

# Pediatric Oral Health



Smiles for Tomorrow



# Topics

● Normal Oral Structures



● Common Oral Conditions



● Eruption Patterns



● Dental Caries and Prevention



● Orofacial Trauma







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# Normal Oral Structures

- Frenum

- Buccal Mucosa

- Tongue

- Gingiva

- Alveolar Mucosa

- Masticatory Mucosa

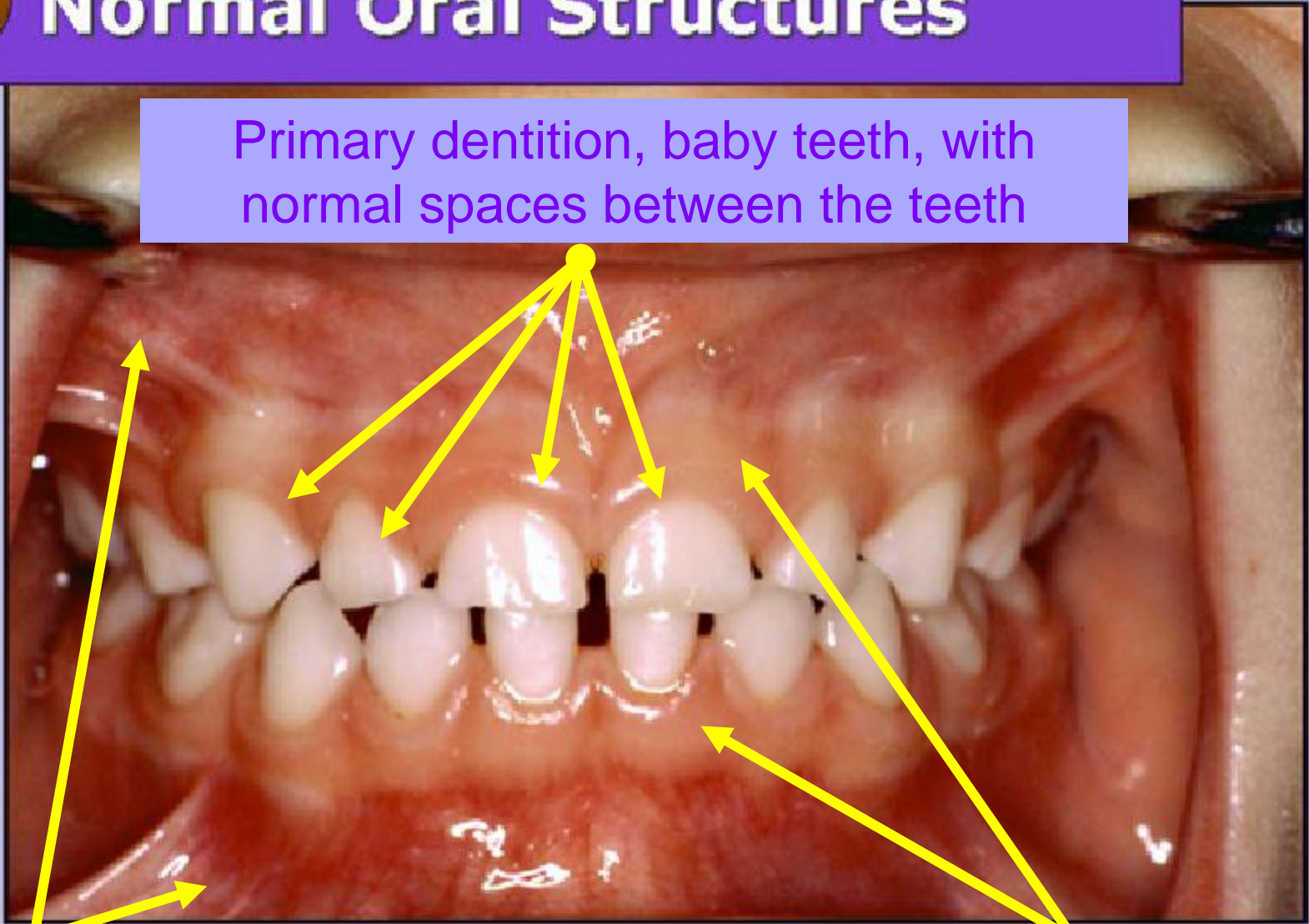
- Palate

- Tooth Form



# Normal Oral Structures

Primary dentition, baby teeth, with normal spaces between the teeth

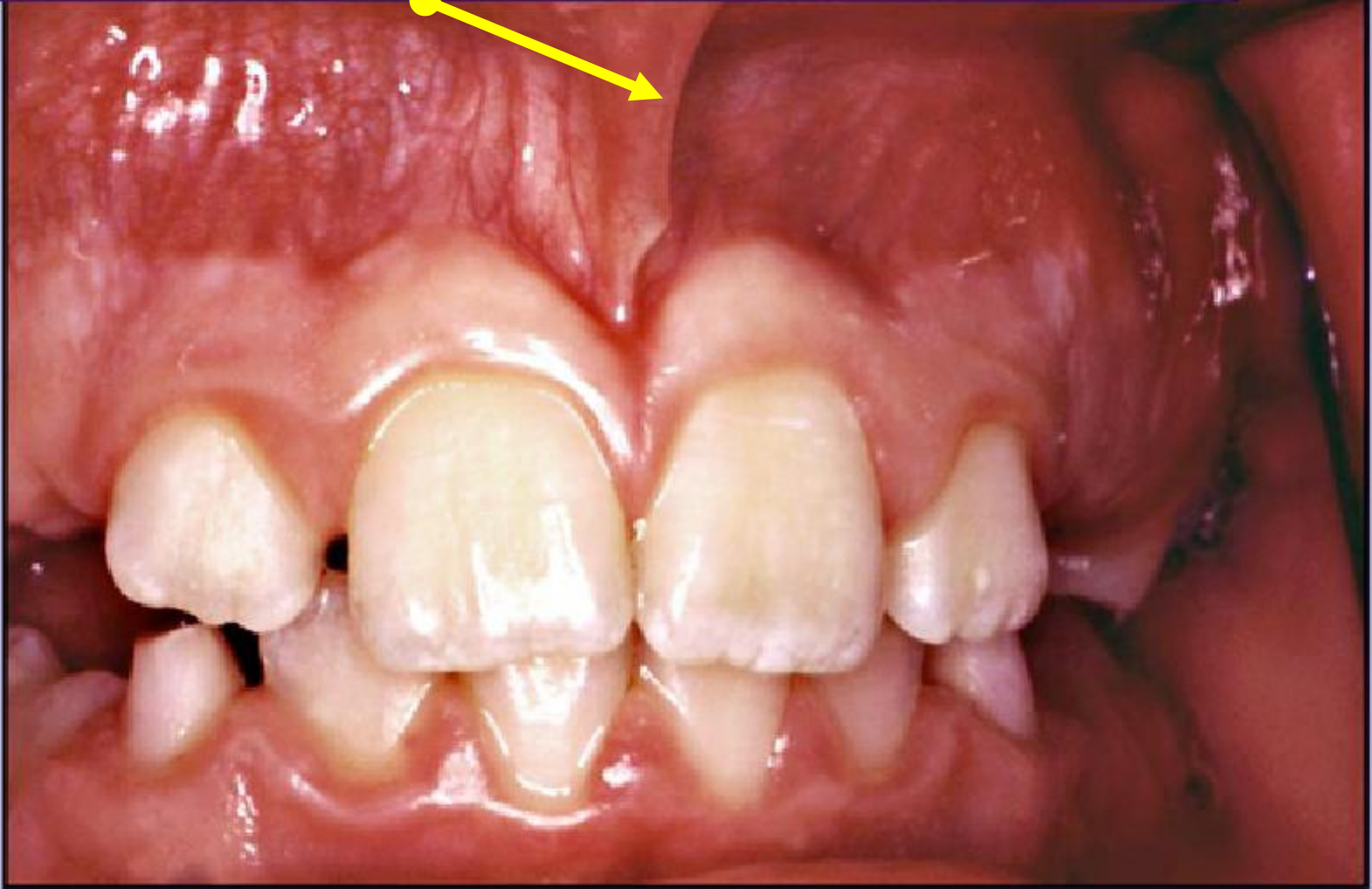


Mucosa

Gingiva



# Normal Frenum



The labial frenum is fibrous tissue between the the lip and the mucous membrane above the gum tissue.



## Diastema in a Six-year-old



A diastema is a space between teeth.



## Diastema in an Eight-month-old



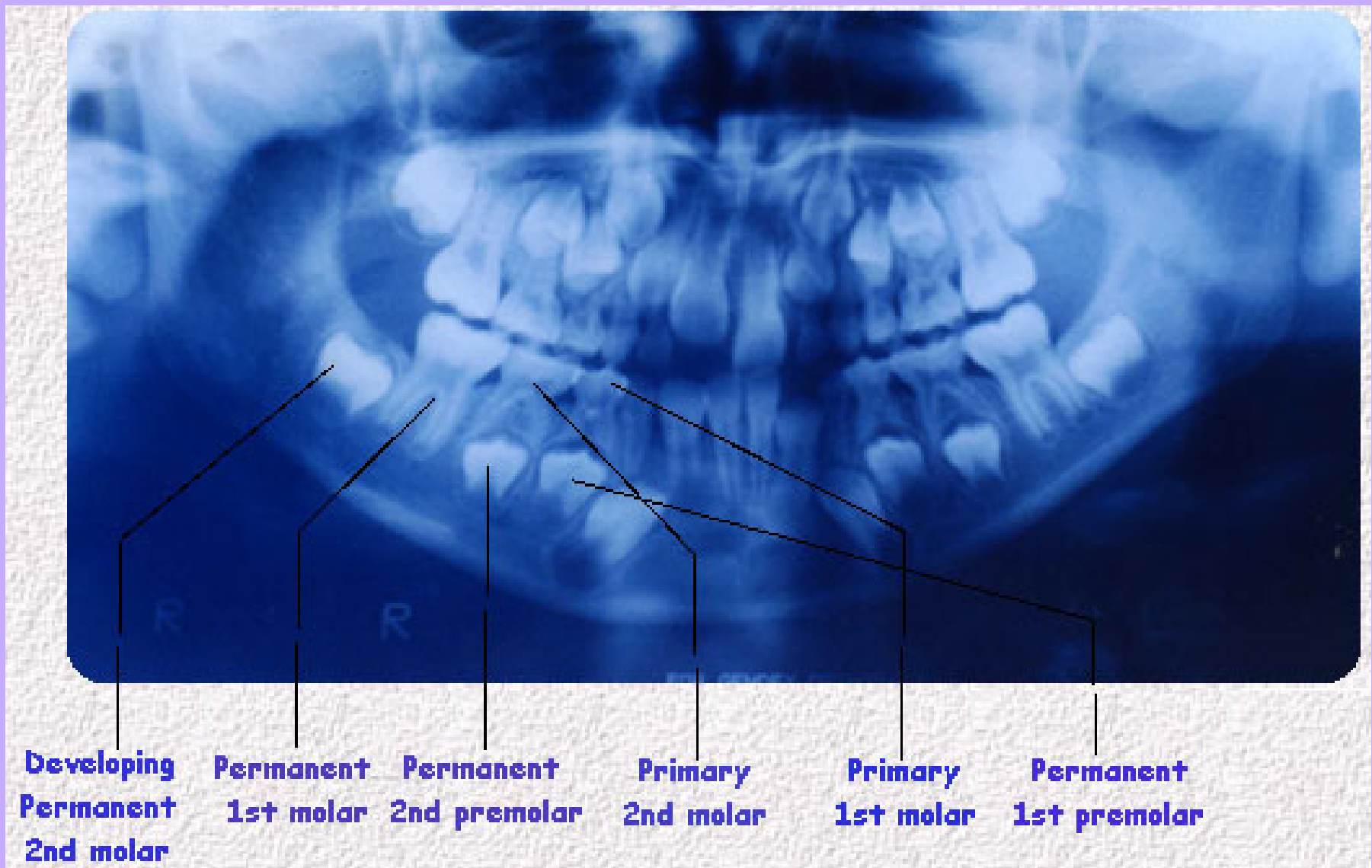


# The "Ugly Duckling" Stage



The "ugly duckling" stage is often mistaken by parents as an orthodontic problem because there is a space between the top central incisors. This may be the norm between ages 7 through 12 years of age, and usually is not connected with a permanent space between the teeth. In this stage baby teeth are being lost and permanent teeth have not completely erupted.





A panoramic x-ray of a 7 year-old child. One can notice the complex mix of the permanent and the primary teeth at this stage.



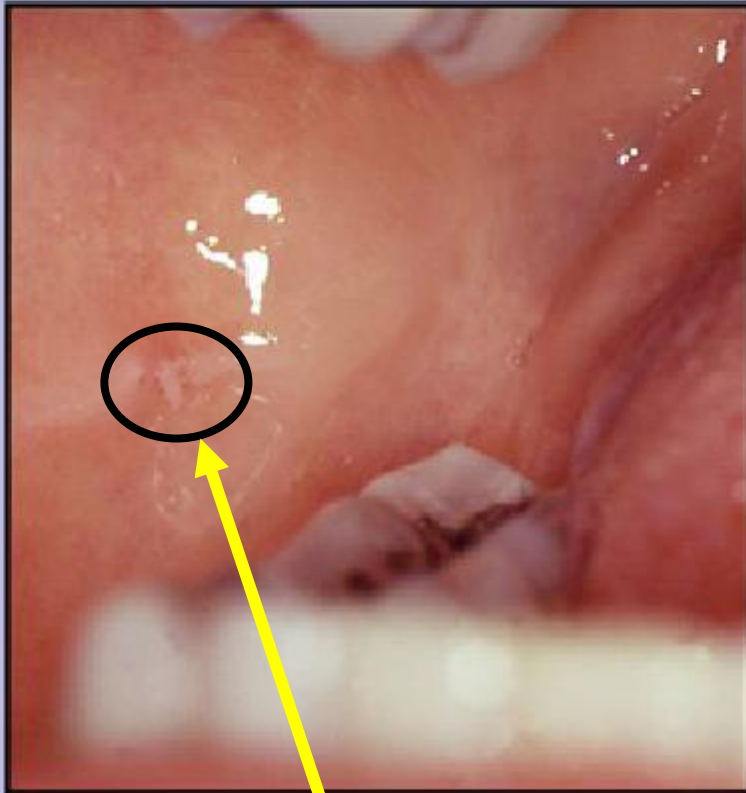
# Buccal Mucosa

The soft tissue lining the inside of the cheek.

