

A 3-week-old Asian girl is brought to the office for routine newborn examination. She was born at 39 weeks to a 26-year-old primigravid mother by cesarean section for breech presentation. The pregnancy and delivery were uncomplicated and prenatal ultrasounds showed normal fetal anatomy. Both parents are healthy with no medical problems. Physical examination shows a well-nourished infant who has surpassed her birth weight. The left inguinal fold extends posteriorly beyond the anal orifice and there appears to be leg-length discrepancy. Skin examination shows a nonblanching blue-grey macule with indefinite borders over the sacral-gluteal region. The rest of the examination is normal. Which of the following is the most appropriate next step in management of this patient?

- ☐ A. Computed tomography of the hips
- ☐ B. Magnetic resonance imaging of the hips
- ☐ C. Magnetic resonance imaging of the lumbosacral spine
- ☐ D. Reassurance, follow-up in 2 weeks
- ☐ E. Ultrasound of the hips
- ☐ F. Ultrasound of the lumbosacral spine
- ☐ G. X-ray of the hips

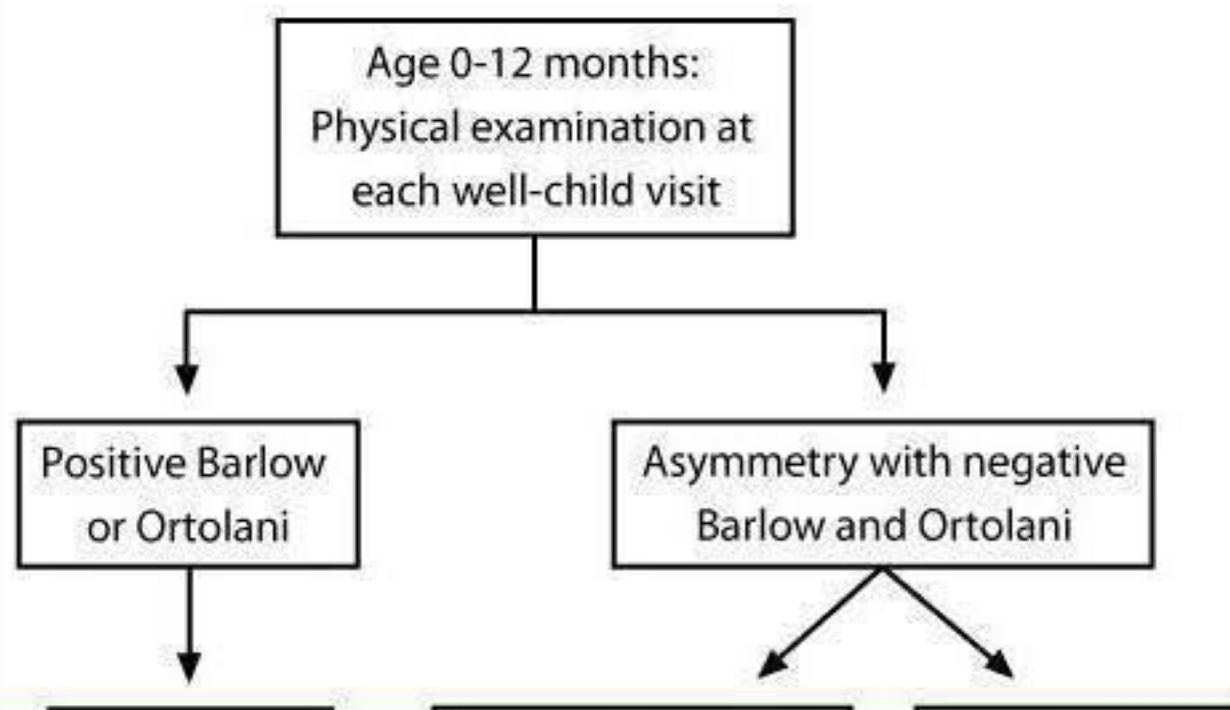
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- ☐ A. Computed tomography of the hips [1%]
- ☐ B. Magnetic resonance imaging of the hips [4%]
- ☐ C. Magnetic resonance imaging of the lumbosacral spine [5%]
- ☐ D. Reassurance, follow-up in 2 weeks [15%]
- ☒ E. Ultrasound of the hips [49%]
- ☐ F. Ultrasound of the lumbosacral spine [3%]
- ☐ G. X-ray of the hips [23%]

