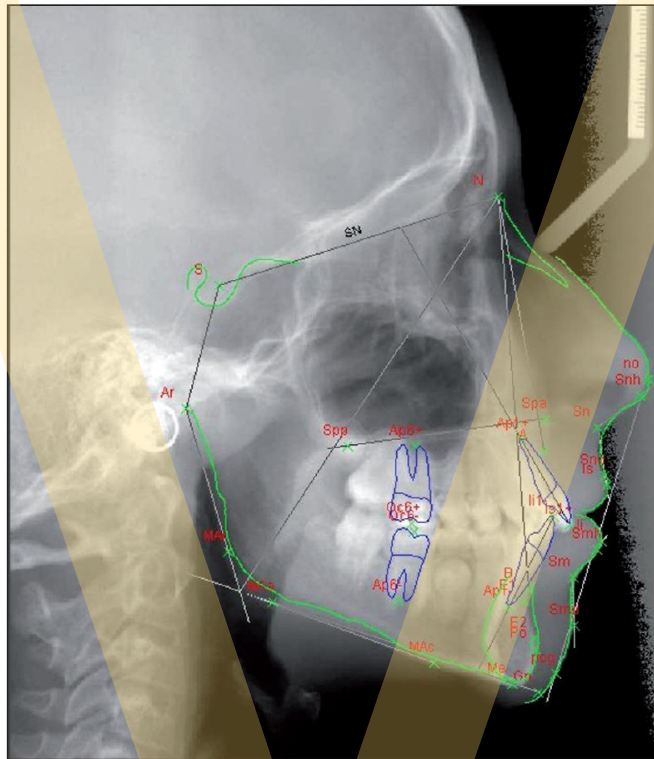
VS.



Anteriorrotation

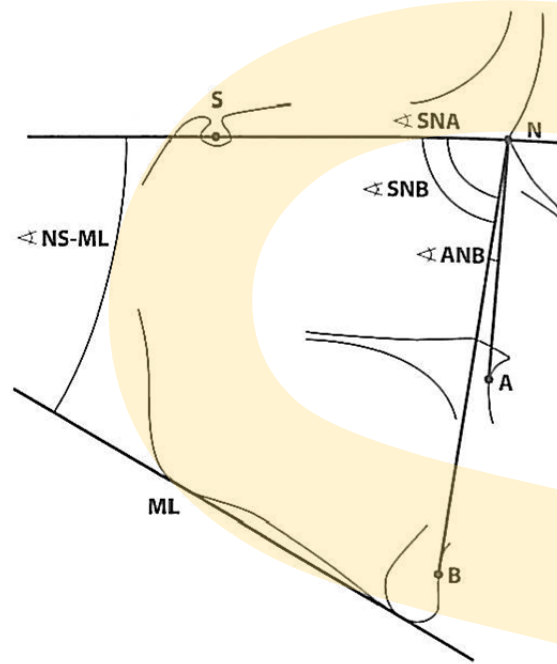
Posteriorrotation

# Cephalometric X-ray

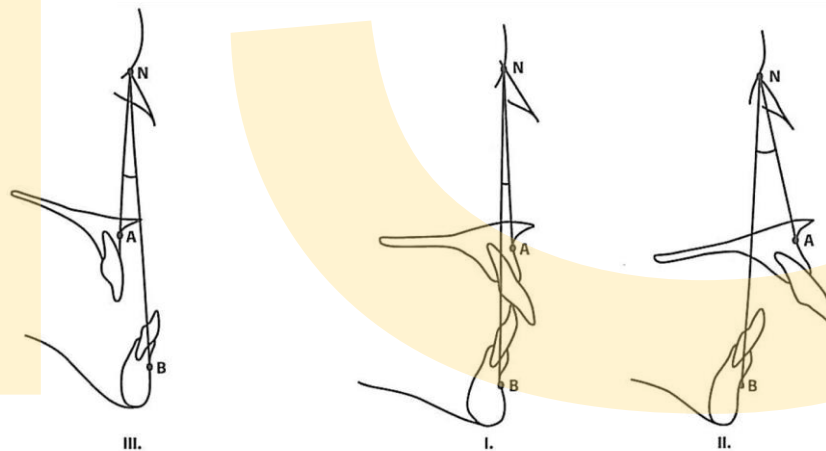


## Anthropometric points

- N = nasion
- S = sella
- A = point A
- B = point B
- Po = pogonion
- Go = gonion
- Me = menton
- ANS (Spa) = spina nasalis anterior
- PNS (Spp) = spina nasalis posterior
- Ar = articulare

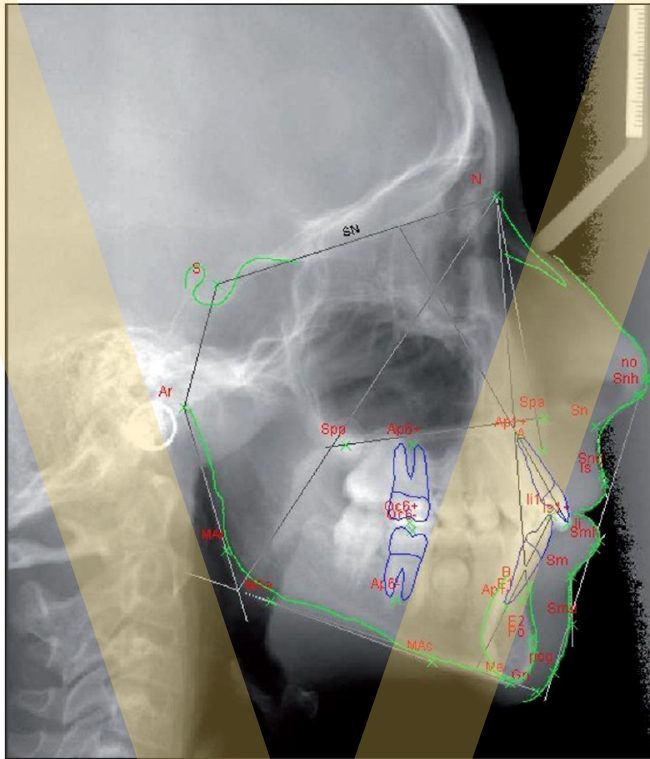


Examples of angles



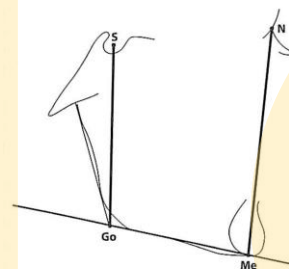
Skeletal classification

# Cephalometric X-ray

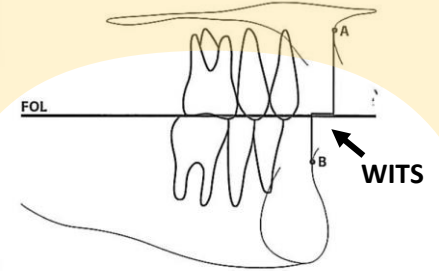


## Anthropometric points

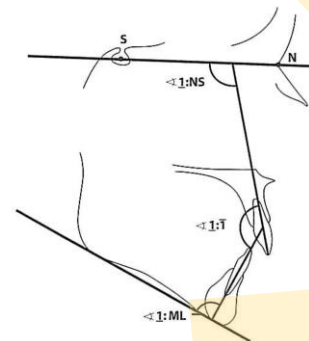
- N = nasion
- S = sella
- A = point A
- B = point B
- Po = pogonion
- Go = gonion
- Me = menton
- ANS (Spa) = spina nasalis anterior
- PNS (Spp) = spina nasalis posterior
- Ar = articulare



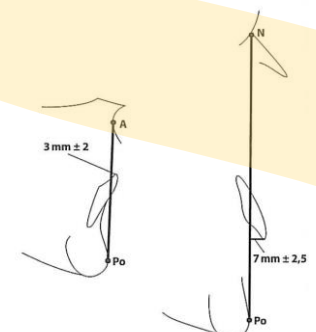
Frontal and dorsal face height



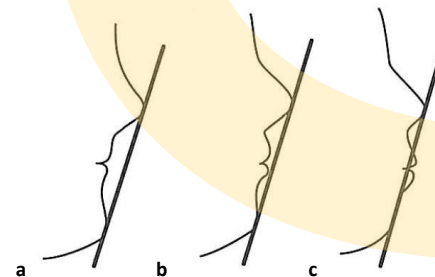
FOL, WITS



Inclination of incisors



Incisor placement



Position of lips (line = Ricketts' aesthetic line)

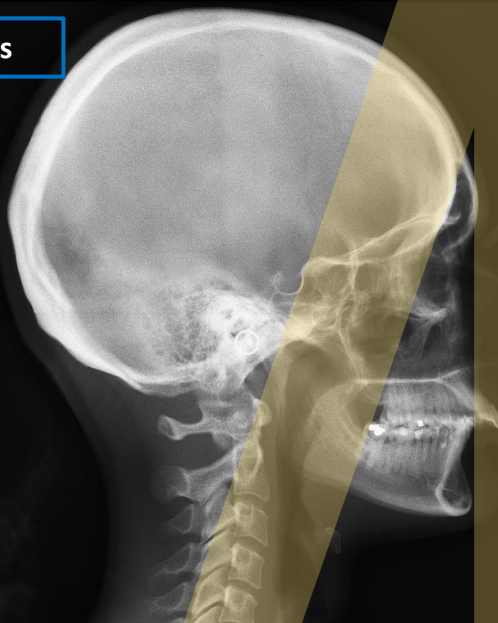
a - rear position; b - midposition; c - prominent position