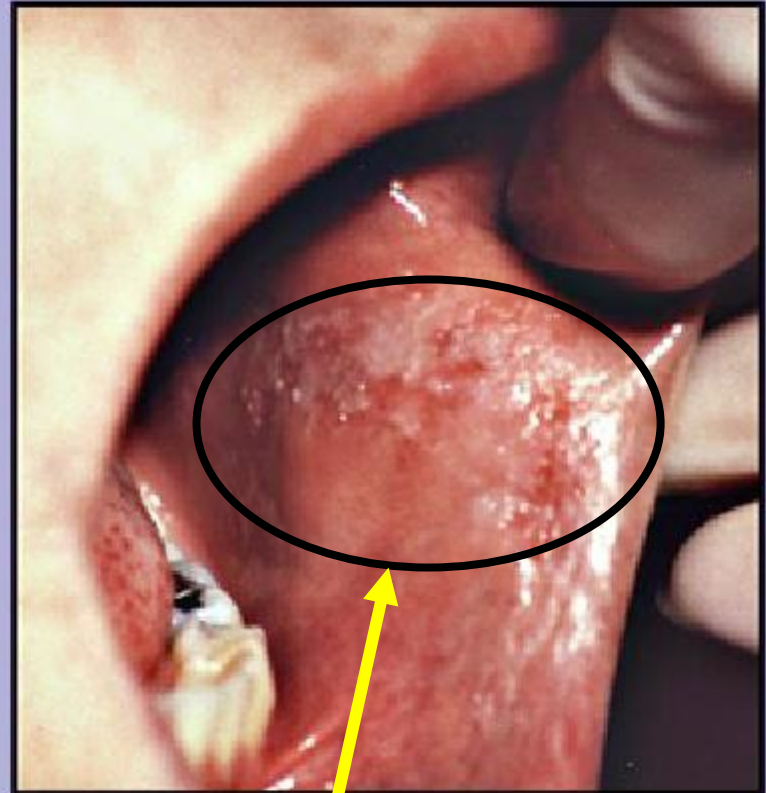




# Trauma from Cheek Biting



Cheek Bite

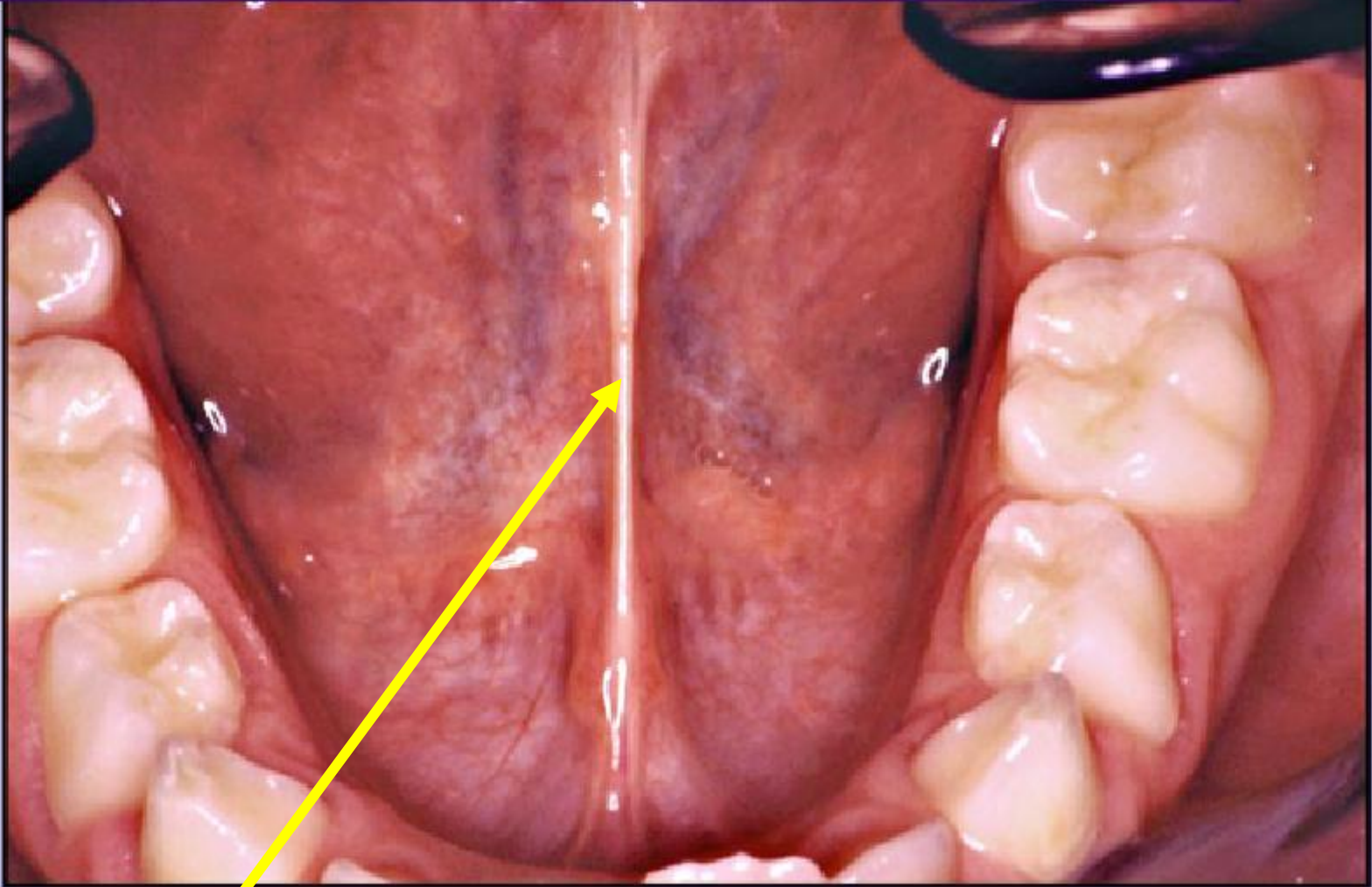


Chronic cheek biting



# Tongue: Ventral Surface

(the underside of the tongue)

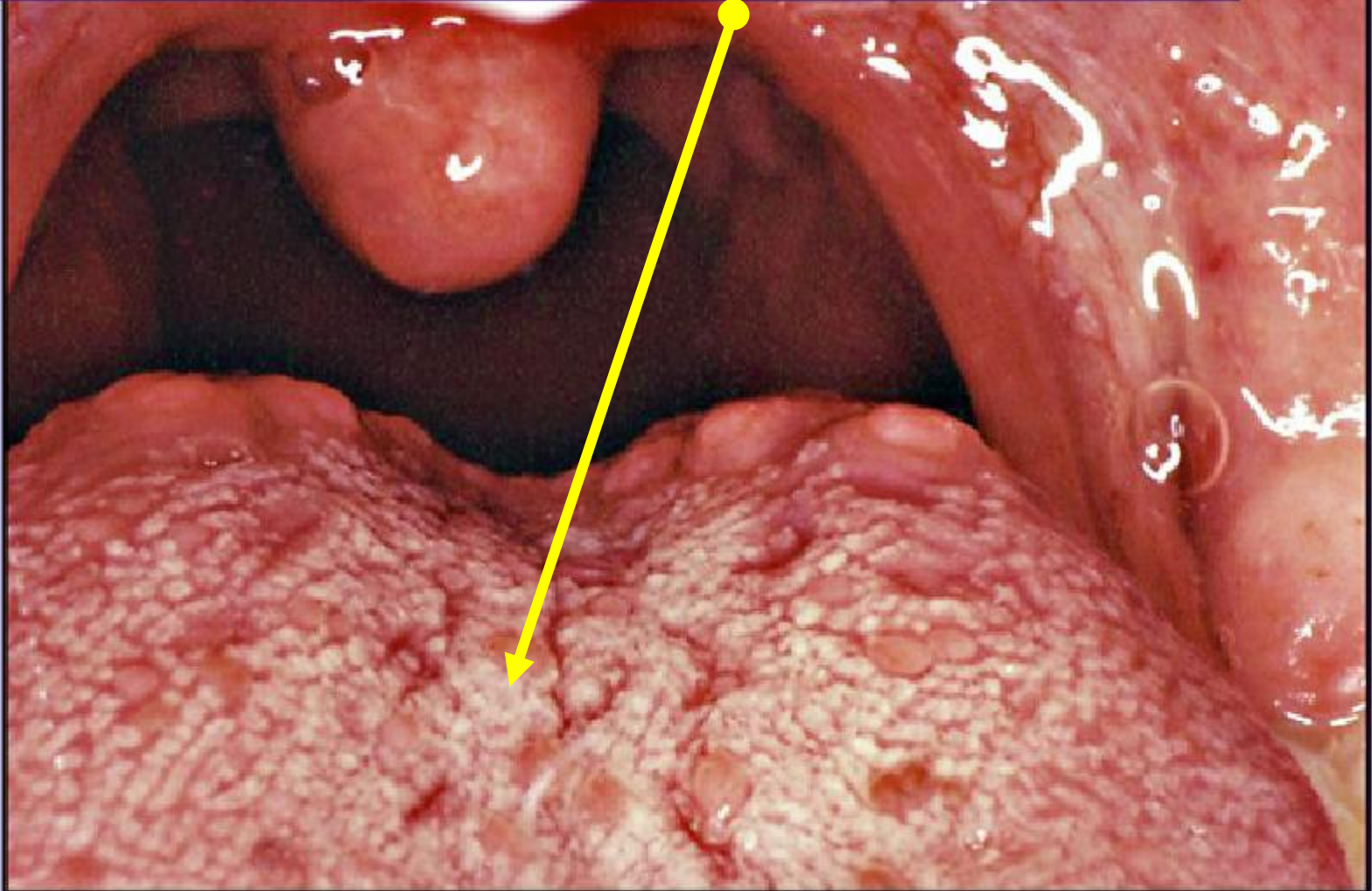


Lingual frenum



# Tongue: Dorsal Surface

(the top side of the tongue)





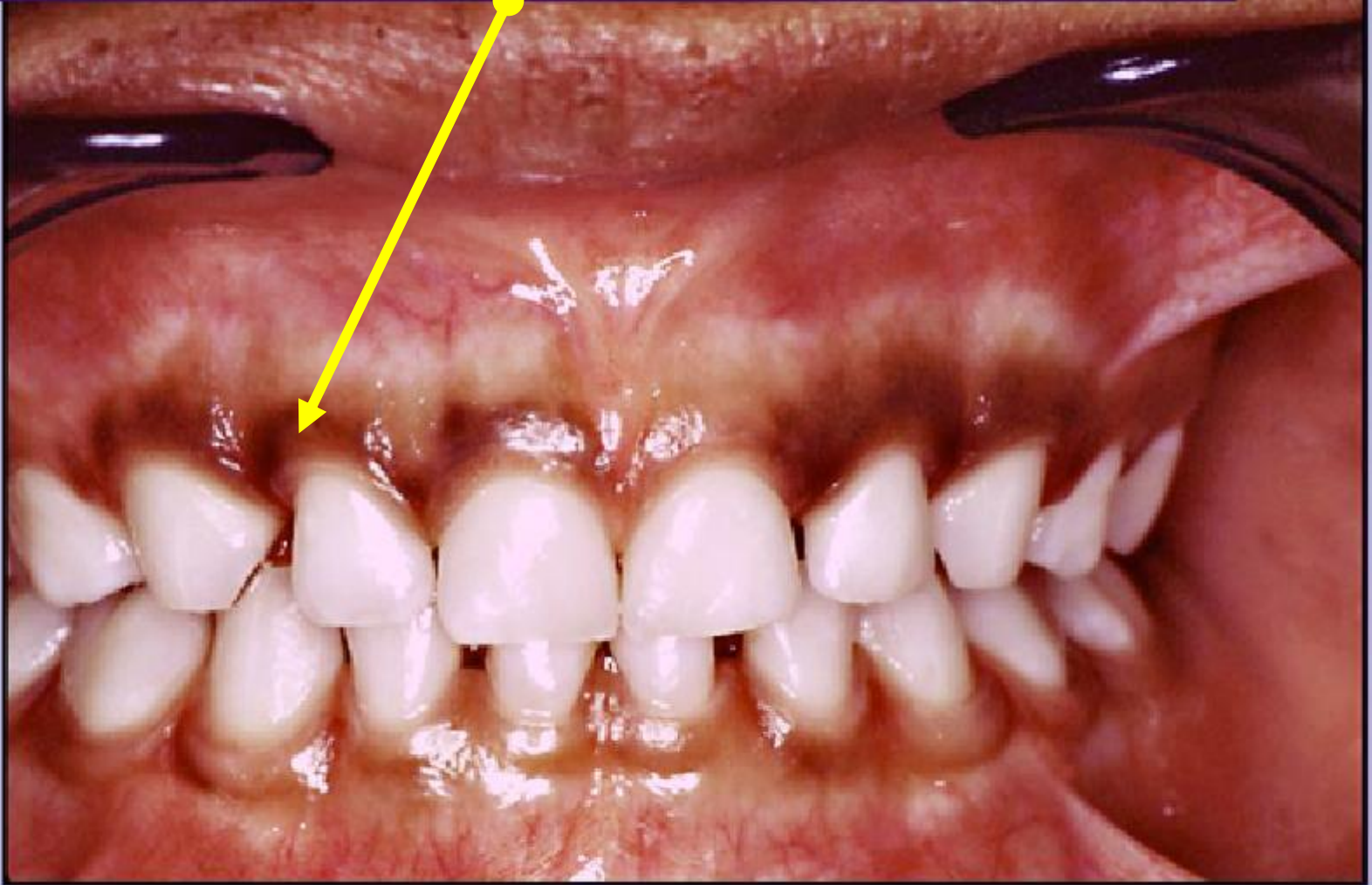
# Gingiva (Gums)



Healthy gingiva, gum tissue, is coral pink in color and has a stippled or orange peel surface texture.



