Breastfeeding and Frenulums

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Kansas City, Missouri, USA

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Warning

This presentation has slides of cadaver dissections and may not be suitable for viewing by all persons. This presentation was designed for pediatricians, lactation consultants and other health care professionals who consult with parents regarding the issue of breastfeeding and tight frenulums.

All of the following are correct spellings:

Frenulum, frenulums, frenula

Frenum, frenums, frena

Frenotomy, frenectomy

Tongue-tie, tongue-tied

All spellings can be found in medical dictionaries

Consequences of Frenulums on Breastfeeding

- Nipple trauma and pain.
  - Compression of breast from gum pad instead of tongue.
- Inefficient, inadequate suckling.
  - Limited action of tongue / poor wave motion.
  - Tongue unable to compress the breast effectively.
- Poor seal.
  - Tight labial frenum(s) does not allow flanging of lip(s).
- Lengthy feedings.
- Failure to thrive.
- Infant often switched to bottle and pacifiers.

Surgical Indications

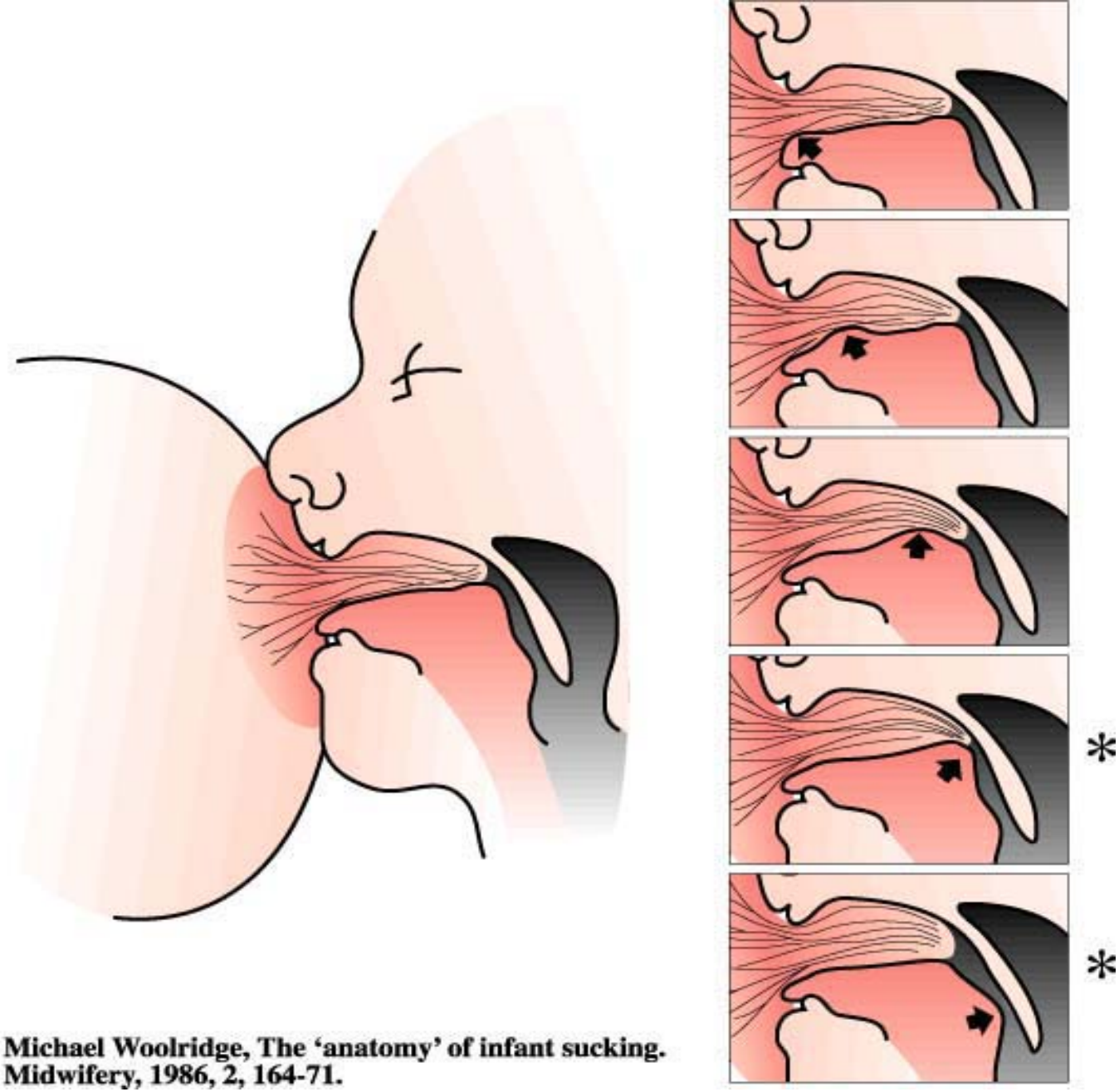
- Breastfeeding difficulties
- Dental problems
- Speech impediments
- Medical problems
  - Indigestion
  - Snoring and sleep apnea
  - SIDS (?)
- Personal / Social reasons
  - Licking ice-cream cones
  - Kissing

Incidence of ankyloglossia

- **4.8%**

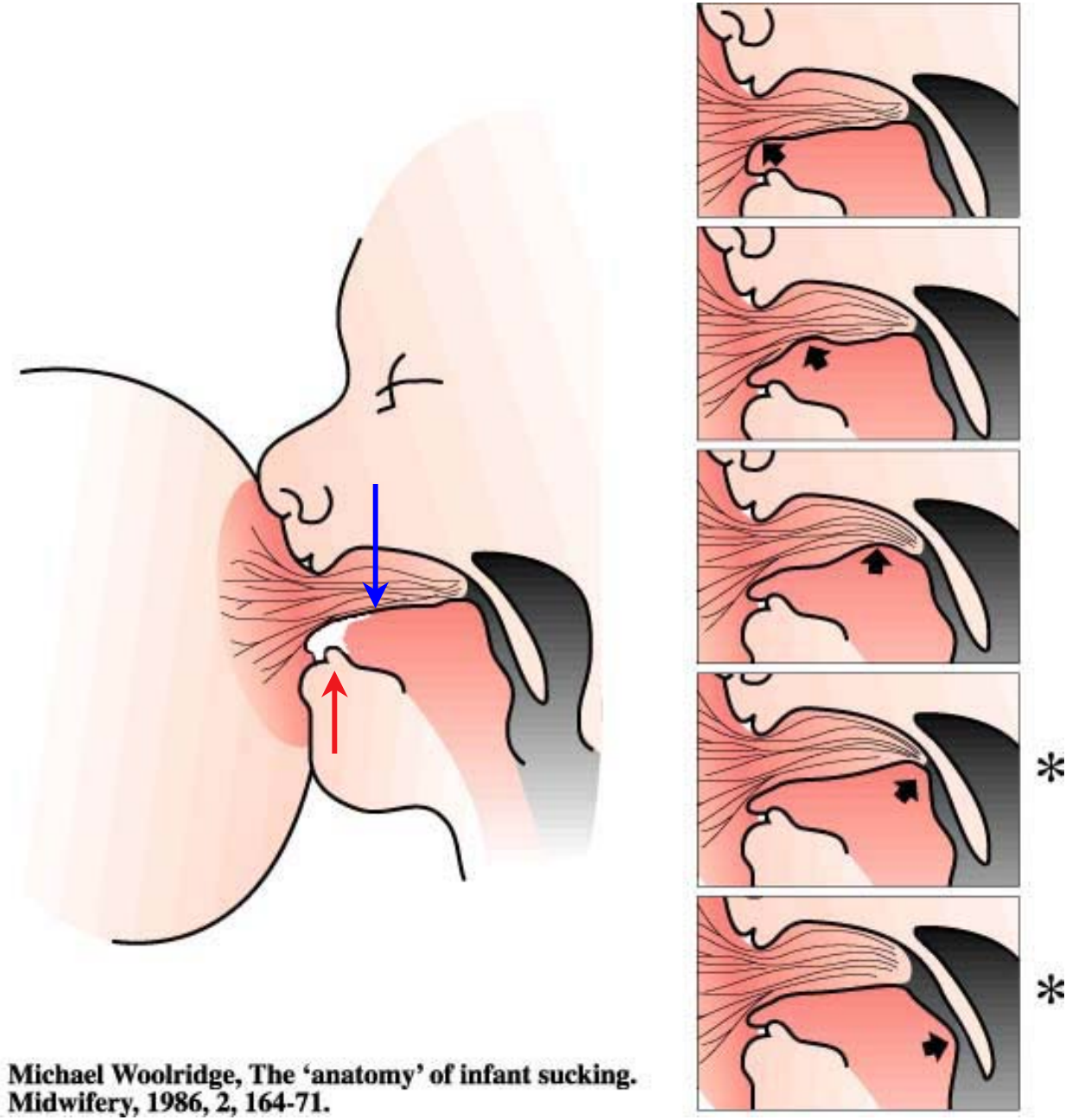
- **Conclusions:**
  - Tongue-tie is common.
  - It may affect breastfeeding adversely.

Messner AH, Ankyloglossia: incidence and associated feeding difficulties, Arch Otolaryngol Neck Surg 2000 Jan;126(1):36-9.



Michael Woolridge, The 'anatomy' of infant sucking.
Midwifery, 1986, 2, 164-71.

7 Demonstrates position and action of tongue during breastfeeding. (Woolridge)



Michael Woolridge, The 'anatomy' of infant sucking. Midwifery, 1986, 2, 164-71.

