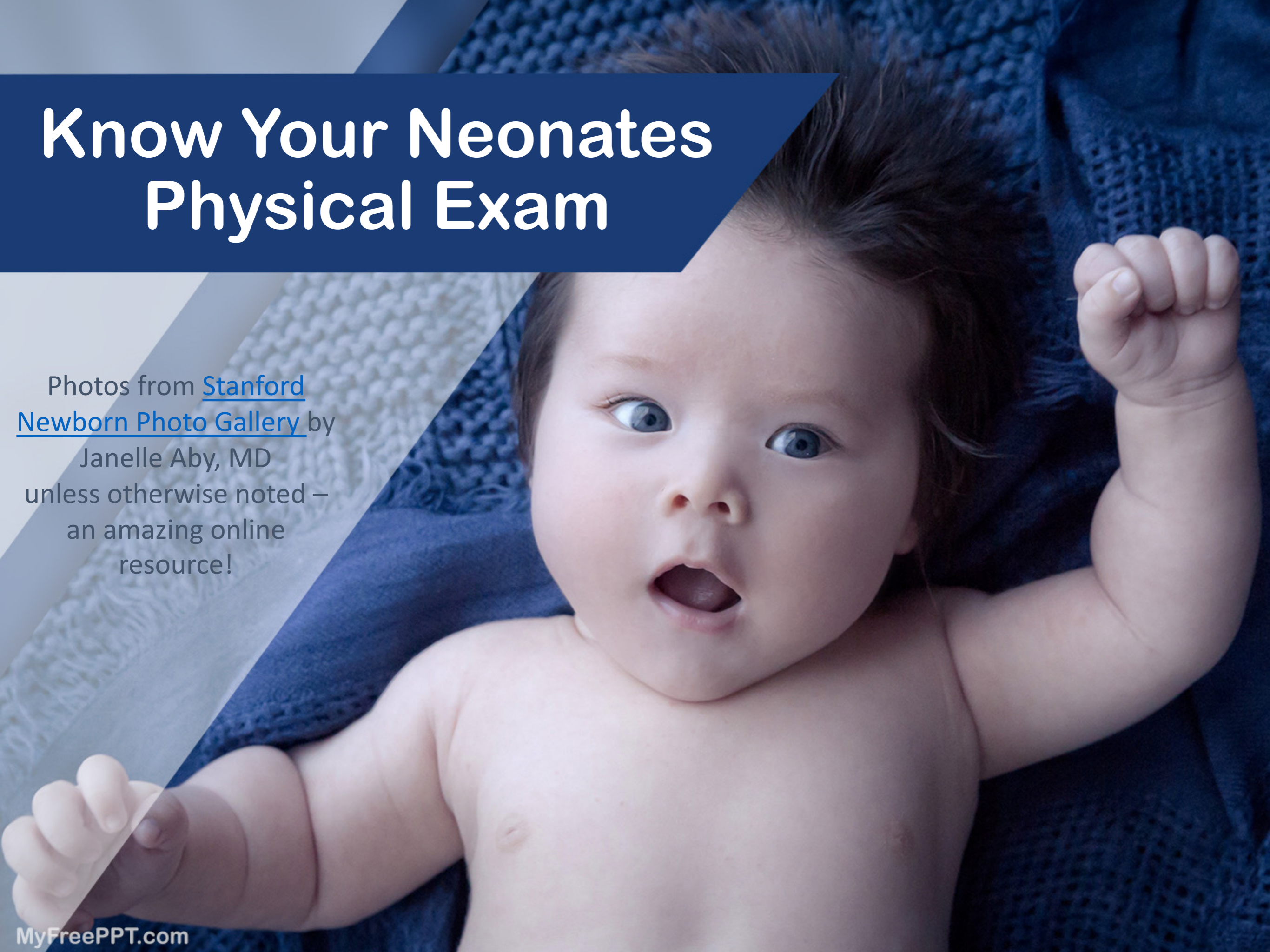


Know Your Neonates Physical Exam

Photos from [Stanford Newborn Photo Gallery](#) by Janelle Aby, MD unless otherwise noted – an amazing online resource!



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Caput Succedaneum

- Soft subQ or subdermal pitting edema
- Due to pressure during vaginal birth
- Can cross midline and suture lines
- Self-resolves over first week of life



Cephalohematoma



- Blood from ruptured subperiosteal veins
- 1-2% of newborns, esp if forceps or vacuum birth
- Unilateral, doesn't cross midline or sutures
- Size peaks middle of 1st week of life, organizes (firmer), then resorbs slowly over 1-2 months
- Rarely become infected (m/c with E. Coli)