# Skeletal class II, female

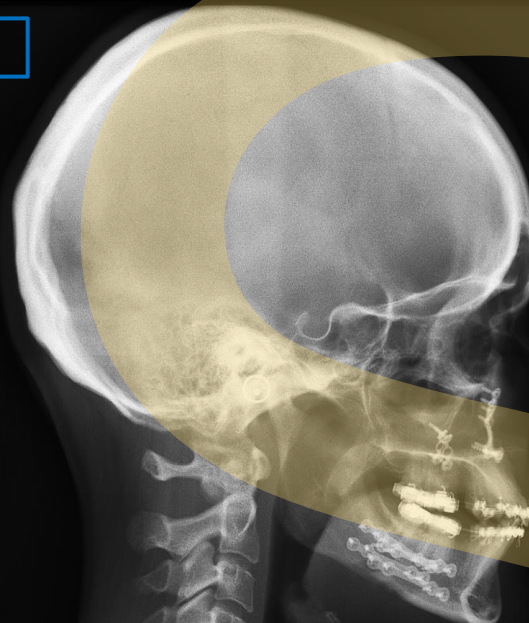


Orthodontic-surgical correction

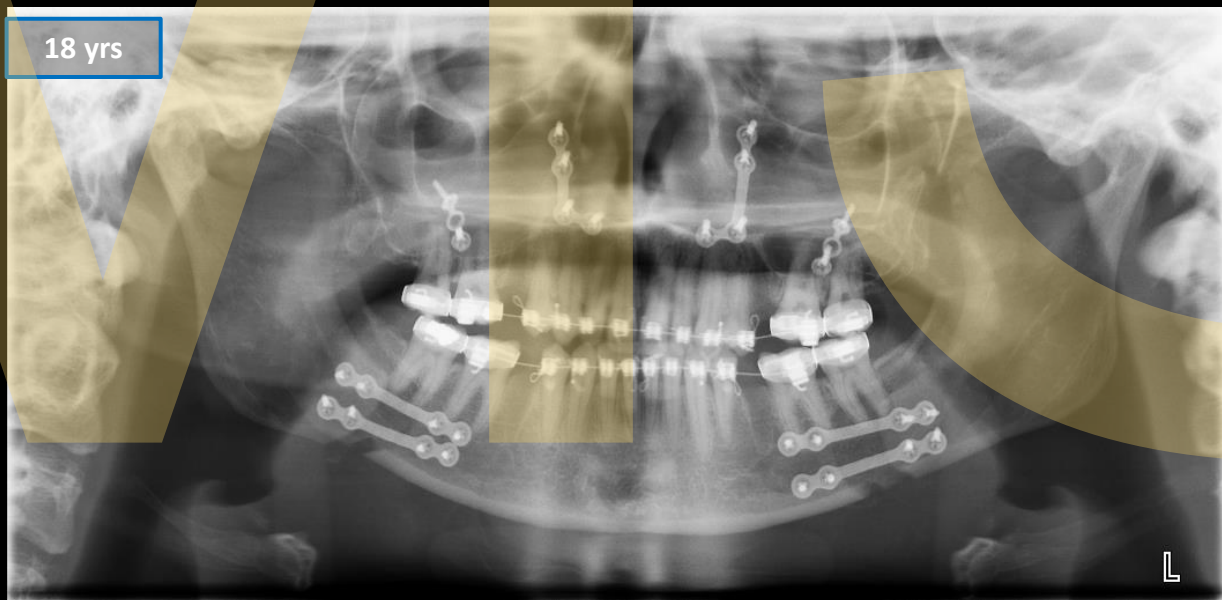
18 yrs



18 yrs

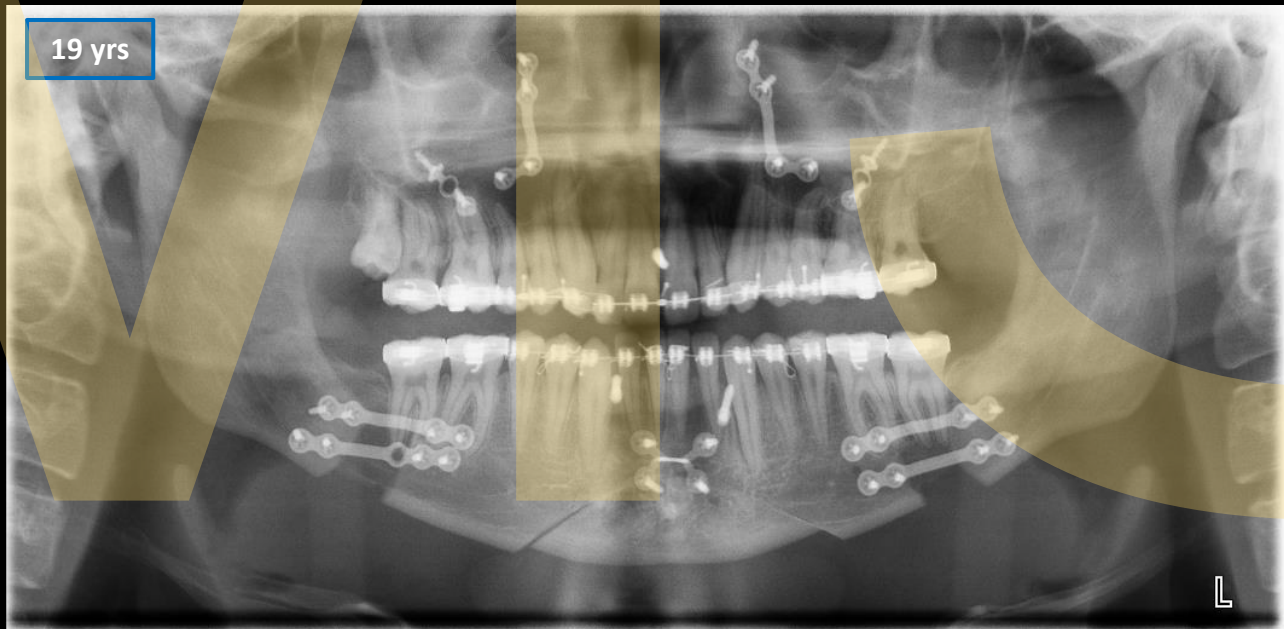
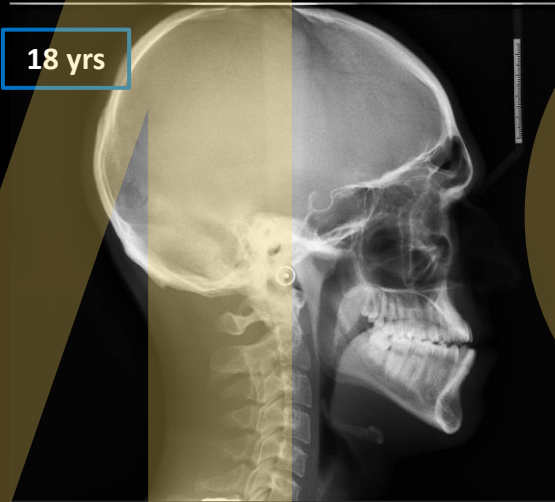


18 yrs



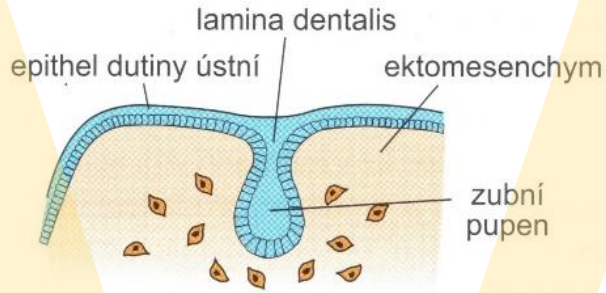
# Skeletal class III, male

## Orthodontic-surgical correction



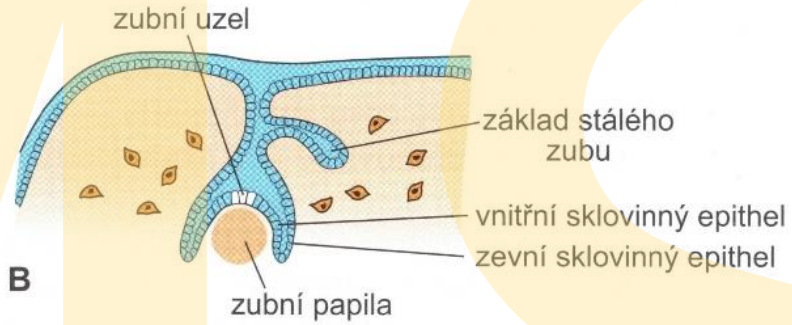


# Dental development and eruption



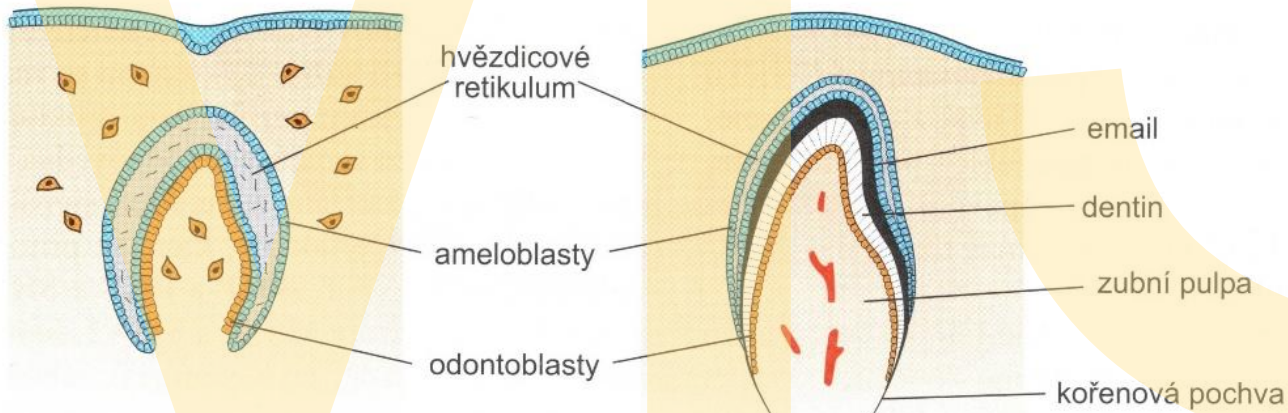
**A**

**Bud (8 weeks)**



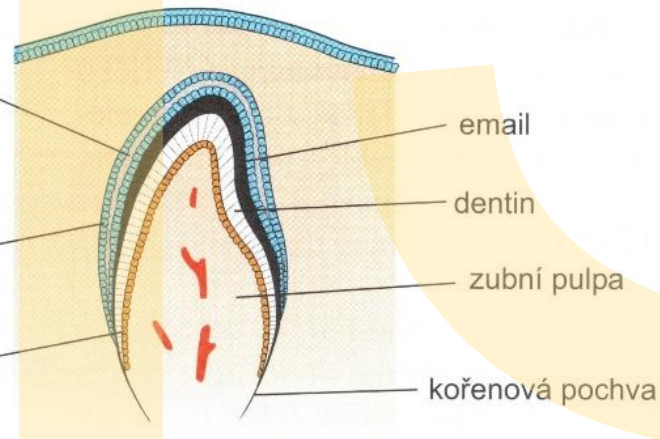
**B**

**Cap (9 weeks)**



**C**

**Bell (3 months)**



**D**

**6 months**

# Dental development and eruption

Zub	Doba prořezávání	Počátek tvorby tvrdých tkání zubních	končení vývoje kořene
I	6. — 8. měs.	5. embryonal. měs.	1½ — 2 roky
II	8. — 10. měs.	5. embryonal. měs.	1½ — 2 roky
III	16. — 20. měs.	6. embryonal. měs.	2½ — 3 roky
IV	12. — 16. měs.	5. embryonal. měs.	2 — 2½ roku
V	20. — 30. měs.	6. embryonal. měs.	3 roky
<b>Maxilla</b>			
1	7. — 8. rok	3. — 4. měs.	10. rok
2	8. — 9. rok	1. rok	11. rok
3	11. — 12. rok	4. — 5. měs.	13. — 15. rok
4	10. — 11. rok	1 — 1½ roku	12. — 13. rok
5	10. — 12. rok	2 — 2¼ roku	12. — 14. rok
6	6. — 7. rok	narození	9. — 10. rok
7	12. — 14. rok	2½ — 3 roky	14. — 16. rok
8	17. — 30. rok	7. — 9. rok	18. — 25. rok
<b>Mandibula</b>			
1	6. — 7. rok	3. — 4. měs.	9. rok
2	7. — 8. rok	3. — 4. měs.	10. rok
3	10. — 11. rok	4. — 5. měs.	12. — 14. rok
4	10. — 12. rok	1¼ — 2. rok	12. — 13. rok
5	11. — 12. rok	2¼ — 2½ roku	13. — 14. rok
6	6. — 7. rok	narození	9. — 10. rok
7	12. — 13. rok	2½ — 3. rok	14. — 15. rok
8	17. — 30. rok	8. — 10. rok	18. — 25. rok



I.

1 Yr



II.

1 Yr



III.

4 Yrs (!)



IV.

1 Yr



V.

1 Yr



VI.

1 Yr



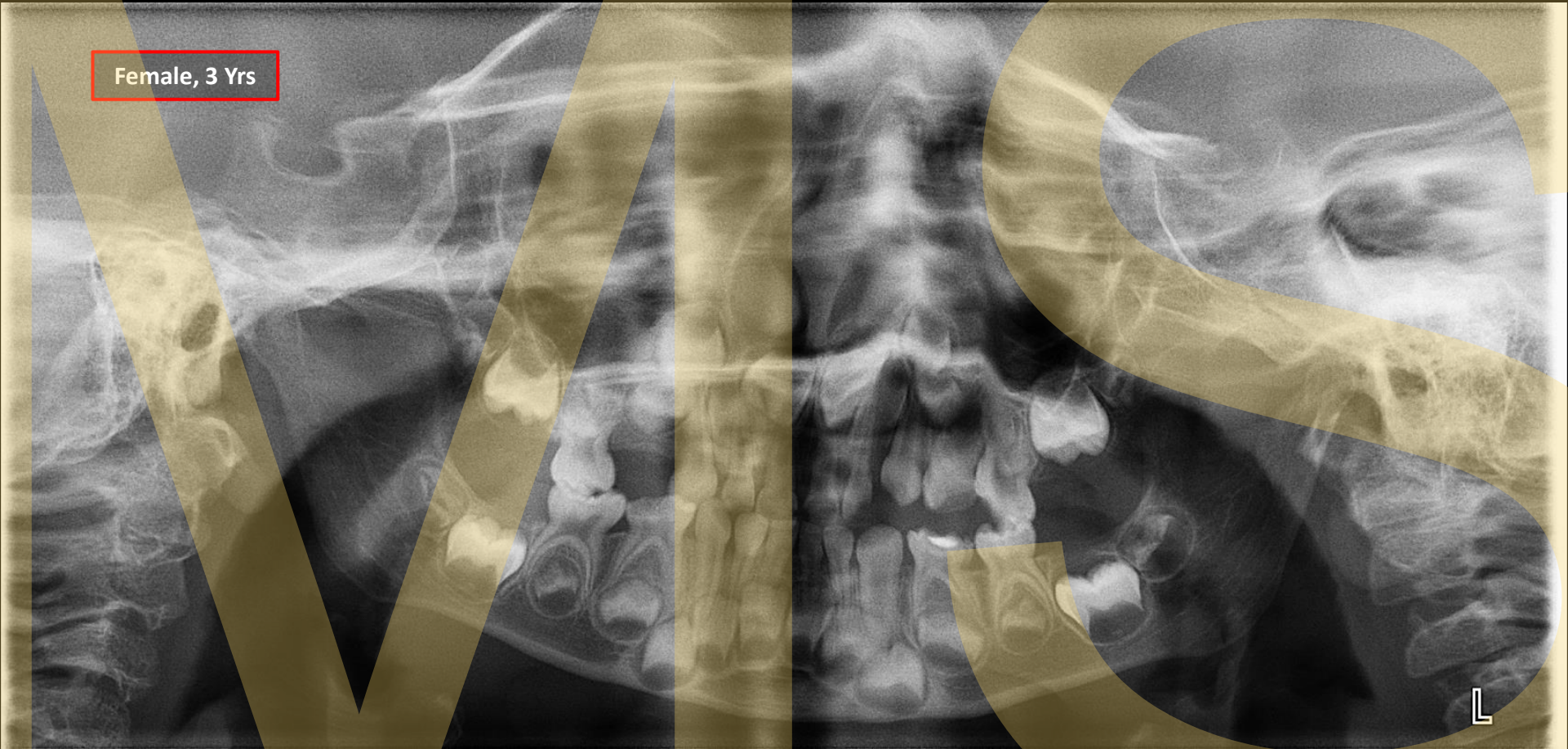
VII.