8 Previous picture altered in left picture to illustrate an infant who is tongue-tied.

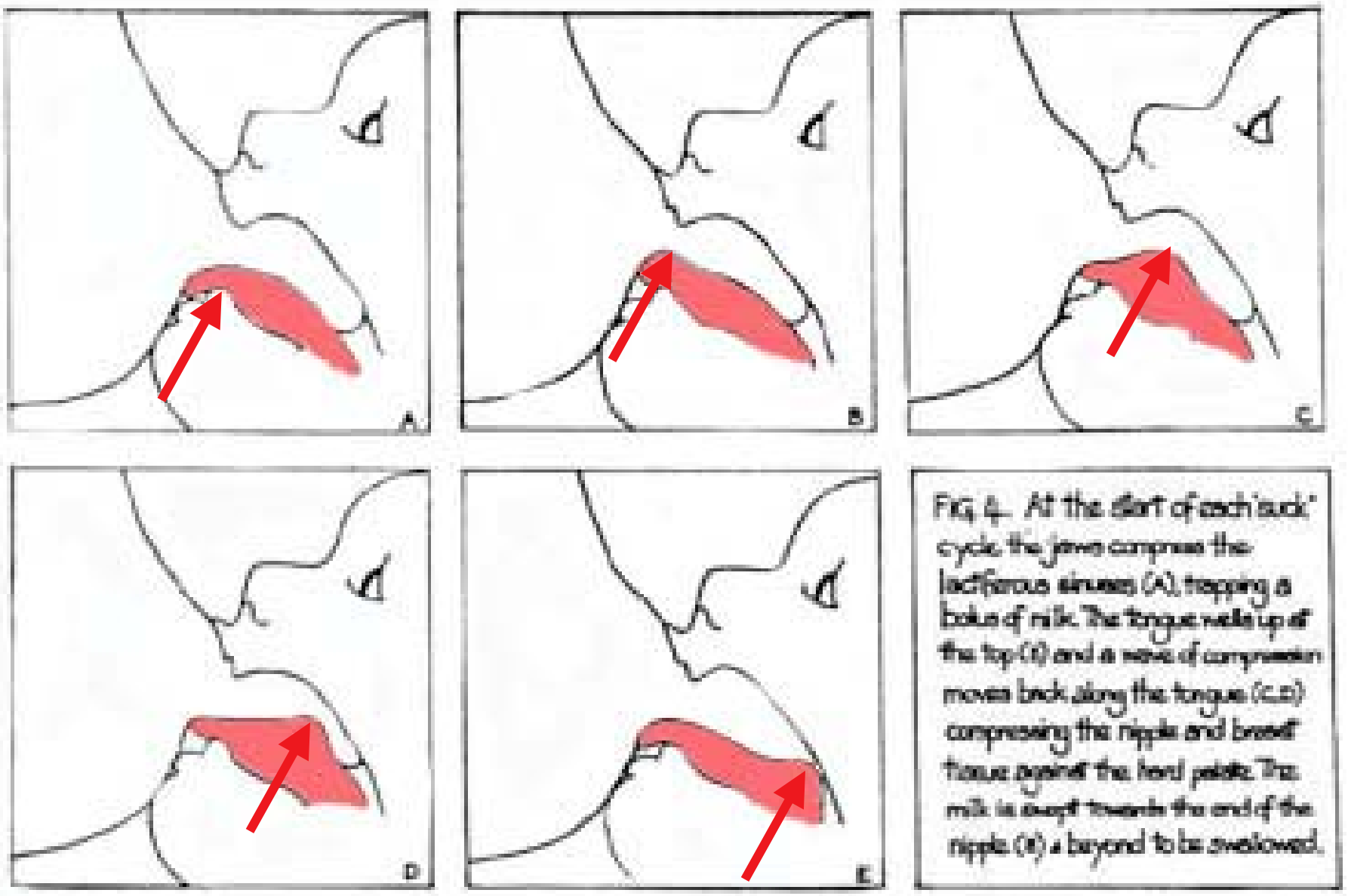
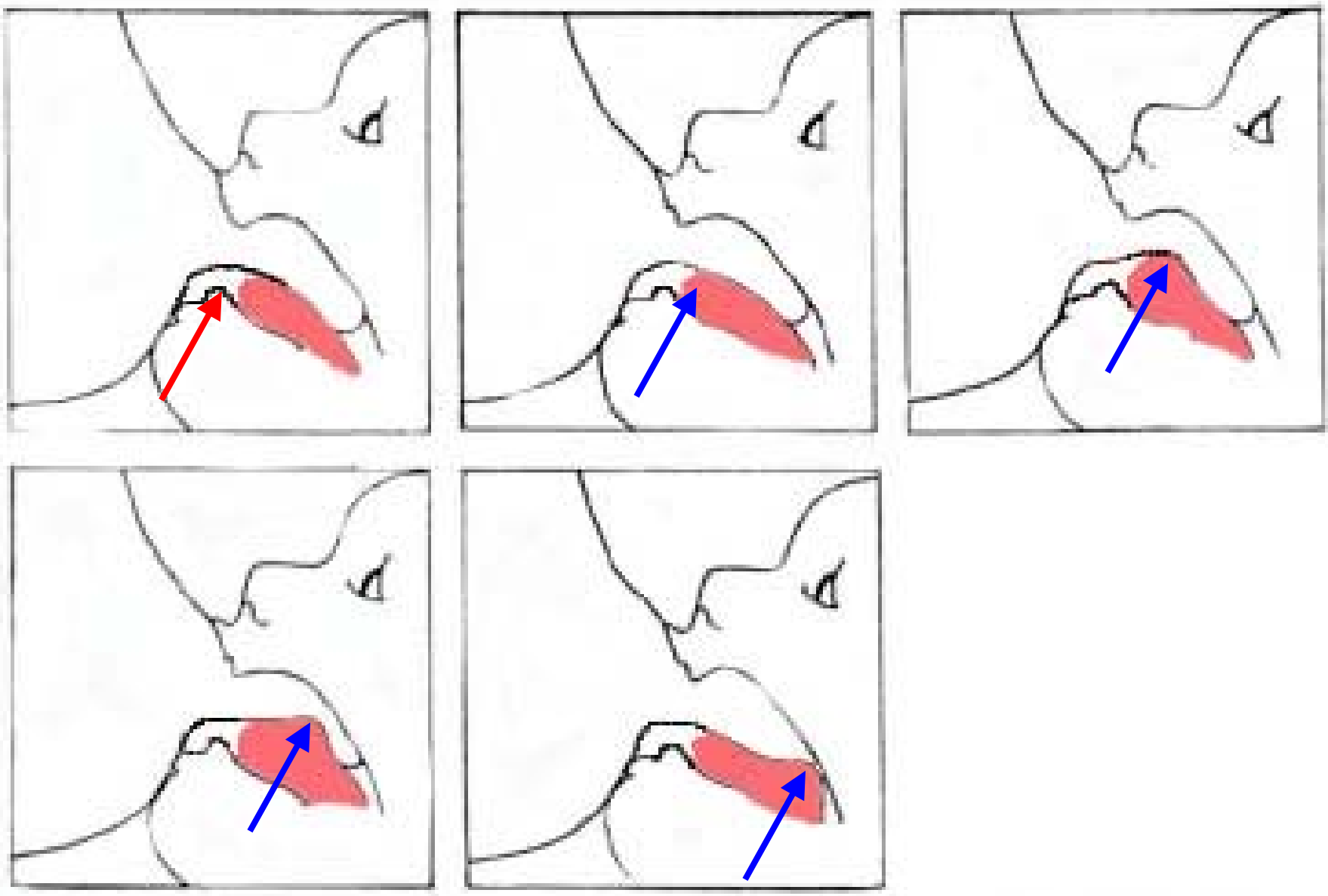
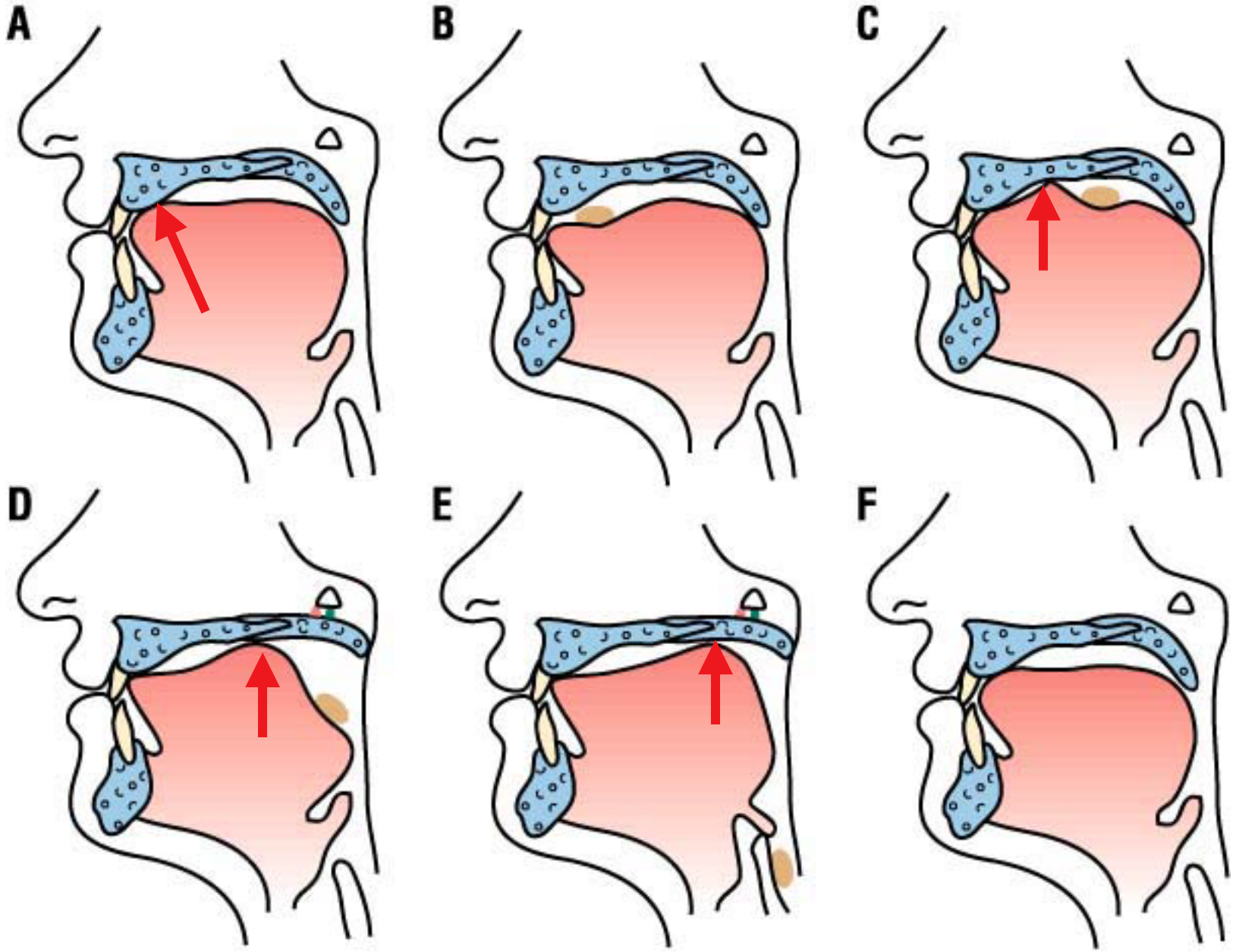


Illustration from Ros Escott article, Positioning, Attachment and Milk Transfer, Breastfeeding Review, 1989, p.35.



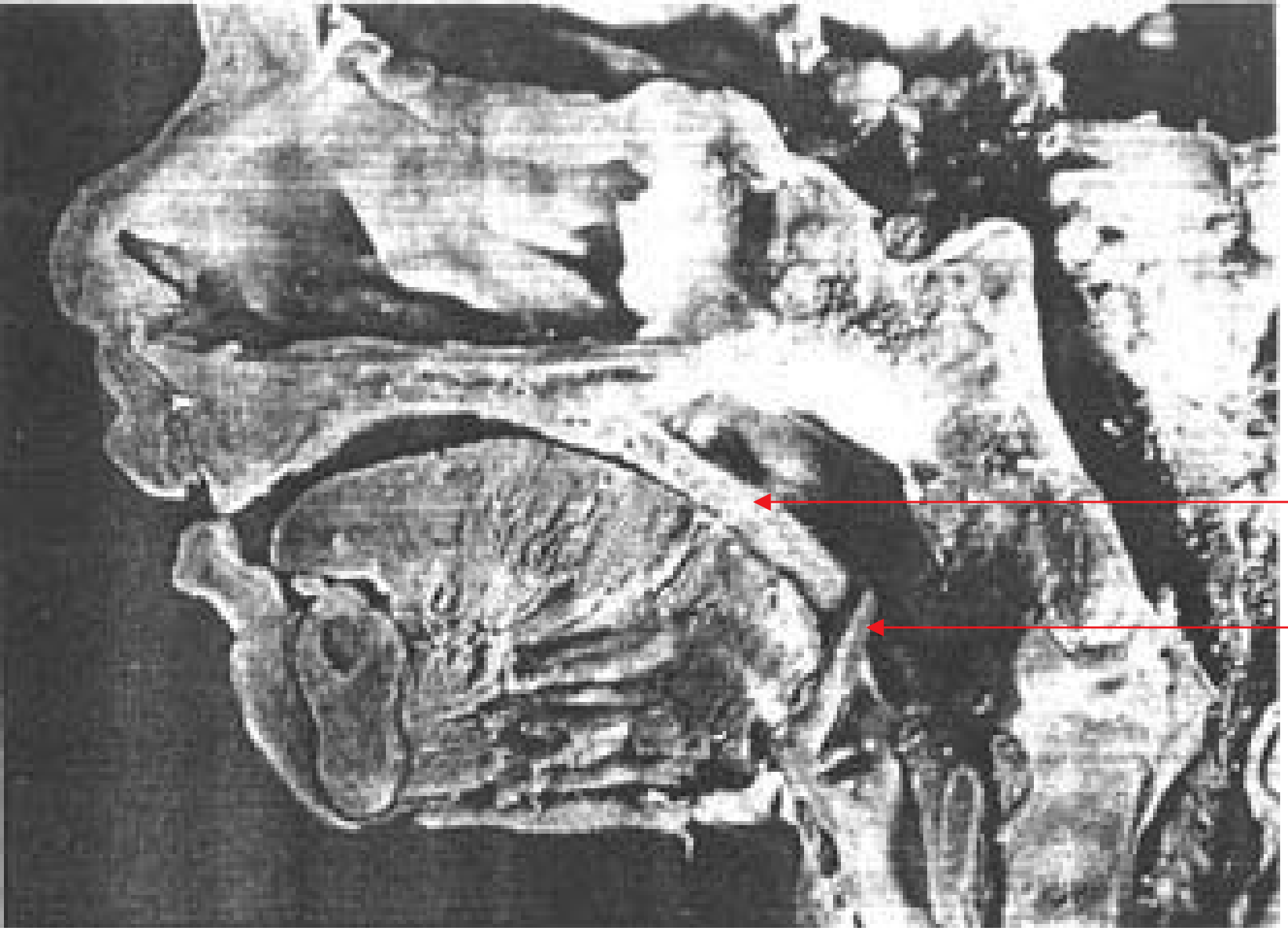
Previous picture altered to illustrate impact of tight frenum.