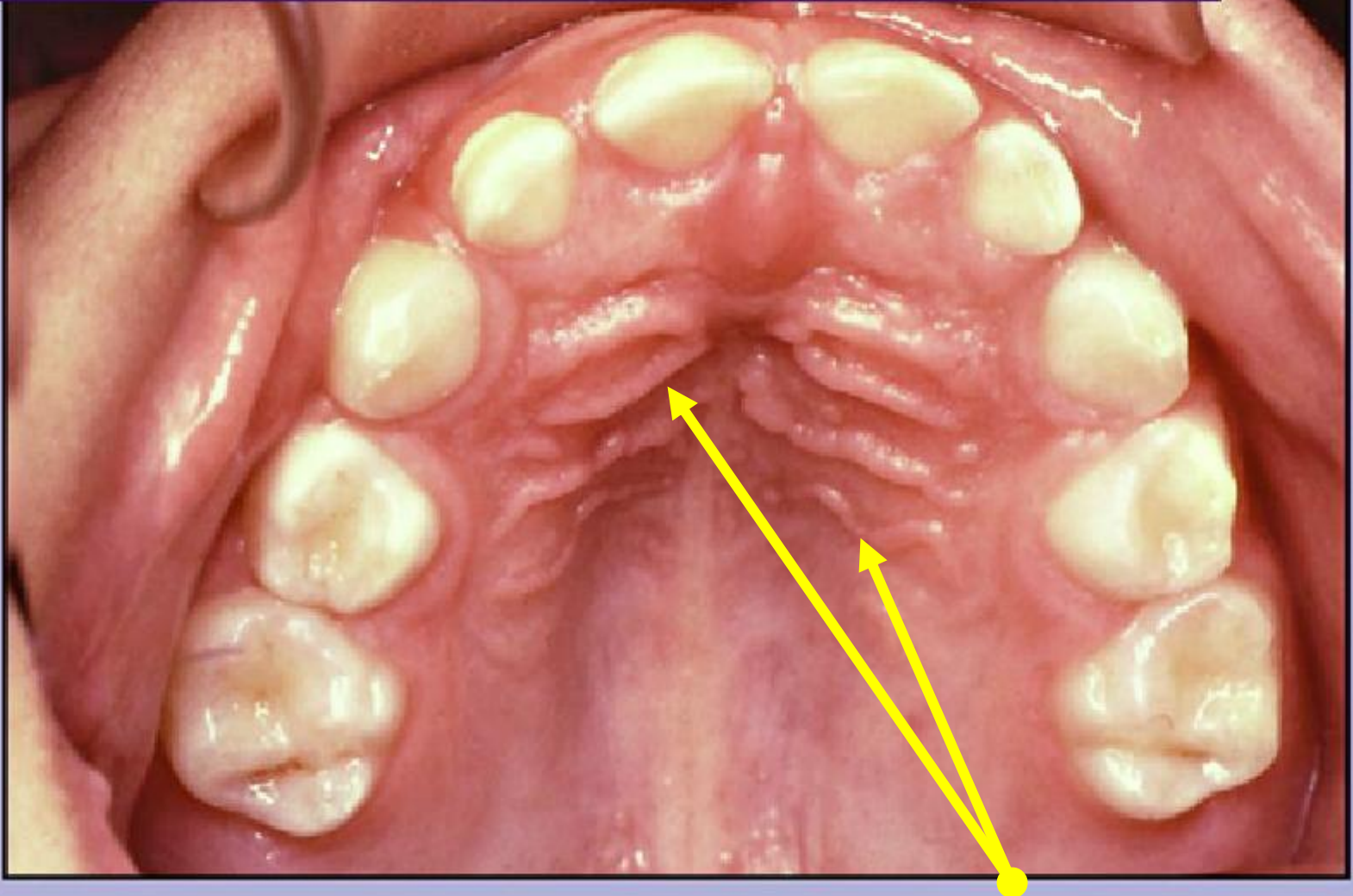
## **Pigmented Pediatric Gingiva**



**Pigmentation in the gum tissue is normal in African Americans.**



# Normal Hard Palate

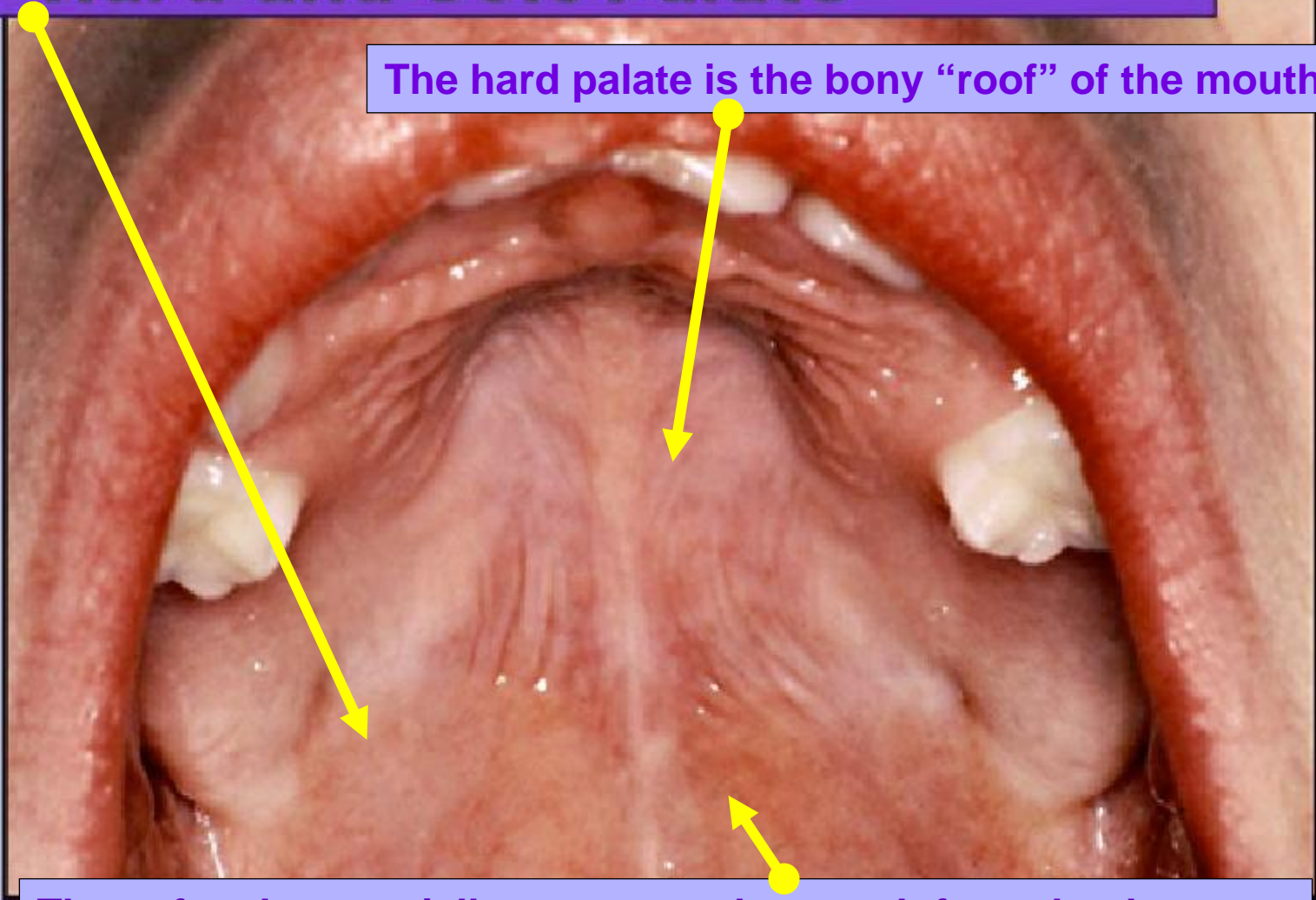


The front part of the hard palate is covered by irregular ridges



# Junction of the Hard and Soft Palate

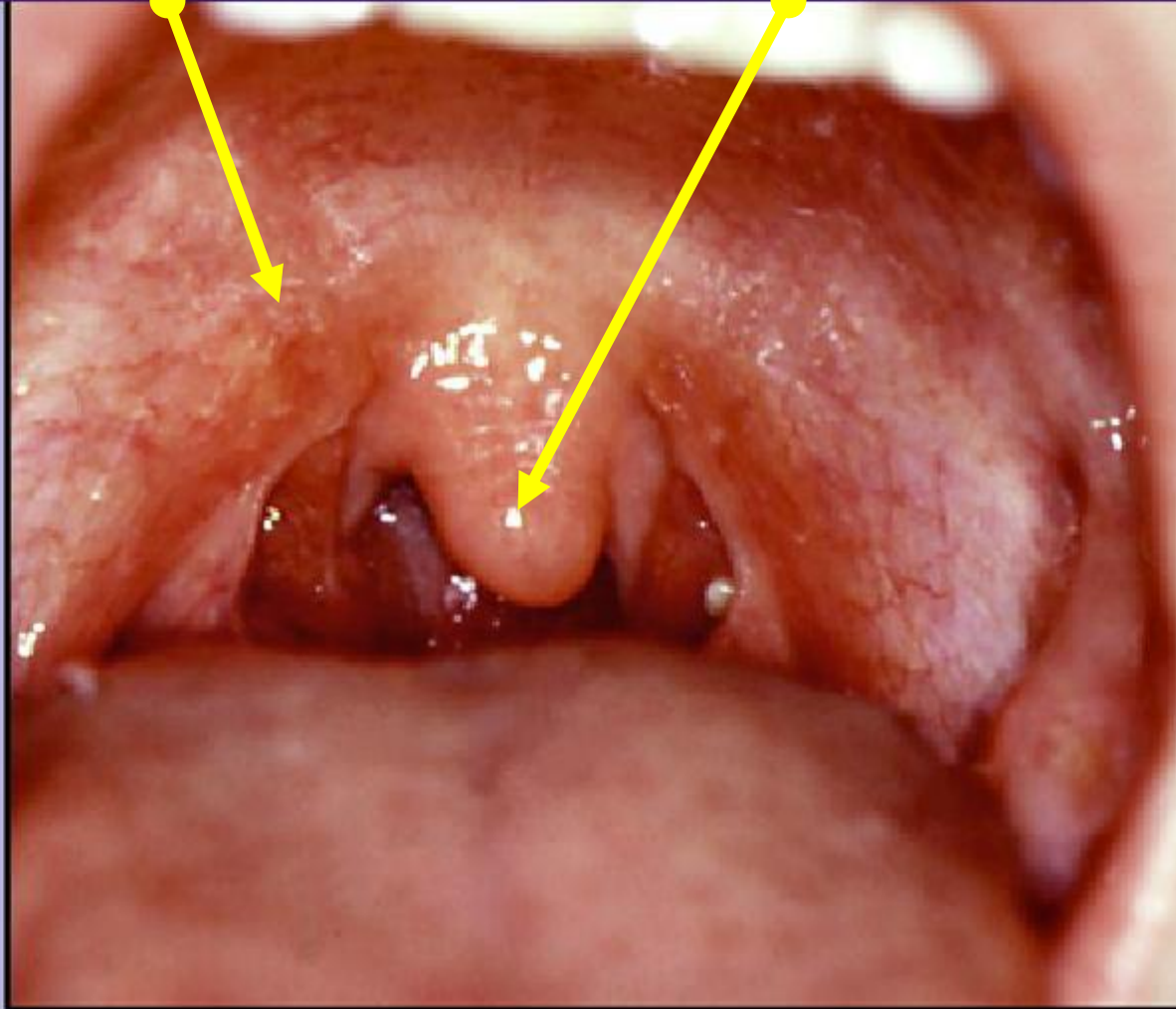
The hard palate is the bony “roof” of the mouth.



The soft palate partially separates the mouth from the throat



## Soft Palate and Uvula



The uvula is the fleshy lobe hanging down from the back of the soft palate.



# Common Oral Conditions

Acquired



Developmental



Congenital





# Acquired Oral Conditions

- Candidiasis

- Glossitis

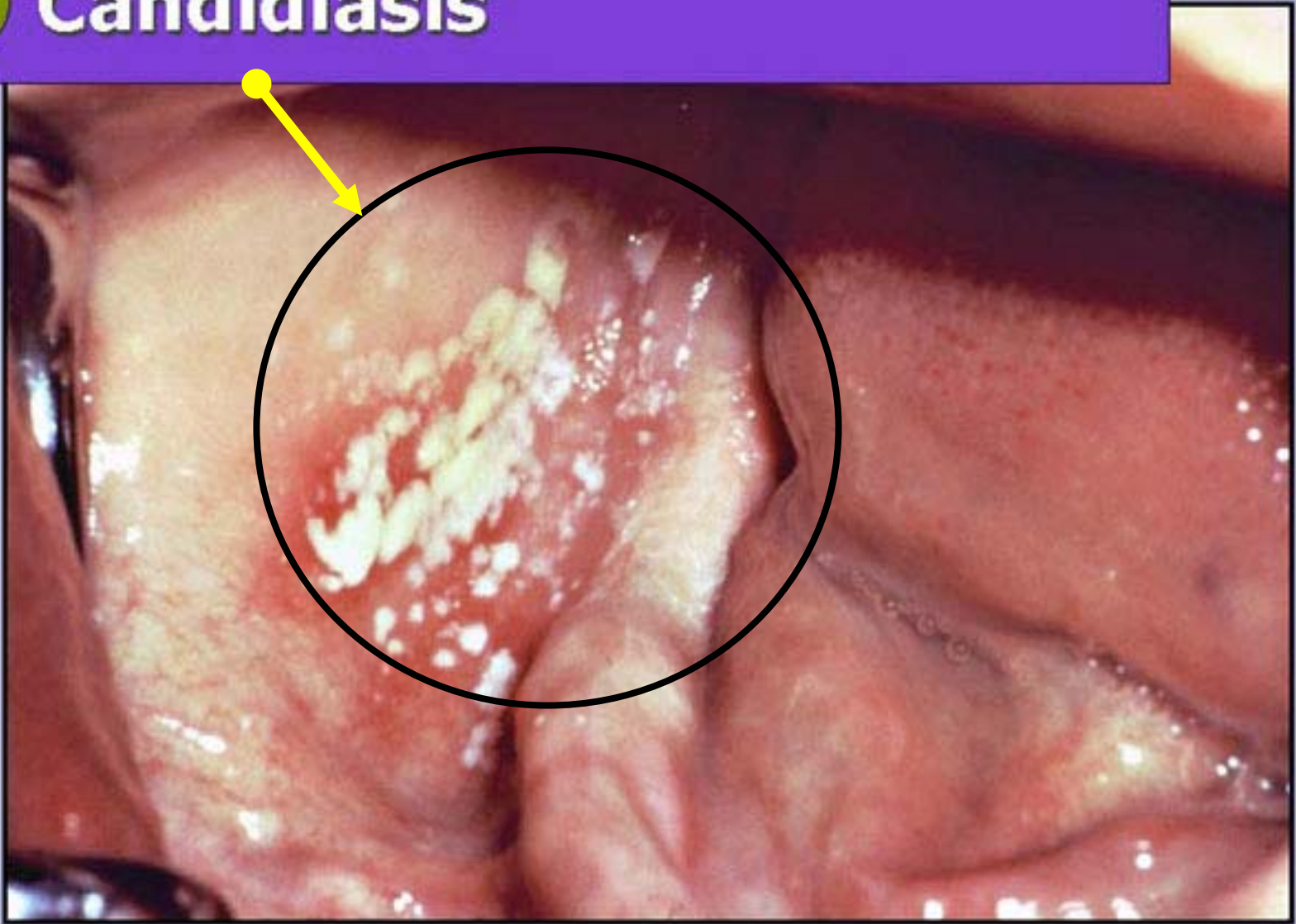
- Primary Herpetic Gingivostomatitis

- Recurrent Aphthous Ulcer

- Discolored Teeth



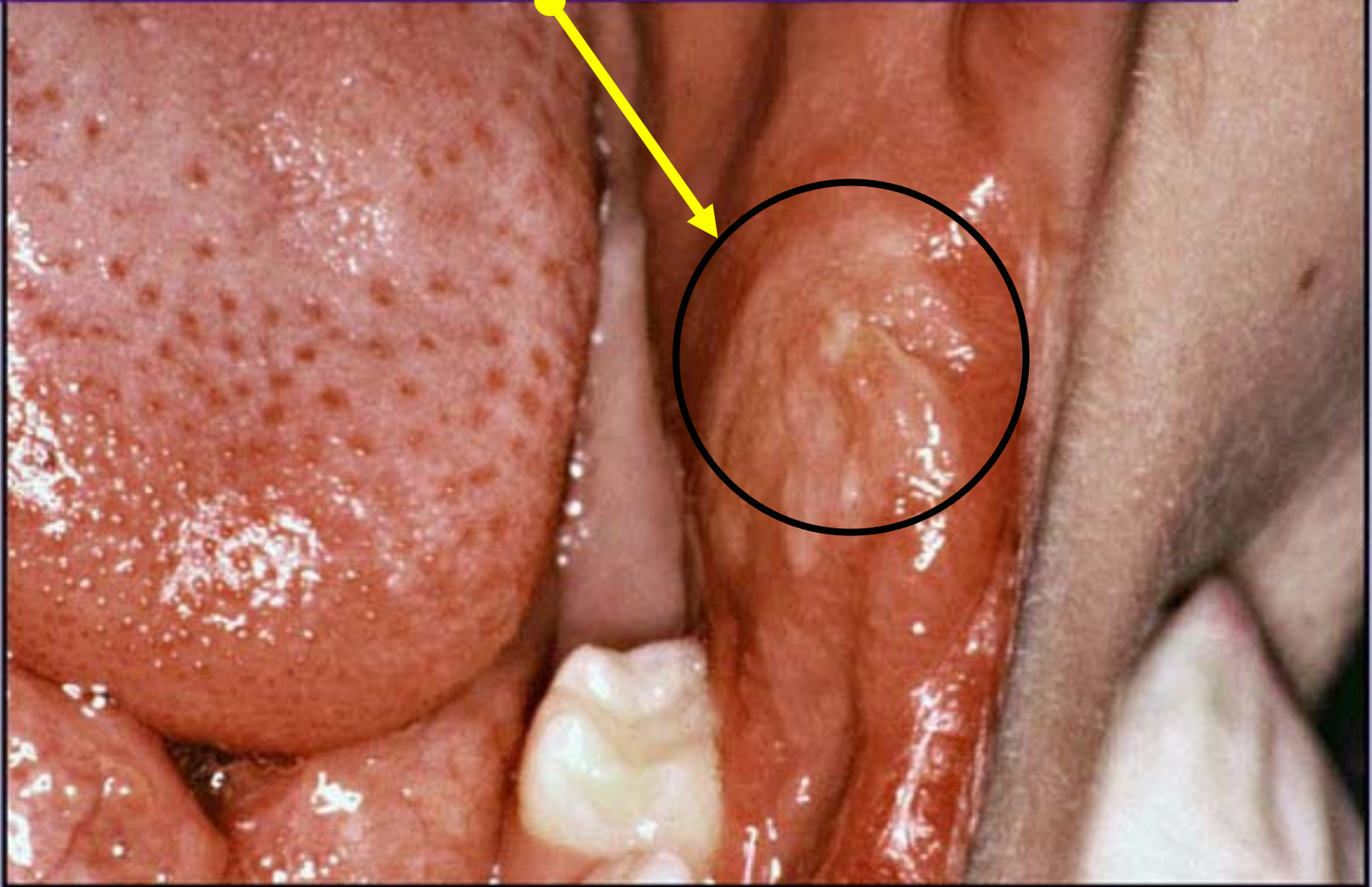
# Candidiasis



An infection in the mouth by the fungus, *Candida Albicans*, is known as thrush, and it is characterized by white patches on a red surface.



# Candidiasis







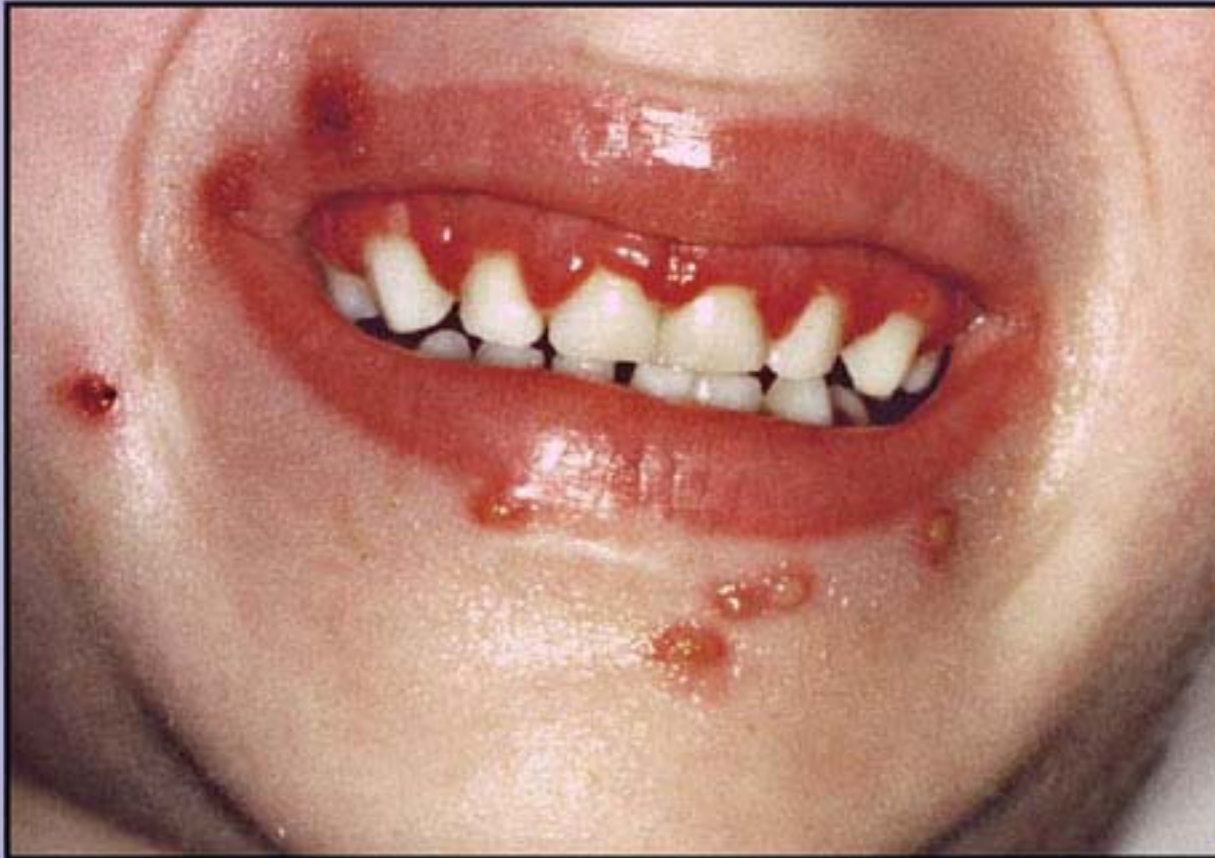
# Glossitis

An inflammation of the tongue





# Primary Herpetic Gingivostomatitis



This is the initial outbreak of an infection with the virus, Herpes Simplex. In this picture painful sores can be observed on the lips and gums. The gums are very red and swollen.



# Primary Herpetic Gingivostomatitis



Sores can also be inside the mouth on the tongue, floor of the mouth, throat and cheeks.