1 Yr

Developmental stages of permanent molar – X-ray image

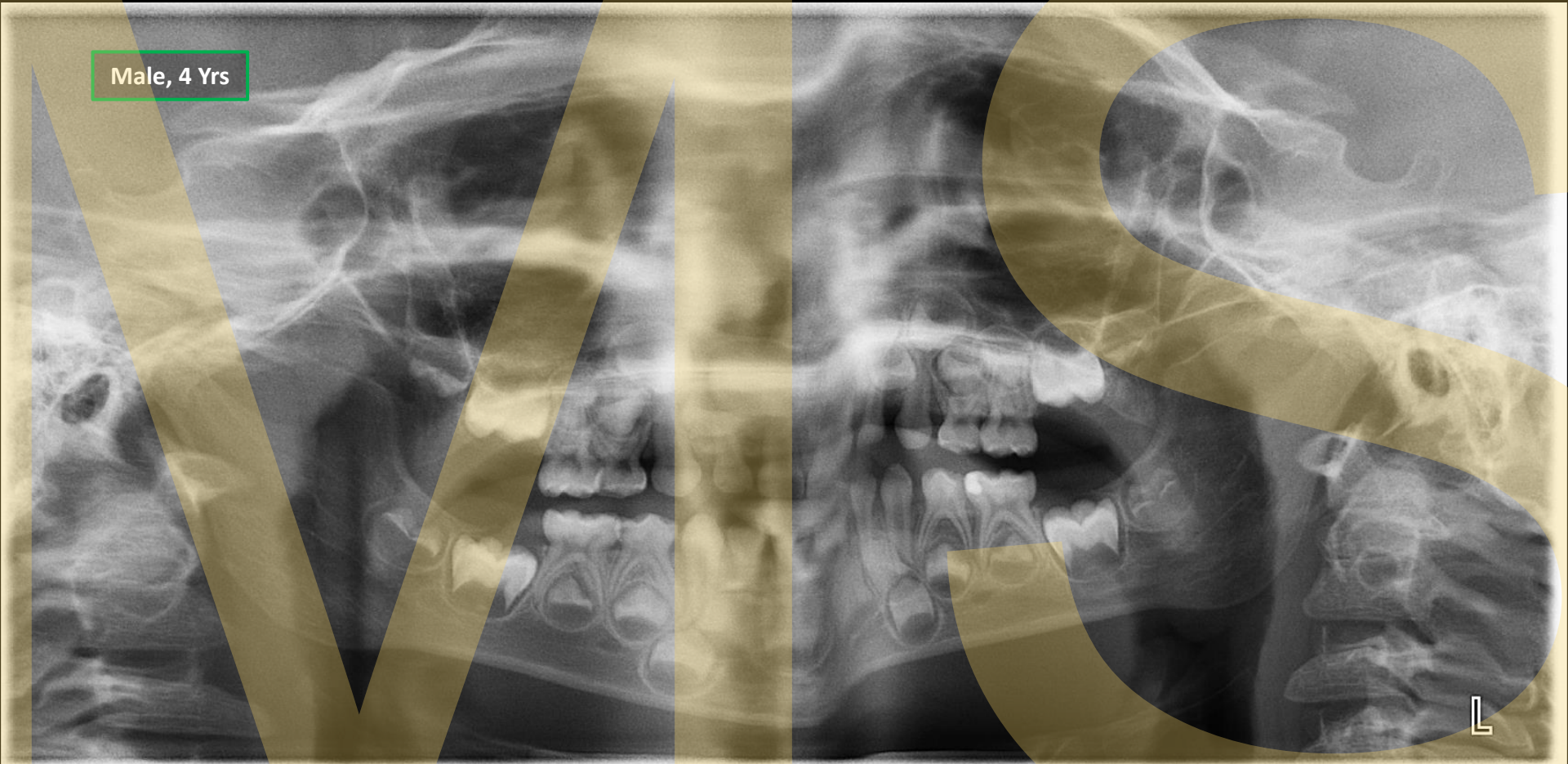
# Dental development and eruption

Female, 3 Yrs



# Dental development and eruption

Male, 4 Yrs



# Dental development and eruption

Male, 5 Yrs



I.



II.



III.



IV.



V.



VI.



VII.

# Dental development and eruption

Male, 6 Yrs



I.



II.



III.



IV.



V.



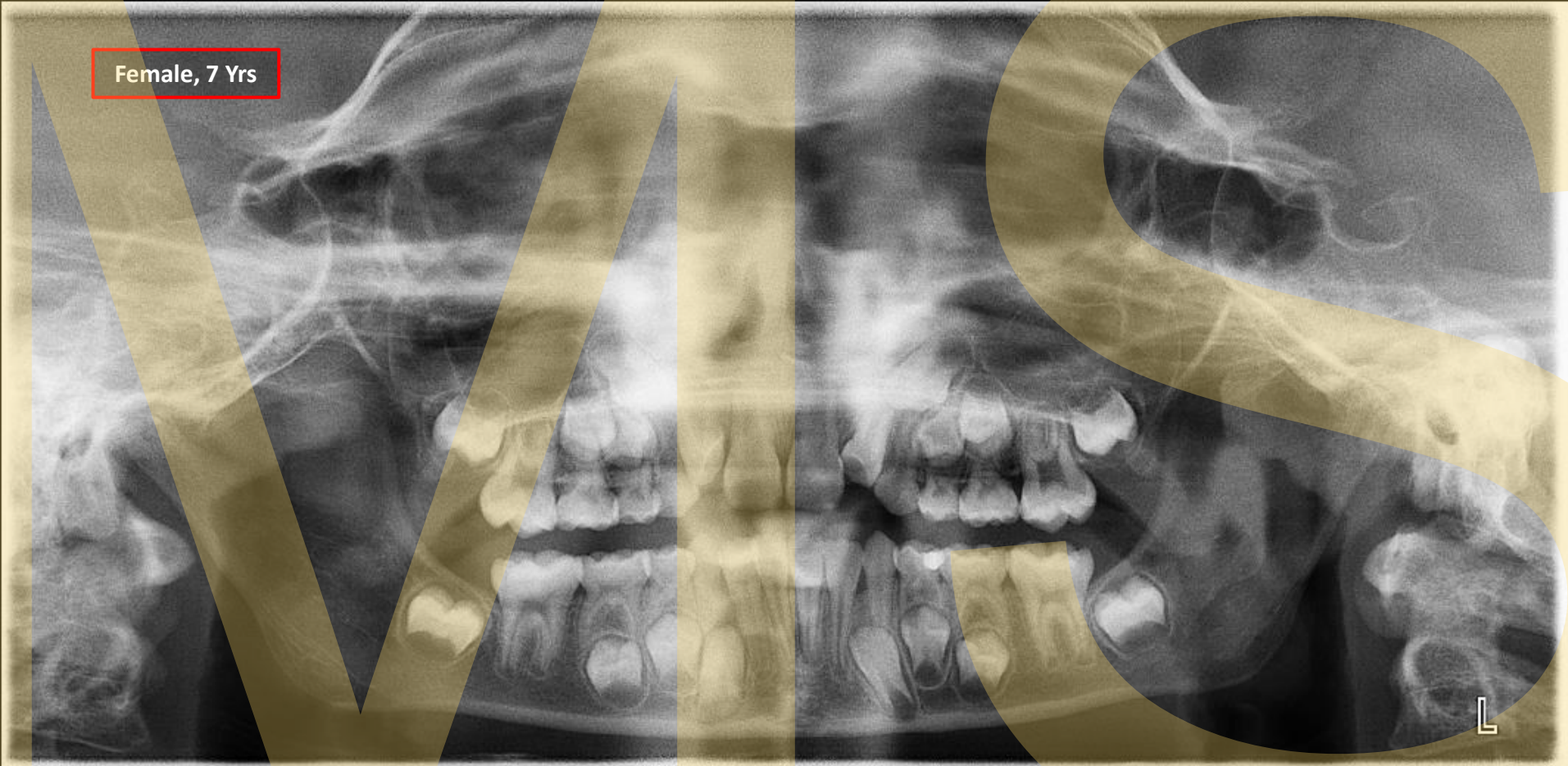
VI.



VII.

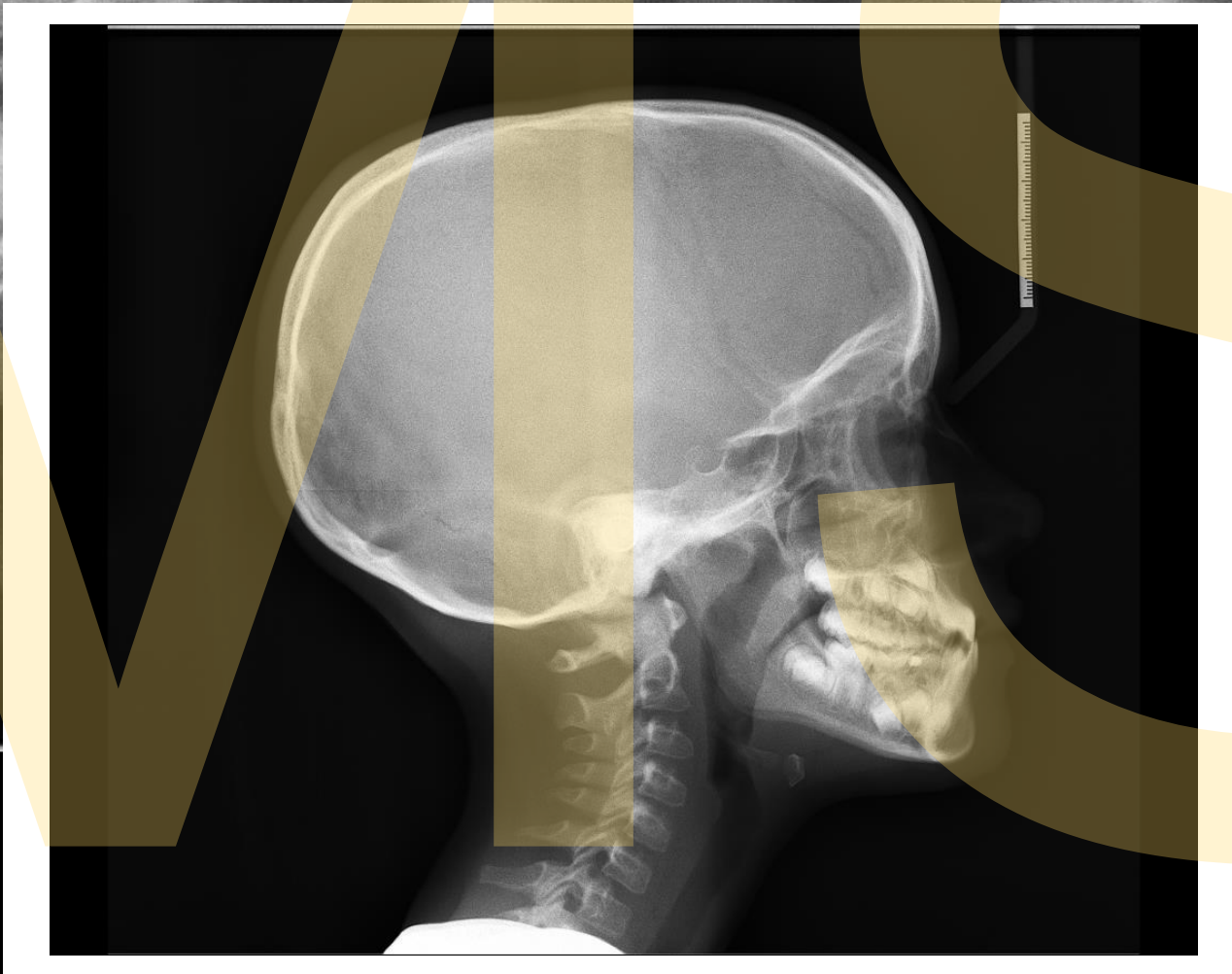
# Dental development and eruption

Female, 7 Yrs



# Dental development and eruption

Female, 7 Yrs



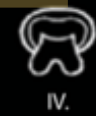
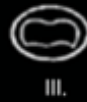
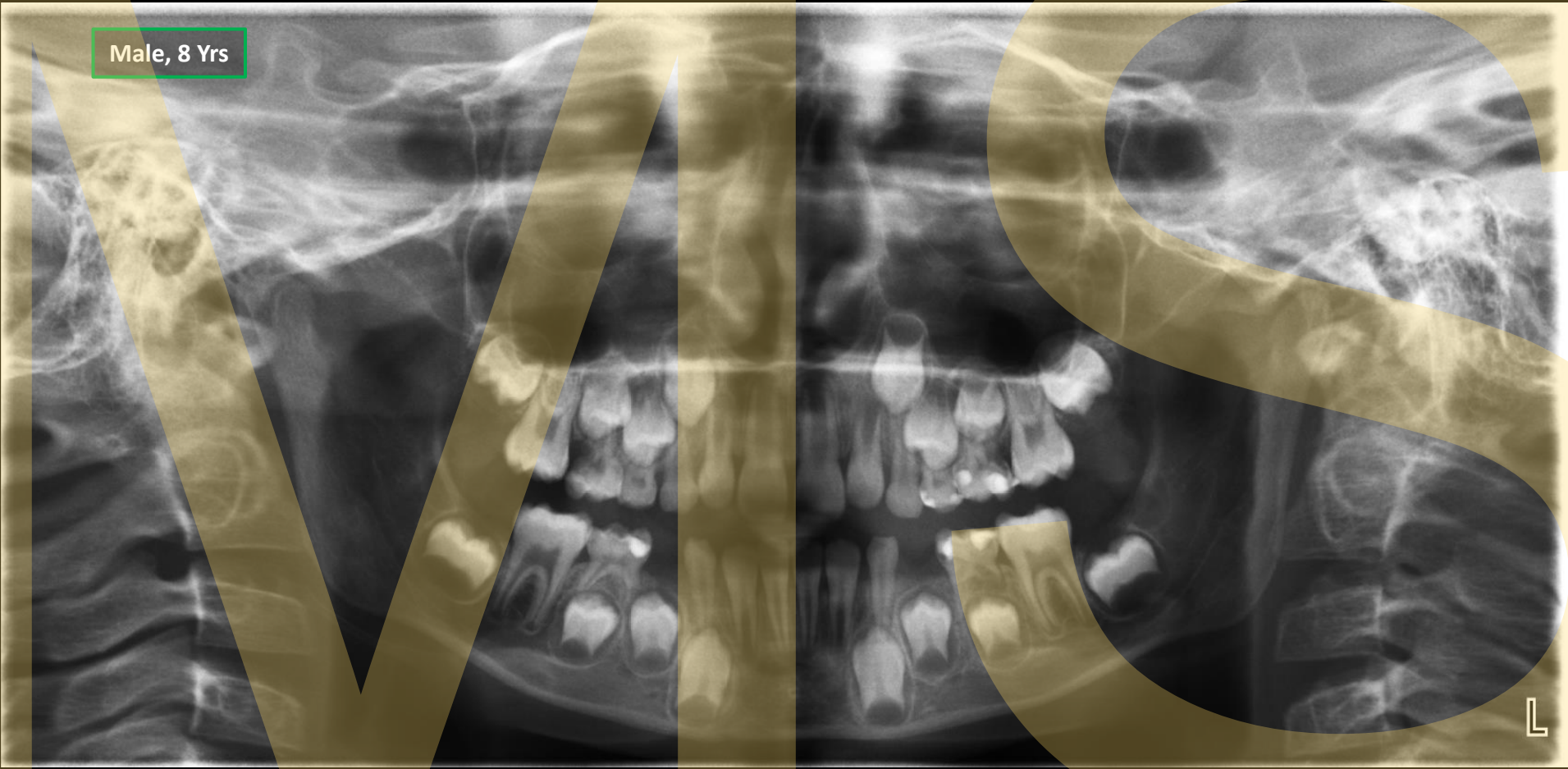
© 2010 American Association of Endodontics