Adult Swallow

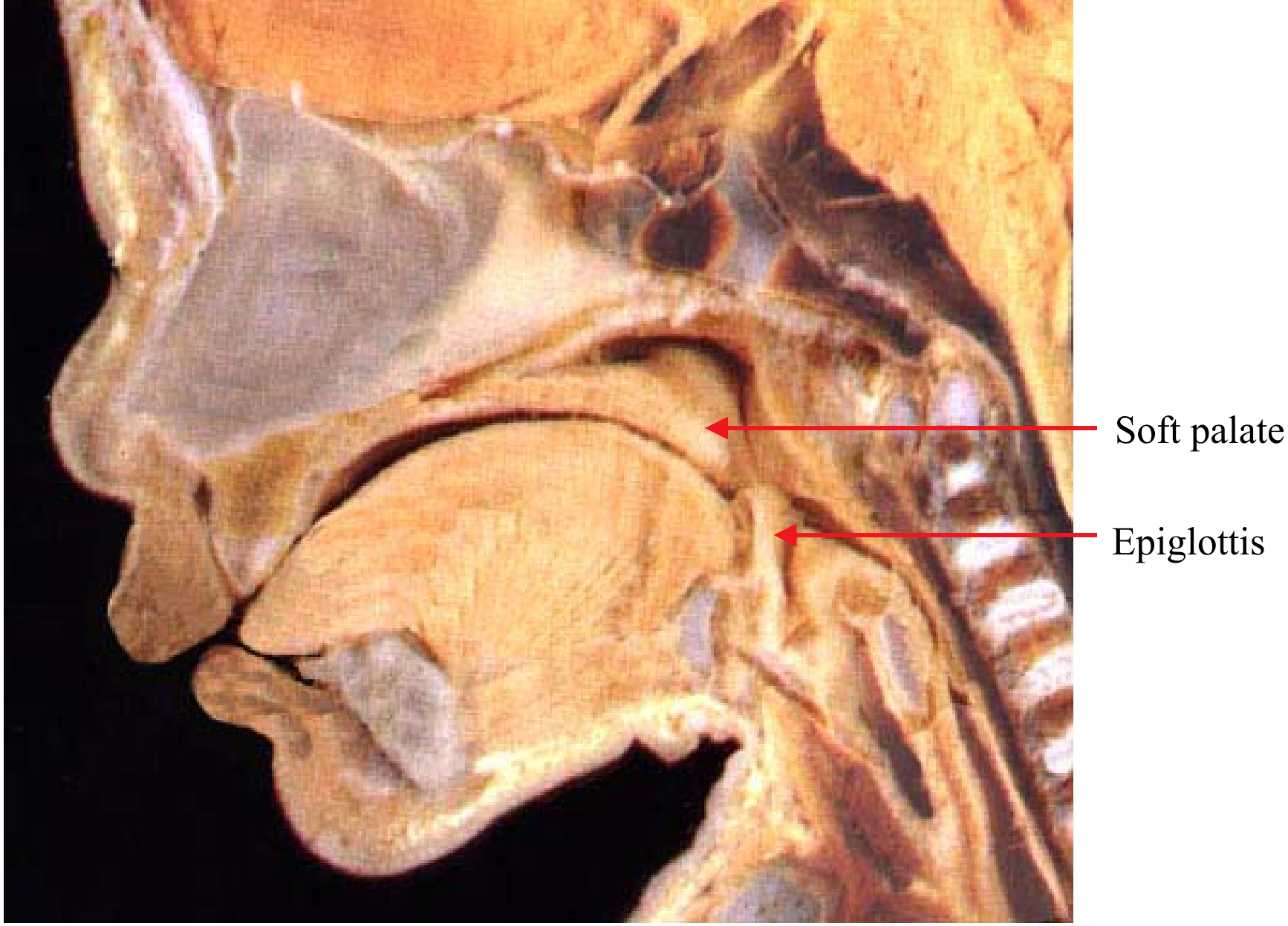


Edmund S. Crelin, Ph.D., D.Sc.

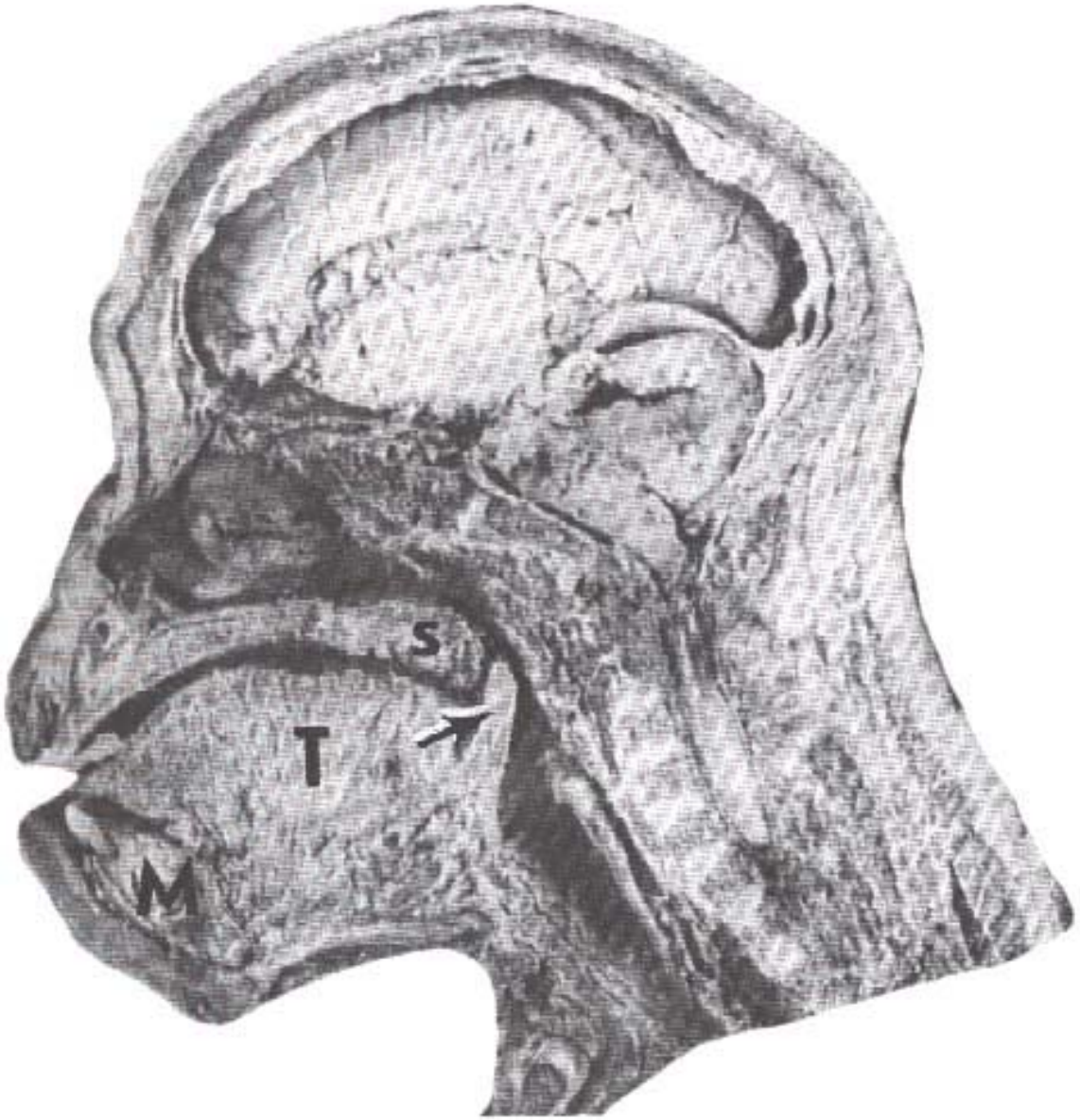
- Faculty member at Yale, 1951-1988.
- Professor of Anatomy, Dept. of Surgery.
- Chairman: Human Growth & Development.
- Author of 168 research articles.
- Author of 3 books..
- Author of 5 CIBA Clinical Symposia.
- 3 awards at Yale as “outstanding teacher”.



The epiglottis is in direct contact with the soft palate. “The tongue is located entirely within the oral cavity”. (Crelin)



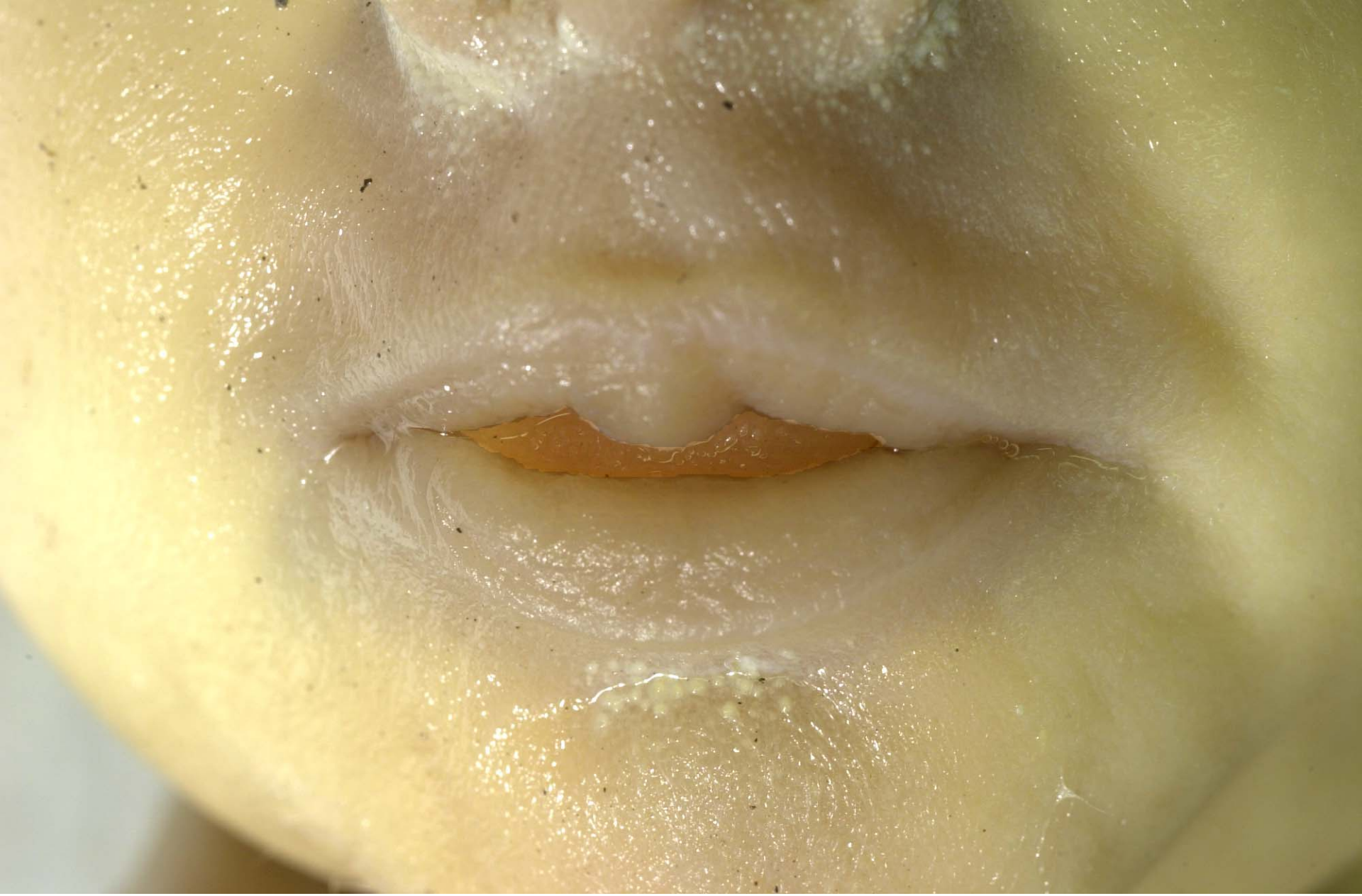
Atlas picture demonstrating similar relationship of epiglottis and soft palate. (Rohen/Yokocki)



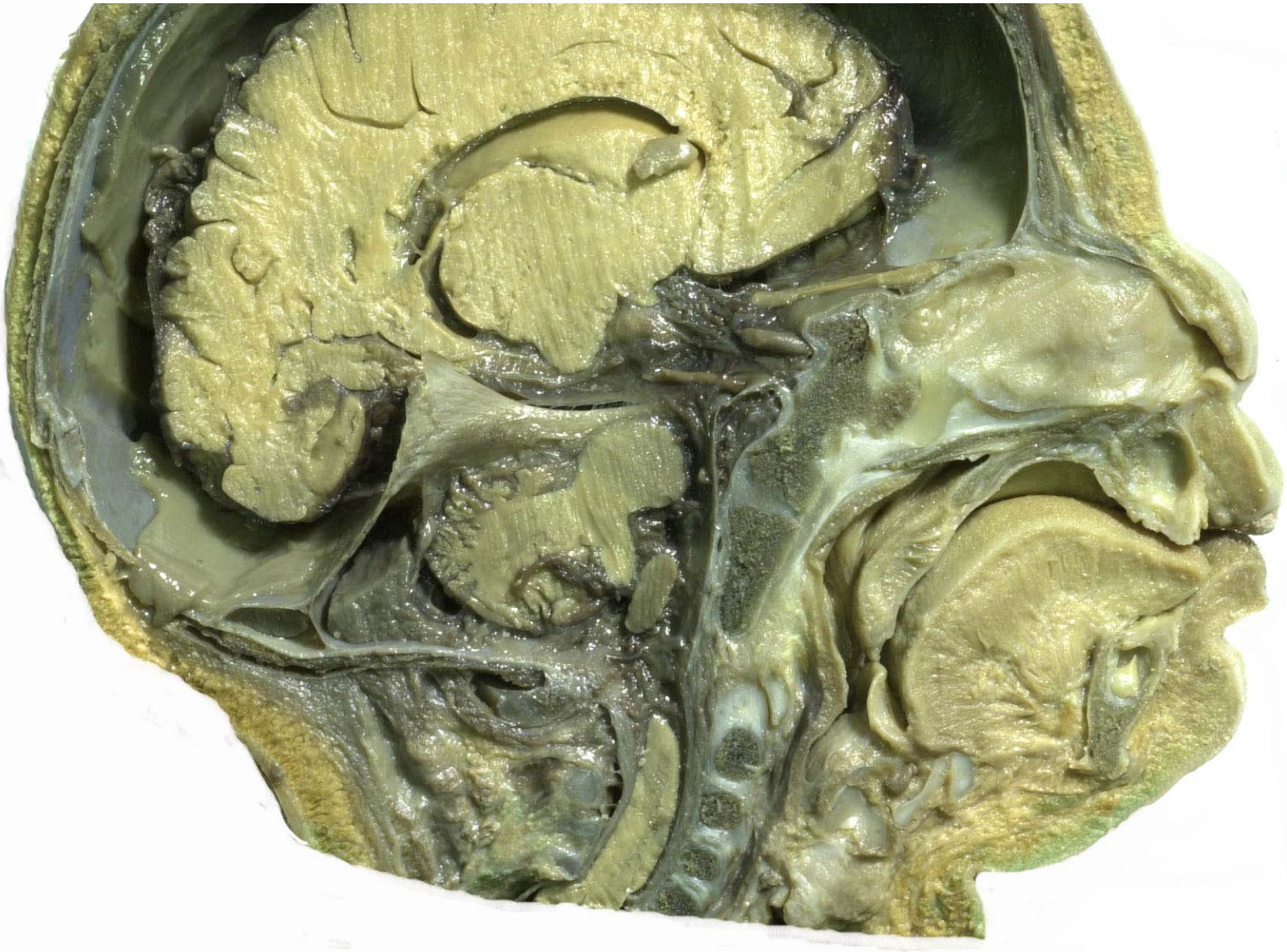
Adult chimpanzee (Crelin).