# Primary Herpetic Gingivostomatitis

(Symptoms)

- Fever
- Feeling run down and tired
- Enlarged lymph nodes in the neck
- Vesicles that progress to ulcers
- Occurs age 6 months to 6 years
- Spontaneous healing in 1 to 2 weeks
- Acute phase lasts 7 to 10 days





# Primary Herpetic Gingivostomatitis

- Rest, Take medication for fever and pain
- Soothing mouthrinse
- Orabase<sup>®</sup>, or petroleum jelly, as a protective barrier
- Dehydration is a concern
- Patient is contagious
- Antibiotics and steroids contraindicated





# Aphthous Ulcer

- Three Subtypes

## Minor (most common)

- Generally located on the lining of the lips, cheeks, soft palate and floor of the mouth
- Tend to be small and shallow ulceration

## Major

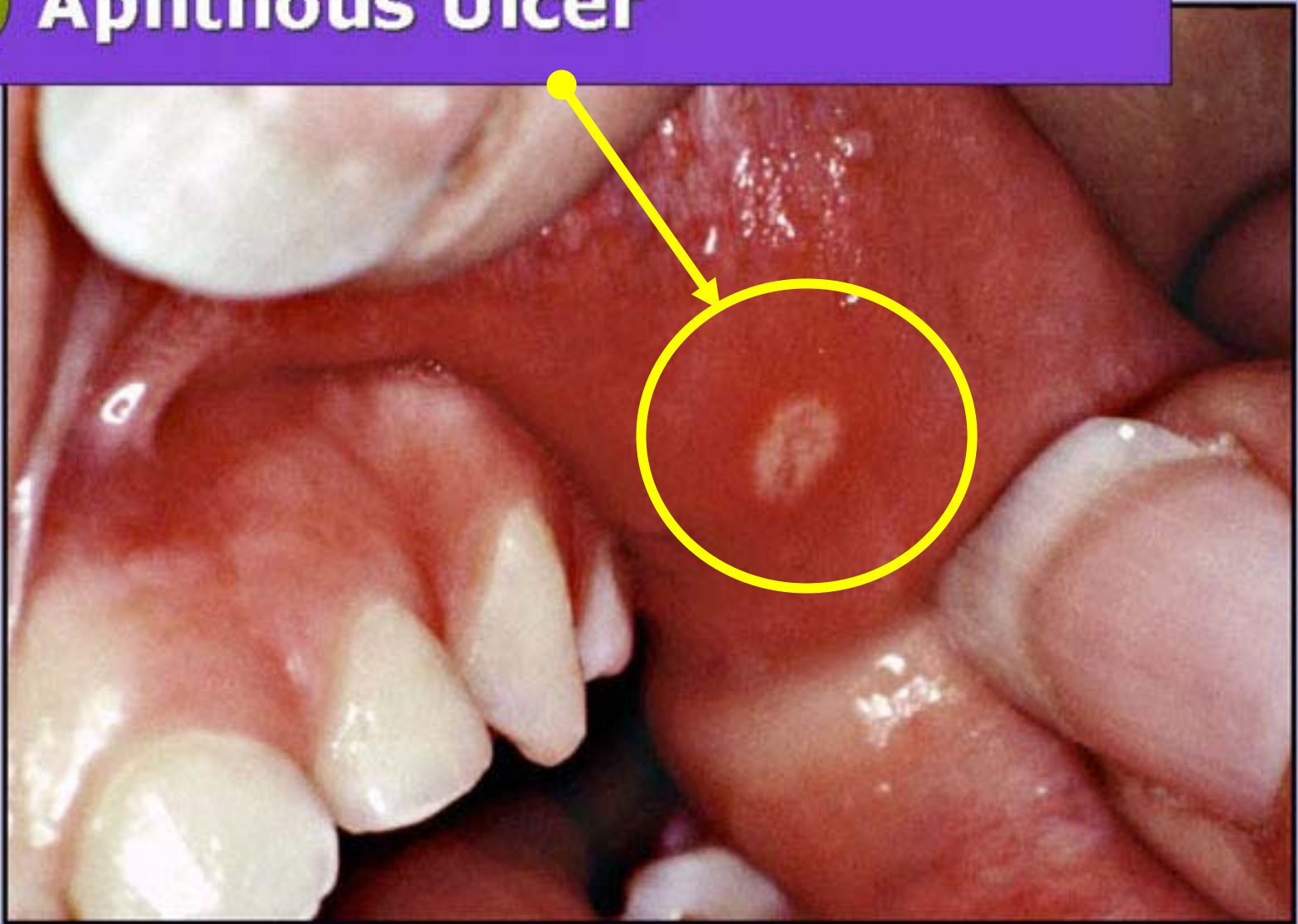
- Larger and deeper ulceration

## Herpetiform

- More numerous and look like blisters



# Aphthous Ulcer







# Aphthous Ulcer

- Cause is unknown
- Treat to relieve symptoms
- Healing
  - Minor – 7 to 10 days, without scarring
  - Major – 2 to 4 weeks, may scar





# Discolored Teeth

- **Discolorations inside the tooth**
  - **Fluorosis – enamel color change and irregularities**
  - **Tetracycline – dark bands**
- **Discolorations on the tooth surface**
  - **Iron stain - accumulation of Iron from supplements**



**Fluorosis**

**(Mild)**



**White flecking of the enamel in mild fluorosis**



## Fluorosis (Moderate)



**Moderate and severe forms of fluorosis have changes in the enamel surface and color that are easier to see.**



# Tetracycline Stain



Mild



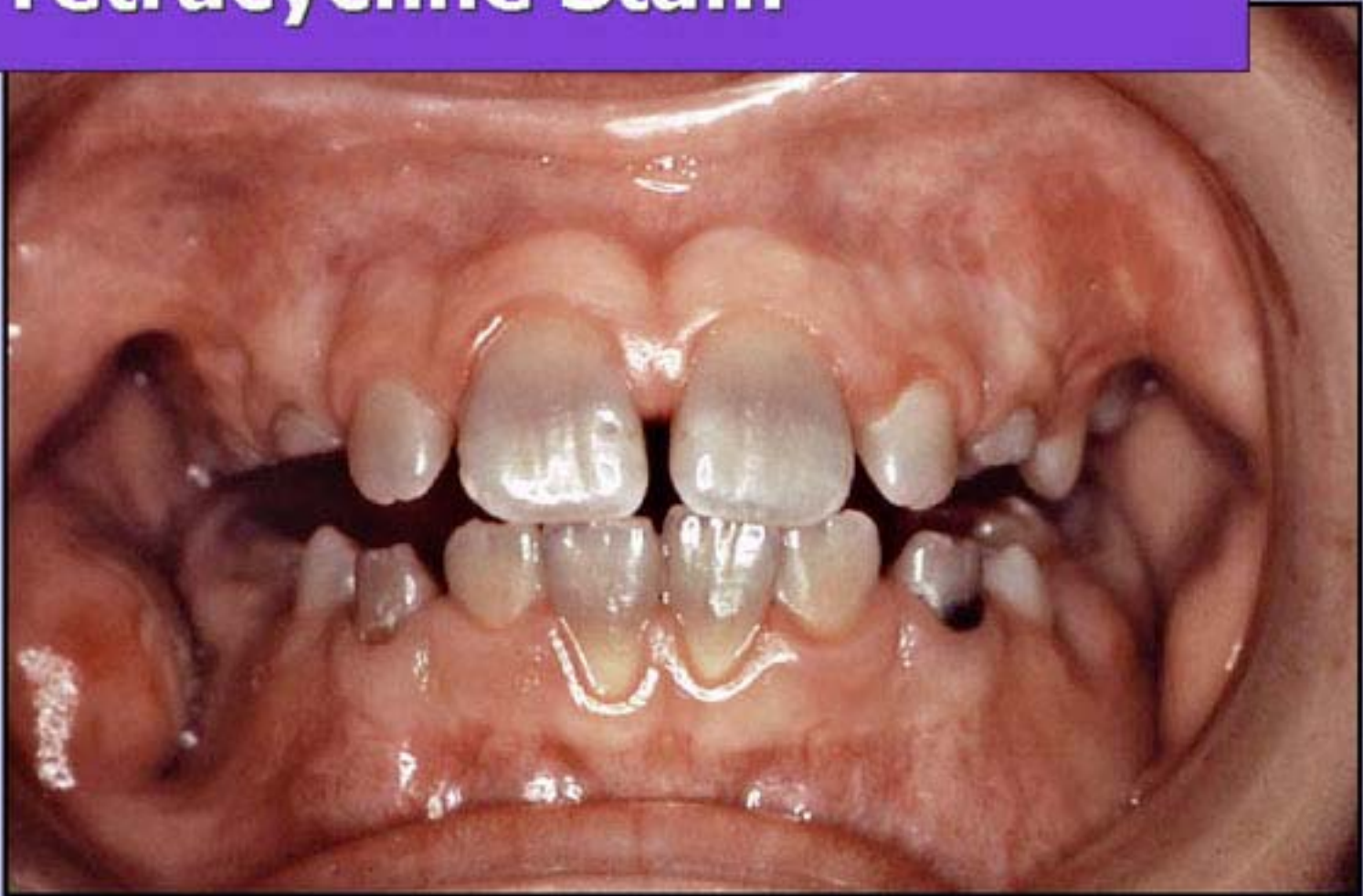
# Tetracycline Stain



Moderate



# Tetracycline Stain



Severe



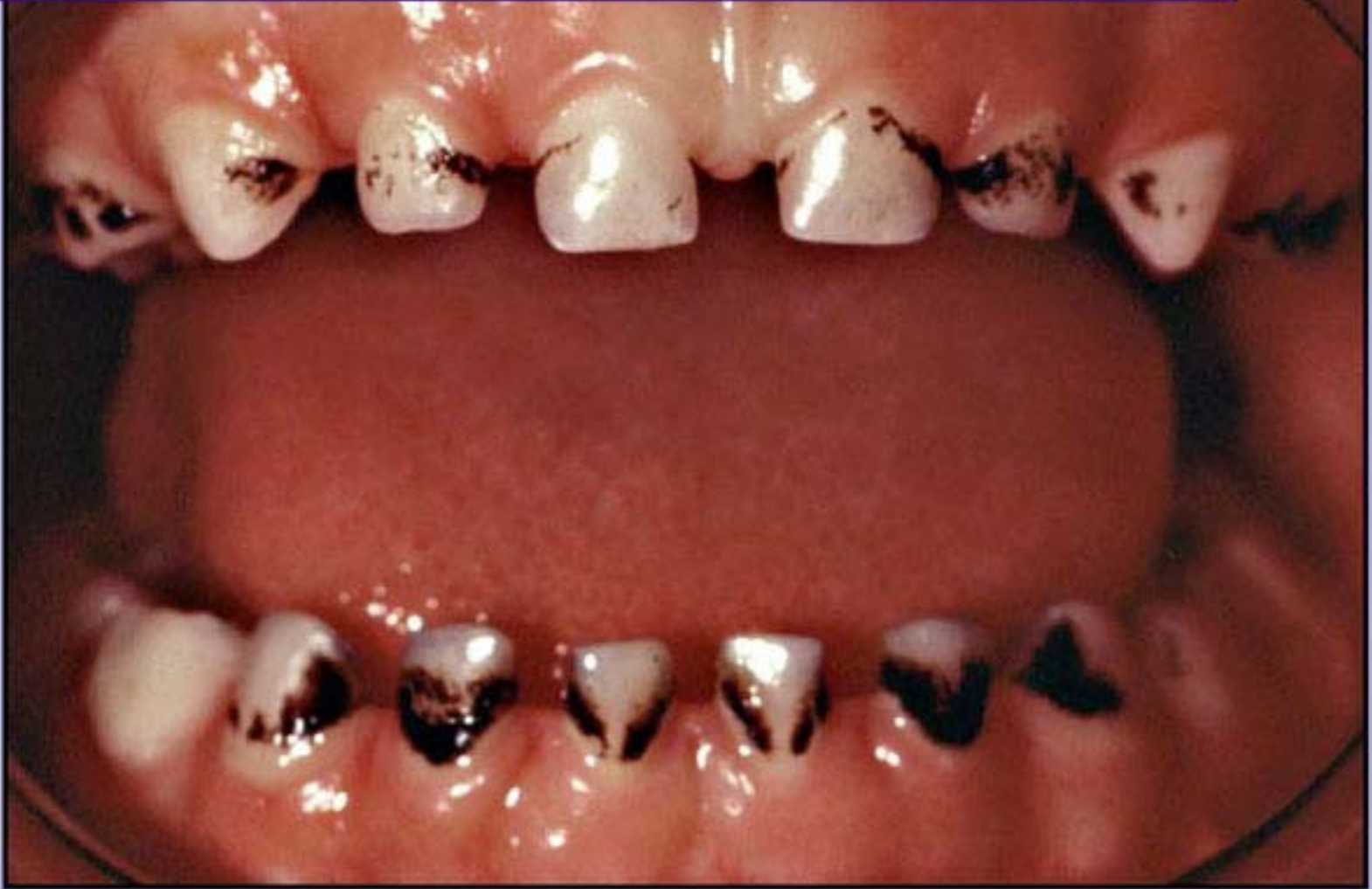
# Tetracycline Stain



Severe



## Stain from Iron Drops



The dark brown on these teeth is from iron and can be removed.