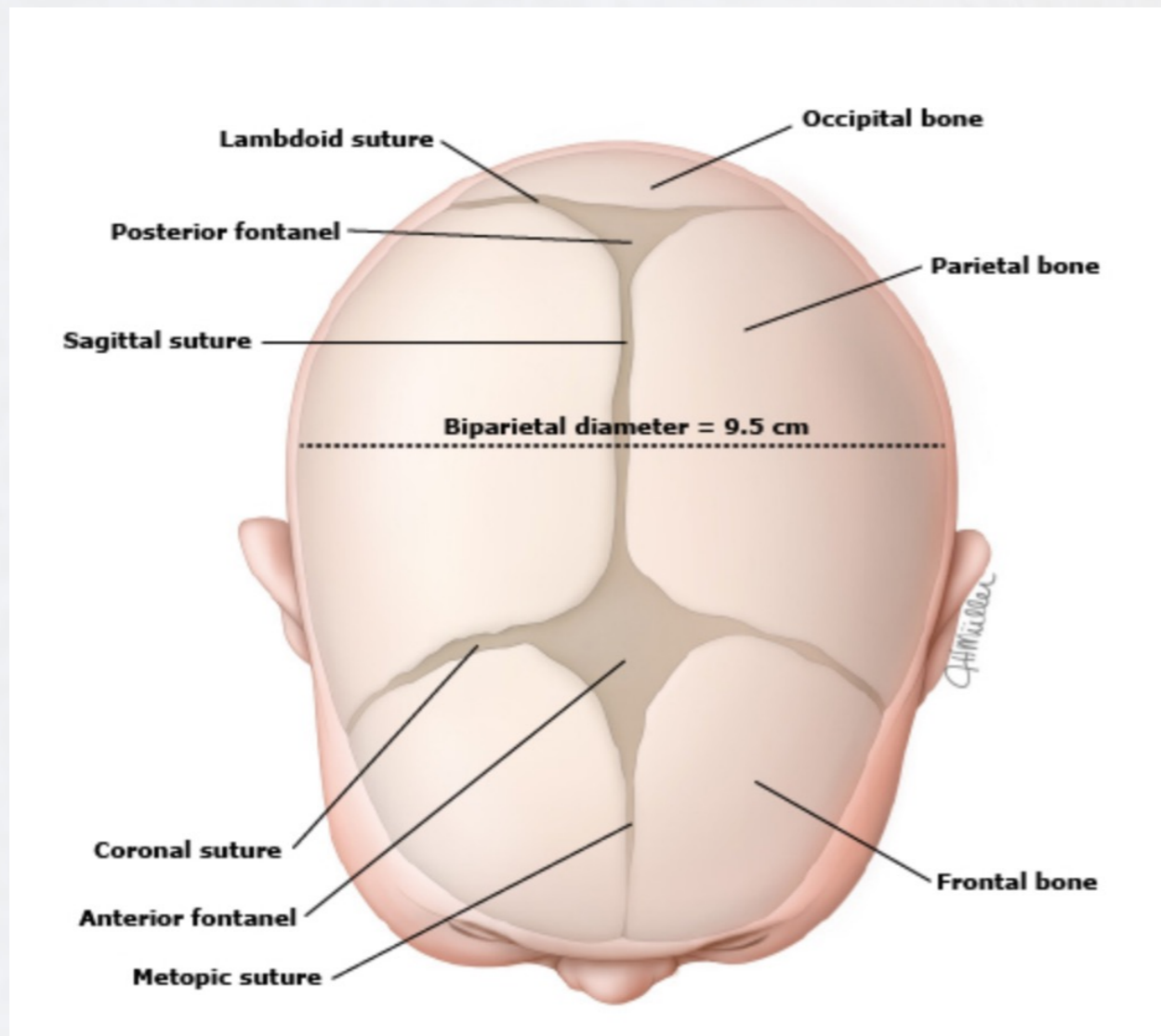


Subgaleal hemorrhage

- Blood between galea aponeurotica and periosteum of skull
- Emissary veins between scalp and dural sinuses
- More common in vacuum deliveries
- Large potential space – can cause anemia and shock
 - 12-14% mortality
- Fluid wave can be moved around on head



Fontanelles and Sutures

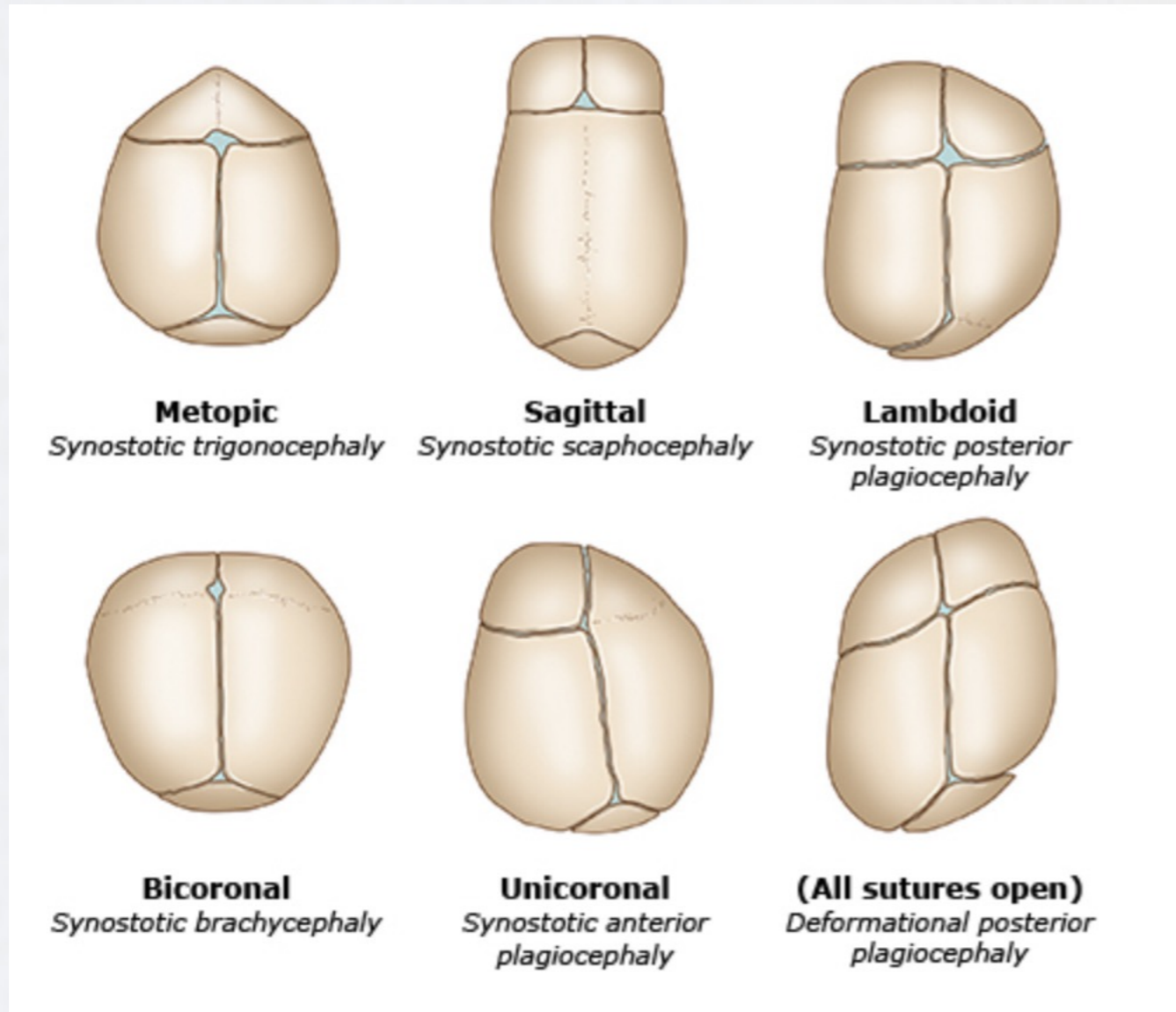


Uptodate.com

- Anterior fontanelle 3-6 cm, closes at 10-24 mo
 - Depressed: dehydration
 - Bulging: hydrocephalus, meningitis
 - Caída de la mollera
- Posterior fontanelle 1-1.5 cm, closes by 2 mo



Craniosynostosis and Plagiocephaly



https://www.babycenter.com/health/conditions/hair-loss-in-babies_85

Uptodate.com



Dacryostenosis



- Congenital nasolacrimal duct obstruction
- 6% of newborns
- Intermittent tearing, discharge medial eye, especially with colds
- Gentle massage with warm moistened towel
- Almost all self-resolve by 1 year
- Ophtho for probe if not resolving



Dacryocystocele



- Both ends of nasolacrimal duct obstructed
- Bluish swelling noticed at or soon after birth
- Higher risk of superinfection than dacryostenosis
- Bilateral can → airway obstruction
- Refer to ophtho



Dacryocystitis

- Complication of dacryostenosis and dacryocystocele
- Staph (both *S. aureus* and *S. epidermidis*) and strep
- Blood cultures, admit for IV antibiotics
- Consult ophtho



[https://www.annemergmed.com/article/S0196-0644\(19\)30150-7/fulltext](https://www.annemergmed.com/article/S0196-0644(19)30150-7/fulltext)