Note soft palate / epiglottis relationship.

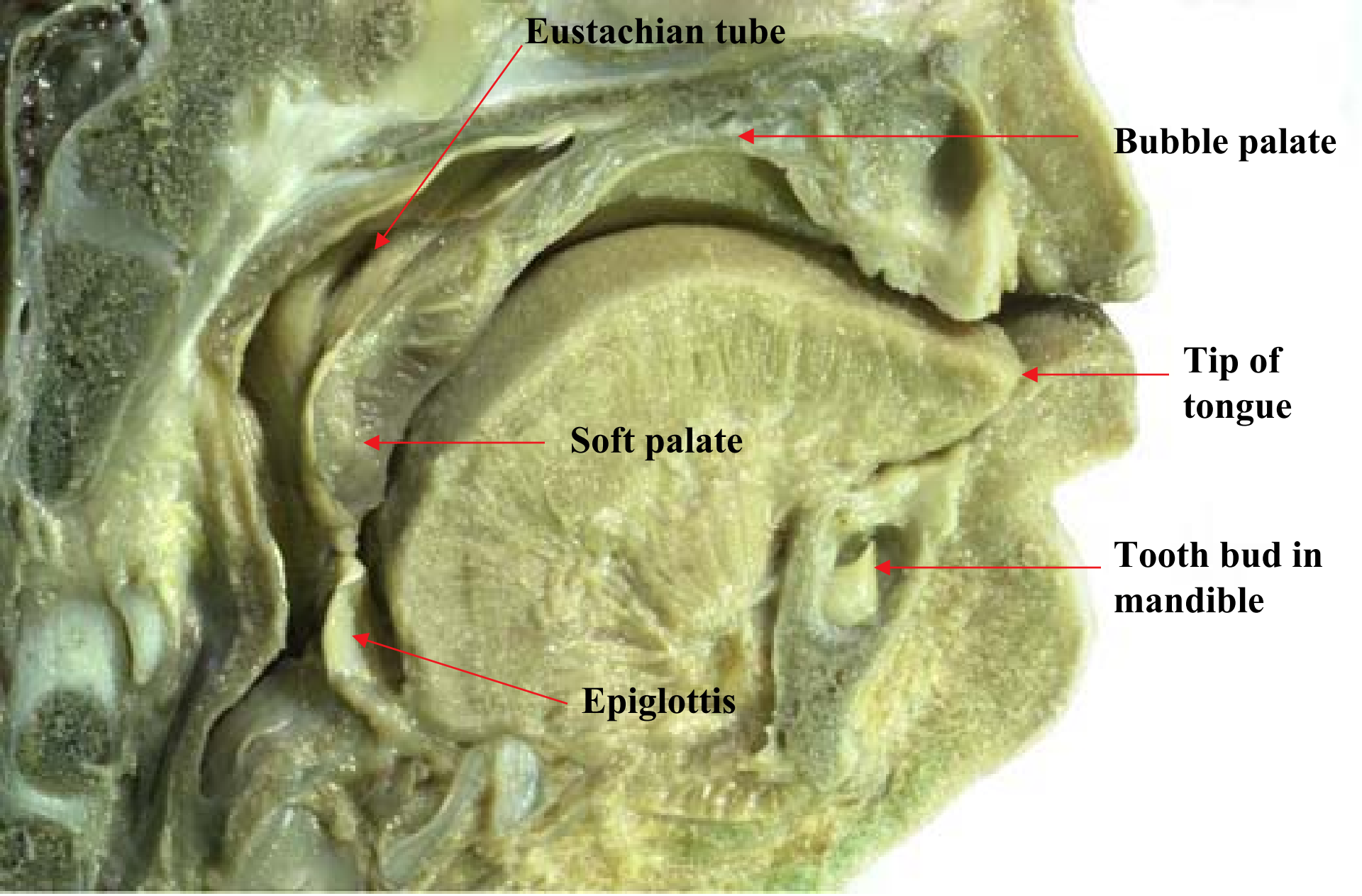
Frontal view of fetus cadaver. Note separation of lips.



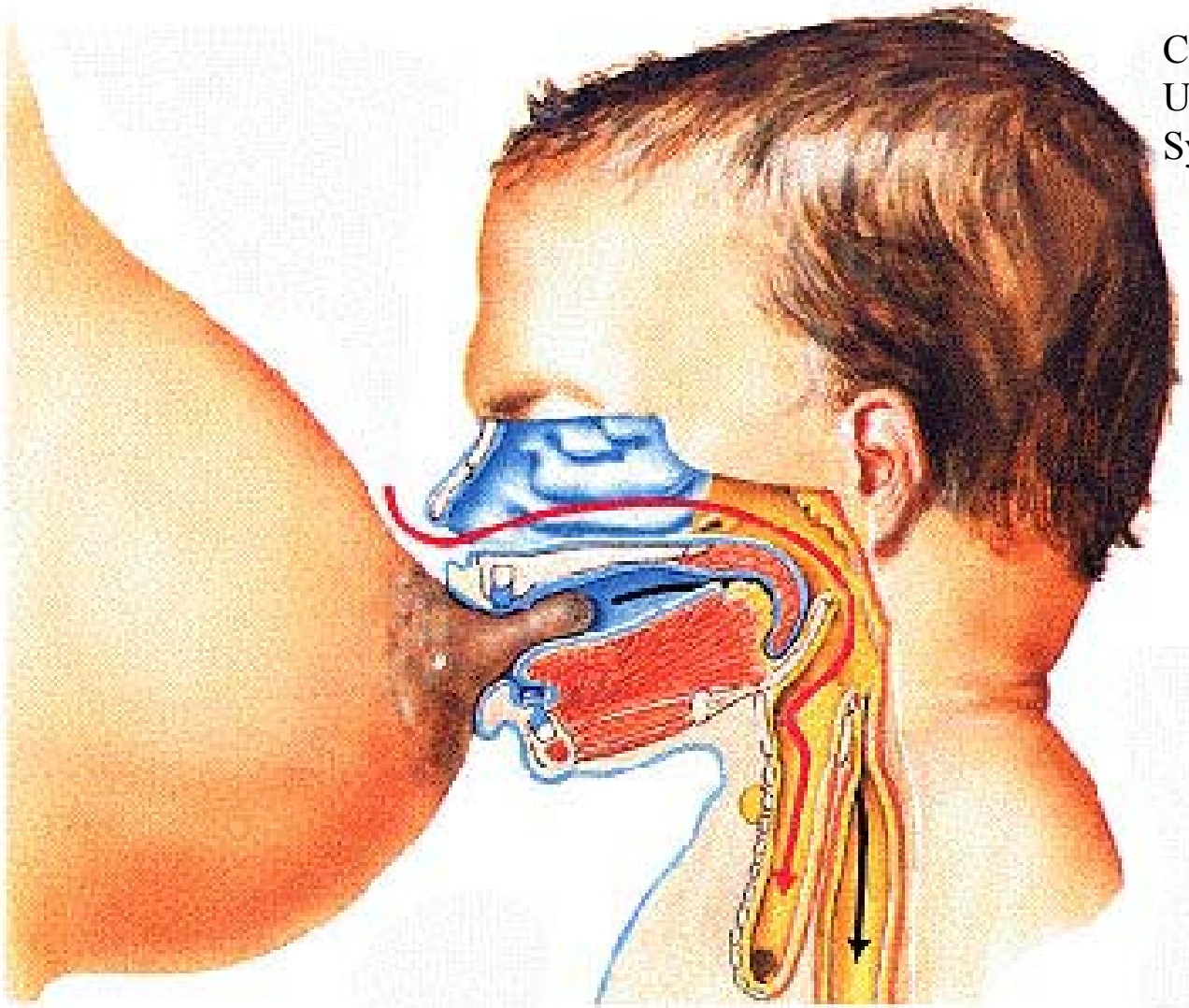
Note forward position of tongue.



18 Mid-sagittal dissection of fetus cadaver.



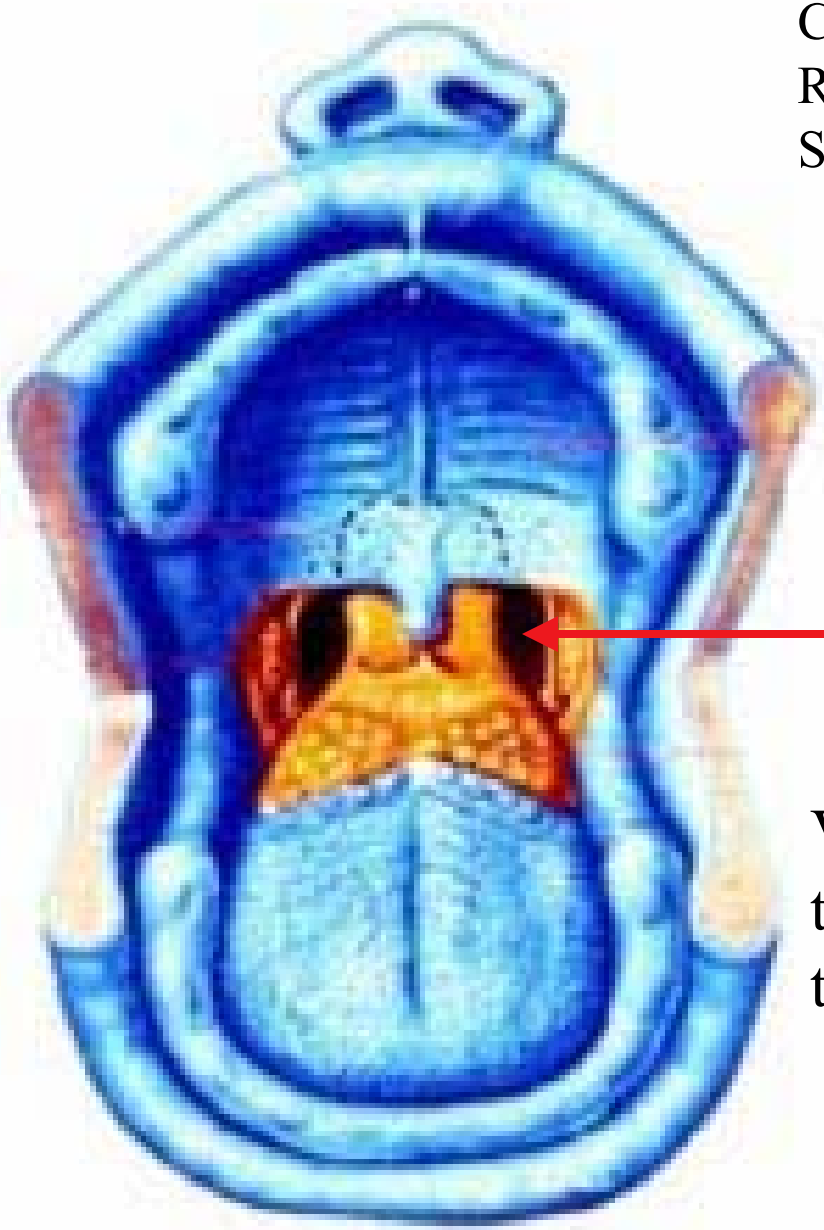
Cadaver dissection demonstrating habitual tongue posture and relationship between the soft palate and epiglottis.



Crelin ES. Development of the Upper Respiratory System, Clinical Symposia, Vol. 28, No. 3, 1976.