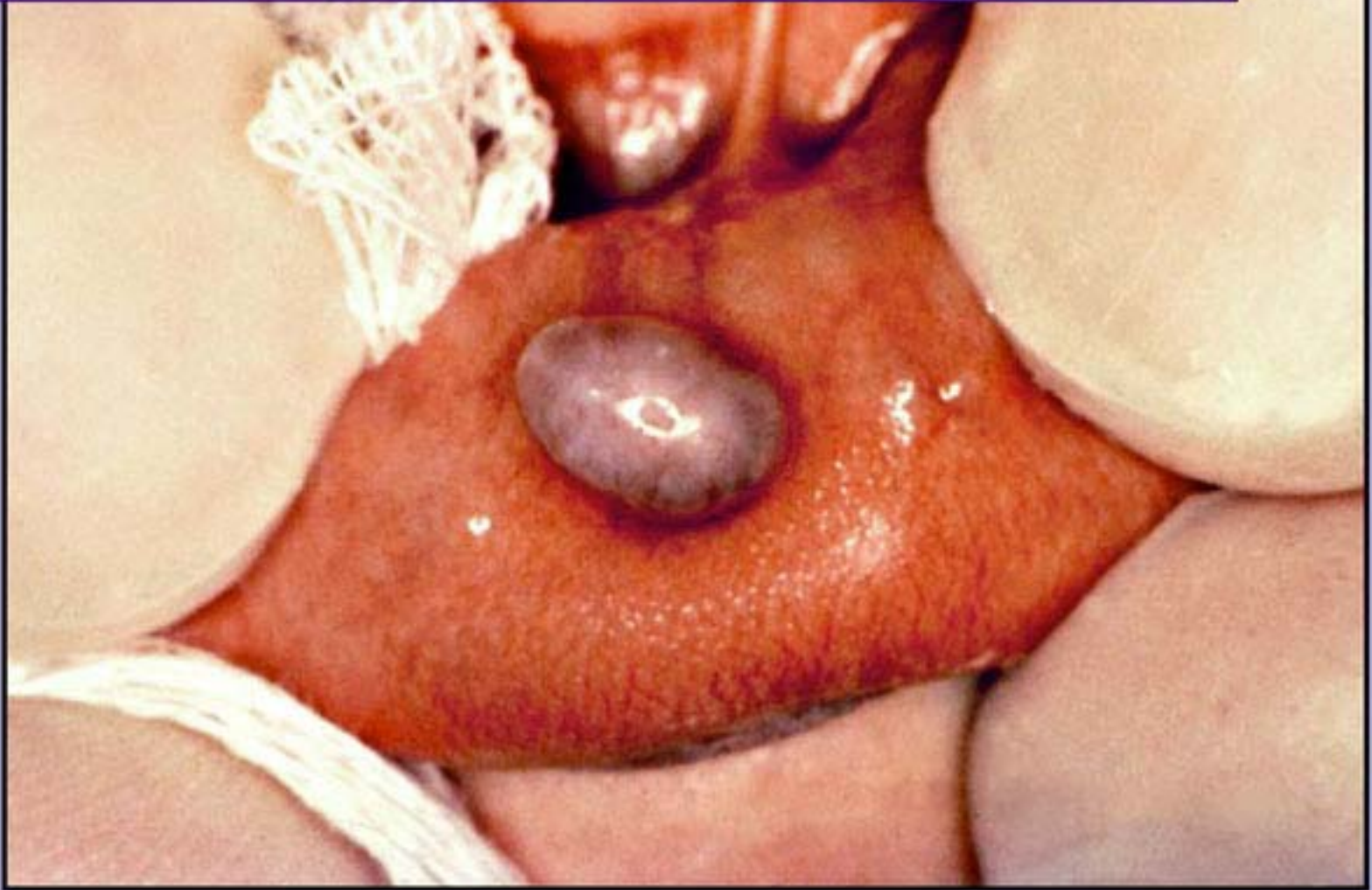
# Developmental Conditions

- Mucocele

- Ranula



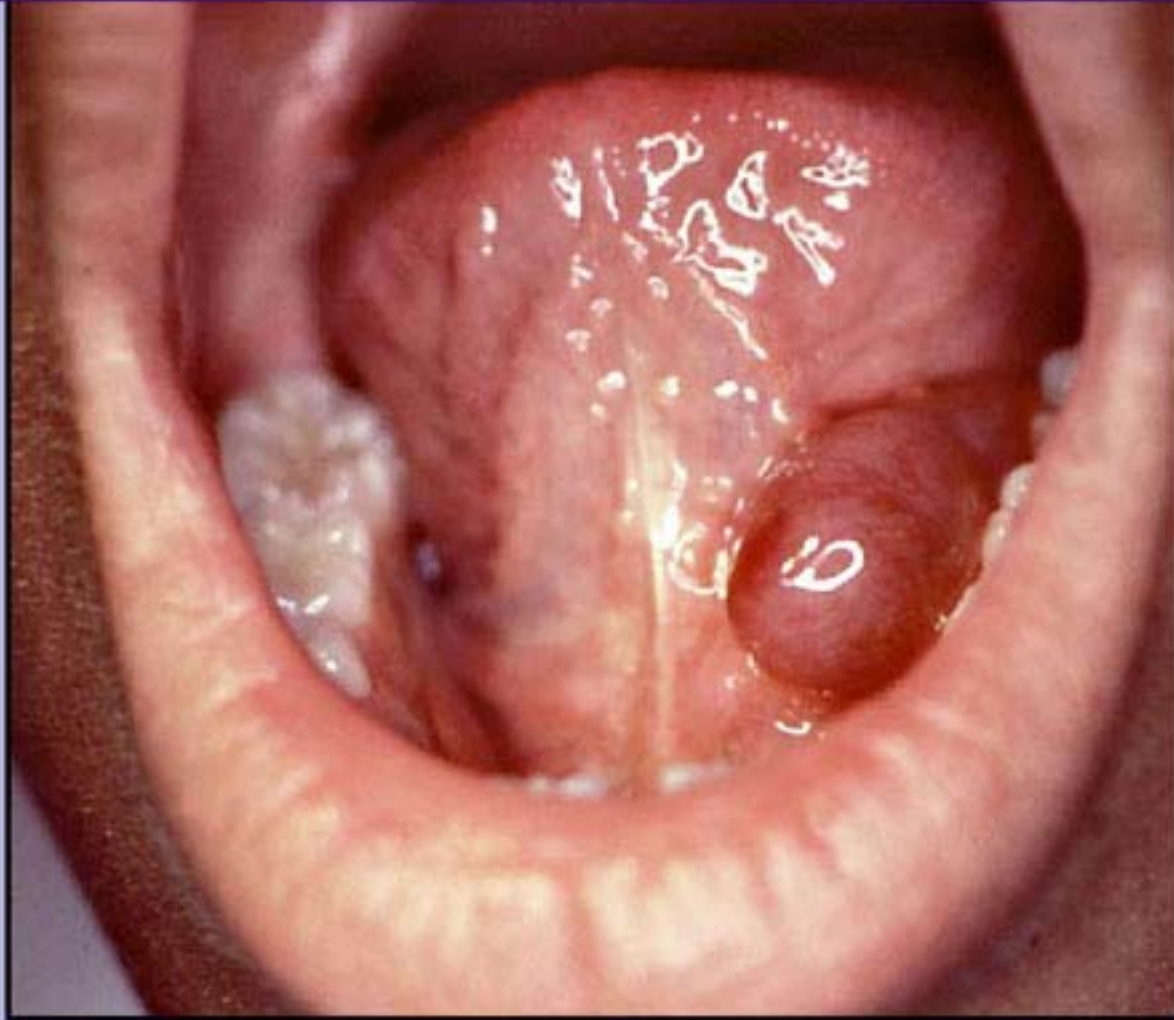
# Mucocele



Fluid trapped beneath a thin layer of mucous membrane








# Ranula



The same as a mucocele but located on the floor of the mouth

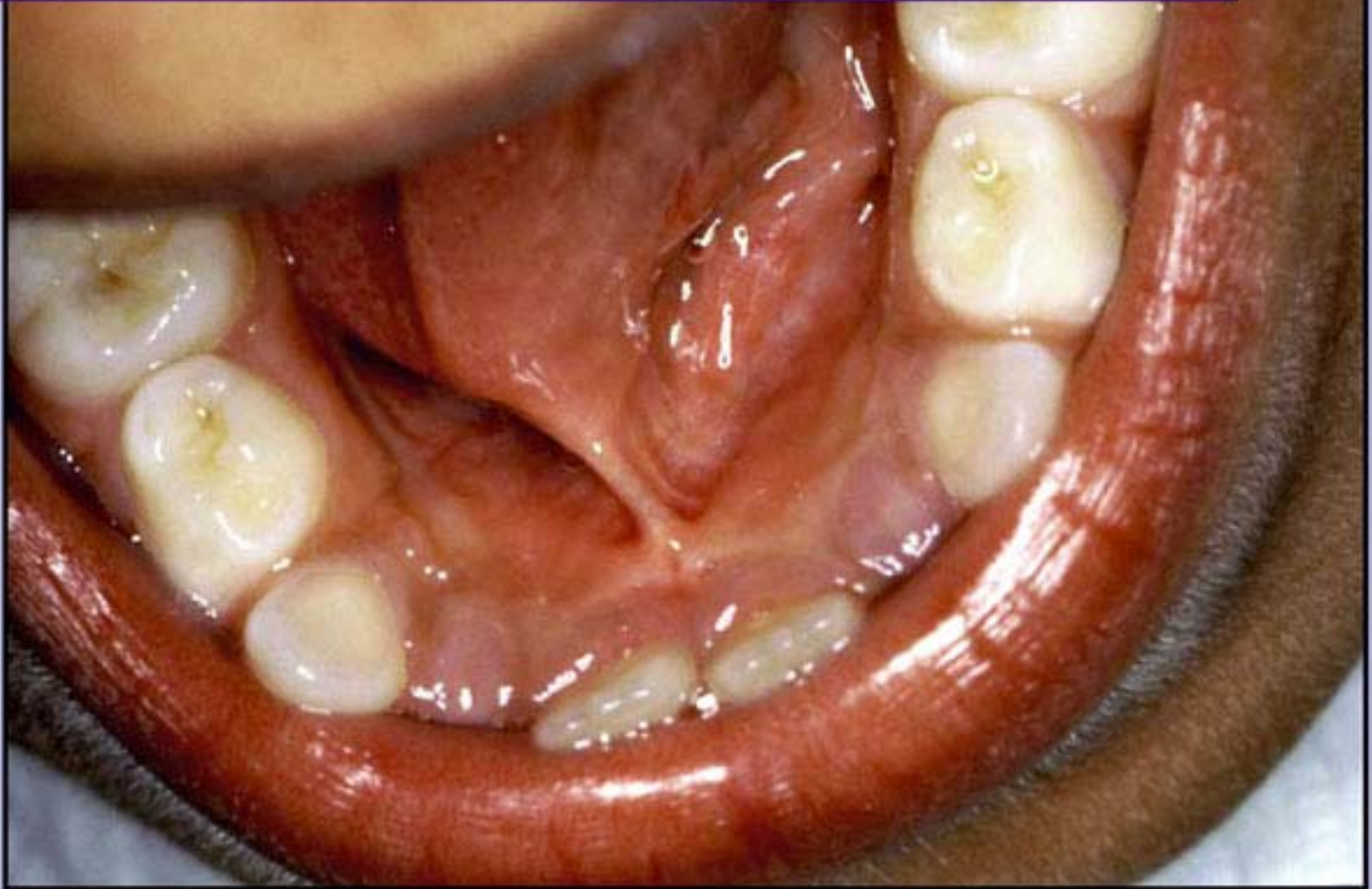


# Congenital Oral Conditions

-  Ankyloglossia
-  Submucous Clefts
-  Congenital Epulis of the Newborn
-  Natal Teeth
-  Hemangioma



# Ankyloglossia



The lingual frenum is too short resulting in a tongue-tied condition



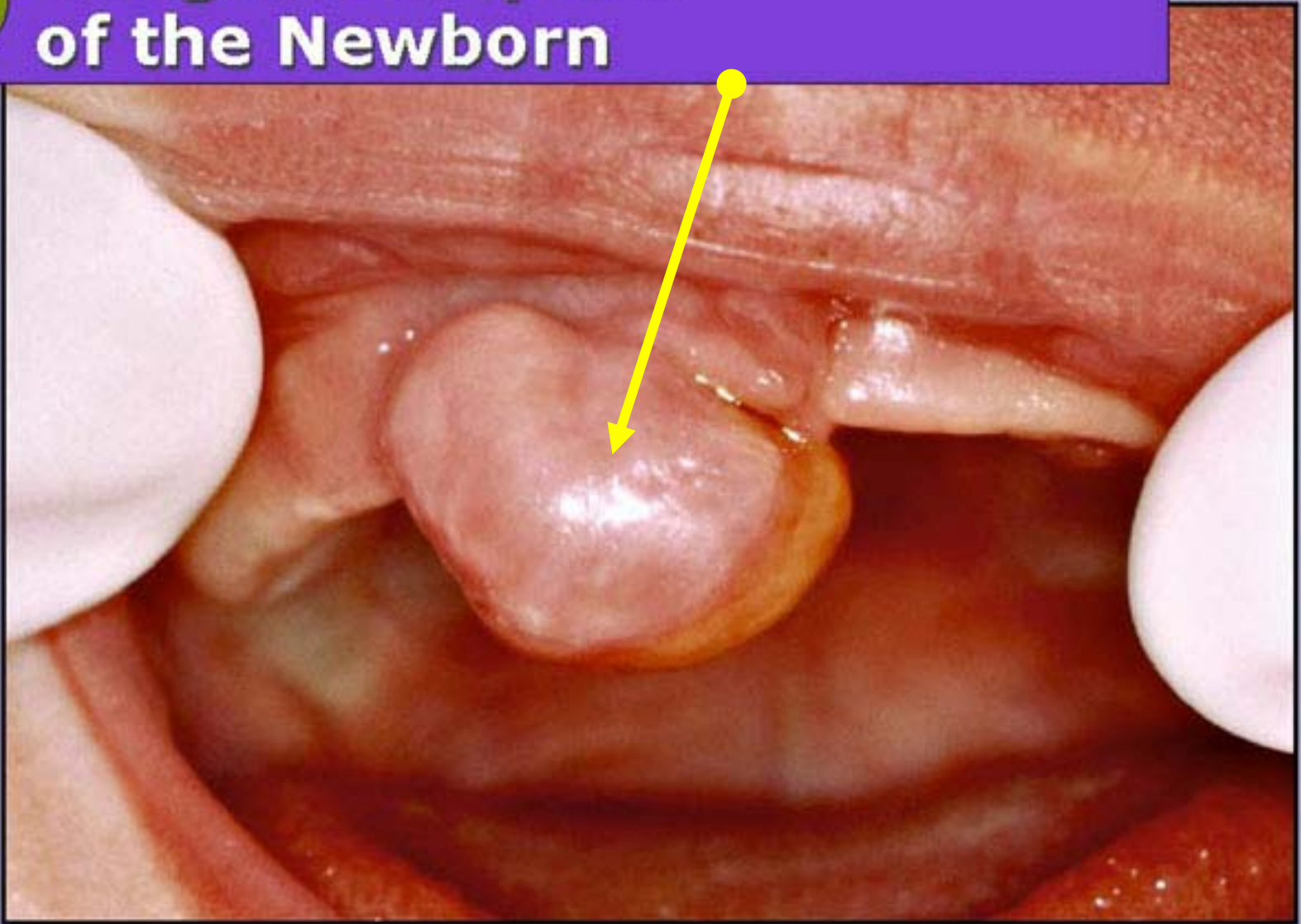


## **Congenital Epulis of the Newborn**

- Benign lesion
- Present at birth
- Frequent in females in the anterior maxillary arch
- May cause feeding and respiratory problems
- Spontaneous regression or excisional biopsy
- Recurrence rare



## **Congenital Epulis of the Newborn**



A tumor or abnormal enlargement of the gum tissue present at birth.





## Natal Teeth

- Premature eruption of preliminary teeth
- Tooth should be retained unless mobile



# Natal Teeth





# Natal Teeth







# Hemangioma

- Occurs within first year
- Female predilection
- Local or diffuse, red to blue color
- Flat or modular, compressible
- Commonly located on lips, tongue, or buccal mucosa
- Hemorrhage from trauma is common
- May require surgery or may heal spontaneously

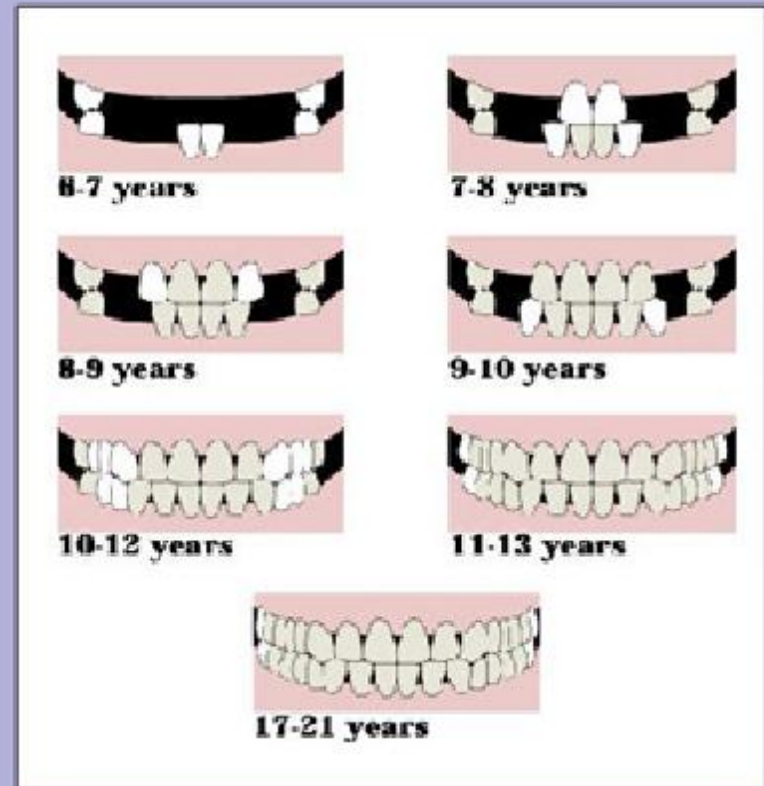
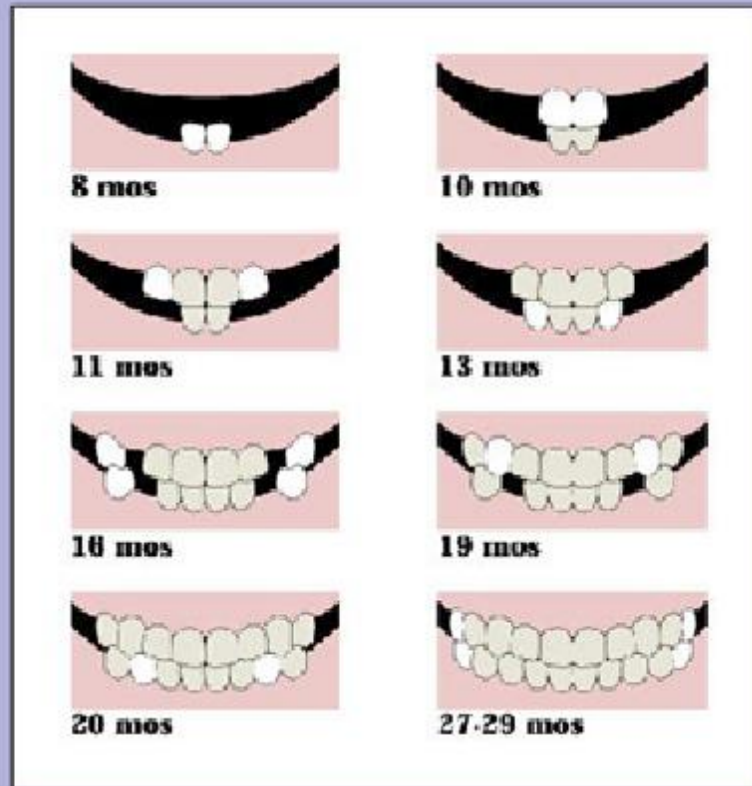


# Hemangioma





# Eruption Patterns



Approximate eruption times





# Eruption Patterns

- Tooth formation begins 7 weeks in utero
- Mineralization begins at 4th month of fetal development
- Symmetrical eruption pattern
- Mandibular teeth erupt first
- Sequence is more important than timing





## Eruption Patterns Primary Teeth

- 6 months  
Primary mandibular central incisors
- 7 months  
Primary maxillary central incisors