Dacryoadenitis

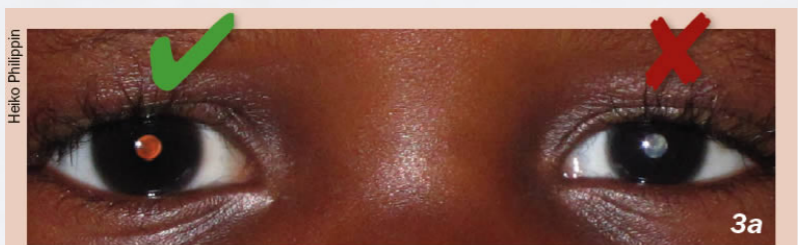
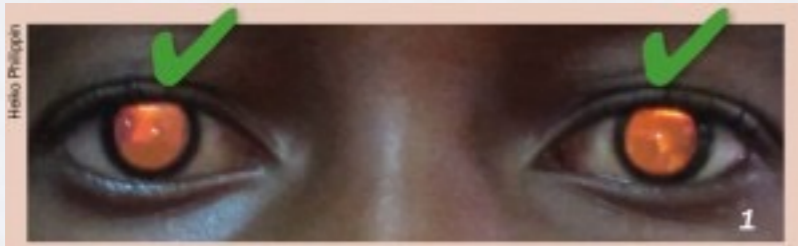
- Infection of the lacrimal gland
- Swelling and redness upper outer lid margin
- Most common *S. aureus*
- Can be viral
- Admit for IV antibiotics
- Consult ophtho



<https://publications.aap.org/pediatricsinreview/article/25/9/312/75789/Periorbital-and-Orbital-Infections>



Red Reflex



<https://www.cehjournal.org/article/how-to-test-for-the-red-reflex-in-a-child/>



Preauricular pit

- Can be subtle, are superior to the tragus
- 1% of White, 5% of Black, and 10% of Asian babies
- Rare association with branchio-oto-renal syndrome
- Refer for audiological evaluation
- May become infected



Preauricular tag



- Can be skin, subcutaneous fat, and/or cartilage
- Rare association with Goldenhar and other syndromes
- Refer for newborn hearing screening
- May be removed for cosmesis – refer to ENT or plastic surgeon



Epstein Pearls



- Epithelial keratin tissue trapped during palatal fusion
- Very common (up to 90%)
- Benign
- Self-resolve in first 1-2 months



Bohn's Nodules



- Remnants of dental lamina or heterotrophic salivary glands
- Lateral gums (upper > lower) or peripheral palate
- Can be mistaken for natal teeth when large (but these are on exterior gum)
- Benign
- Most self-resolve in first 3 months



Ankyloglossia (tongue-tie)

- ~4% of newborns
- May affect breastfeeding
- Consult lactation specialist
- Consider frenotomy (some pediatricians do this as an office procedure)



Natal Teeth

- 1:2000 – 1:3500
- May see eruption cysts first
- Part of primary teeth, so do not extract unless loose / choking risk



Sucking Blisters

- Breastfed baby poor latching technique
- Consider lactation specialist
- But can occur with good latching or in bottle fed babies
- Benign
- Self-resolve



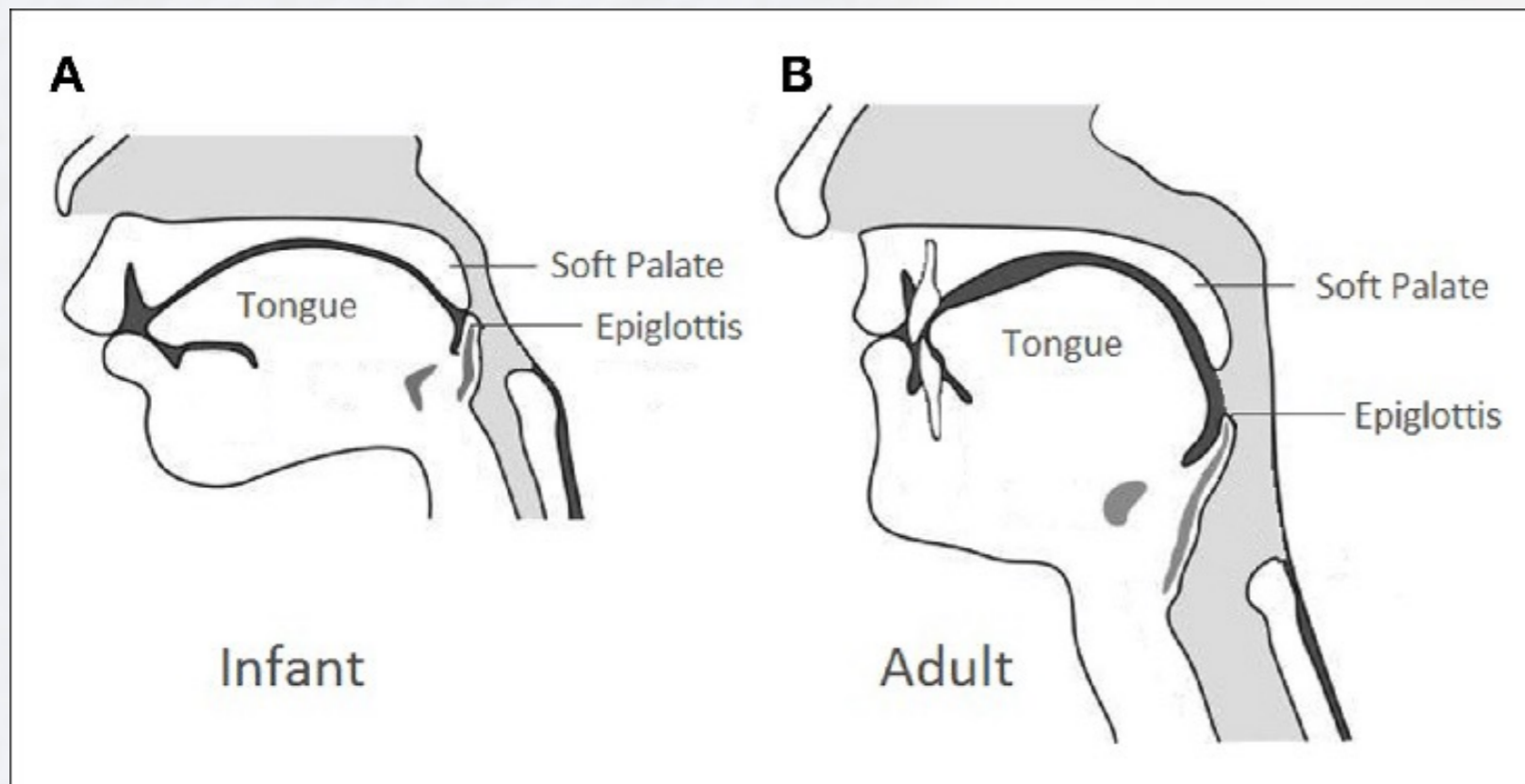
Congenital Muscular Torticollis



- 4-16% neonates, M>F
- Tight SCM muscle
- Usually noticed by 2-4 weeks of age
- May have limited passive ROM, palpable “pseudotumor” of SCM
- Conservative treatment first
 - Positioning during feeding, sleeping, presentation of toys/mobiles
 - Passive stretching
 - Tummy time
- Most self-resolve by 4-5 months