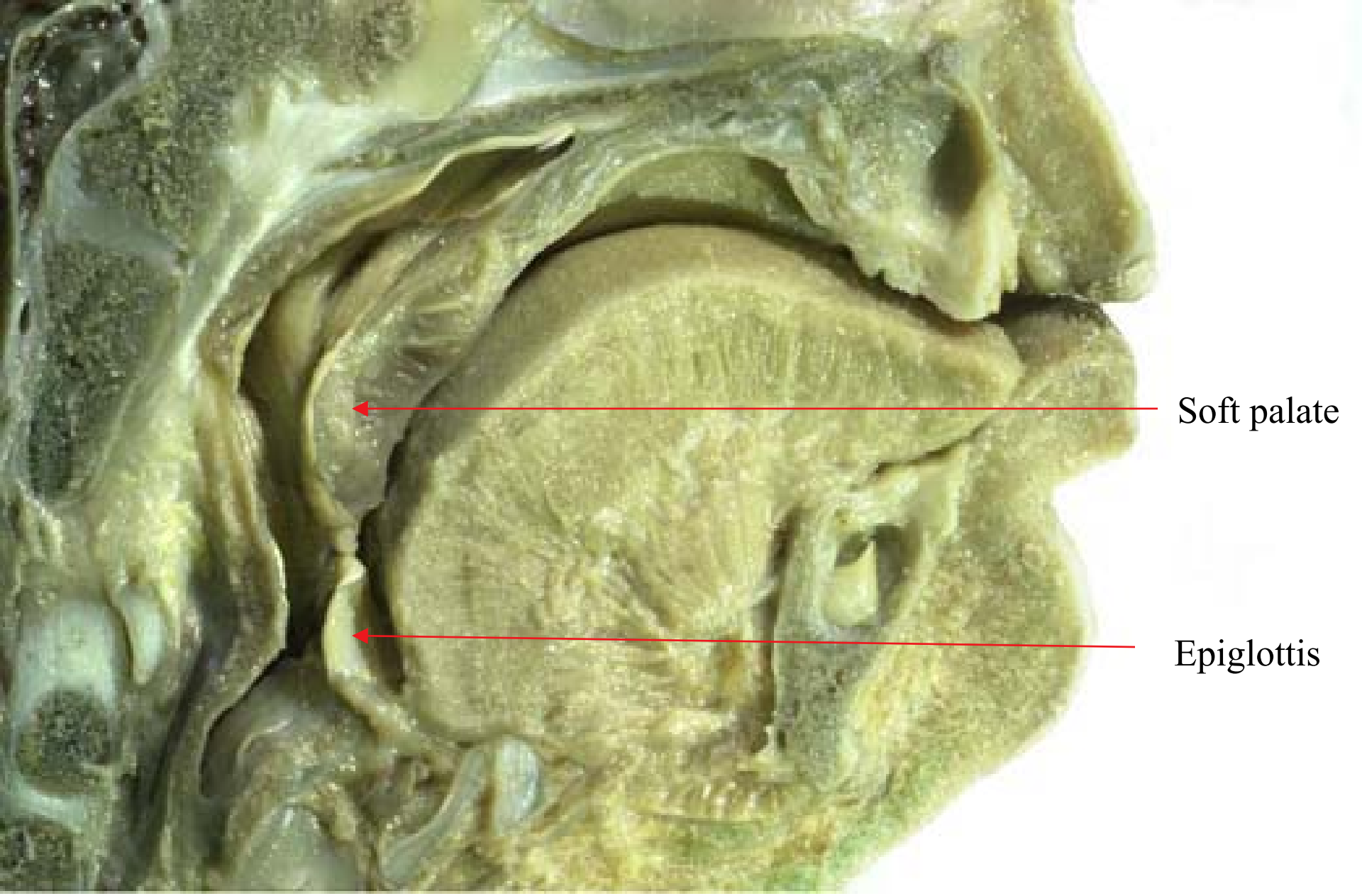
During the act of breastfeeding, Dr. Crelin states the larynx can be elevated so that the epiglottis can slide up behind the soft palate to lock the larynx into the nasopharynx. This allows the infant to both swallow and breathe at the same time.

Crelin ES. Development of the Upper Respiratory System, Clinical Symposia, Vol. 28, No. 3, 1976



Faucium channel

View looking into the mouth to illustrate the interlocking of the soft palate and epiglottis.



22 Cadaver dissection showing enclosed air tube / airway.

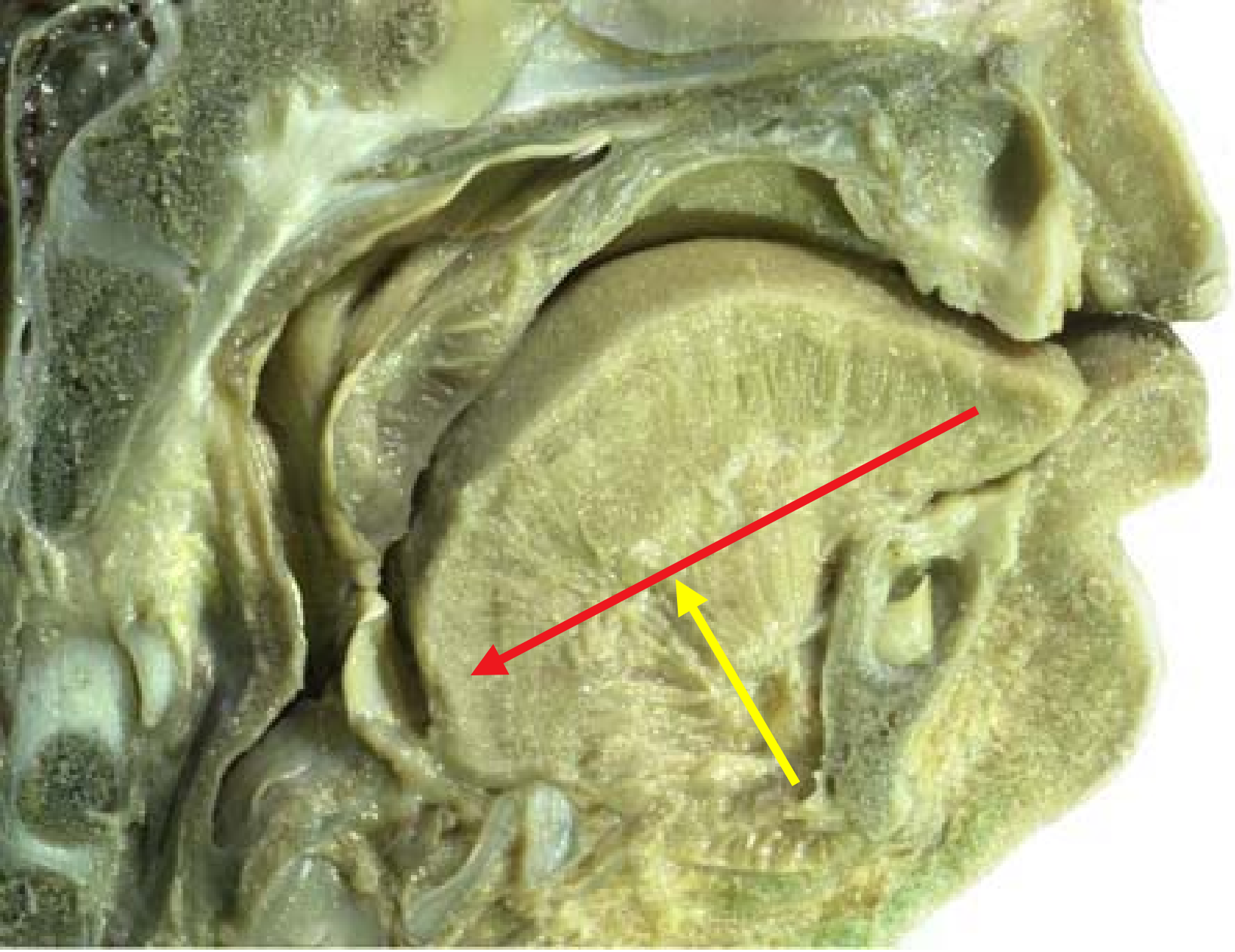
Possible reasons for the natural anterior positioning of the tongue.

- To allow the infant to breastfeed immediately after birth - ie - allows the natural extension of the tongue to allow for the compression of the lactiferous sinus area and the total length of the breast.
- Allow the infant to naturally breathe and swallow at the same time without learning a complicated protective mechanism.

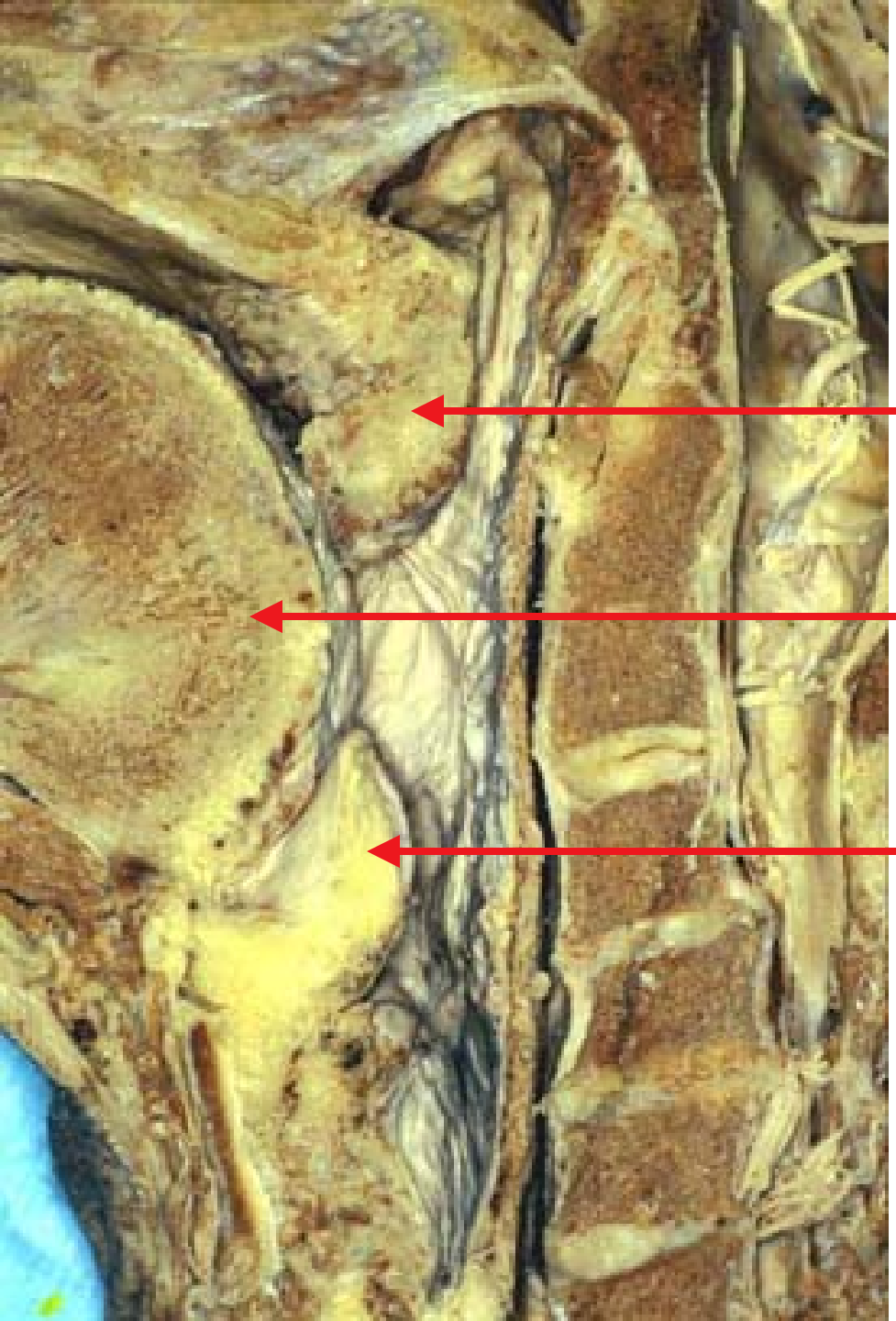
"Maturational descent of the epiglottis, found to occur between **4 and 6 months of age**, is verified by cineradiography."

"This period, interestingly coincides with the peak incidence of SIDS, which similarly occurs at **3 to 5 months of age**."

Sasaki CT, Crelin E,S et al. Postnatal Descent of the Epiglottis in Man, March 1977, Arch Otolaryngol, Vol. 103, 169-171.



As the epiglottis descends, the tip of the tongue falls back into the mouth to an adult position.