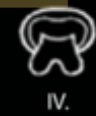
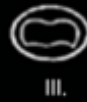
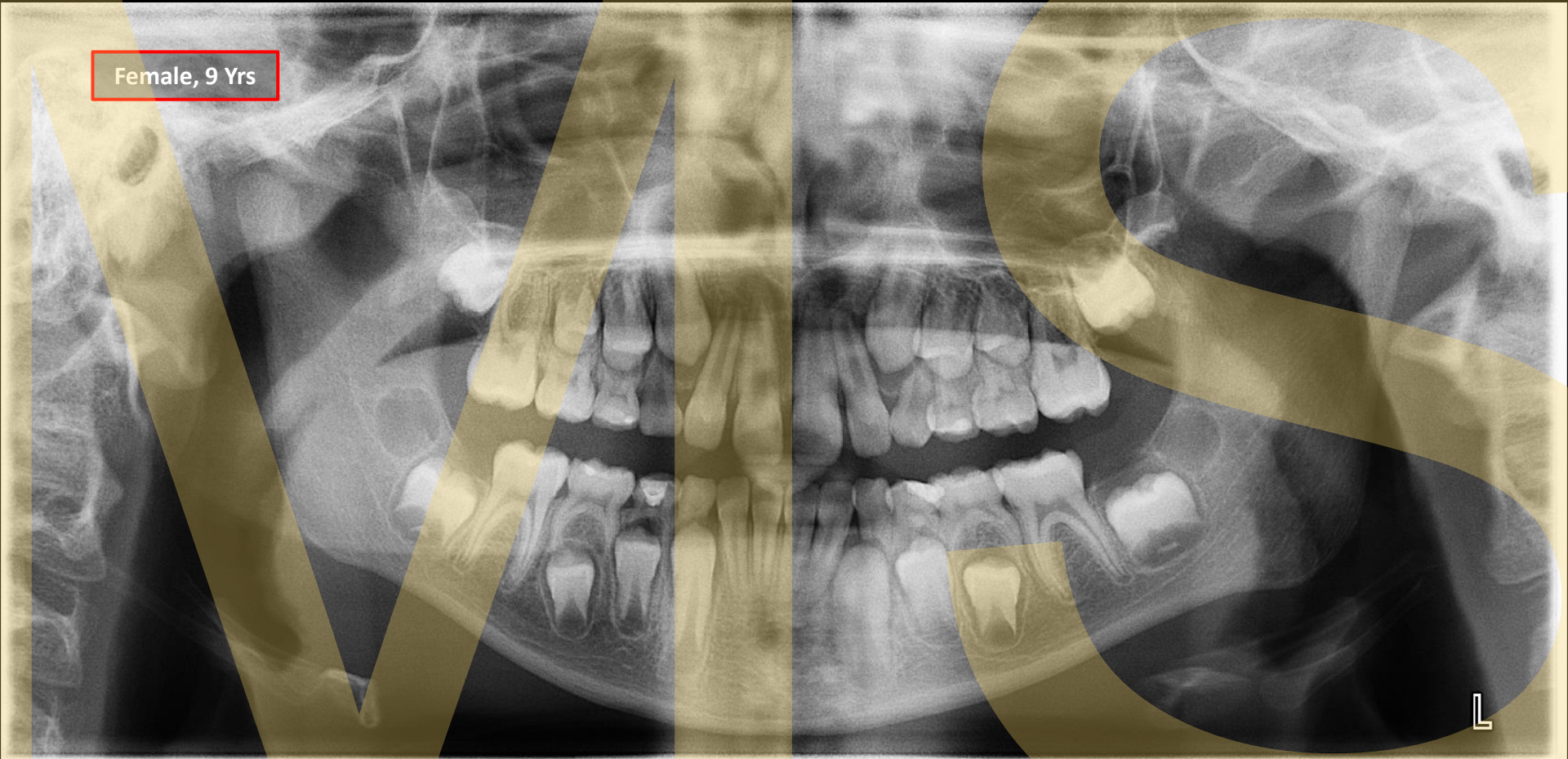
# Dental development and eruption

Male, 8 Yrs



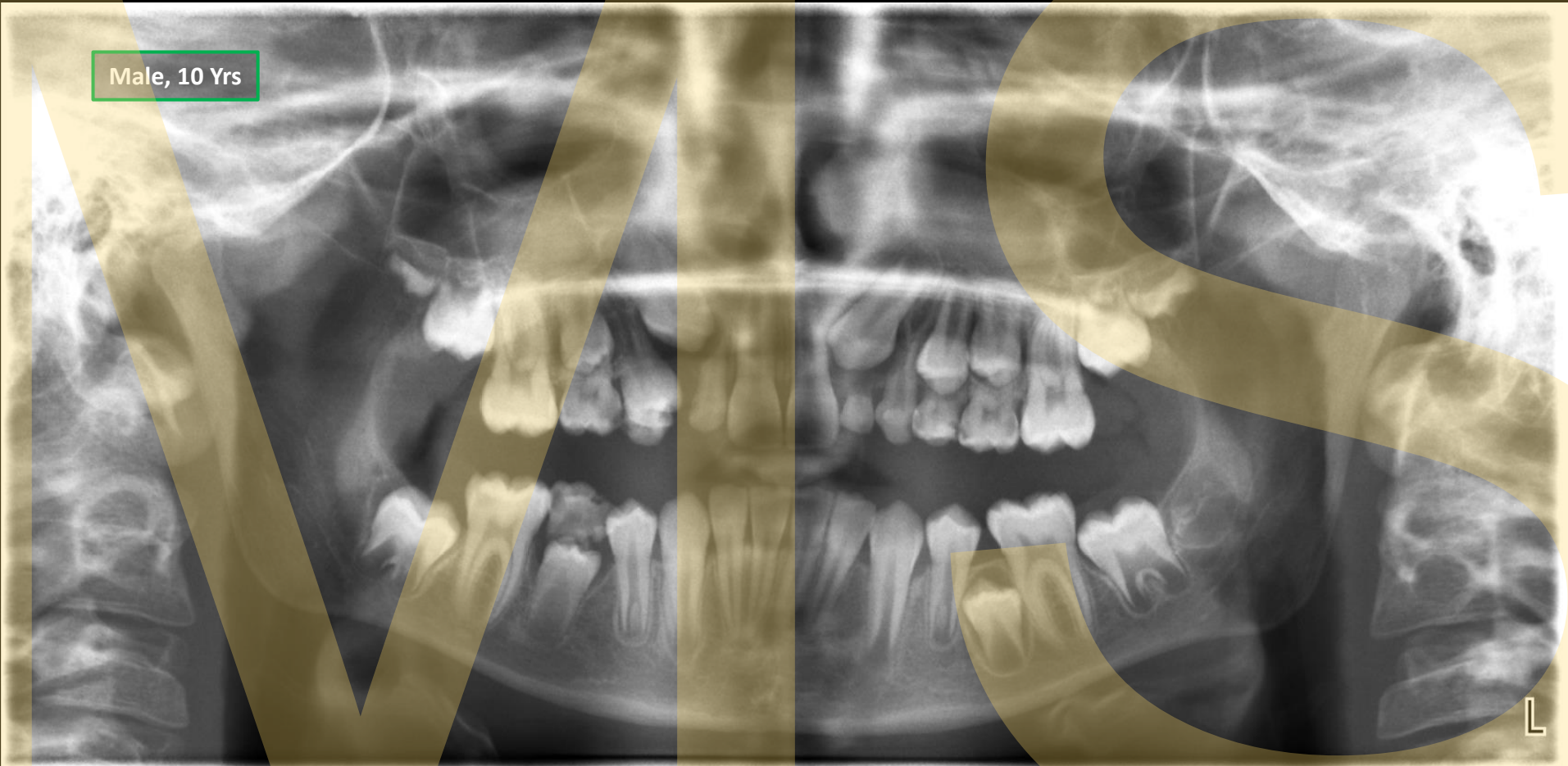
# Dental development and eruption

Female, 9 Yrs



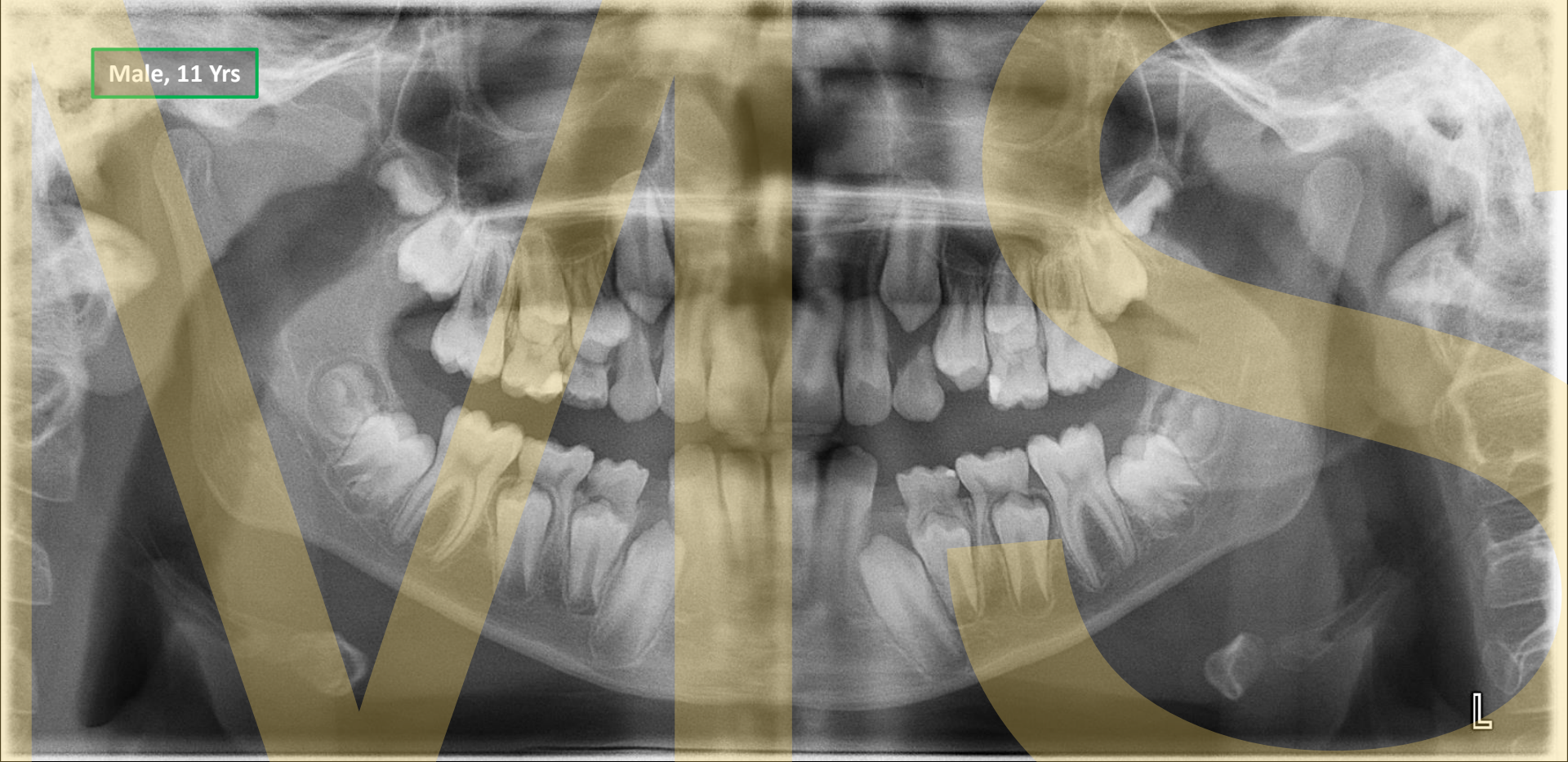
# Dental development and eruption

Male, 10 Yrs



# Dental development and eruption

Male, 11 Yrs



I.



II.



III.



IV.



V.