Obligate nose breathing

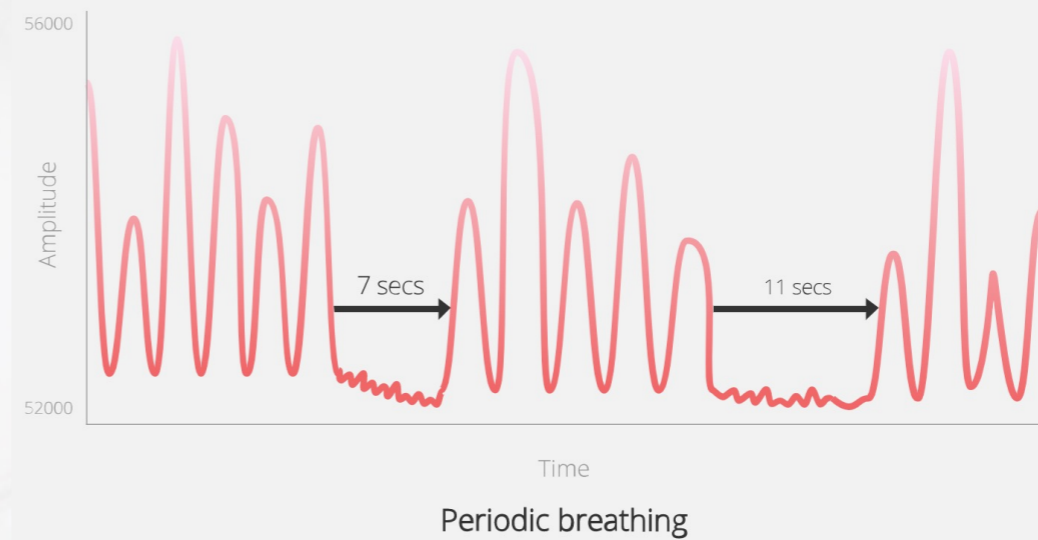
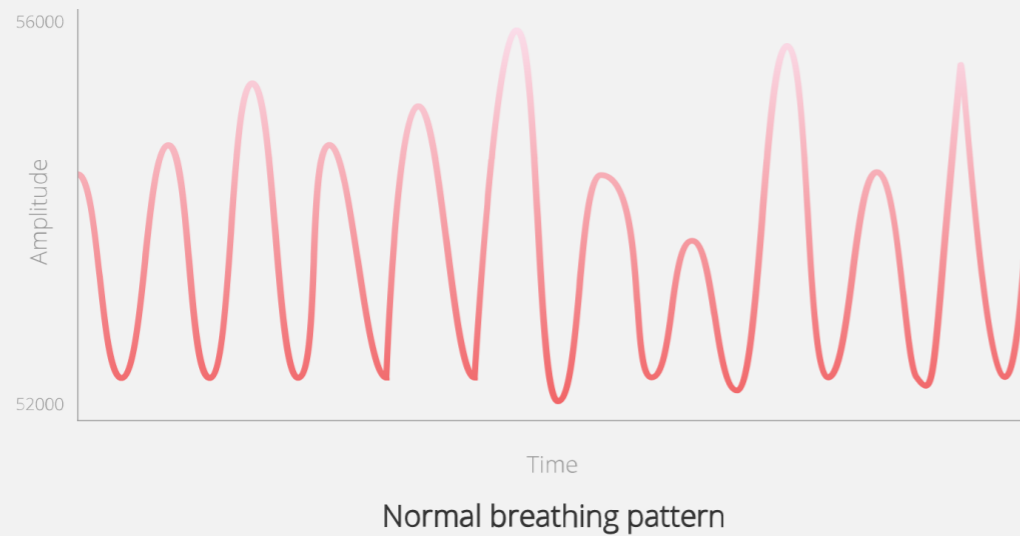


- Until age 2-6 months

https://www.researchgate.net/figure/Anatomical-comparison-between-the-infant-larynx-and-the-adult-larynx_fig1_279250533



Periodic breathing



- Apnea = 20 seconds or longer
- Look for cyanosis, bradycardia, pallor, hypotonia
- Periodic breathing usually stops by ~ 6 months

<http://www.safetosleep.com/safetosleep200-breath-wellness.html>



Neonatal Breast Hypertrophy

- Due to maternal hormones
- Occurs in boys and girls
- May have galactorrhea (“witch’s milk”)
- Resolves spontaneously within 2 weeks in boys, 2 months in girls
- Stimulation may delay resolution via hormonal feedback loop
- Ddx from mastitis