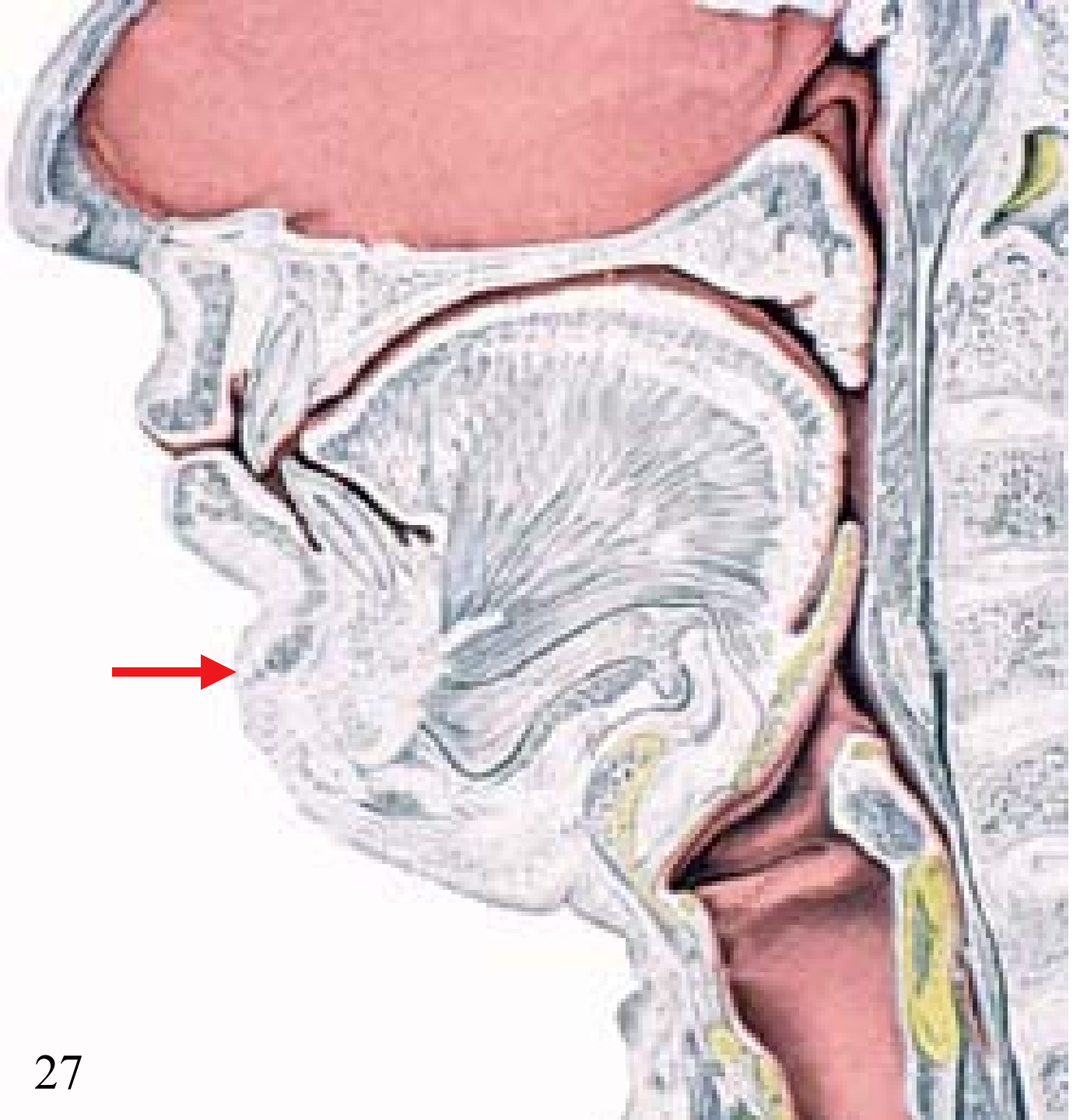
Close view of adult dissection demonstrating separation between epiglottis and soft palate.

Soft palate

Tongue

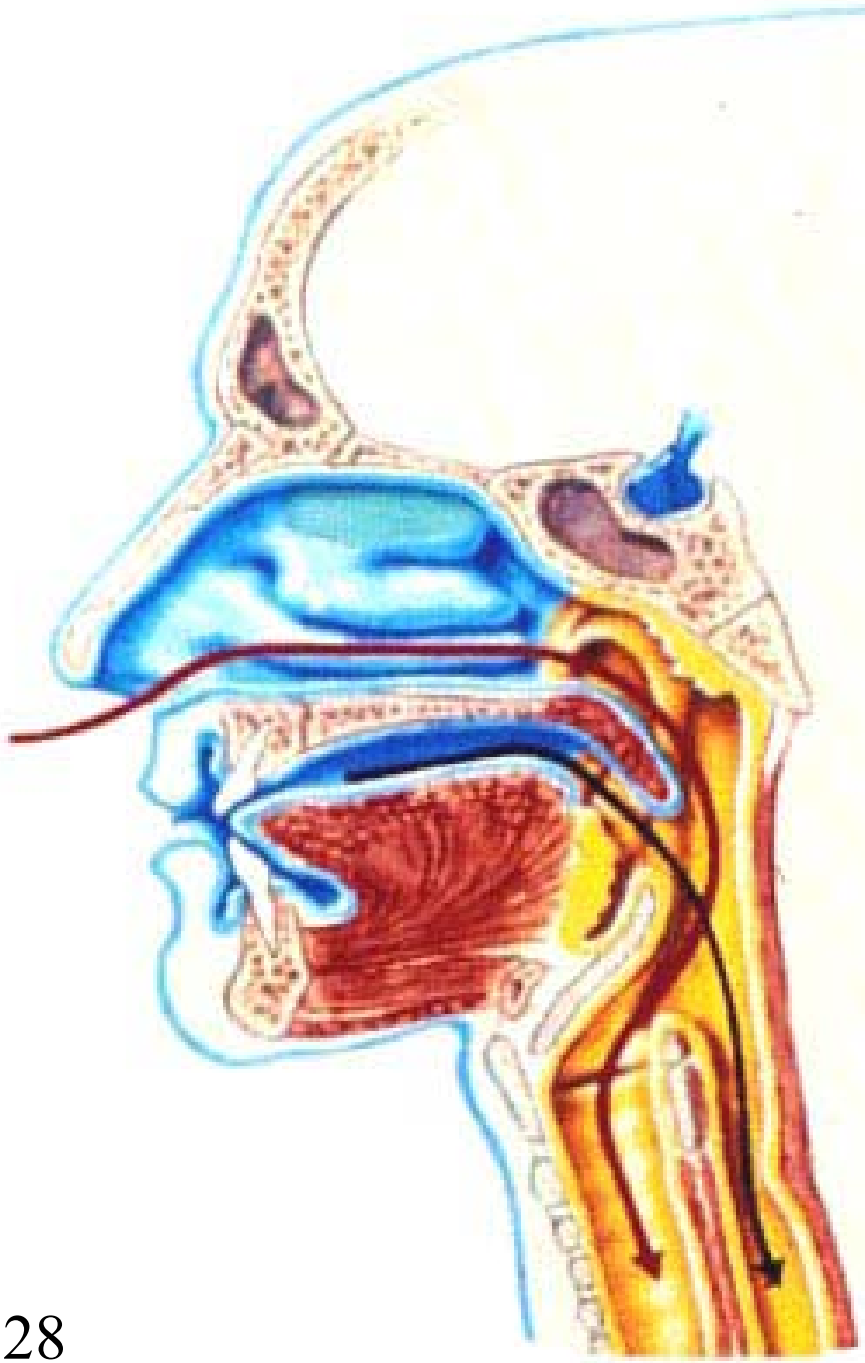
Epiglottis

Note that the posterior 1/3 of the tongue is now the anterior wall of the oropharynx.



This adult individual may have died from OSA. Note blockage of airway by soft palate and base of tongue. Also note retruded (pushed back) Class II mandible (chin). (Grant's Atlas)

If this had been an illustration of an infant, he/she may have died from SIDS.

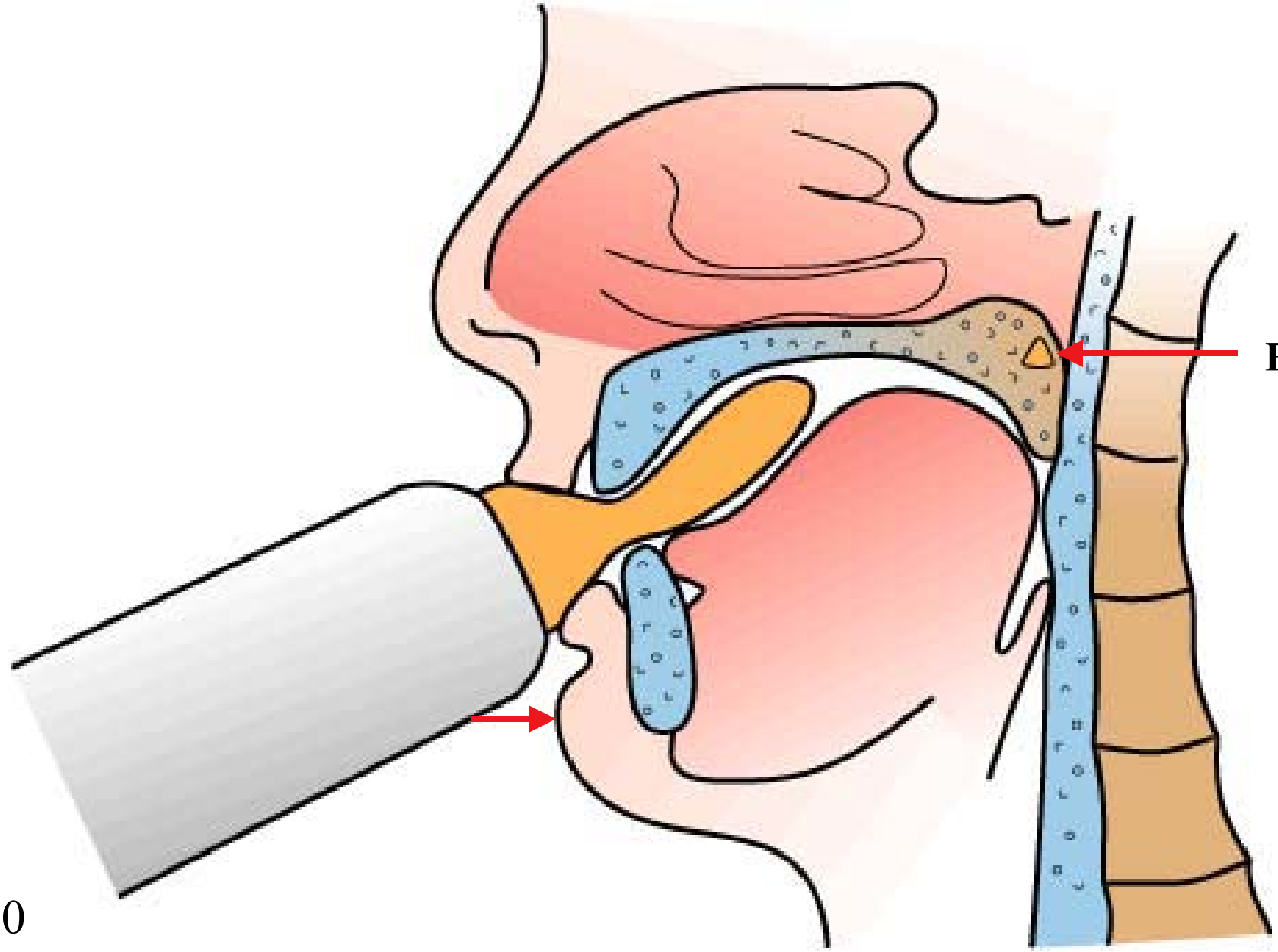


With the descent of the epiglottis a common area is created where both food and air can mix.

This descent also allows humans to produce a greater variety of sounds than all other air-breathing forms. (Crelin)

Reason for pain/poor feeds

- Gum pad traumatizes breast. Tongue cannot cushion blow from pad.
- Tongue unable to compress full length of breast.
- Tight labial frenum does not allow flanging of the lip(s).



Tight frenulums and bottle feeding can alter a natural swallow, drive the tongue back and separate the epiglottis / soft palate.