[Proceed to Next Item](#)**Explanation:**

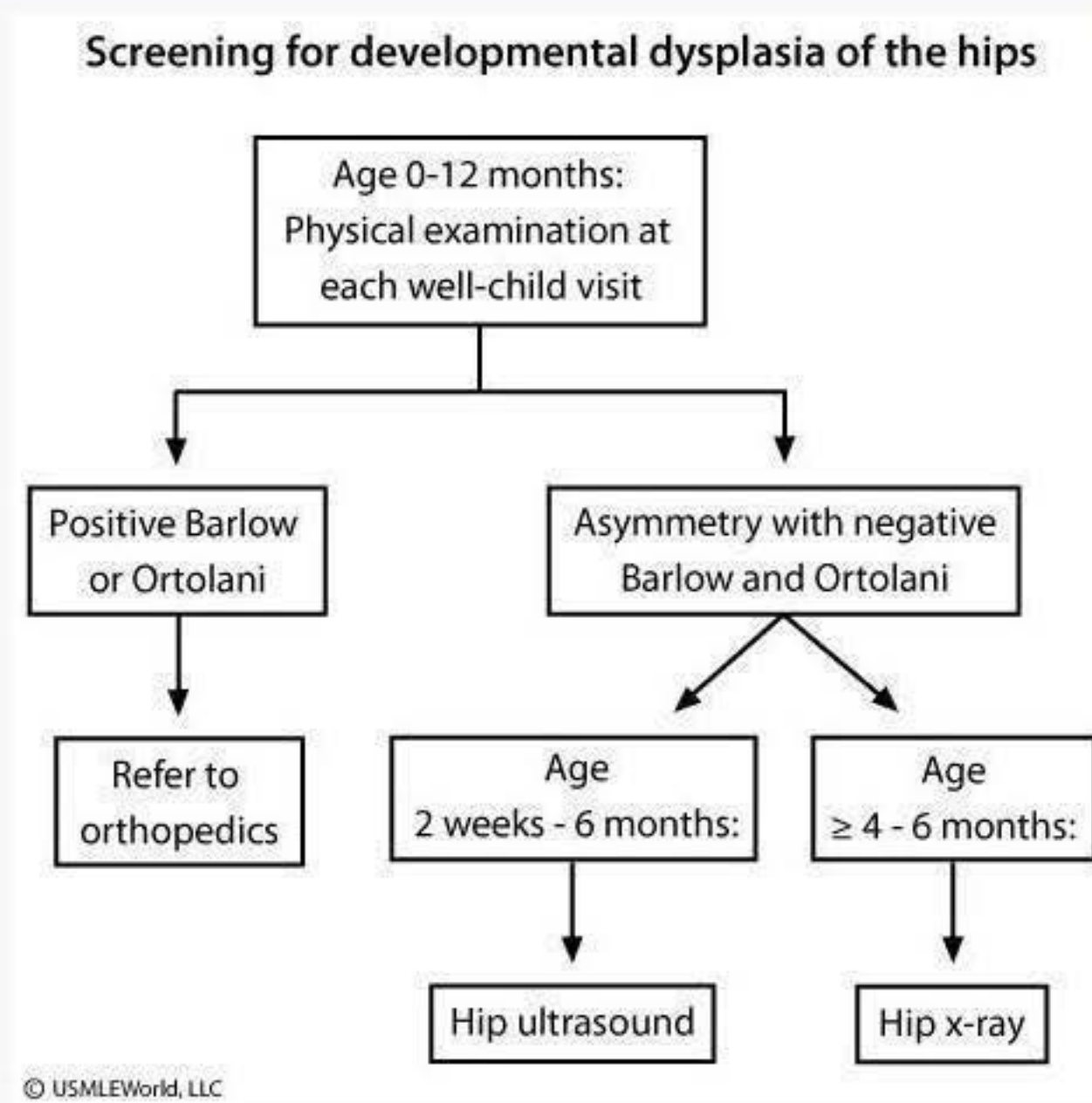
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Screening for developmental dysplasia of the hips



Explanation:

User Id: [REDACTED]



This patient's presentation is concerning for developmental dysplasia of the hip (DDH), dislocation of the femoral head from the acetabulum. Early diagnosis is critical as treatment initiation before age 6 months portends a favorable prognosis. Delayed diagnosis is one of the most common reasons for malpractice suits against pediatricians due to potential complications such as limp (**Trendelenburg gait**), scoliosis, arthritis, and avascular necrosis.