**Approximate  
Tooth Eruption Schedule =**

**"7 + 4"**

**Guideline**



**7 Months =  
First Primary Teeth Erupt**





**11 Months =  
4 Erupted Primary Teeth**

**7 Months  
+4**

---

**11 Months**



**0 Teeth  
+4**

---

**4 Teeth**



**15 Months =  
8 Erupted Primary Teeth**

**11 Months  
+4**

---

**15 Months**



**4 Teeth  
+4**

---

**8 Teeth**

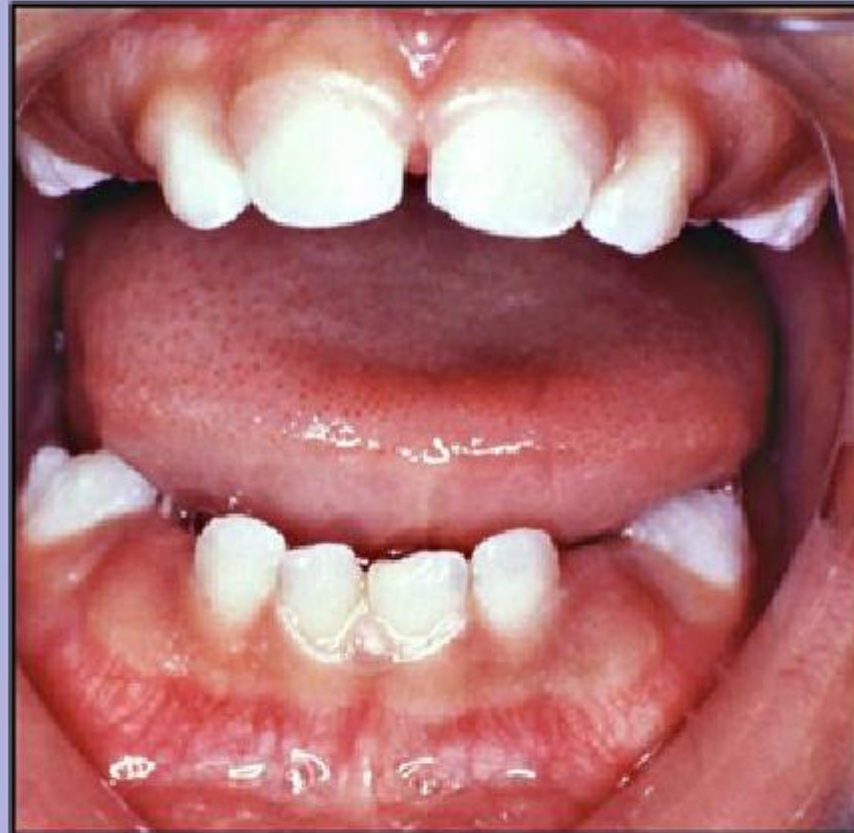


**19 Months =  
12 Erupted Primary Teeth**

**15 Months  
+4**

---

**19 Months**



**8 Teeth  
+4**

---

**12 Teeth**



# **23 Months = 16 Erupted Primary Teeth**

**19 Months  
+4**

---

**23 Months**



**12 Teeth  
+4**

---

**16 Teeth**



**27 Months =  
20 Erupted Primary Teeth**

**23 Months  
+4**

---

**27 Months**



**16 Teeth  
+4**

---

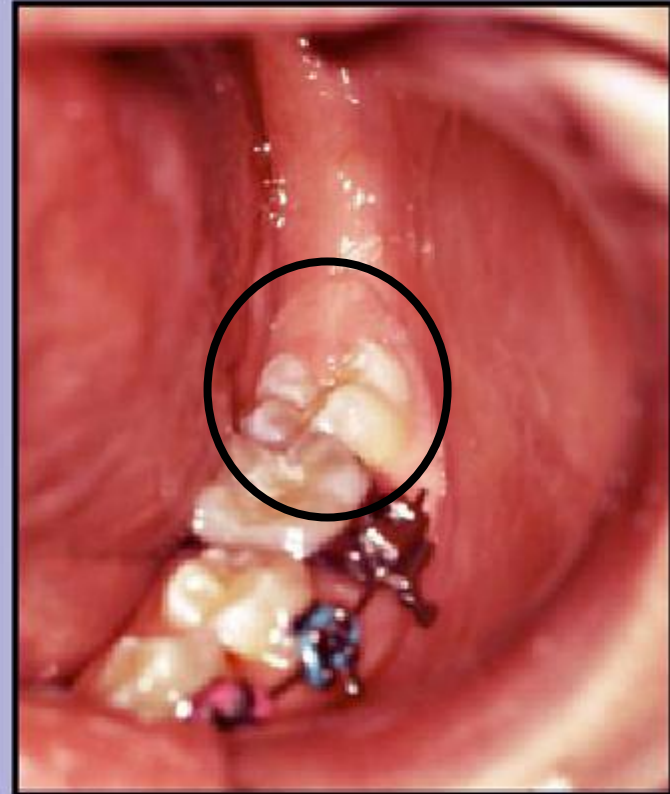
**20 Teeth**



## Eruption Pattern: Permanent Teeth



6-year molar



12-year molar



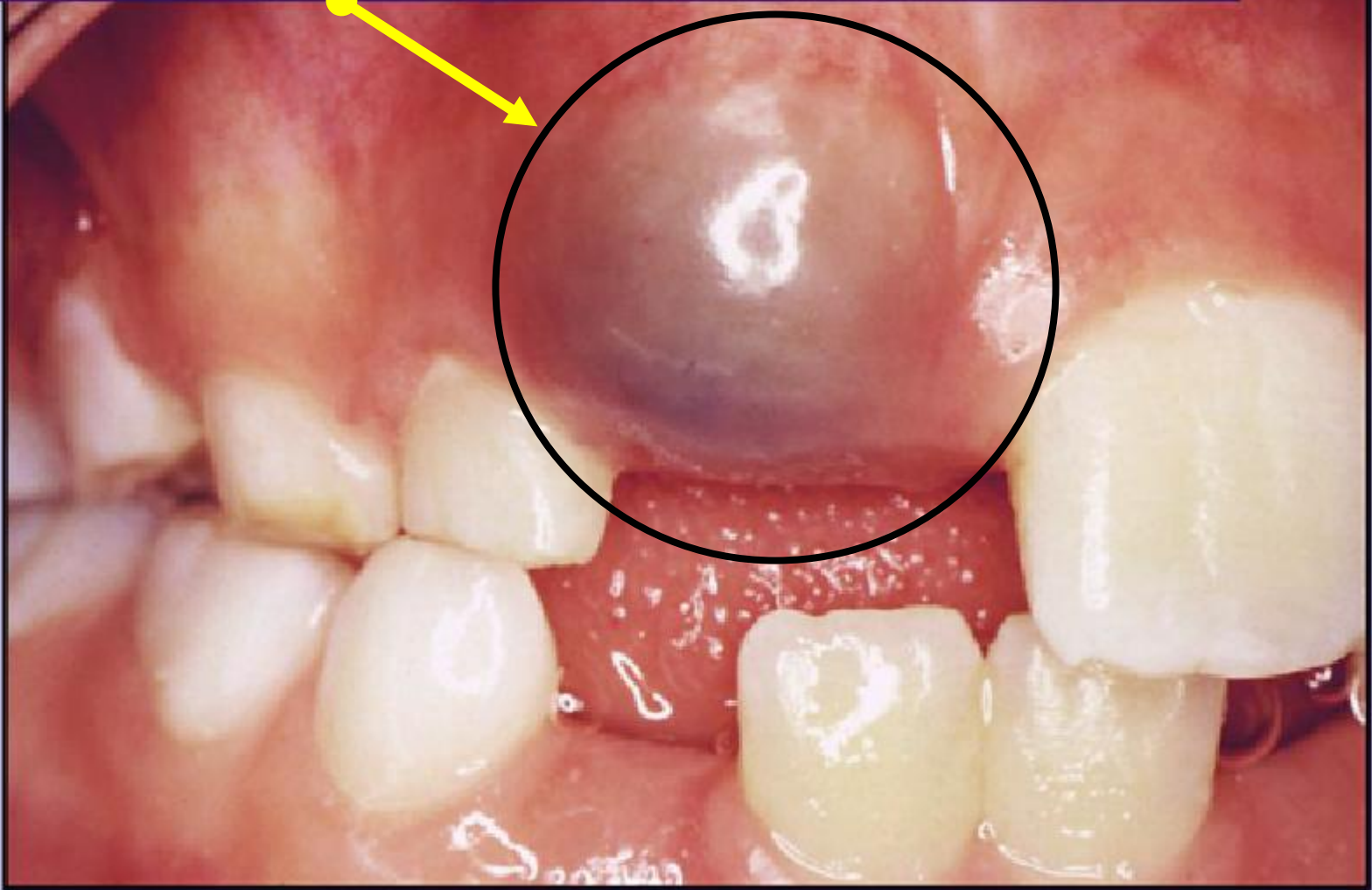
## Eruption Pattern: Permanent Teeth



Anterior



# Eruption Bulge







# Teething Process

- Natural process
- Increased drooling
- Desire to bite or chew
- Mild pain
- No evidence of high fever, diarrhea, facial rash, or sleep problems





# **Dental Caries and Prevention**



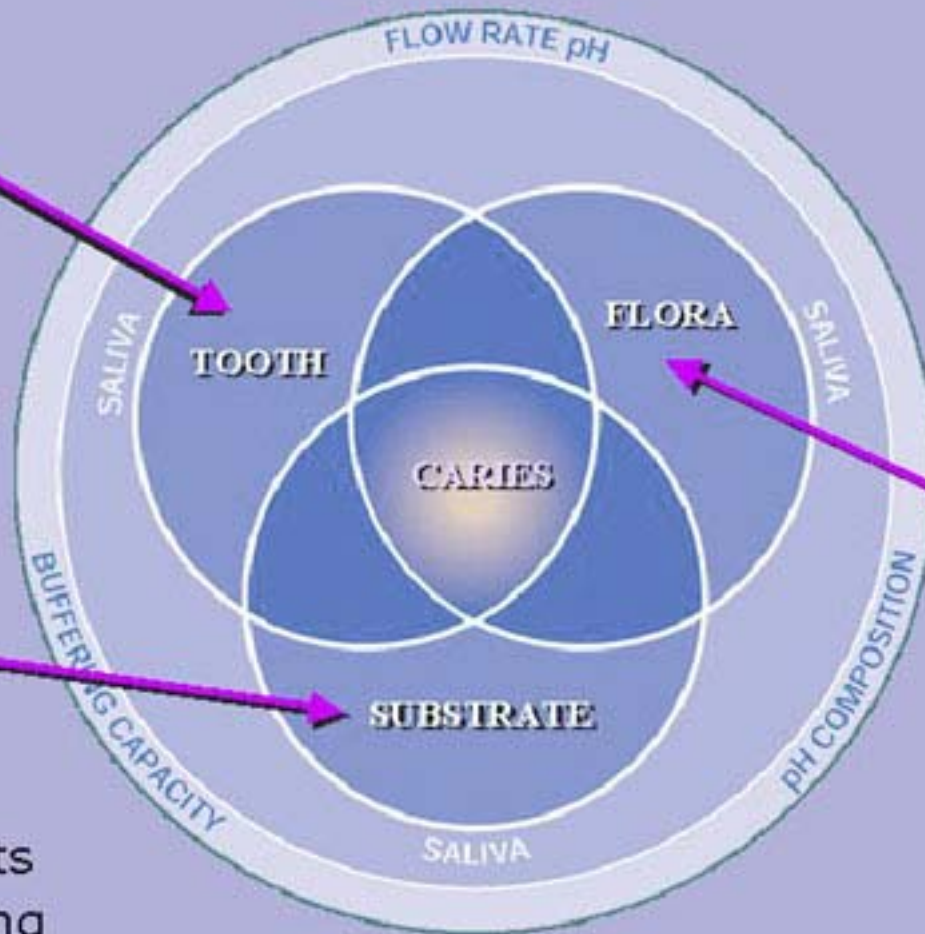
# Dental Caries: Etiology

## TOOTH

Age  
Fluorides  
Morphology  
Nutrition  
Trace Elements  
Carbonate Level

## SUBSTRATE

Oral Clearance  
Oral Hygiene  
Salivary Stimulants  
Frequency of Eating  
Carbohydrate (type, concentration)



## FLORA

*Strep, Mutans*  
(Substrate)  
Oral Hygiene  
Fluoride in  
Plaque





# Dental Caries: Etiology

## Caries (tooth decay or cavities)

- a disease that involves many factors
- the disease process is started by bacteria (*Streptococcus Mutans*).
- bacteria break down carbohydrates (sugar is a carbohydrate)
- acids are produced that cause minerals to be lost from the teeth
- mineral loss results in cavities

## Three things must be present for tooth decay to occur:

- a tooth
- bacteria (flora)
- sugar (substrate)



# ***Streptococcus mutans*** **Transmission**



The germs that cause tooth decay are transmitted from the mouth of the mother to the baby.



# Patterns of Decay

Early Childhood Caries



Pit and Fissure Caries

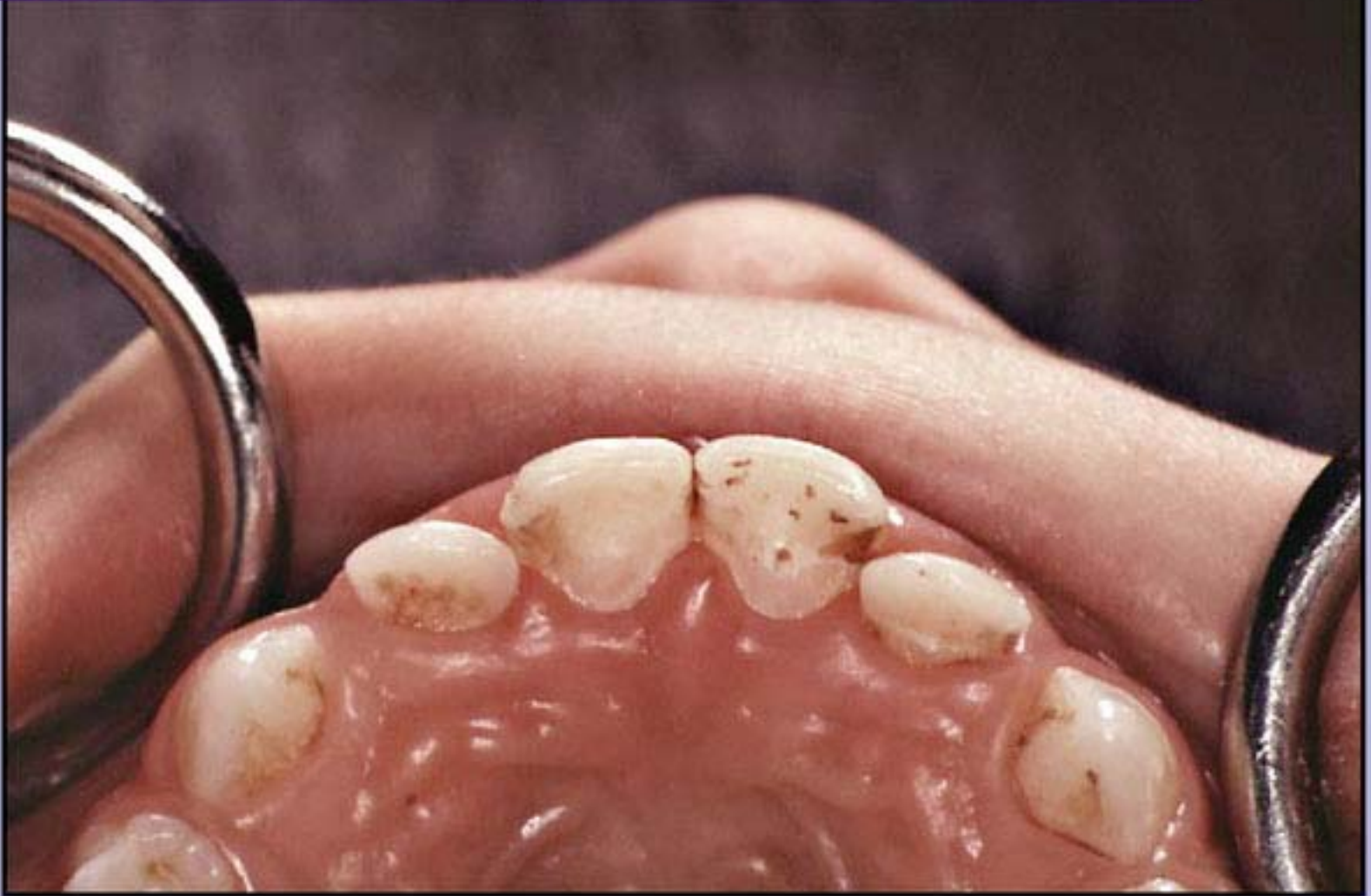


Smooth Surface Caries





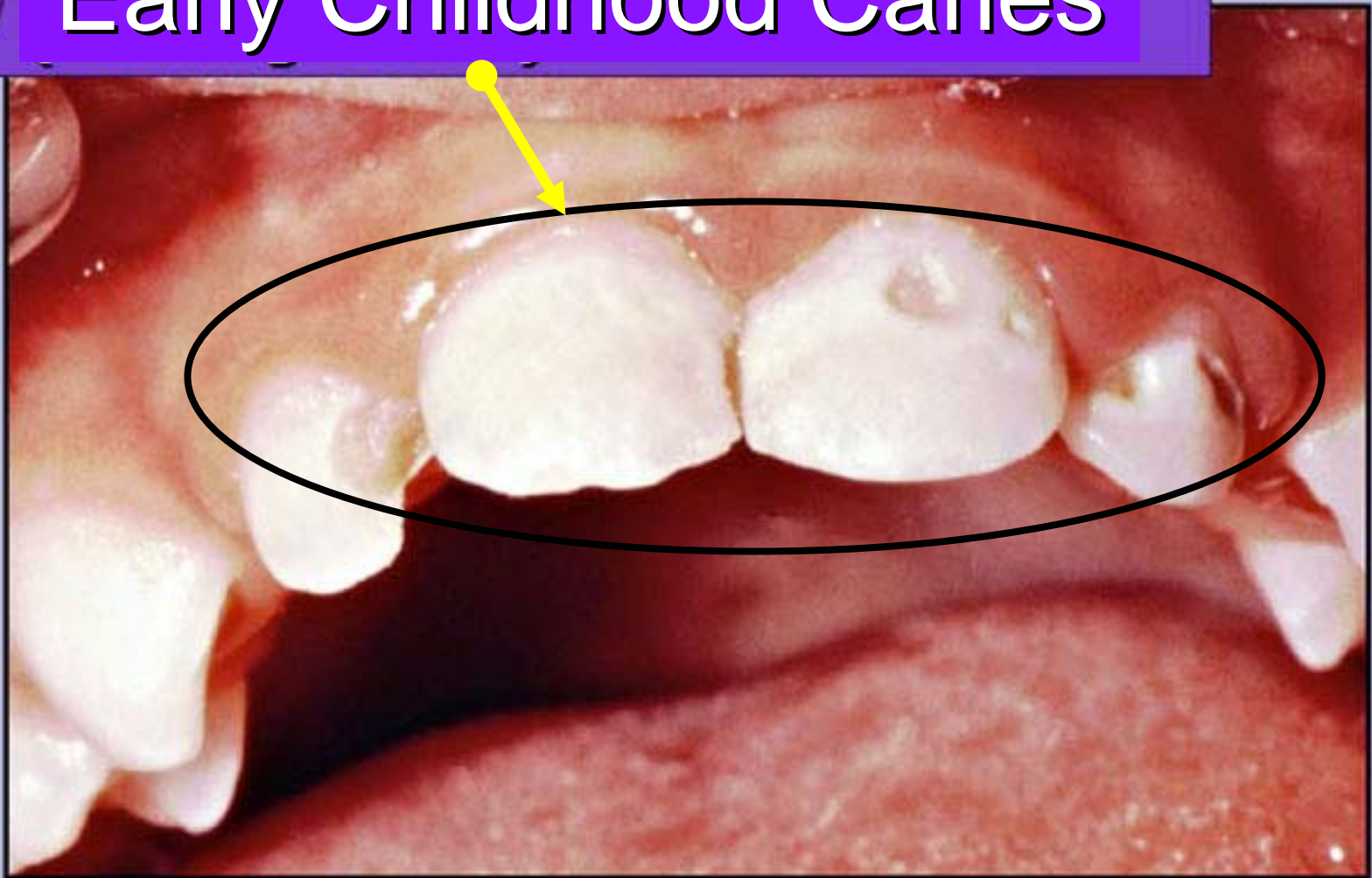
# Early Childhood Caries



One or more decayed, missing, or filled primary teeth in a child less than 6 years old is ECC.