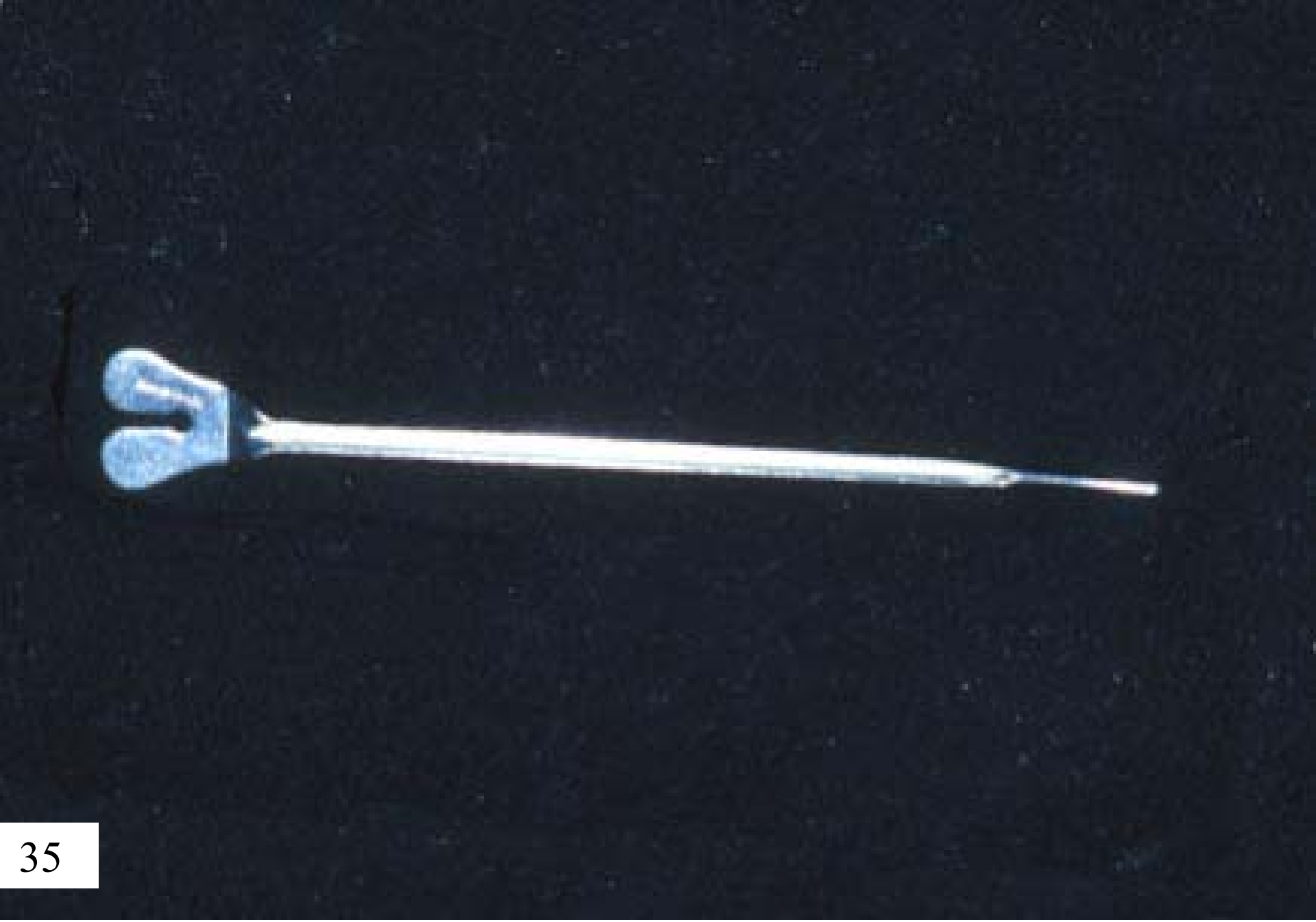
Lingual frenulums
RARELY
go away by themselves.

Ankyloglossia Symptoms

- Heart shape of tongue when raised.
- Cannot extend tongue out to a point.
- Tongue curves down when extended.
- Usually leads to a deviate swallow.
- Possible speech problems.
- May have trouble swallowing pills.
- May have digestive problems.
- Difficulty in licking ice-cream cones.
- Difficulty in kissing.

New born with tight frenum and heart shaped tongue. (Dr. Notestine)

3 month old who was weaned because of breastfeeding difficulties.



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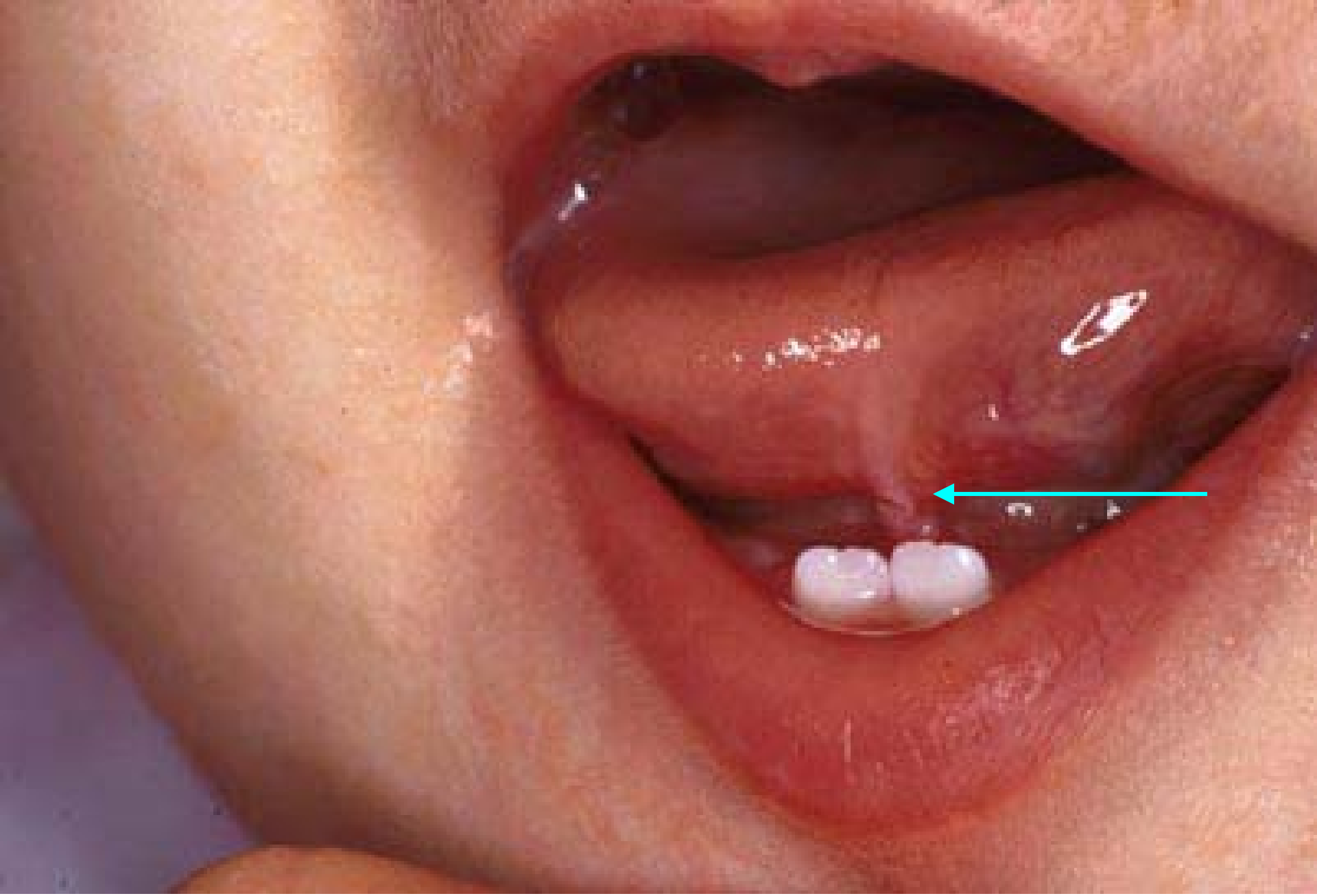
“Tongue lifter” - used to be quite common in birthing surgical packs.

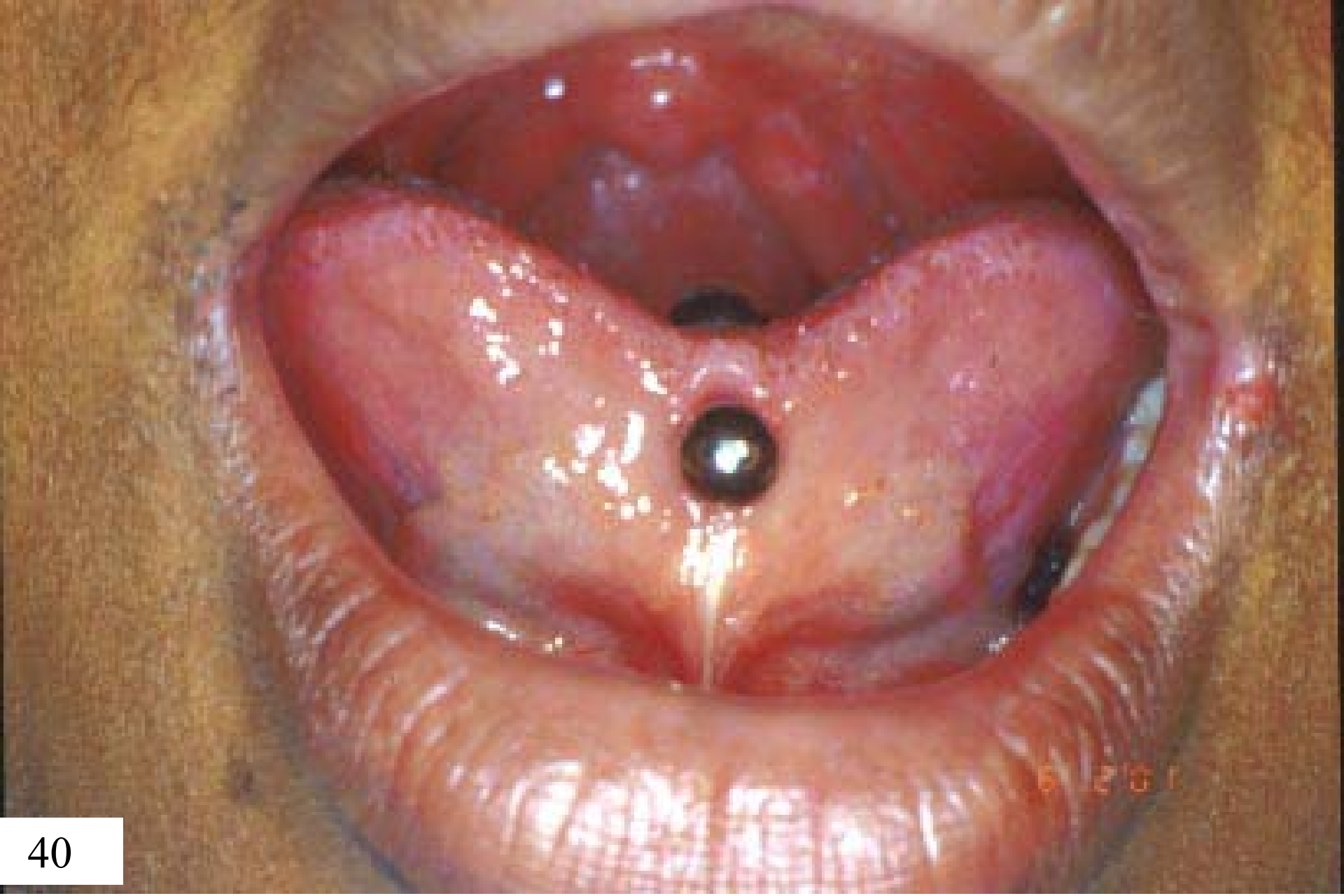


36 Age 4 months - Note lesion on frenum caused by teeth.

37 (1976) Age 3 years - Frenum already causing teeth to rotate.

Tight thick frenum with classical heart shape of tongue. (Dr.Notestine)

39 (1996) Age - 6 1/2 years.



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Young adult who is tongue-tied. Note tongue-bar!

Retired MD - Tongue curls down and cannot extend past lip.

Clinical Reasons for a frenotomy

- Painful attachment at the breast.
- Nipple trauma / nipple breakdown.
- Failure to thrive / poor milk transfer.

Tight labial frenums also impact breastfeeding because they can alter the infant's ability to latch-on.

They DO NOT go away by themselves either.

Thick frenum causing diastema - probably interfered with breastfeeding.

45

He could not elevate lip well.

Treatment Options

- Frenotomy
  - No anesthetic needed
  - No suturing
- Frenectomy
  - Local or general anesthetic used
  - Sutures placed
- Z-plasty
  - More complex
  - Sutures placed

These options discussed more in other presentation on frenulums on this website.

Consequences of not treating tight frenulums.

Case reports:

Case 1

Age 4 (1992)

Age 4 - Tight frenulum - note pull on inside of lower jaw.

51 A tight frenulum caused this tongue-thrust.

52 Age 4 - The tongue-thrust caused this open bite.

Comparison of cause and effect.

Tongue-thrust created this adult's open bite malocclusion.

Tongue-thrust created this adult's open bite malocclusion and gingival recession.