Although **breech presentation**, female sex, white ethnicity, and family history of DDH increase the risk, most patients (~75%) have no risk factors. Therefore, all infants must have serial hip examinations from birth until they are walking (age ~1 year). **Barlow and Ortolani maneuvers** should be performed to assess joint stability. These consist of placing the infant supine with each hip flexed to 90° followed by abduction to feel for dislocatability and adduction to feel for reducibility of an unstable joint. A **palpable clunk** with either maneuver is an alarming sign of hip dislocation and should prompt referral to an orthopedic surgeon. Equivocal signs such as a soft click, **leg-length discrepancy**, or asymmetric **inguinal skin folds** suggest possible hip laxity.

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Hip laxity that is present at birth usually resolves by age 2 weeks. Therefore, imaging is not recommended until ≥ 2 weeks. Infants age 2 weeks-6 months with abnormal examination should undergo **ultrasonography**. DDH is bilateral in ~20% of patients and thus both sides should be imaged. X-ray is not helpful until age ≥ 4 -6 months because the femoral head and acetabulum are not yet ossified. After ossification, x-ray (**Choice G**) is better at showing acetabular development and positioning.

A positive Barlow or Ortolani test or abnormal imaging results should prompt referral for treatment. The **Pavlik harness** is a splint that holds the hip in flexion and abduction while preventing extension and adduction, which can exacerbate dislocation. It is the treatment of choice for age <6 months as most hip joints are able to remain in a stable position. After age 6 months, however, the harness is far less successful and reduction under anesthesia is required. Computed tomography and magnetic resonance imaging (**Choices A and B**) can be helpful in the perioperative assessment of the affected hip but are unnecessary for initial screening.

(**Choices C and F**) The blue-grey macule on this patient's sacrum is consistent with congenital dermal melanocytosis ("Mongolian spots"), benign birthmarks prevalent in Asian babies. However, neonates with a sacral dimple or tuft of hair should be screened for occult spinal bifida with lumbosacral ultrasound. Abnormal screening ultrasound should be followed by spinal magnetic resonance imaging to assess the extent of the neural tube defect. Although hip dislocation can occur in patients with spina bifida, this patient has no other abnormalities and neither study is warranted.

(**Choice D**) Recurrence is inappropriate as hip laxity at age ≥ 2 weeks is likely to

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(**Choice D**) Reassurance is inappropriate as hip laxity at age ≥ 2 weeks is likely to persist and worsen.

Educational objective:

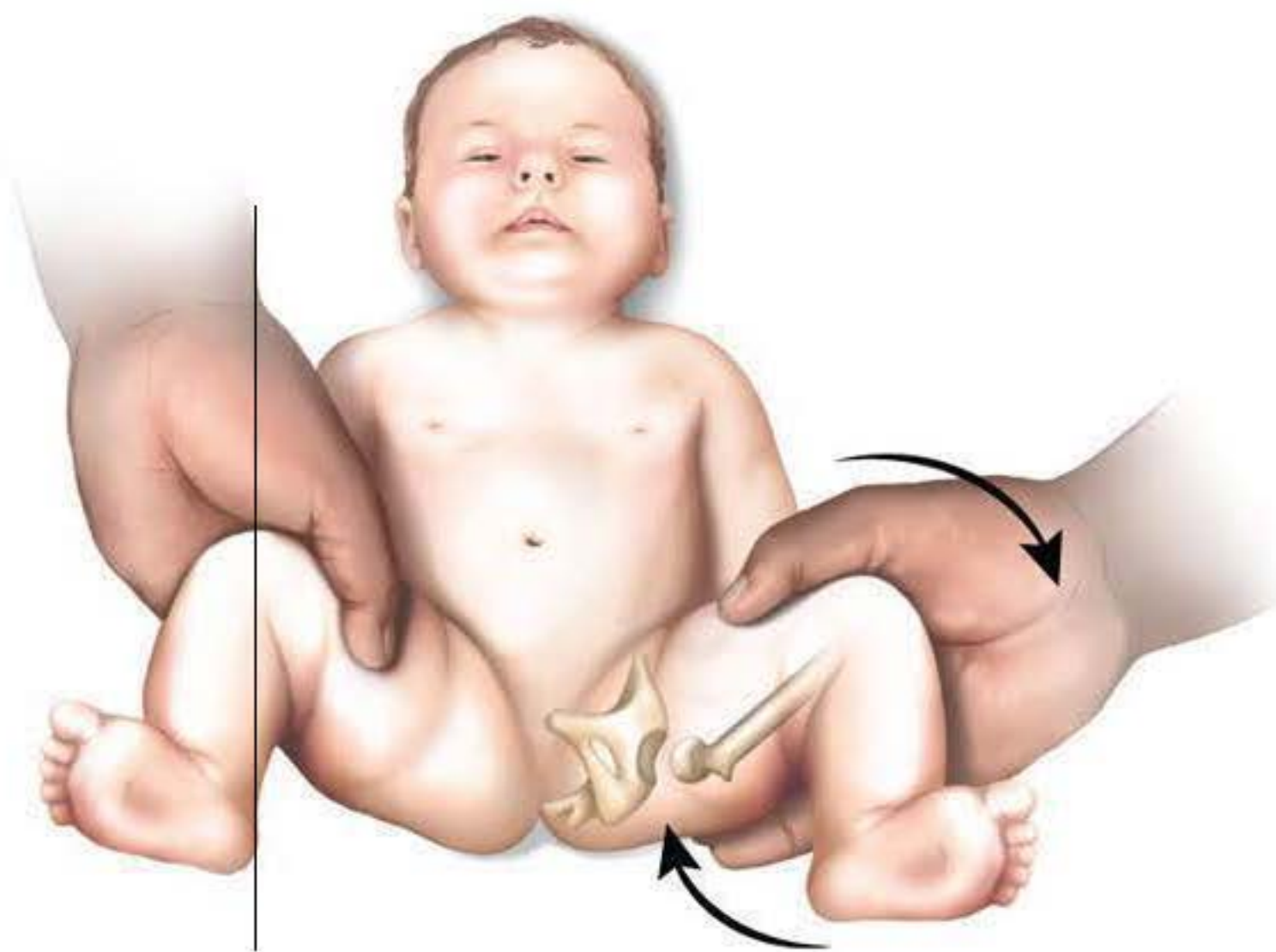
All neonates and infants should be screened for developmental dysplasia of the hip with Barlow and Ortolani maneuvers. A palpable clunk should prompt referral to an orthopedic surgeon. A soft click, leg-length discrepancy, or asymmetric inguinal skin folds require diagnostic imaging with ultrasound (age ≤ 6 months) or x-rays (age ≥ 4 -6 months). The treatment of choice for age <6 months is the Pavlik hip harness.

References:

1. **Clinical practice guideline: early detection of developmental dysplasia of the hip. Committee on Quality Improvement, Subcommittee on Developmental Dysplasia of the Hip. American Academy of Pediatrics.**
2. **AIUM practice guideline for the performance of an ultrasound examination for detection and assessment of developmental dysplasia of the hip.**
3. **Screening the newborn for developmental dysplasia of the hip: now what do we do?**
4. **ACR Appropriateness Criteria on developmental dysplasia of the hip--child.**