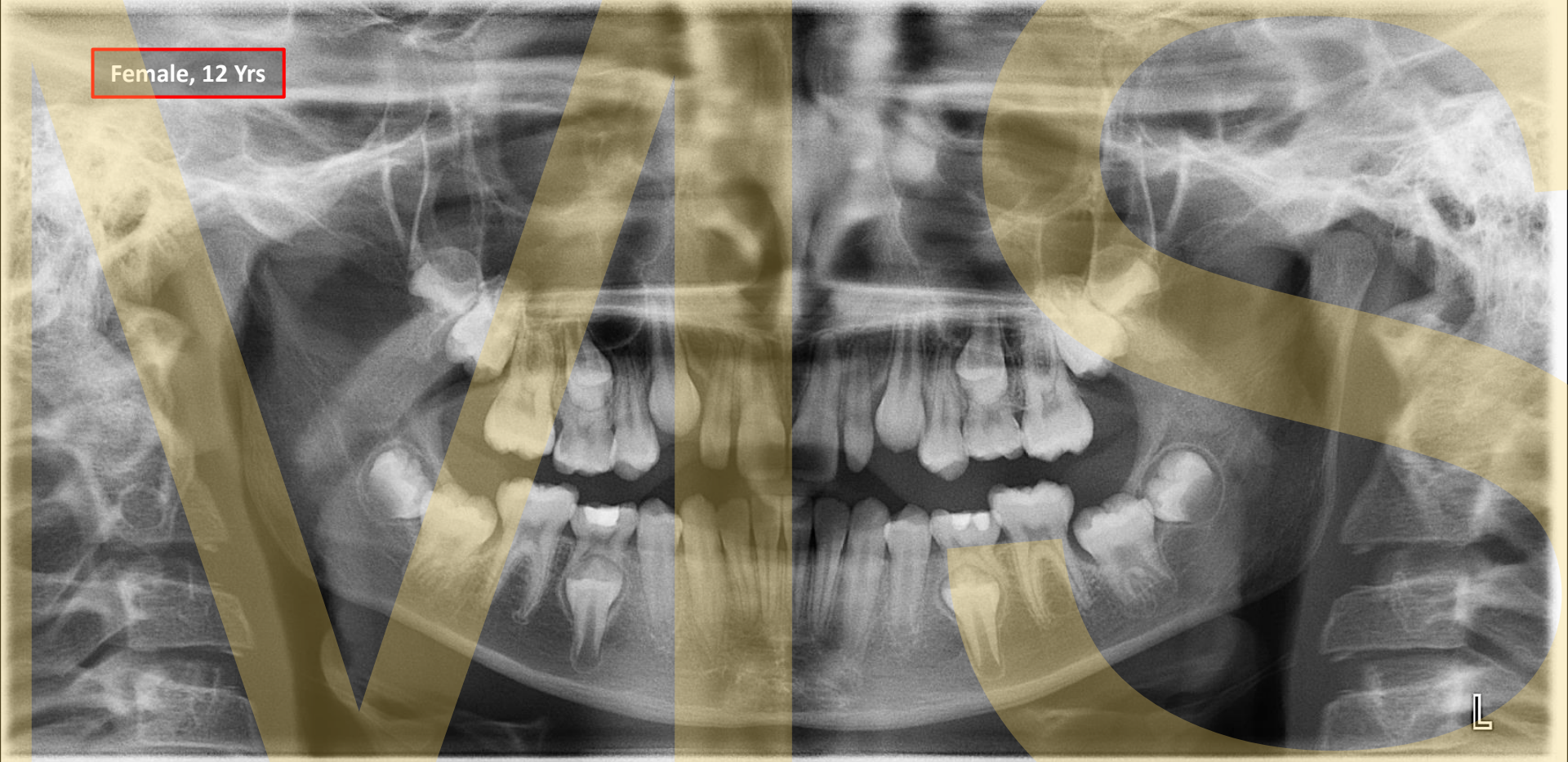
VI.



VII.

# Dental development and eruption

Female, 12 Yrs



I.



II.



III.



IV.



V.



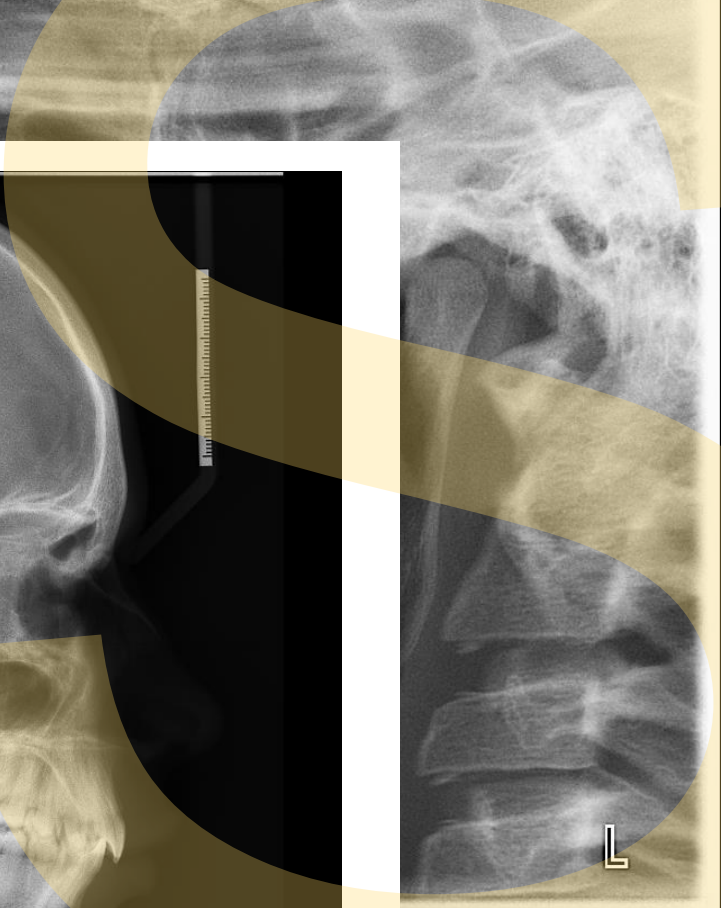
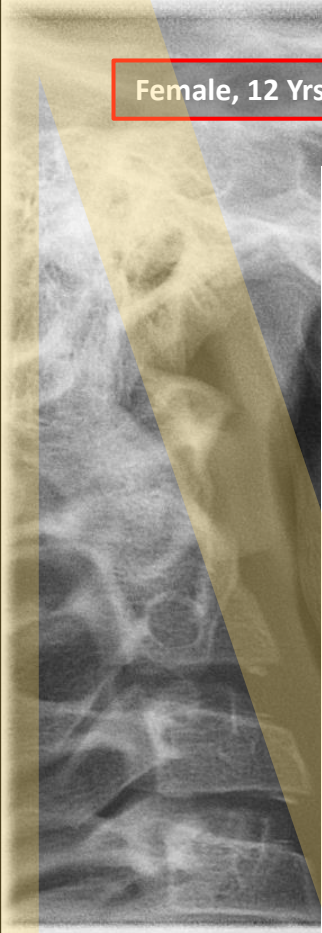
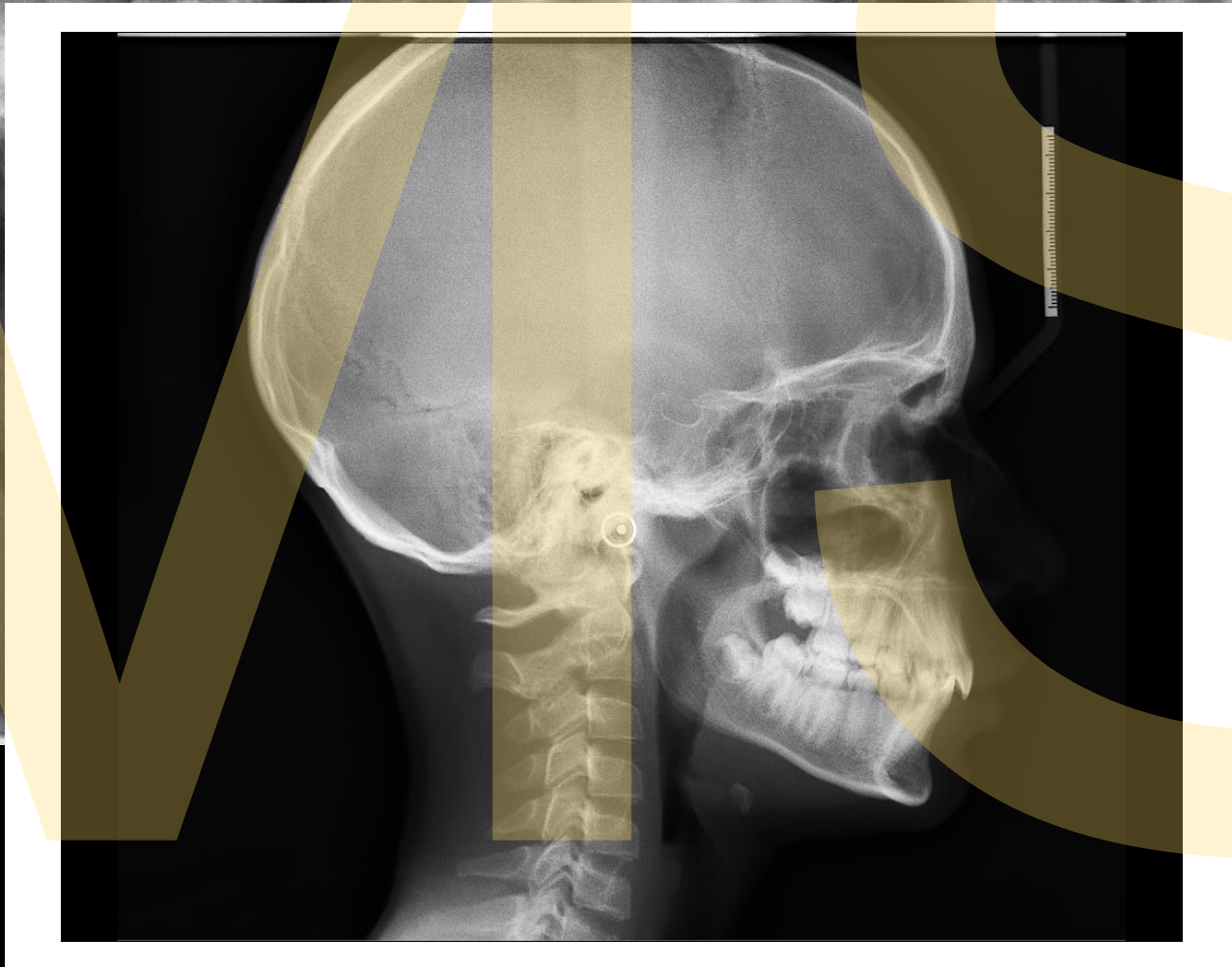
VI.



VII.