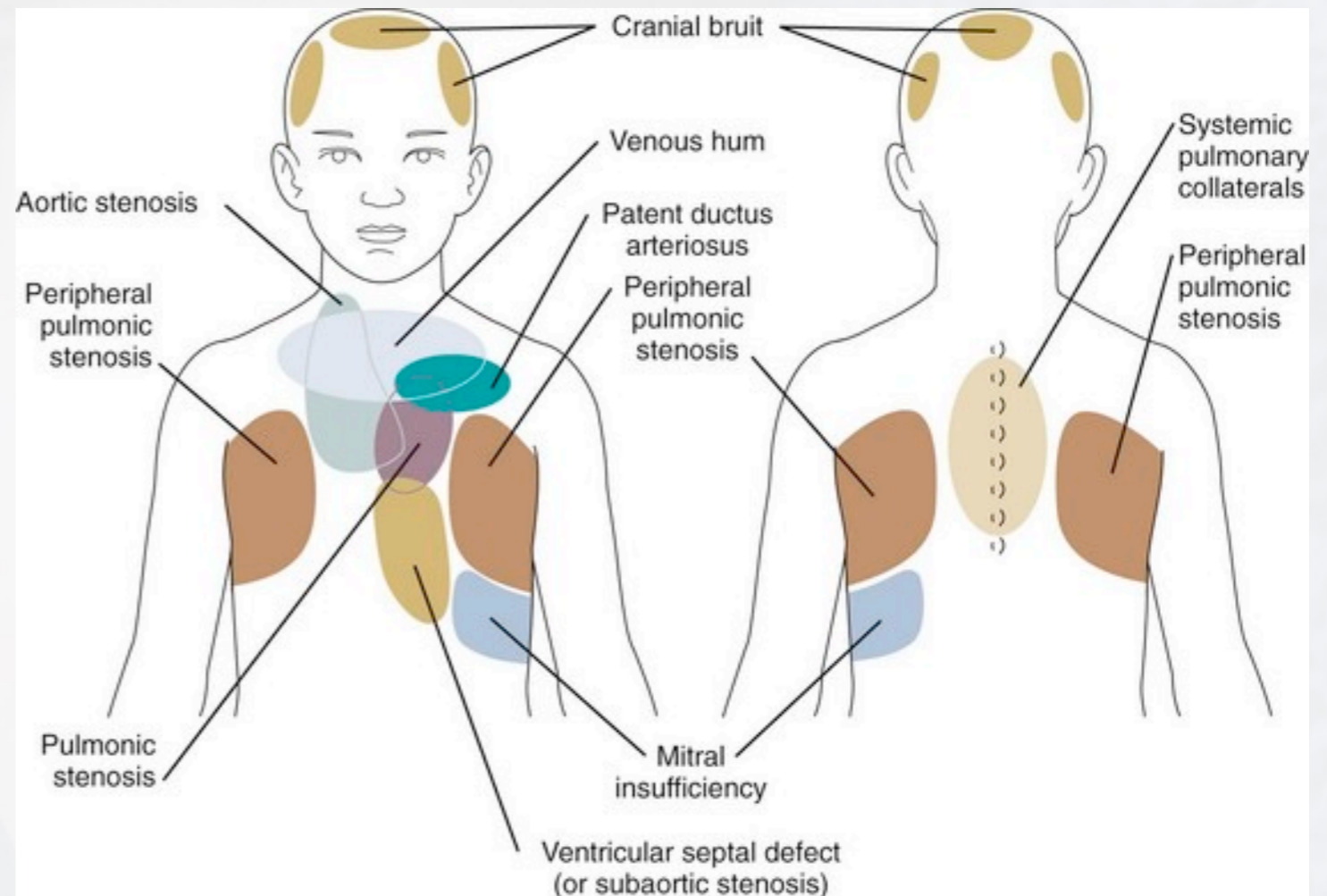
Neonatal Withdrawal Bleeding

- Due to falling levels of maternal estrogen
- “False menses”
- Usually ~ day 3 of life, but anytime day 2-10
- Self-resolves in 3-4 days



Peripheral Pulmonic Stenosis Murmur

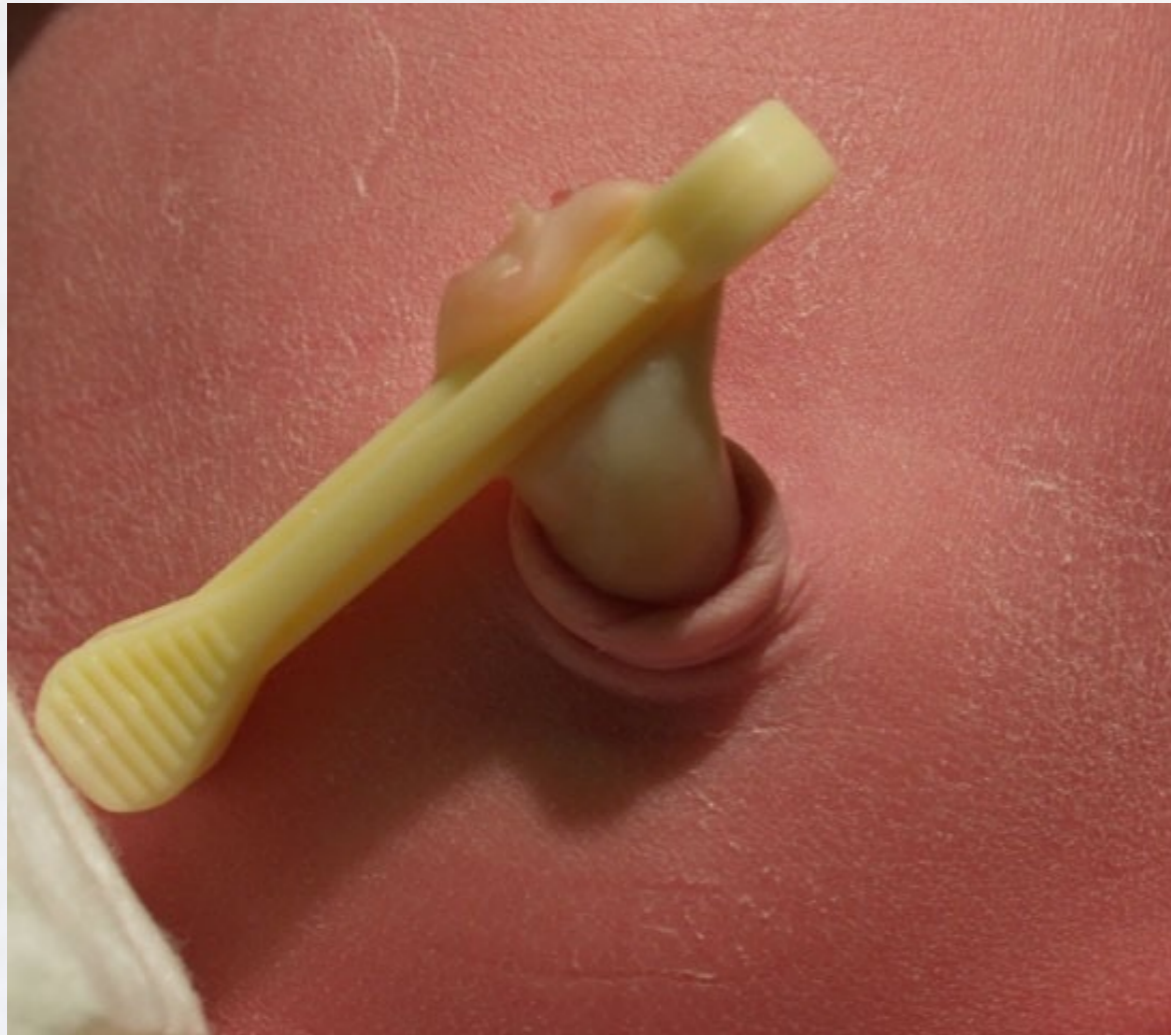
- Innocent murmur of turbulent flow through proximal pulmonary arteries
- Due to relative size or angle of these branches
- Soft, high-pitched, midsystolic
- Left & Right upper sternal borders, radiate to back and axillae
- Resolve by 6-12 months



<https://obgynkey.com/cardiology-5/>



Umbilical cord



<https://www.youtube.com/watch?v=ly7qs2VAybs>

- Dry cord care now recommended (no alcohol application)
- Low resource setting: chlorhexidine
- Mean time to separation 9 days (range 4-14 days)
- Delayed = > 3 weeks
- Weak association with leukocyte adhesion deficiency type I



Not Omphalitis

**Skin Irritation from dry cord or diaper
(not circumferential)**



**Periumbilical erythema in dry cord care
from WBC infiltration during separation**



Omphalitis

- 0.7% incidence in developed nations
- Higher w/lotus birth
- Polymicrobial
- Culture blood, CSF, umbilical discharge
- Admit on broad spectrum IV antibiotics (Vancomycin and Gentamicin)
- Mortality 7-15%