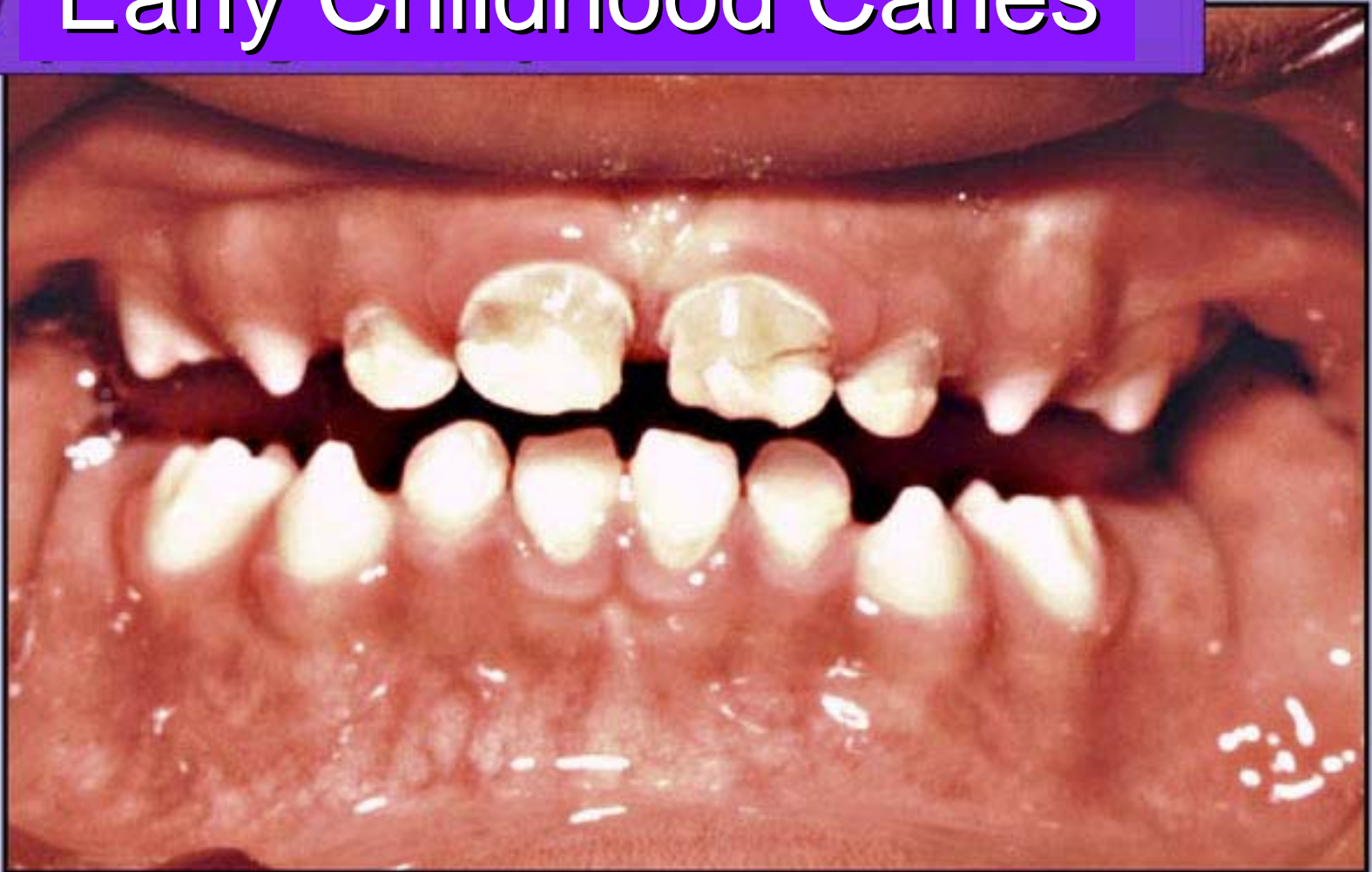
# Early Childhood Caries



Mild



# Early Childhood Caries



Moderate



# Early Childhood Caries

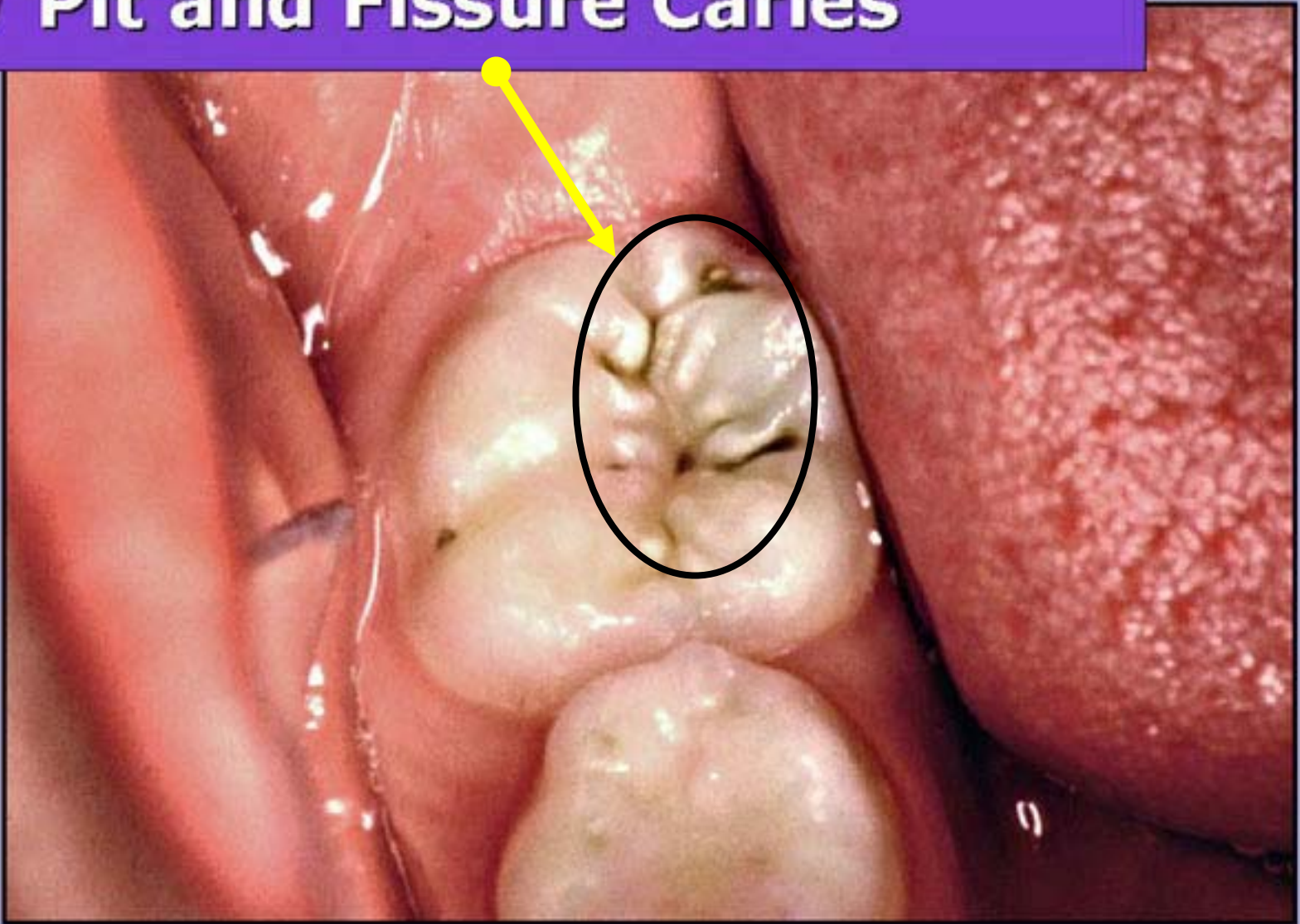


Severe

An abscess means the infection has spread to the inside of a tooth.



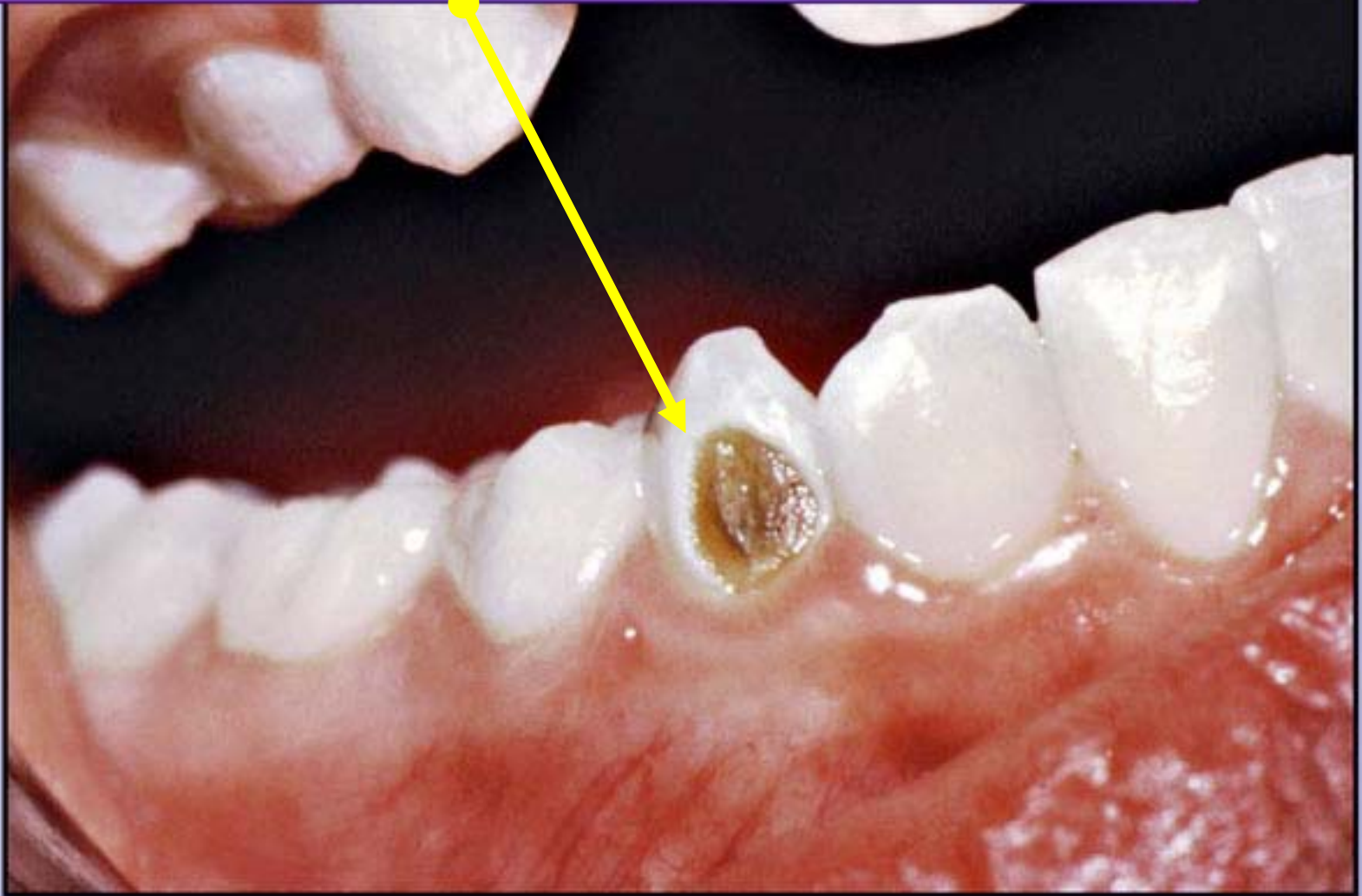
# Pit and Fissure Caries



Decay in the crevices on the chewing surfaces of back teeth



# Smooth Surface Caries





# Facial cellulitis



Due to untreated dental abscess





## Initial Dental Visit

- The American Academy of Pediatric Dentistry recommends a dental consultation shortly after the eruption of the first primary tooth.





# Fluoride Supplements

- Prior to recommending supplementary fluoride, the fluoride content of the child's total water intake must be determined.

Fluoride reduces the risk of developing tooth decay.





## ADA-Recommended Supplemental Fluoride Dosage Schedule

Age of Child	Water Fluoride Concentration (parts per million)		
	Less than 0.3	Between 0.3 - 0.6	Greater than 0.6
Birth to 6 Months	0	0	0
6 months to 3 years	0.25 mg liquid drops	0	0
3 to 6 years	0.5 mg drops or tablet	0.25 mg	0
6 to 16 years	1.00 mg	0.5 mg	0

**A dentist or physician must prescribe fluoride supplements.**






# Topical Fluoride

- 20% to 40% caries reduction
- Professionally applied
- Over-the-counter rinses
- Prescription rinses and gels
- Dentrifices





## Over-the-counter rinses

- OTC rinses not recommended for children under 6 years of age
- Recommended for
  - Moderate to severe caries
  - Orthodontic patients
  - Patients with prosthodontic appliances



# ADA-Approved Fluoridated Dentrifice

- Use with supervision under the age of 6
- Small pea-sized amount is needed





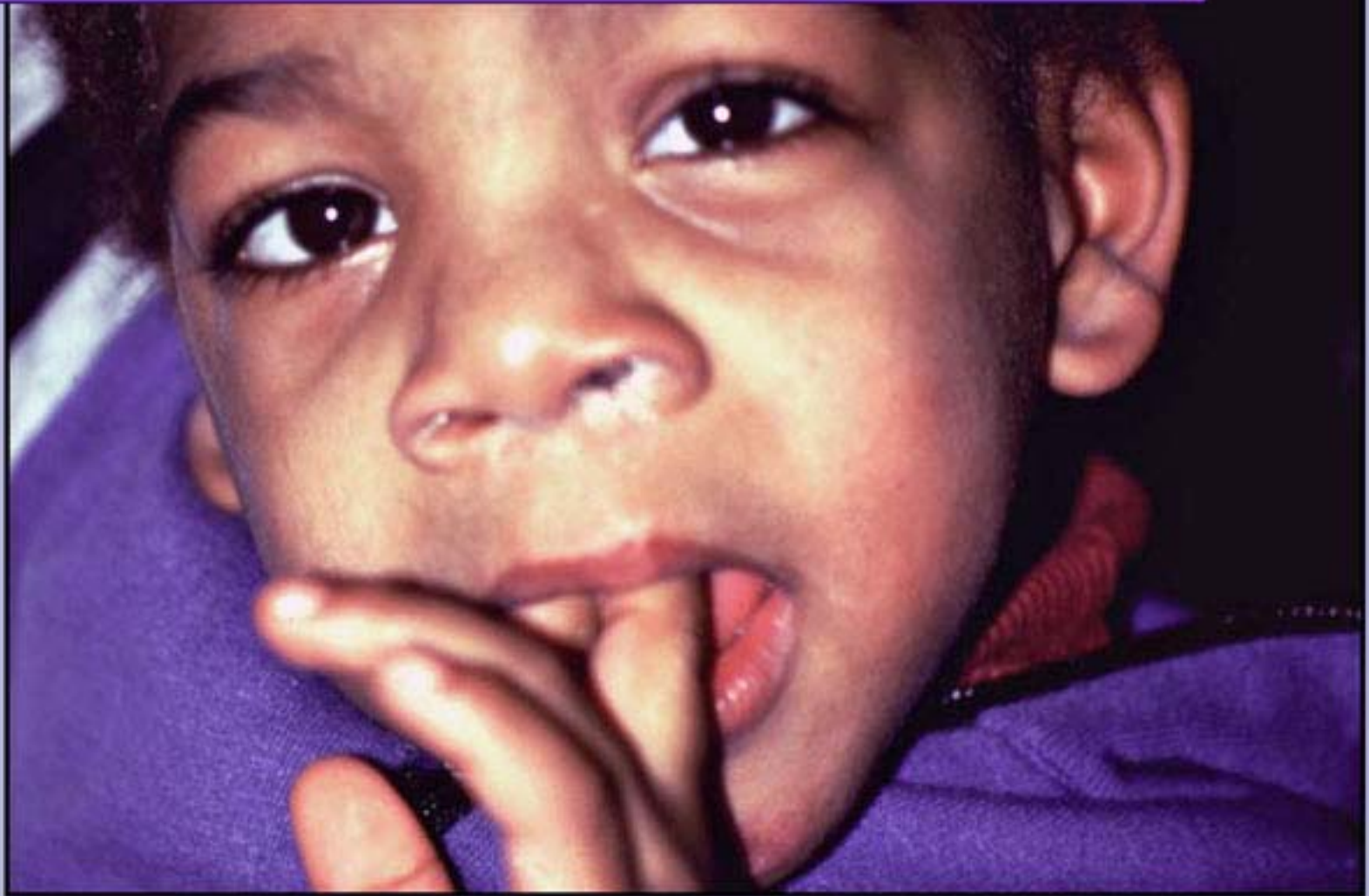


# **Nonnutritive Sucking Habits**

- Normal neonatal development
- Rooting reflex
- Sucking reflex



# Nonnutritive Sucking Habits







## **Nonnutritive Sucking Habits**

- Spontaneous abandonment at 2 to 4 years of age
- May cause protrusion of upper anterior teeth
- Evaluate intensity, duration, and frequency of habit