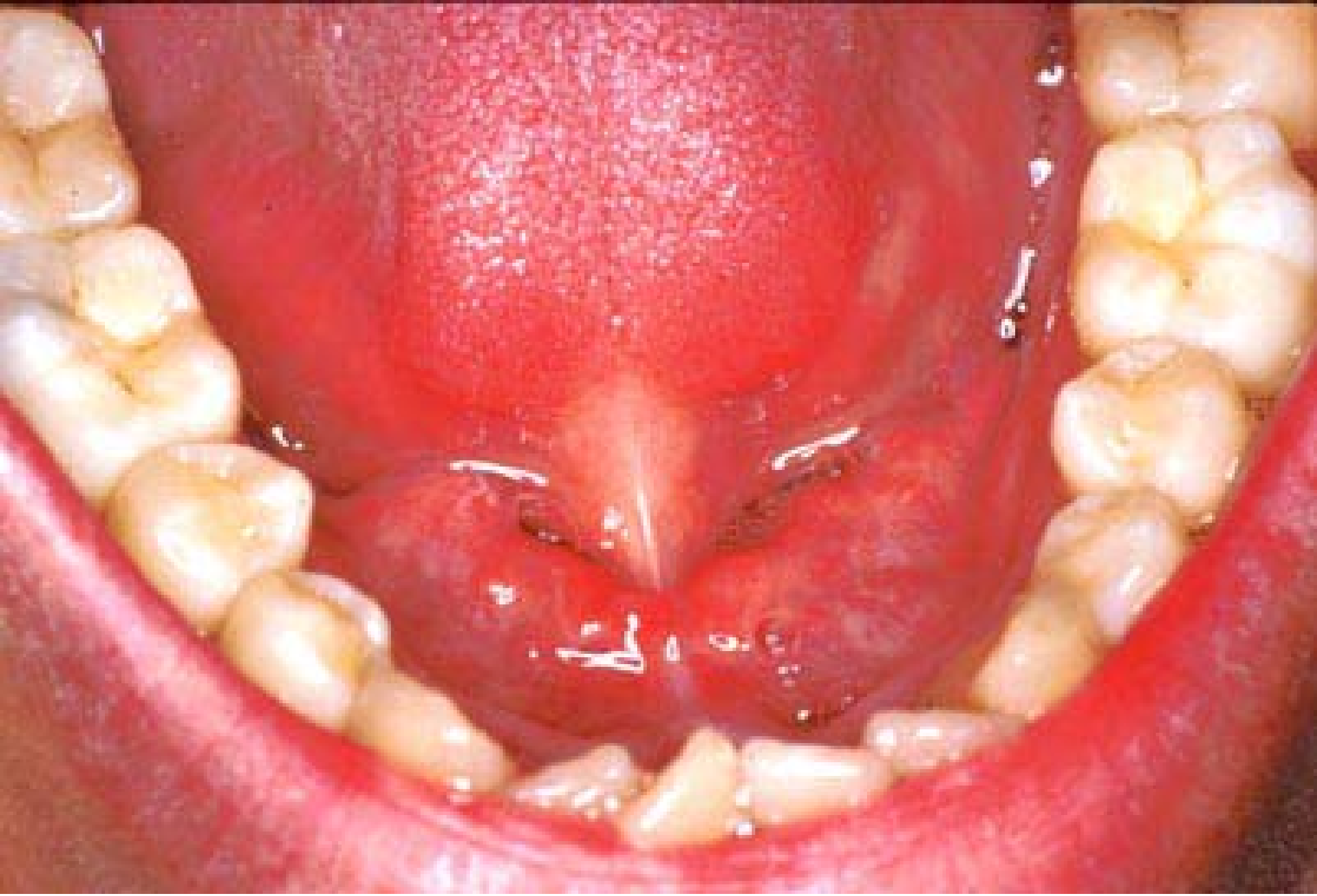
Case 2

57 Breastfed boy showing malocclusion with very crowded teeth.

Even though youngster was breastfeed, he still developed a high palate.

59 Reason for malocclusion and high palate - he is tongue-tied!

Case 3



61 Patient in early 30s. Is severely tongue-tied.

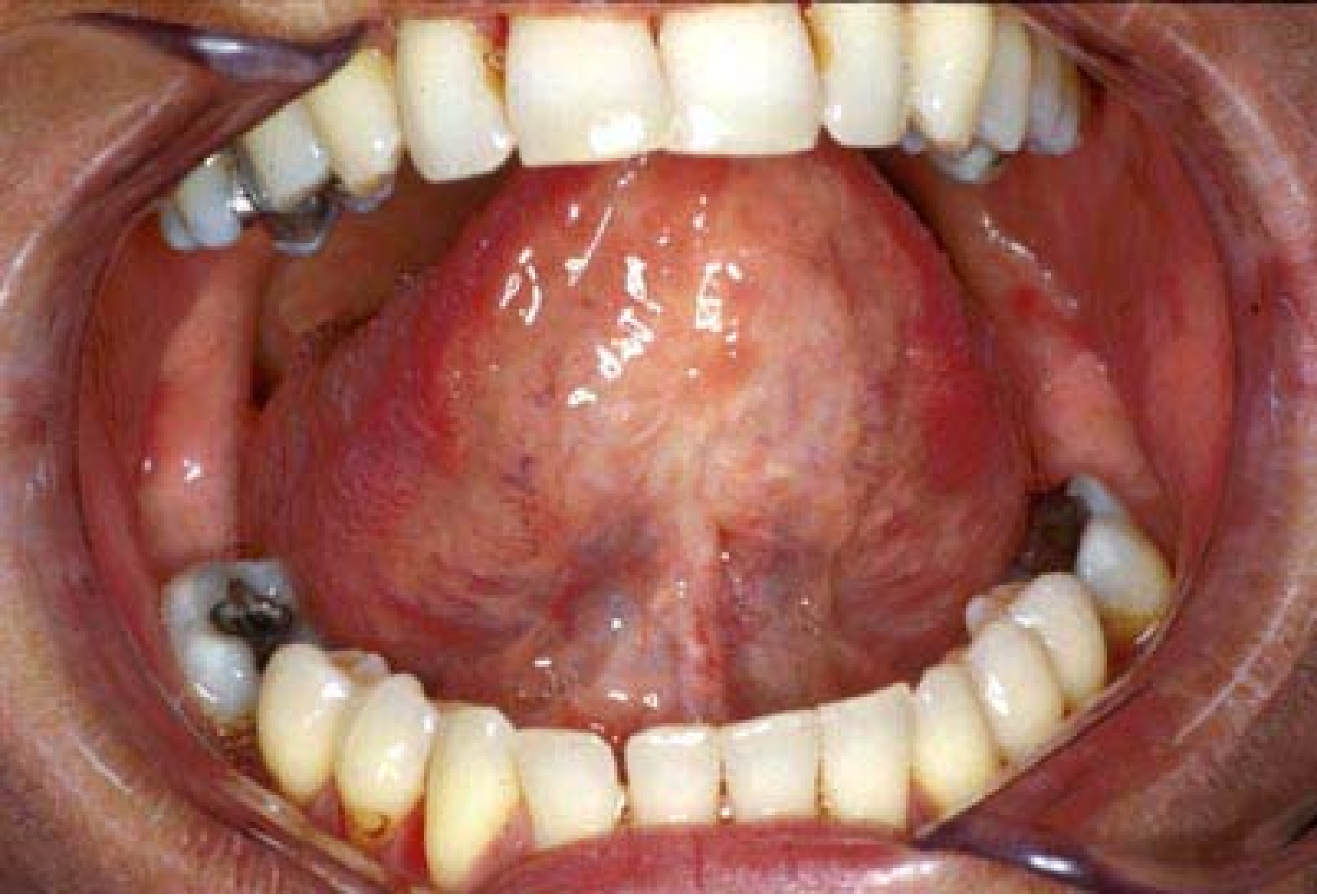
Tongue fully extended - note grove on top of tongue.

Force of tongue-thrust has actually rocked lower tooth loose. Patient eventually lost all 4 lower incisors.

Case 4

Patient - Age 40.
She had significant gastric distress, bloating and gas build up.

She was significantly tongue-tied.



67 Post Z-plasty healing. Note how high she can now elevate tongue.

She can now extend tongue out quite far. She is now off all medications that she had been on all her life for gastric distress, etc.

Why? She can now chew better and does not swallow air like she used to.

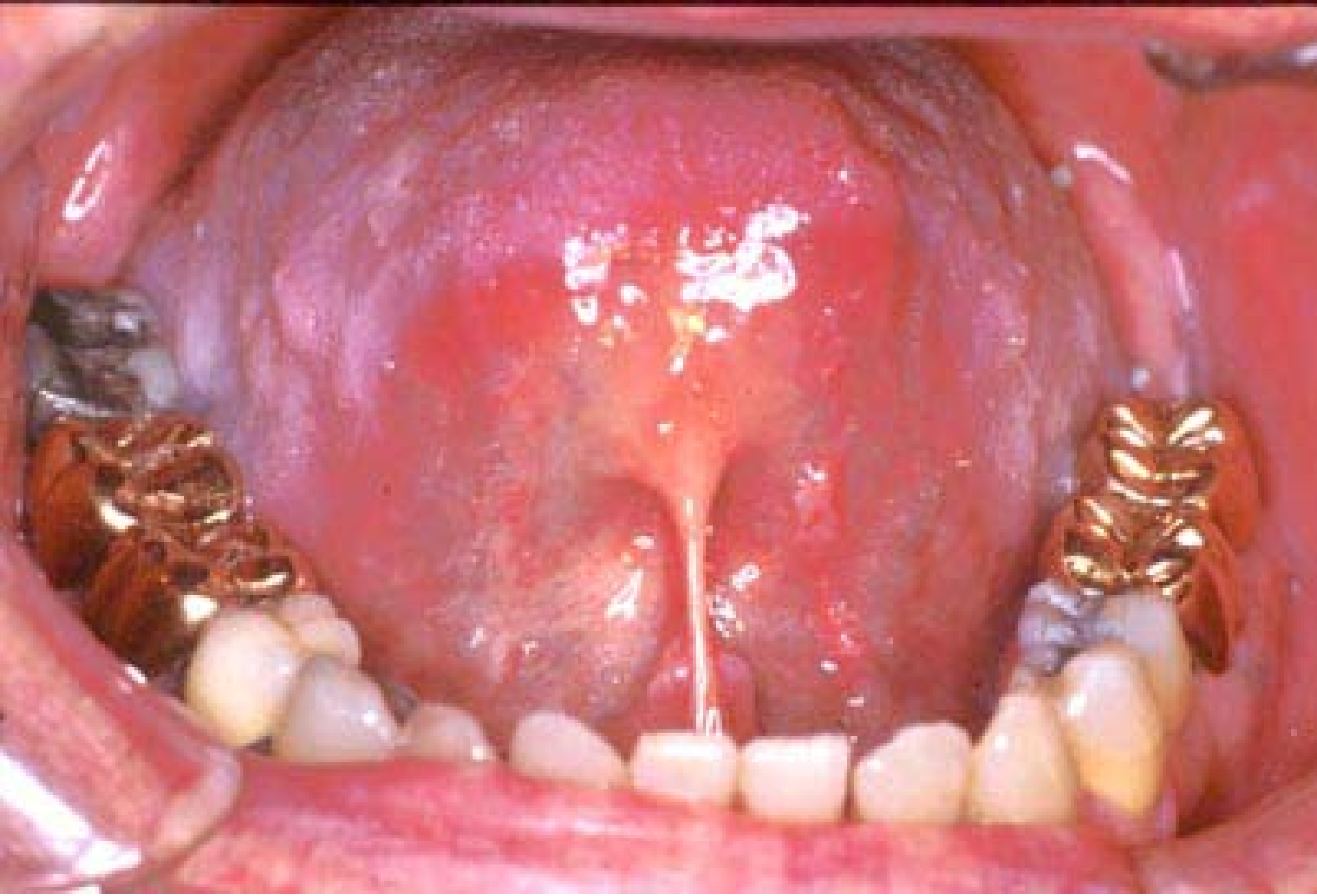
Case 6

Down’s Syndrome Case - Tongue Retaining Device.

 Frenectomy and appliance improved life.

Case 7

72 Tight frenulum on patient in 60s with severe sleep apnea.



Same patient trying to elevate tongue as high as possible. Demonstrates tight frenum and large tongue (macroglossia).

74 Patient MUST sleep with CPAP every night for his sleep apnea

Challenges:

- #1 reason surgery is not performed
  - fear of litigation.
- Procedures not taught in medical or dental schools.
- Not much literature on subject.
- Only one book published on the subject.
- Myths / misinformation abound on the topic.

Based on 30 years of clinical observation I have sufficient documentation to state that:

- Frenulums do not go away by themselves.
- Frenulums can have significant consequences on oral cavity development and total health.

Test yourself:

Place and hold the tip of your tongue into the gum tissue below the lower front teeth - try to swallow, eat or talk with the tongue held in this position.

For those who cannot feel a difference or who adamantly oppose recommending frenotomies or frenectomies, I will send someone over to your office and suture your tongue to the floor of your mouth. After one week you will understand the significance of a tight frenum! :-)

Recommendations:

- Exam all newborns for tight frenulums.
- Do as much of a frenotomy that will allow the infant to breastfeed successfully.
- Inform parent(s) that further surgery may be needed at a later time.
- For the overall health of the infant, if you are not comfortable doing the procedure, please refer to someone else who is.
- Side effects are minimal, benefits are significant.

Recommendations cont'd:

- Courses need to be taught in medical and dental schools on how to perform the various surgeries. Lasers should help simplify the more complicated procedures.
- Encourage others do more research on the impact that tight frenulums have on the development of the oral cavity and airway.
- Insurance codes need to be developed that recognize the various degrees of difficulty of the different procedures and reimburse for services accordingly.

Concerns:

- Unqualified providers will try to perform the surgeries and get bad results. Negative press will discourage others from doing a very beneficial service.
- The fee for the service needs to fit the degree of difficulty of the procedure - a frenotomy ‘snip’ does not warrant the same fee as a much more complicated Z-plasty.

Disclosure:

I personally do **not** do any of the surgeries. I refer my patients to a very qualified oral surgeon who understands the importance of releasing tight frenums. Point of interest: His mother is a retired Pediatrician who routinely did frenotomies when she was in practice.

Another point of interest: In the past, Midwives used to clip tight frenulums on newborns with their finger nail. Some would have one long nail for doing the clipping. Although unsanitary by present standards, it was effective.

"Knowledge is most meaningful when shared with others."

Brian Palmer, DDS

Please share this presentation with others.

Presentation prepared by:

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A condensed version of this presentation was given at a Pediatric conference in Kansas City on November 21, 2003.