and Ortolani maneuvers

Barlow & Ortolani maneuvers

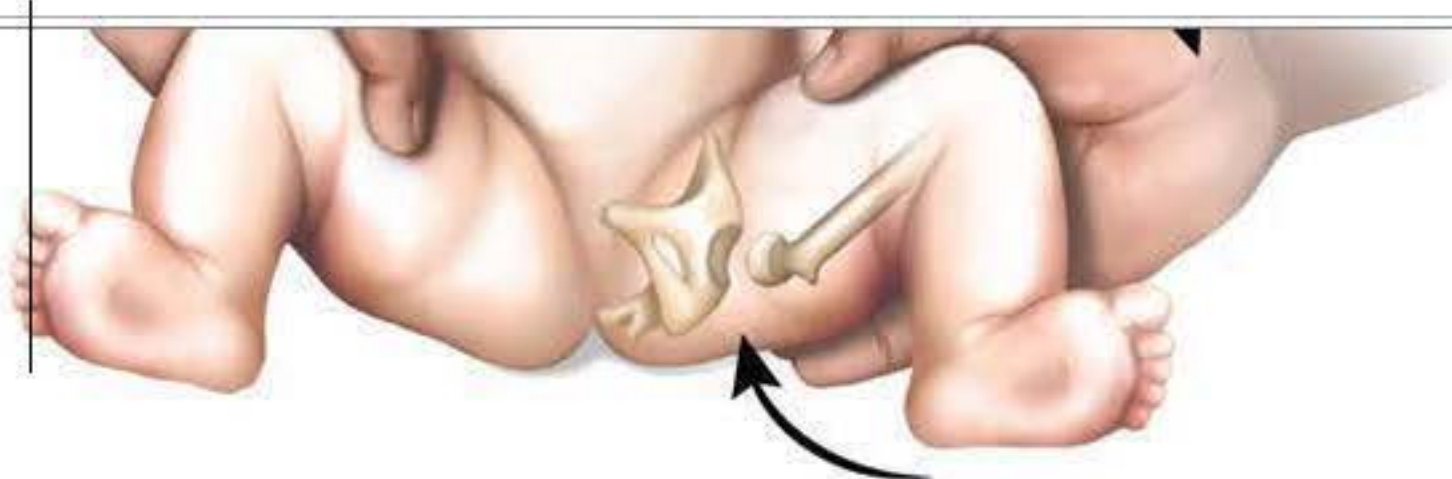


Ortolani Maneuver:
Abduction with anterior lifting of the hip

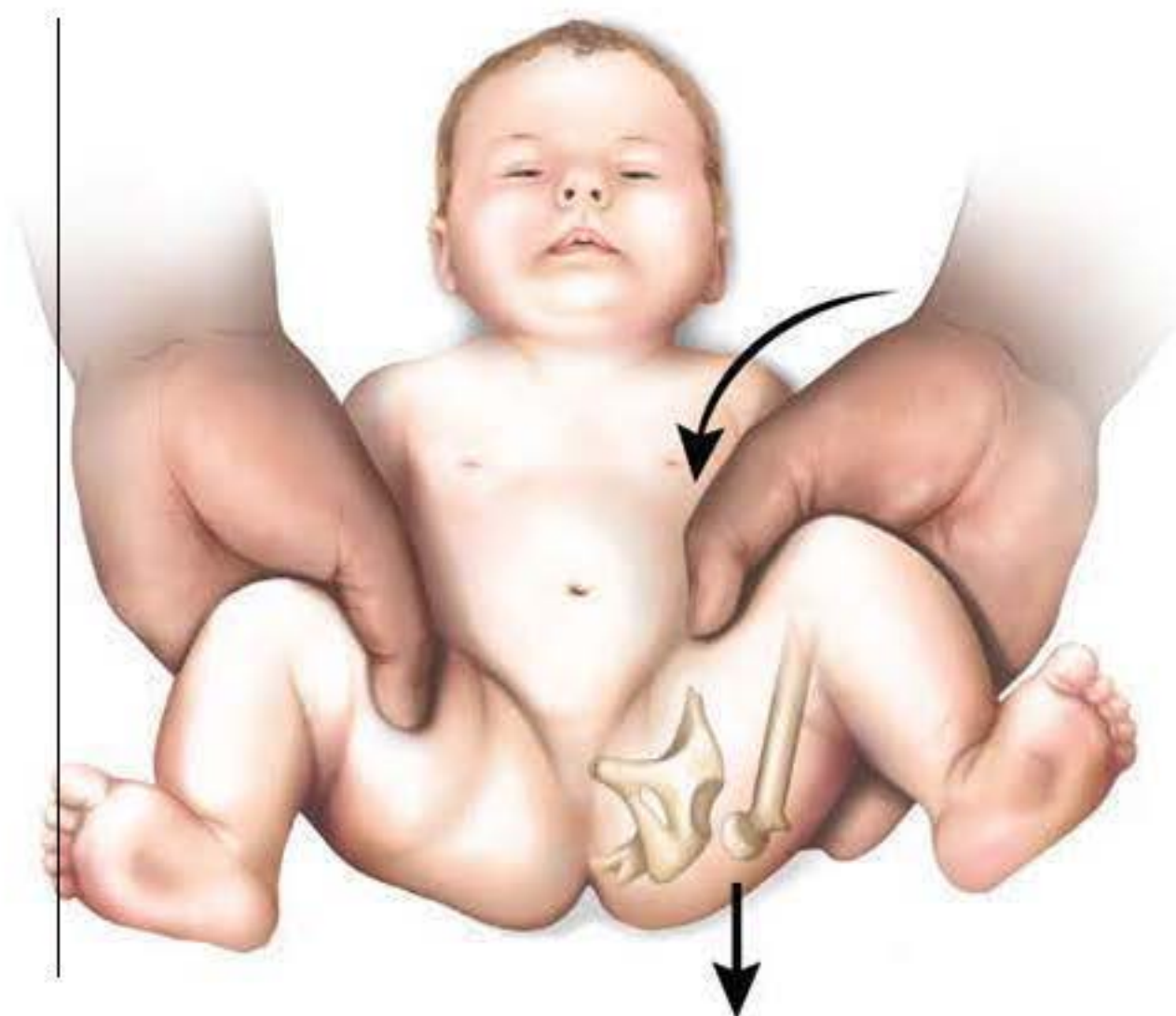


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and Ortolani maneuvers



Ortolani Maneuver:
Abduction with anterior lifting of the hip



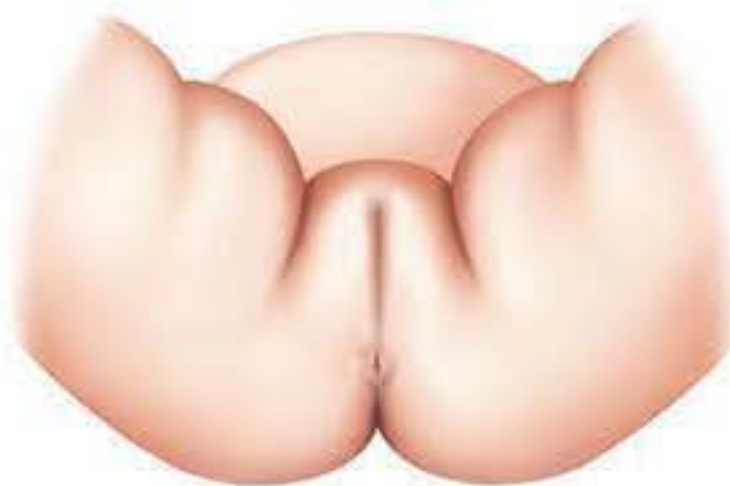
Barlow Maneuver:
Adduction with posterior pressure on the hip

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inguinal folds

Developmental dysplasia of the hip - asymmetric inguinal folds



(A) Normal inguinal folds do not extend beyond the anal aperture