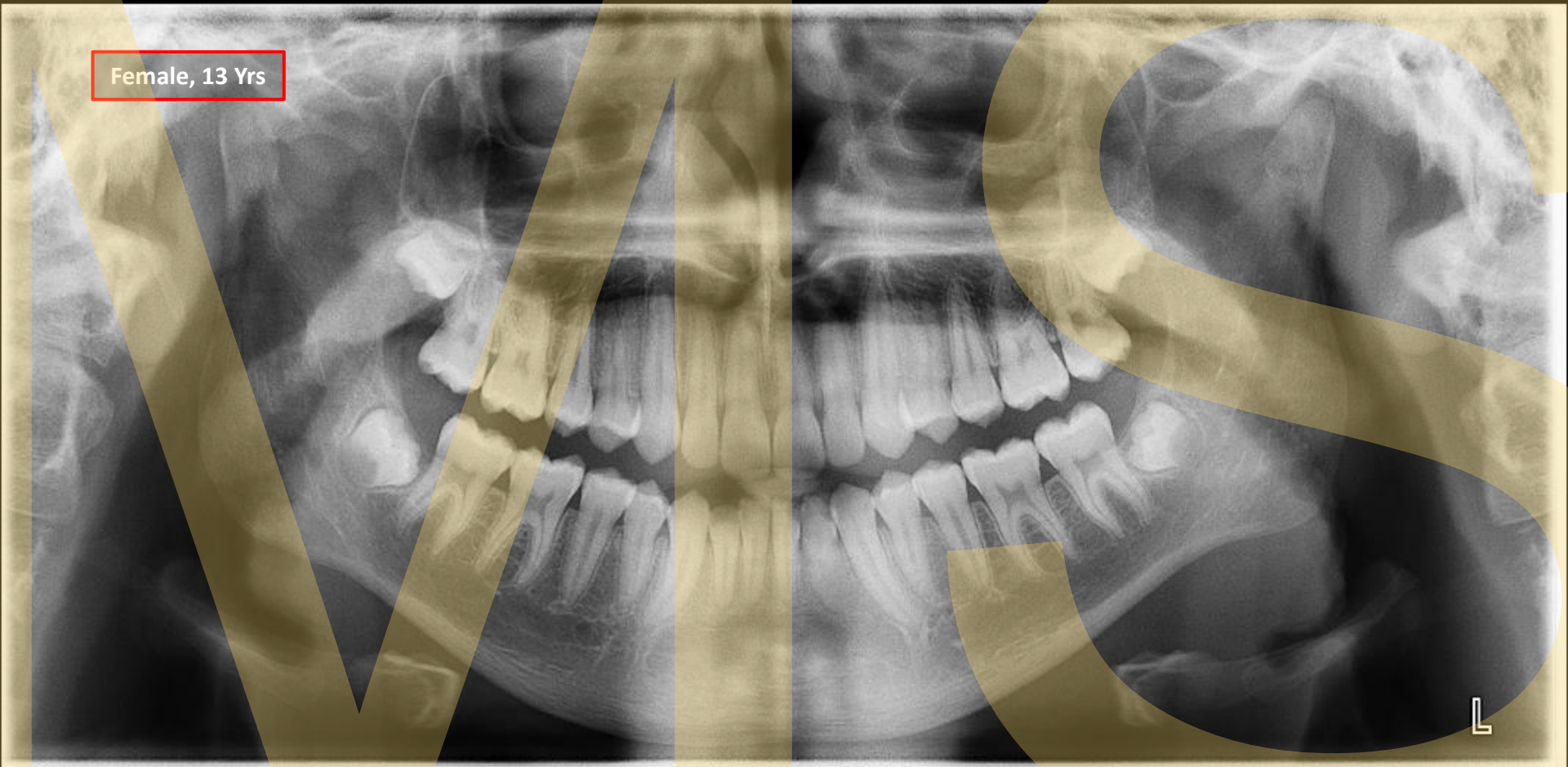
# Dental development and eruption

Female, 12 Yrs



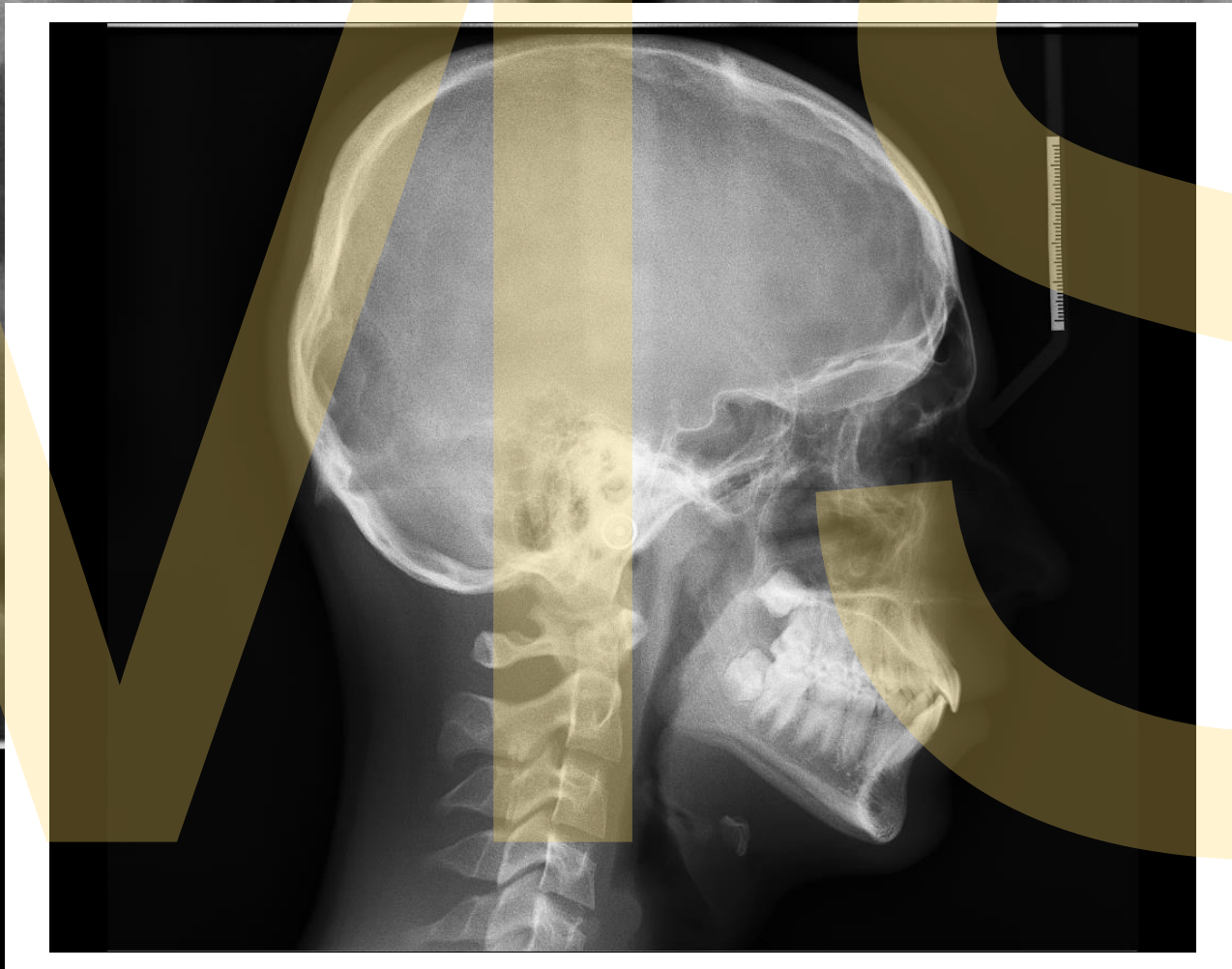
# Dental development and eruption

Female, 13 Yrs



# Dental development and eruption

Female, 13 Yrs





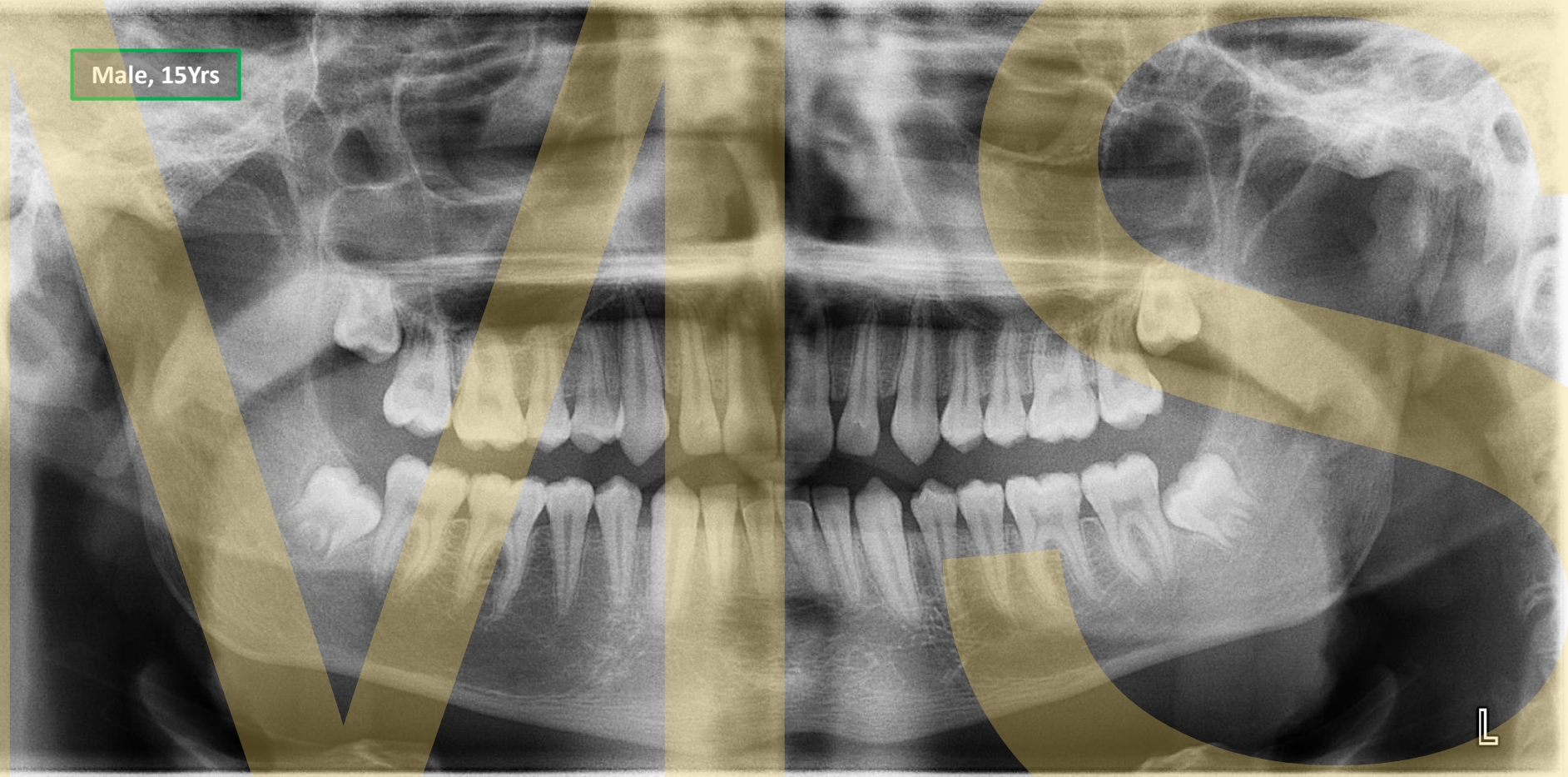
# Dental development and eruption

Male, 14 Yrs



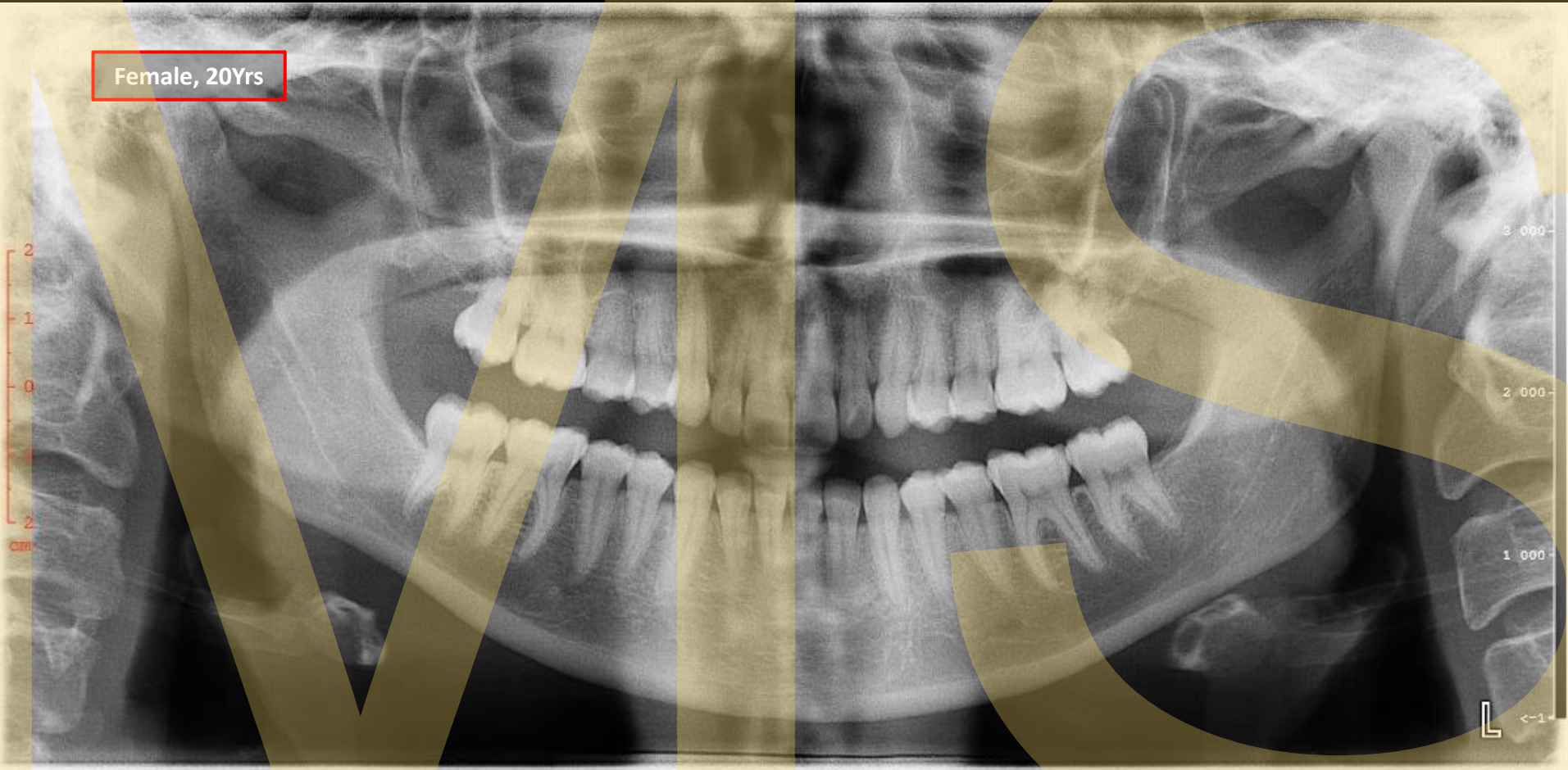
# Dental development and eruption

Male, 15Yrs



# Dental development and eruption

Female, 20Yrs



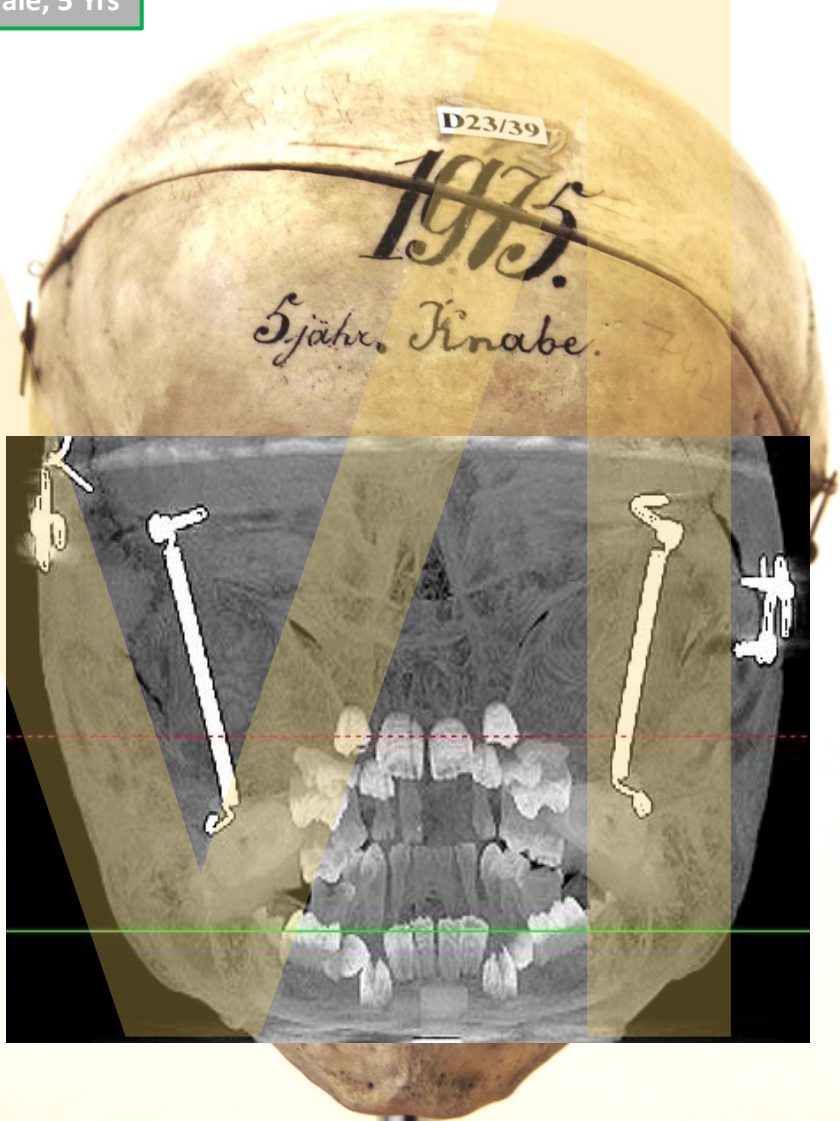
# CBCT (Cone Beam Computed Tomography)