Umbilical granuloma



granuloma

<https://pemcincinnati.com/blog/baby-belly-button-bumps/>

polyp

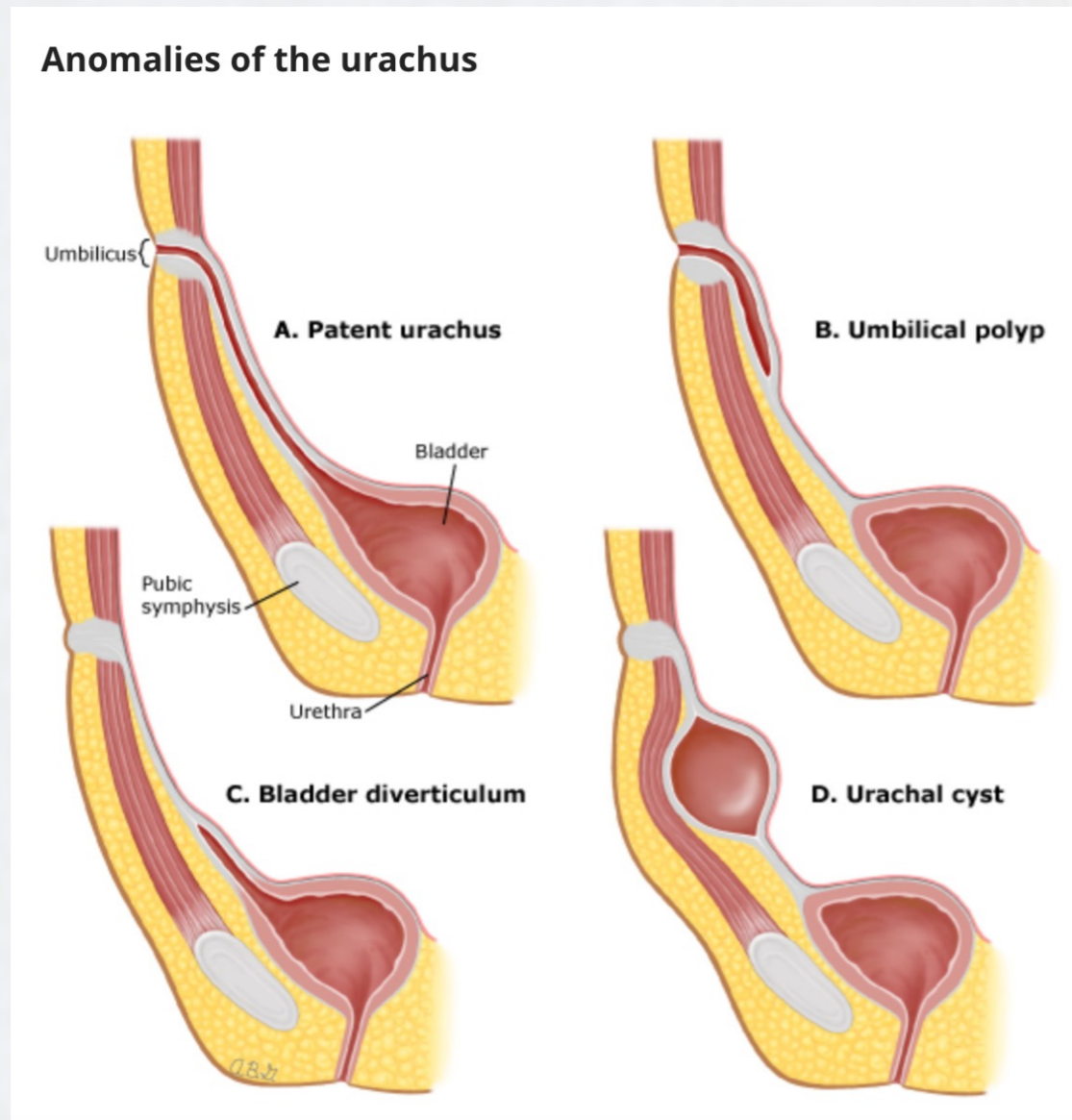


<https://www.consultant360.com/articles/umbilical-polyp>

- Soft, moist, pink, often pedunculated 3-10 mm granulation tissue mass
- May have serous drainage
- Ddx: umbilical polyp (firmer, bright red, mucoid secretion)
- Treat larger, persistent ones with silver nitrate
- Table salt has been used in developing countries



Urachal anomalies



Uptodate.com

- Patent urachus: persistently wet/draining umbilicus, +/- UTIs
- Umbilical polyp: doesn't respond to silver nitrate, requires excision
- Bladder diverticulum: can obstruct ureter
- Urachal cyst: can become infected → abd pain, redness, swelling, inferior to umbilicus



Umbilical hernia

- Fascial ring closes in most by age 5 years
- More common in Black children
- Complications very rare



Diaper rashes

Irritative, Candidal, Impetigo

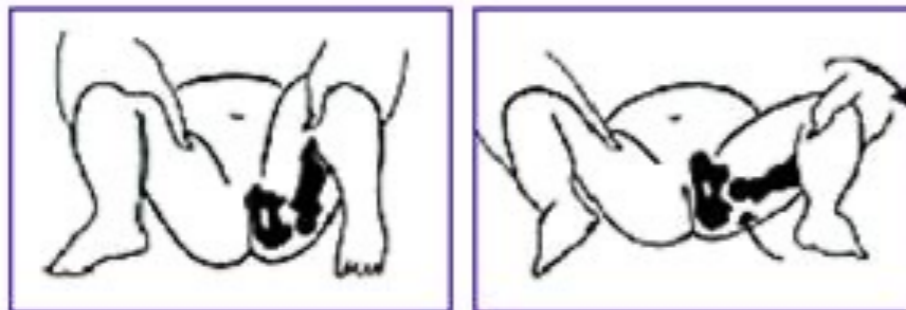
Seborrheic dermatitis, Acrodermatitis enteropathica (A & B)



Congenital hip dysplasia



Barlow Test



Ortolani Test

Figure 1. Barlow's and Ortolani's tests
- Adapted from
<http://www.cssd.us/body.cfm?id=512>.