(B) The inguinal fold on the left extends beyond the anal aperture, suggesting possible developmental dysplasia of the left hip

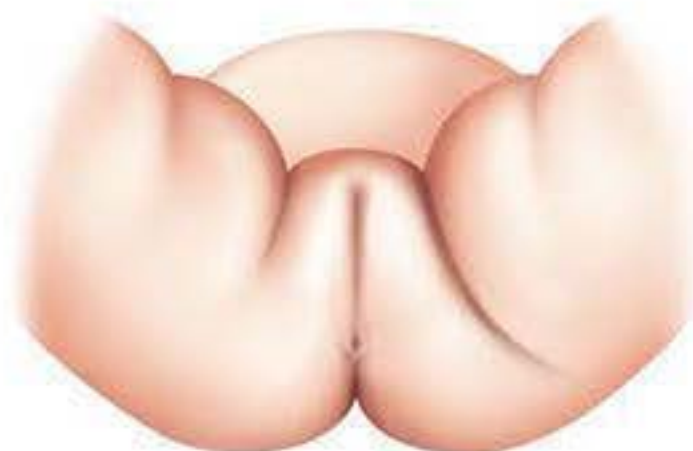


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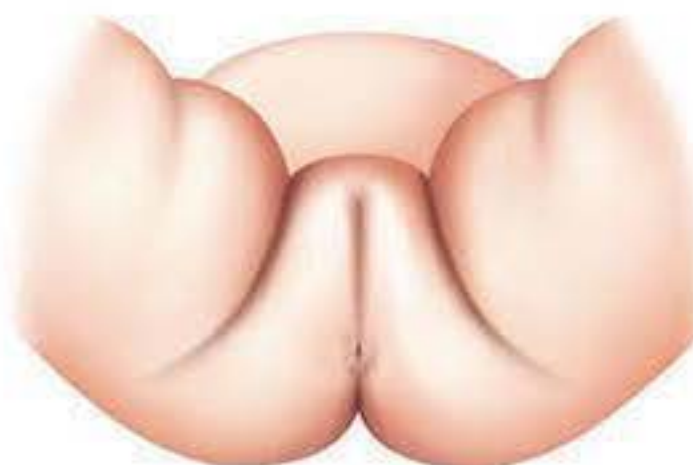
inguinal folds



(A) Normal inguinal folds do not extend beyond the anal aperture



(B) The inguinal fold on the left extends beyond the anal aperture, suggesting possible developmental dysplasia of the left hip



(C) The inguinal folds on both sides extend beyond the anal aperture, suggesting bilateral developmental dysplasia of the hip

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Pavlik harness

The Pavlik Harness



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