Male, 5 Yrs



# CBCT (Cone Beam Computed Tomography)

Male, 5 Yrs



# CBCT (Cone Beam Computed Tomography)

Male, 5 Yrs



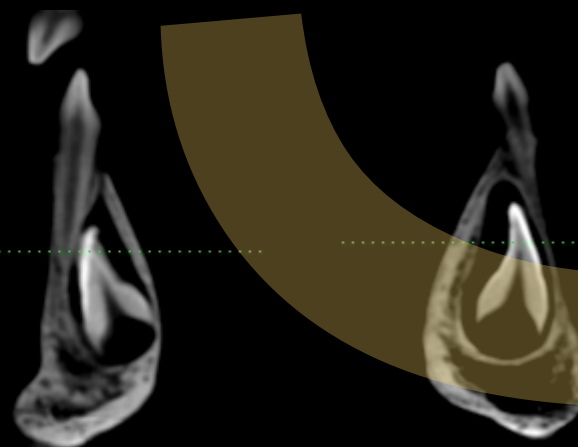
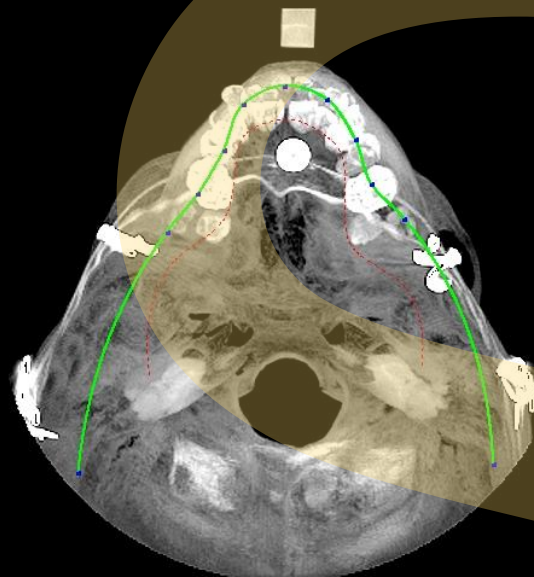
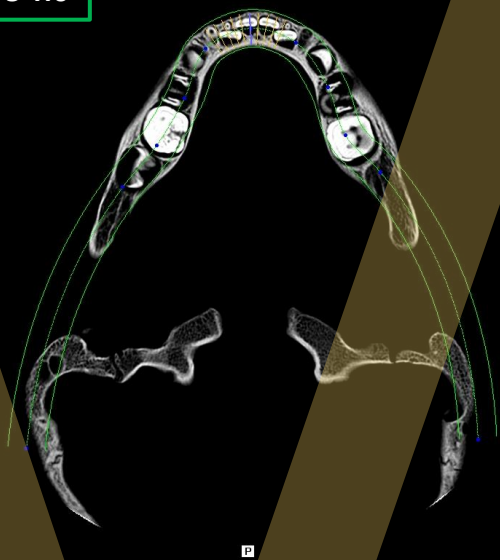
# CBCT (Cone Beam Computed Tomography)

Male, 5 Yrs



# CBCT (Cone Beam Computed Tomography)

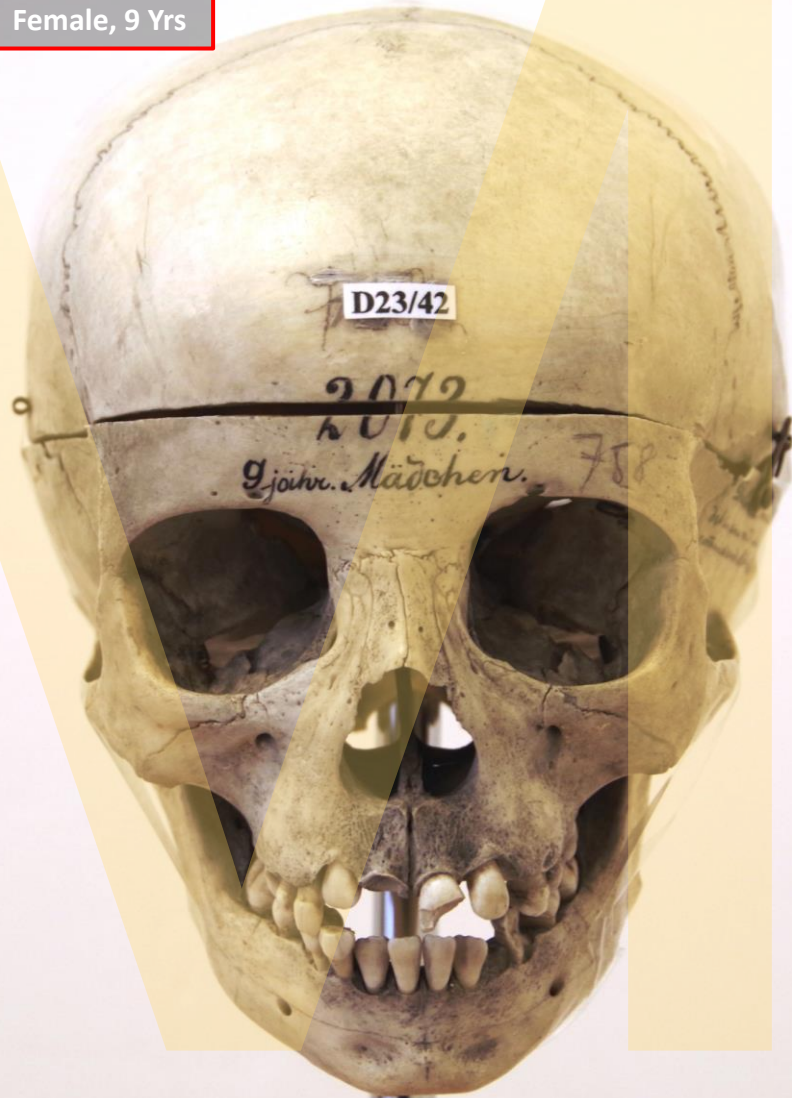
Male, 5 Yrs





# CBCT (Cone Beam Computed Tomography)

Female, 9 Yrs



# CBCT (Cone Beam Computed Tomography)

Female, 9 Yrs



# CBCT (Cone Beam Computed Tomography)

Female, 9 Yrs



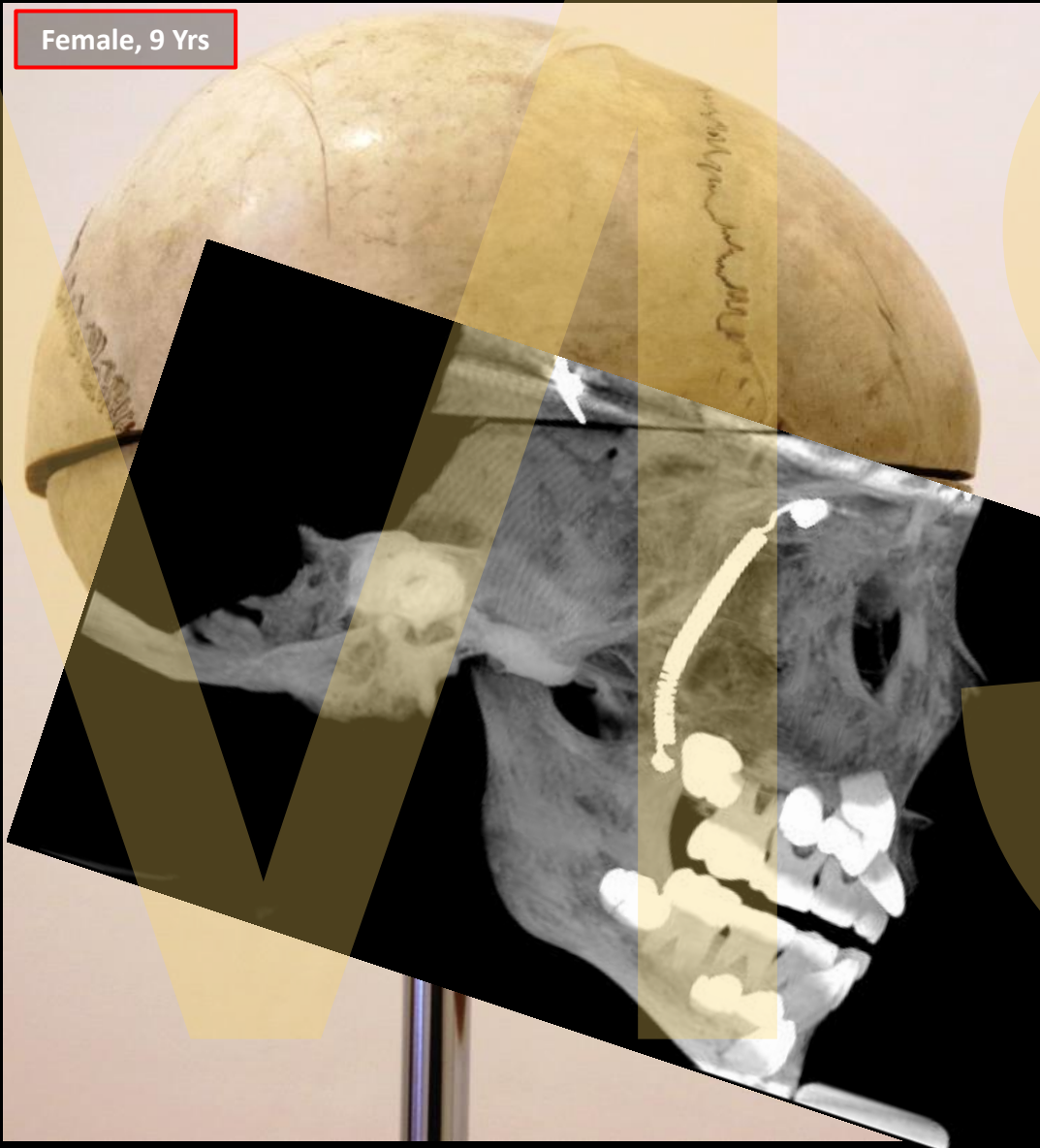
# CBCT (Cone Beam Computed Tomography)

Female, 9 Yrs



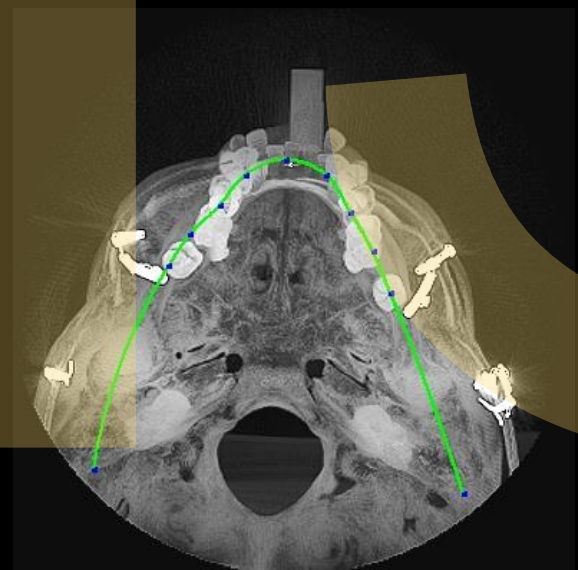
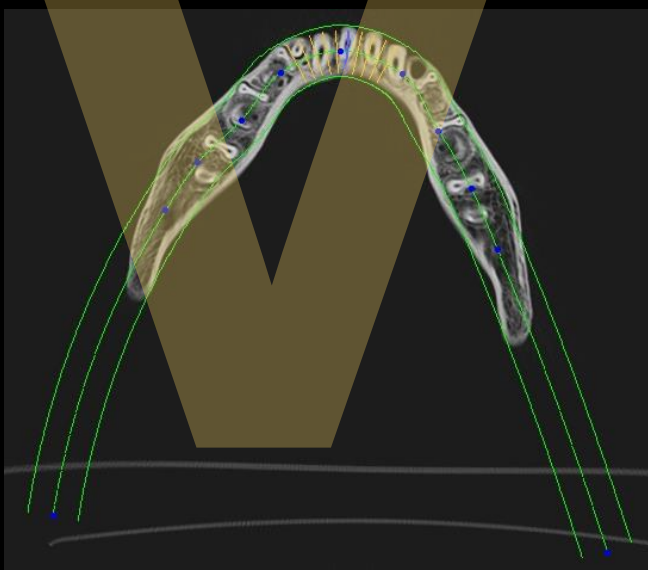
# CBCT (Cone Beam Computed Tomography)