FIGURE 2
Positive Galeazzi Sign

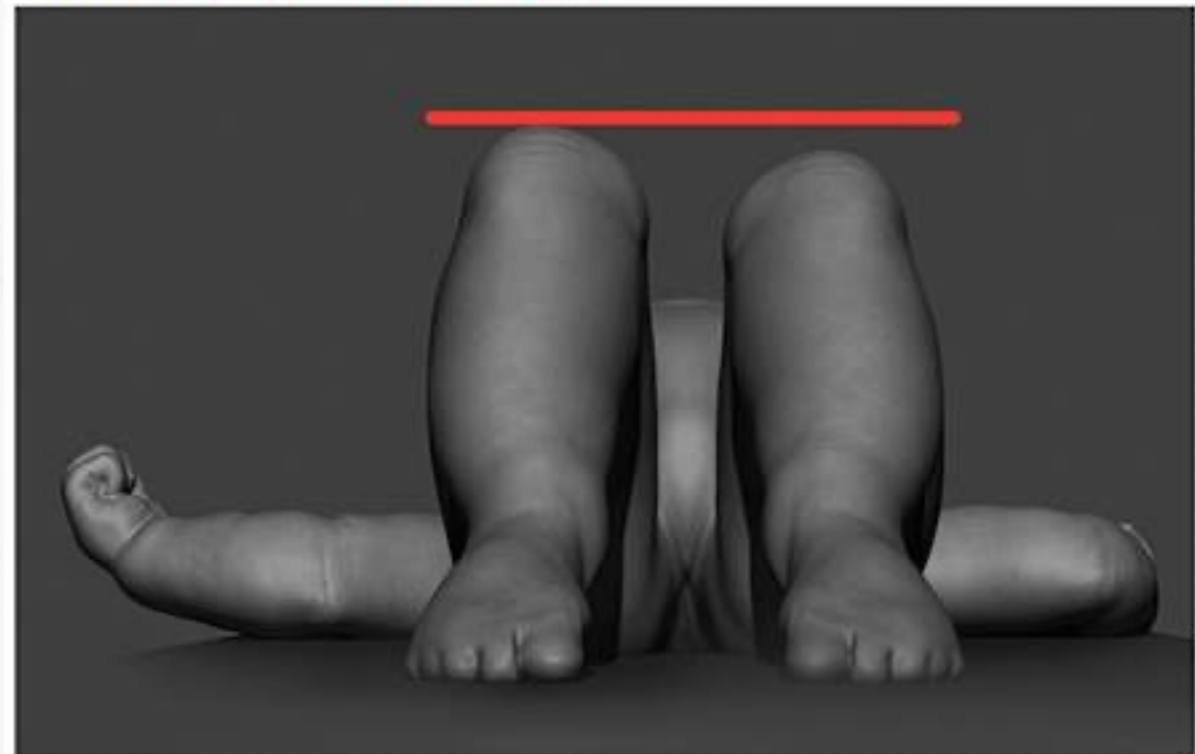


Illustration by Walt Shumway.

<https://www.mdedge.com/clinicianreviews/article/107545/pediatrics/click-not-clunk-developmental-dysplasia-hip-newborn>



Sacral findings

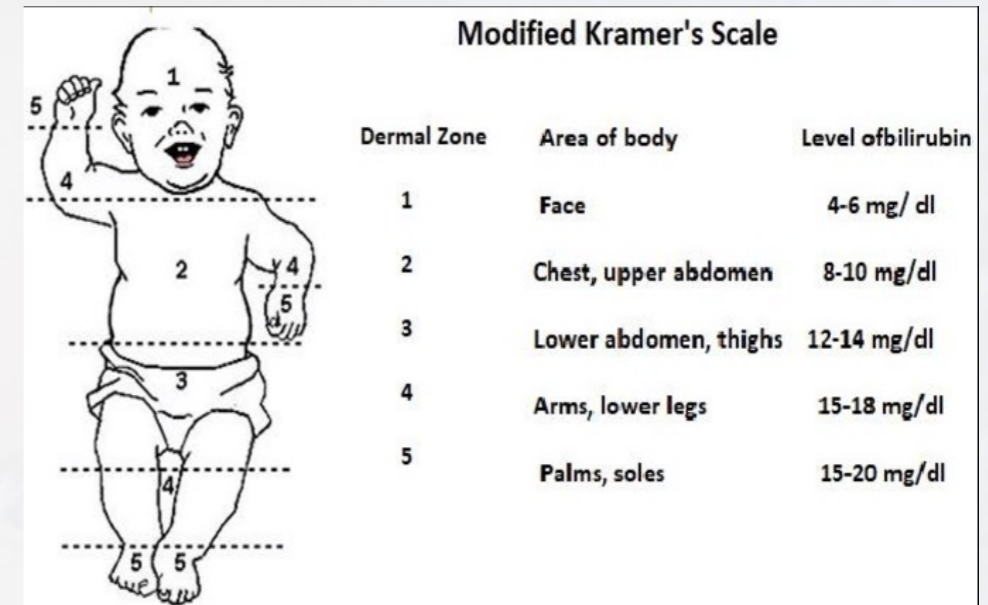


- Screening imaging for spinal dysraphism if:
- Skin tag
- Hypertrichosis or midline vascular lesion AND dimple
- Not simple dimple (< 0.5 cm diameter, within 2.5 cm of anus, base can be seen)



Jaundice

	Physiologic jaundice	Breastfeeding jaundice	Breast milk jaundice
Etiology	Immature liver conjugation Higher level in Eastern Asian	Difficulties with breastfeeding, milk not coming in	Unknown
When seen	Peak first 3-5 DOL at 6-10 mg/dL	First week of life	DOL 6-14
Management	If > 17 mg/dL in infant > 96 hrs old, do not attribute to physiologic	Assess dehydration Breastfeed 8-12x/day Lactation specialist	Brief pause in breastfeeding if needed (pump & dump)
Resolution	1-3 weeks	When BF improved	3-12 weeks



https://www.researchgate.net/figure/Modified-Kramers-scale_fig1_331316266/download

bilitool.org



Vasomotor instability

Cutis marmorata (mottling)



Acrocyanosis



VisualDx via Uptodate.com

Harlequin color change



<https://www.americorpshealth.biz/skin-lesions/info-szq.html>



Milia



- Keratin and sebaceous retention papules
- Often on nose and cheeks in first few months of life
- Benign



Miliaria (heat rash)

- Miliaria crystallina common in neonates
- Miliaria rubra (prickly heat) common overall
- Cause: blocked sweat gland ducts
- Risks: heat, fever, skin occlusion, overclothed
- Babies should dress same #layers as parents



Uptodate.com



Erythema toxicum

- 20% of neonates
- Etiology unknown
- Start DOL 2-3, resolve over 5-7 days
- Face, trunk, extremities, but spare palms and soles
- May recur over next several weeks



Transient Neonatal Pustular Melanosis



- Uncommon
- More in Black neonates
- Pustules and hyperpigmented macules, with fine collarette of scale
- Diffuse, including palms and soles
- Hard to ddx from HSV



Neonatal acne

- “**Neonatal cephalic pustulosis**”
- Onset 3 weeks, resolves by 4-6 months
- Now thought reaction to *Malassezia* colonization
- Face & scalp mainly
- No treatment or may use 2% ketoconazole BID and/or 1% hydrocortisone daily
- **Infantile acne** due to elevated androgens
- Onset 6-16mo of age, usually resolves by 1-2 years of age
- Forehead, nose, cheeks most common; may occur on chest and back



Uptodate.com



Congenital dermal melanocytosis



- 85-100% Asians
- > 60% Blacks
- 46-70% Hispanics
- < 10% Whites
- Fades in first 1-2 years of life
- 3% still seen in adulthood



Café Au Lait spots

- Common
- Present at birth or appear in first months of life
- Up to 15% population has 1-3
- Concern for neurofibromatosis if 6 or more, other signs of NF
- “Coast of Maine” type associated with McCune-Albright syndrome



Nevus simplex (salmon patches, stork bites)



- Common capillary malformations
- More prominent when crying
- Most fade over next several years



Nevus flammeus (port wine stain)



Uptodate.com

- 0.1-0.2% of newborns
- More intense red-purple
- Do not fade
- **Associations**
- V2: Sturge-Weber
- Spine: spinal dysraphism
- Limb: Klippel-Trenaunay-Weber



Hemangiomas

- Not present at birth
- Appear in first days to months with subtle telangiectasia
- Grow over next 6-12 months
- Superficial (red, strawberry) or deep (bluish, subcutaneous)
- Spontaneously involute over several years
- Problems: obstruct vision, airway, bleed, ulcerate, superinfection