## Changes in dentition...



due to nonnutritive sucking habits




## Changes in dentition...



due to nonnutritive sucking habits





## **Nonnutritive Habit Intervention**

- Habit normally ceases age 4 to 6 years
- Success depends on child's readiness



# Pacifier Use



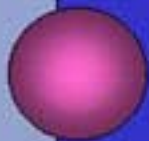




## **Pacifier Use and Safety**

- Use only sturdy, one-piece, nontoxic, flexible pacifier
- Never attach around child's neck
- Discourage use of sweeteners
- Replace the pacifier when worn





# Orofacial Trauma

- Injuries to primary and permanent dentition





## **Orofacial Injury Assessment**

- Review health history
- Assess systemic/neurological effects
- Evaluate tetanus immunization
- Be alert to potential child abuse



# Injury Classification

Fracture



Displacement

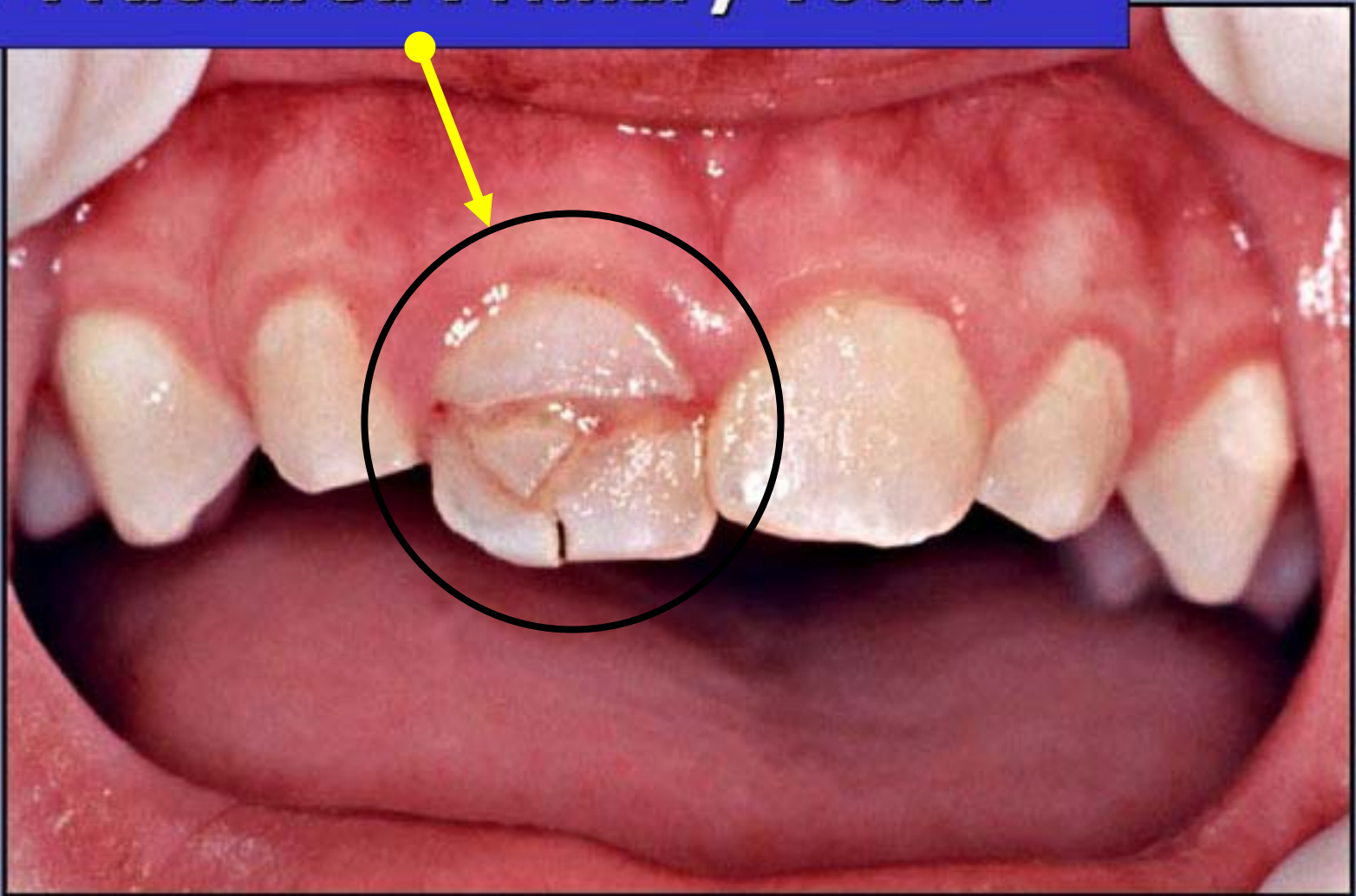


Avulsion





# Fractured Primary Tooth





## Fractured Permanent Teeth





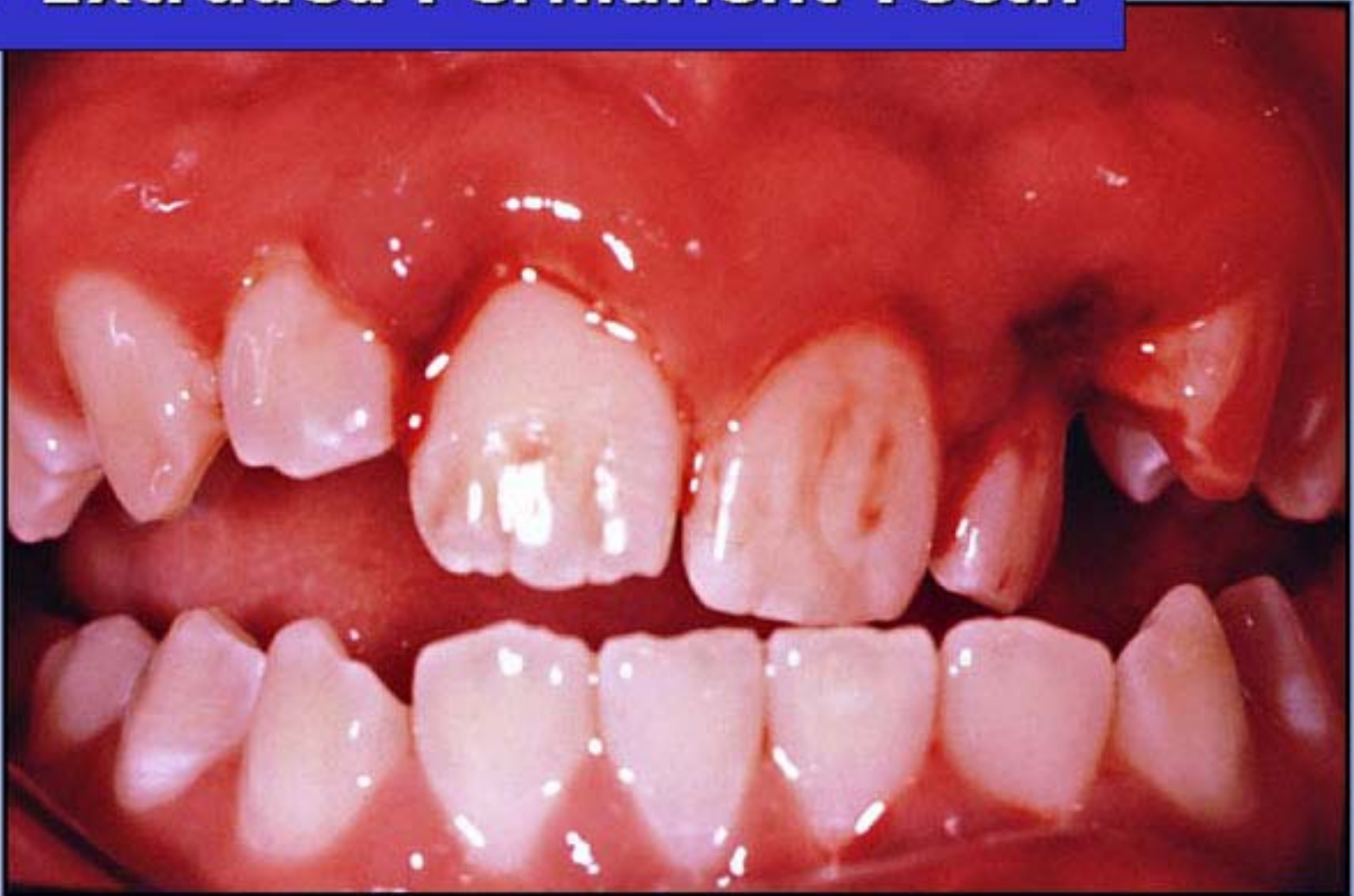
# Intruded Permanent Teeth



Teeth are jammed into the gum



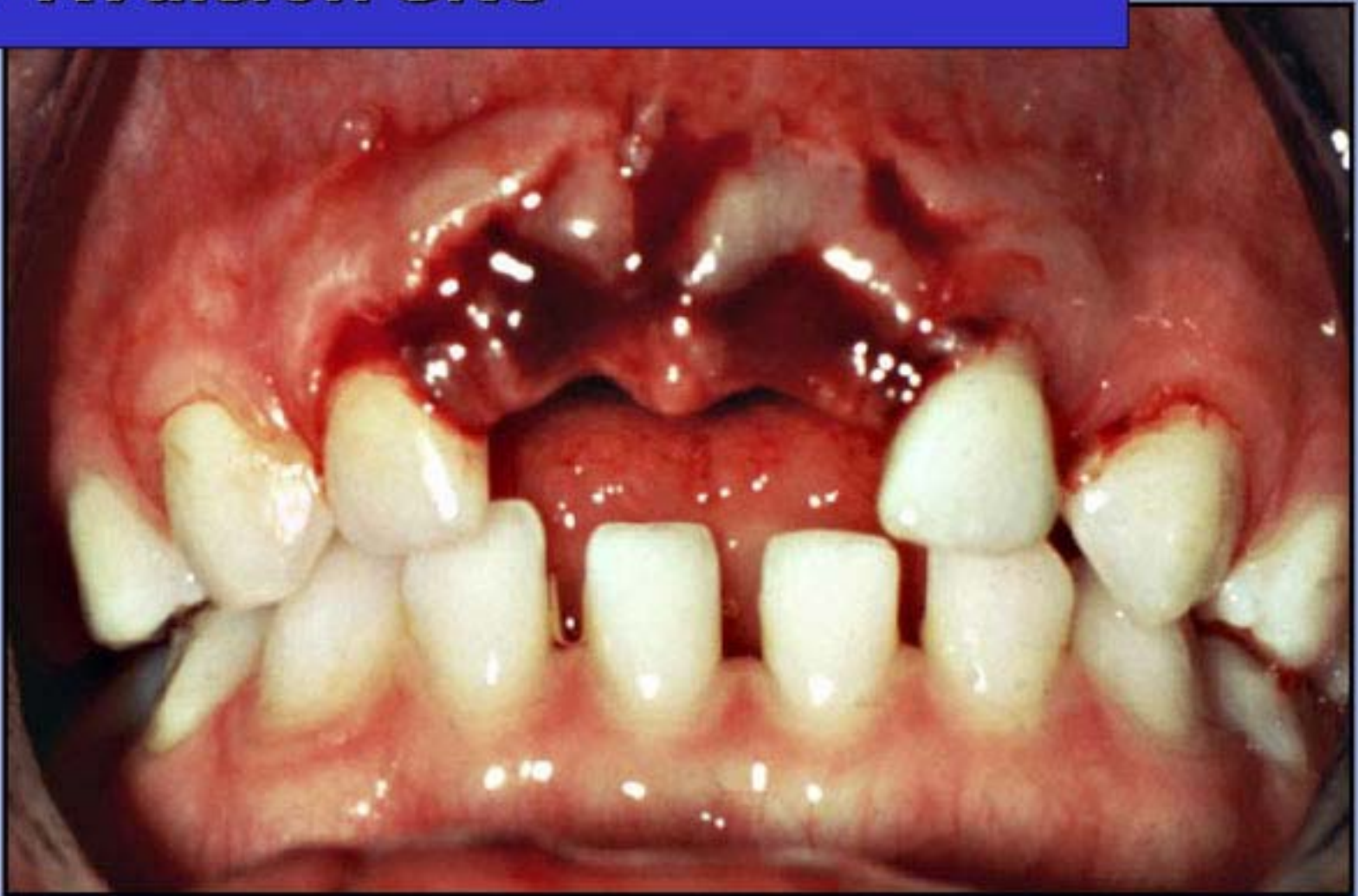
## Extruded Permanent Teeth



Teeth that are pushed out of the gum tissue and bone



## Avulsion Site



Knocked out (avulsed)



## Avulsion Site



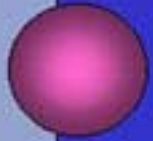




## **Avulsed Permanent Tooth**

- Reimplant ASAP
- Do not scrub clean - rinse
- If unable to implant, transport to dental office in milk or saline
- Plan for root canal therapy



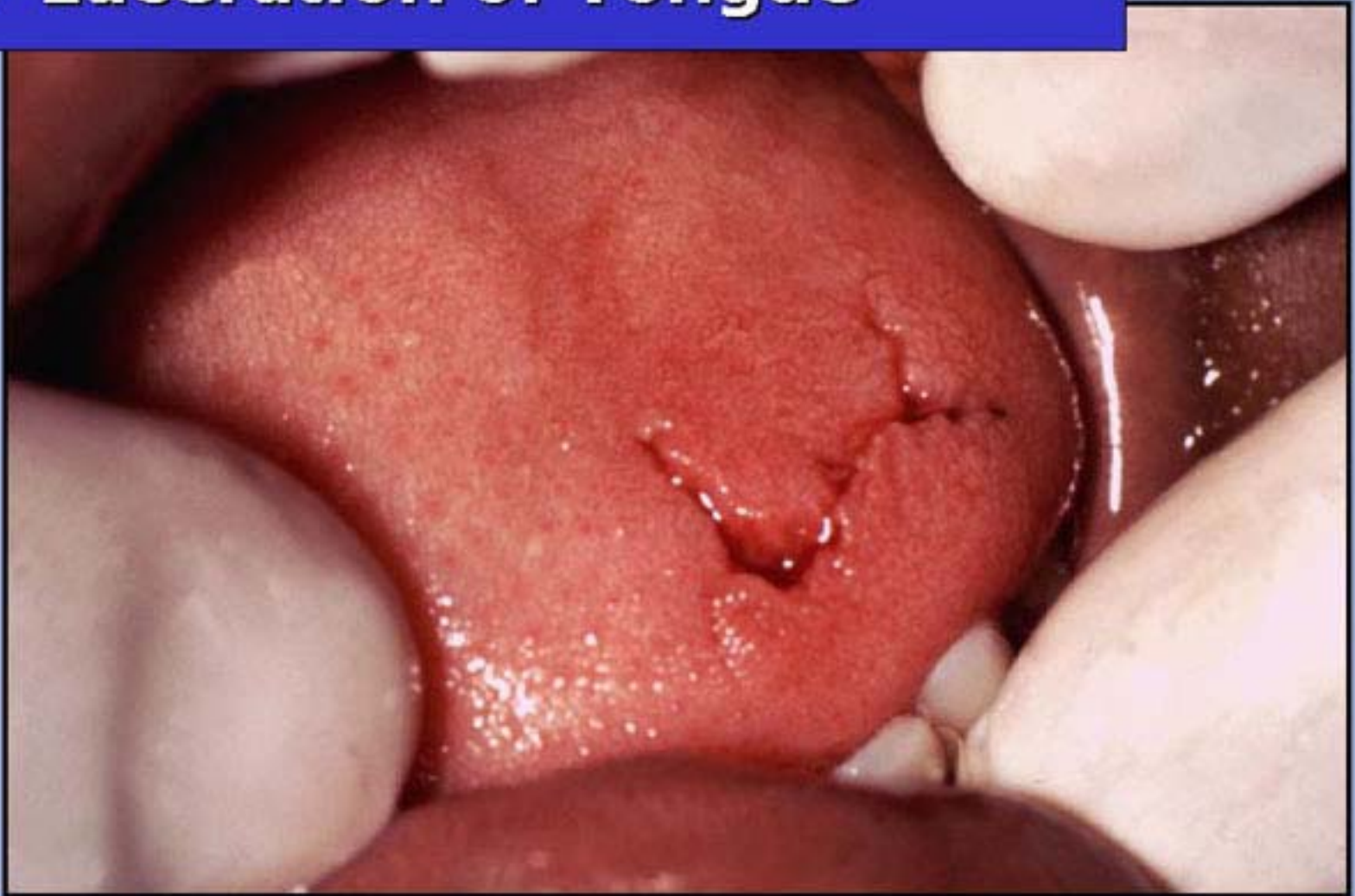


# Soft Tissue Injuries

- **Laceration** - a wound produced by tearing
- **Treatment**
  - Hemorrhage control
  - Wound cleansing
  - Suture as indicated
  - Antibiotics for "through and through" lacerations



# Laceration of Tongue





# Frenum Laceration





## Recent Electrical Burn





# Prevention of Dental Trauma

Wear a mouthguard or mouth protector when playing sports to protect the teeth, lips, tongue, face and jaw.





# Prevention of Dental Trauma





# Pediatric Oral Health

Information in this program was adapted from a series on oral health for healthcare professionals by the American Academy of Pediatric Dentistry, and Procter and Gamble Oral Health Products. The information has been revised to be useful to general audiences.