Female, 9 Yrs



# CBCT (Cone Beam Computed Tomography)

Female, 9 Yrs



# CBCT (Cone Beam Computed Tomography)

10-11 Yrs



# CBCT (Cone Beam Computed Tomography)

10-11 Yrs



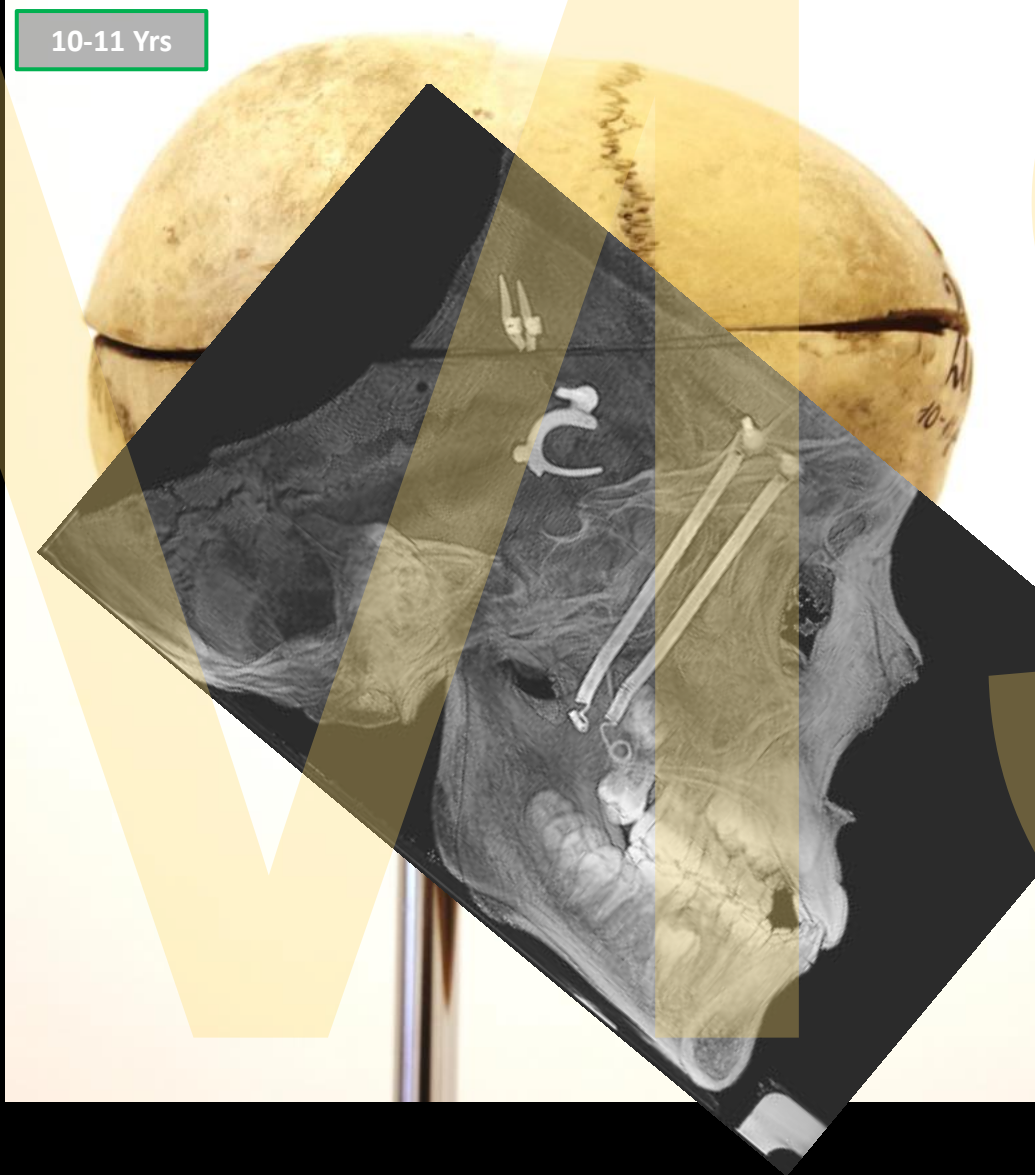


# CBCT (Cone Beam Computed Tomography)

10-11 Yrs

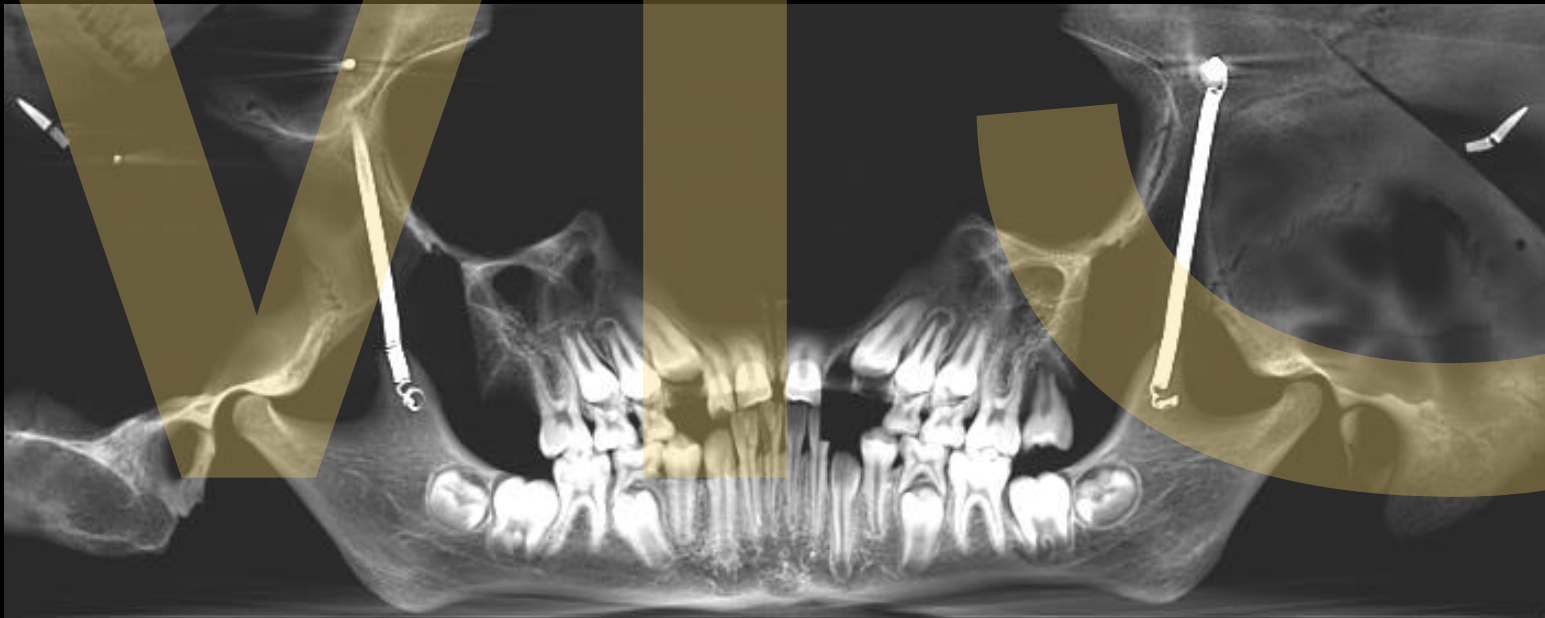
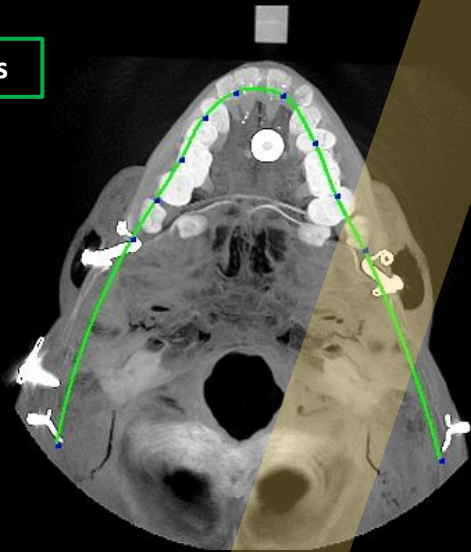


# CBCT (Cone Beam Computed Tomography)



# CBCT (Cone Beam Computed Tomography)

10-11 Yrs



**CBCT (Cone Beam Computed Tomography)**



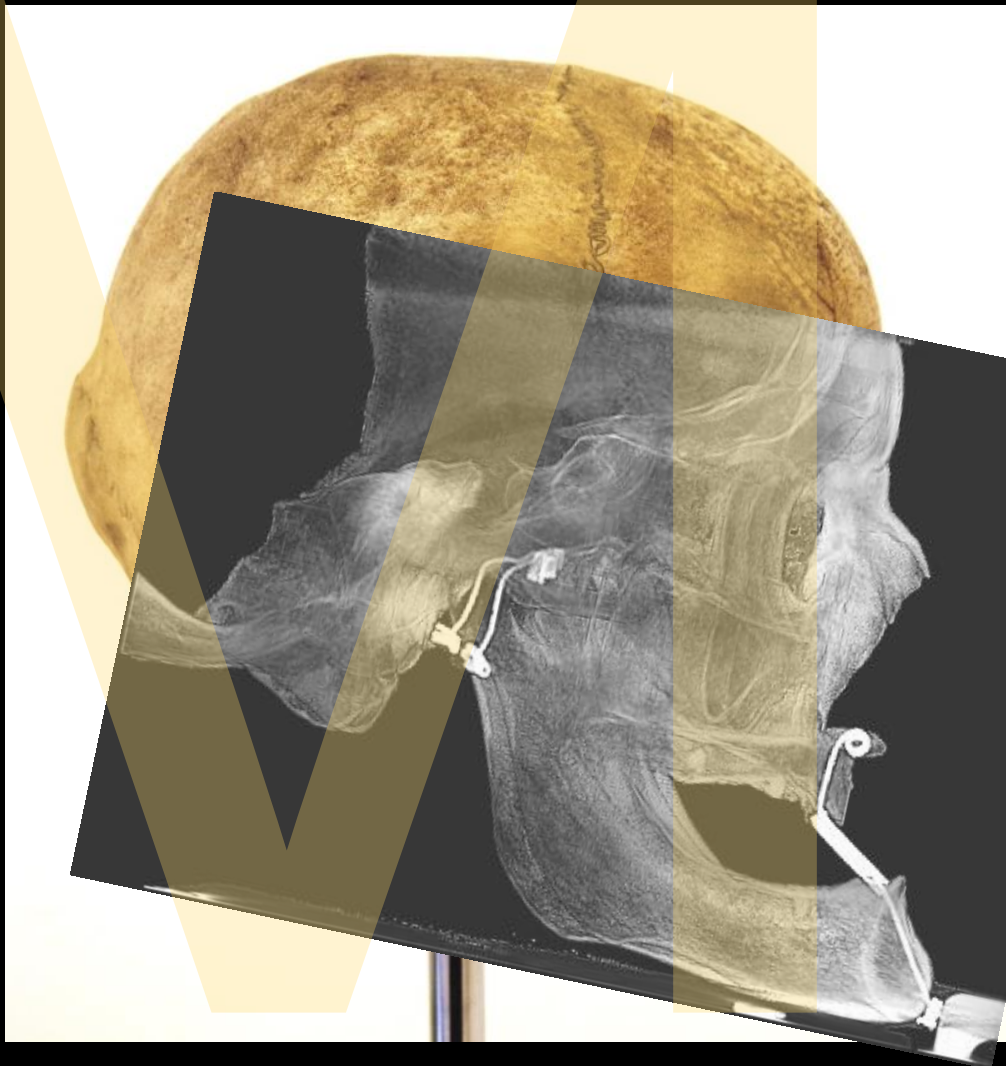
# CBCT (Cone Beam Computed Tomography)



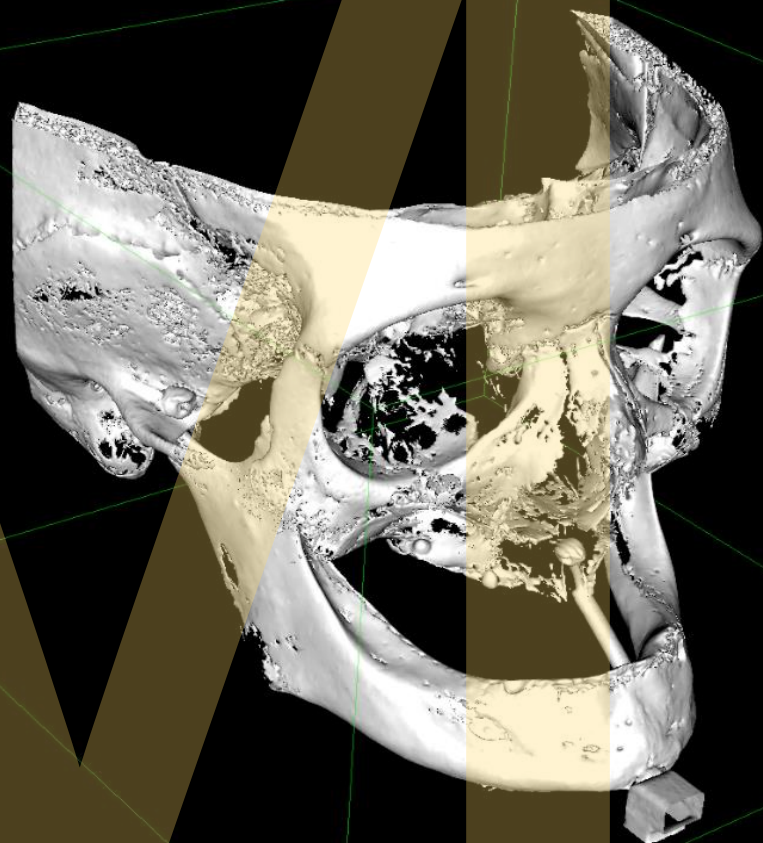
# CBCT (Cone Beam Computed Tomography)



# CBCT (Cone Beam Computed Tomography)



# CBCT (Cone Beam Computed Tomography)





## References:

- KAMÍNEK, Milan. *Ortodoncie*. Praha: Galén, c2014. Zubní lékařství. ISBN 978-80-7492-112-4.
- MAZÁNEK, Jiří. *Zubní lékařství: propedeutika*. Praha: Grada, 2014. ISBN 978-80-247-3534-4.
- SADLER, T. W. a Jan LANGMAN. *Langmanova lékařská embryologie*. Praha: Grada Publishing, c2011. ISBN 978-80-247-2640-3.
- KOMÍNEK, Jaroslav, Eva ROZKOVCOVÁ a Jaroslav TOMAN. *Dětská stomatologie: učebnice pro lékařské fakulty*. 4. vyd. Praha: Avicenum, 1980.
- JANEĞA M. et al. *Kefalometrická analýza telorentgenových snímků u zdravých dospělých pacientů z hlediska protetiky a ortodoncie*. Česká stomatologie / Praktické zubní lékařství, ročník 109, 2009, 6, s. 112-116.
- RTG snímky z archivu Stomatologické kliniky 1.LF UK a VFN
- Fotografie lebek a CBCT snímky z archivu Anatomického ústavu 1.LF UK

MMSS

**Thank you for your attention!**