Uptodate.com



Staph Scalded Skin Syndrome



Uptodate.com



- Presents at 3-7 days of age, rarely seen at birth
- Febrile, toxic
- Perioral crusting
- Flexural areas, hands, feet, buttocks
- Nikolsky's sign +
- Pan-culture, admit, IV antibiotics, consult ID



Moro reflex, Benign myoclonus, Seizures

- [Moro reflex](#)
 - Sudden dropping of infants head in relation to trunk → arms abduct and extend, hands open, then arms flex in
 - Present at birth, Disappears by age 3-6 months
- [Benign sleep myoclonus](#)
 - Repetitive myoclonic jerks, usually in non-REM sleep stage
 - Disappears by age 2-3 months usually, sometimes lasts up to 6 months – 1 year
- Seizures
 - May be subtle: [blinking](#), [mouth-twitching](#), [cycling movements](#), [stiffening](#)
- [Infantile spasms](#)
 - Typical age of onset 3-12 months old
 - “Salaam” movement: sudden brief flexor spasm of head & torso, may occur in clusters



Primitive Reflex

Primitive Reflex	Maneuver	Ages
Palmar Grasp Reflex	Place your fingers into the baby's hands and press against the palmar surfaces. The baby will flex all fingers to grasp your fingers.	Birth to 3-4 months
Plantar Grasp Reflex	Touch the sole at the base of the toes. The toes curl.	Birth to 6-8 months
Rooting Reflex	Stroke the perioral skin at the corners of the mouth. The mouth will open and baby will turn the head toward the stimulated side and suck.	Birth to 3-4 months
Moro Reflex (Startle Reflex)	Hold the baby supine, supporting the head, back, and legs. Abruptly lower the entire body about 2 feet. The arms abduct and extend, hands open, and legs flex. Baby may cry.	Birth to 4 months
Asymmetric Tonic Neck Reflex	With baby supine, turn head to one side, holding jaw over shoulder. The arms/legs on side to which head is turned extend while the opposite arm/leg flex. Repeat on other side.	Birth to 2 months

Primitive Reflex (continued)

Primitive Reflex	Maneuver	Ages
Trunk Incurvation (Galant's) Reflex	Support the baby prone with one hand, and stroke one side of the back 1 cm from midline, from shoulder to buttocks. The spine will curve toward the stimulated side.	Birth to 2 months
Landau Reflex	Suspend the baby prone with one hand. The head will lift up, and the spine will straighten.	Birth to 6 months
Parachute Reflex	Suspend the baby prone and slowly lower the head toward a surface. The arms and legs will extend in a protective fashion.	8 months and does not disappear
Positive Support Reflex	Hold the baby around the trunk and lower until the feet touch a flat surface. The hips, knees, and ankles extend, the baby stands up, partially bearing weight, sags after 20-30 seconds.	Birth or 2 months until 6 months
Placing and Stepping Reflexes	Hold baby upright as in positive support reflex. Have one sole touch the tabletop. The hip and knee of that foot will flex and the other	Birth (best after 4 days). Variable age to disappear

Kanika's Nursing Academy

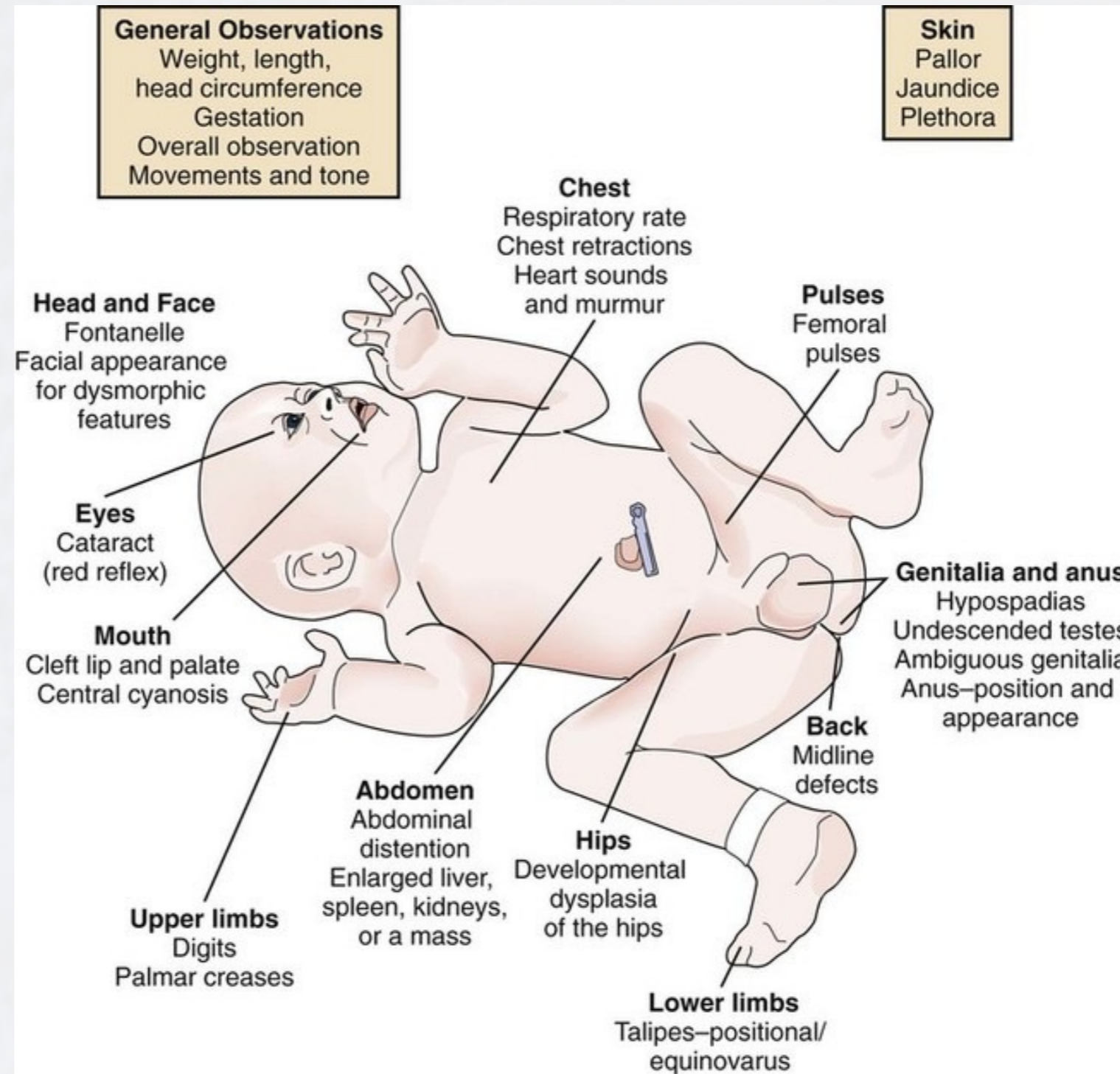
[Index](#)

[Video of common neonatal primitive reflexes](#)



Physical Exam Overview

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<https://obgynkey.com/physical-examination-of-the-newborn/>

