Ultrasound Evaluation Of the Cervix

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Don’t…

• Measure cervical length before 16 weeks, too much variation to be useful

Least accurate method to measure cervical length & to identify a cervical funnel

Lower Uterine Segment

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Lower Uterine Segment

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**Transabdominal Examination**

**Pitfalls**

- Presenting fetal part
- Bladder distension
- Symphysis pubis cartilage
- External os not visible
- Critical angle artifact
- Large maternal body habitus
- Lower uterine contraction
Transabdominal Examination

Pitfalls
- Presenting fetal part
- Bladder distension
- Symphysis pubis cartilage
- External os not visible
- Critical angle artifact

Lower Uterine Segment Contraction
Post Void

- Are common!
- These contractions are very slow & long

Placenta Previa: False Positives
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"Contractions"

Round myometrium

Contractions

Thick & asymmetric LUS

Myometrial Thickness ≤ 1.5 cm

Cervical length > 5 – 5.5 cm

"S" shaped cervical canal
“Contractions”

| Thick & asymmetric LUS |
| Myometrial Thickness ≤ 1.5 cm |
| Cervical length > 5 – 5.5 cm |
| “S” shaped cervical canal |
| Internal os cephalad to bladder reflection |

If indicated, the cervical length should **ALWAYS** be measured with transvaginal approach

**Common Indications for TV Evaluation of Cervix**
- Evaluating patients with vaginal bleeding to look for placenta previa
- Fetal parts
- Diagnosing cervical incompetence
- Assessing cervical effacement and dilation in patients with preterm labor
- Multiple Gestations
- Post cerclage placement
- History of preterm labor
- Succenturiate lobed placentas
- Velamentous cord insertion

**Preterm Delivery**
Whether that’s due to incompetent cervix or preterm labor leading to preterm birth is the single most common cause of poor neonatal outcome

**Preterm Delivery**
- Effects 8% of births
- Accounts for 15 – 20% of neonatal deaths
- 75% of non-anomaly deaths
- Treatment > $5 billion/yr USA

**Anatomic Landmarks for Vaginal Sonography**
- Bladder
- Chorioamnion Membrane
- External Os
- Cervical Length
- Internal Os

"Minimizing the effect of excess pressure" Good midline sagittal view of the cervix
Transvaginal Approach

Be careful - Excess Pressure

Excessive Probe Pressure
**Excessive Probe Pressure**

**Cervical Length**

- Upper limit of normal: 5.0 cm
- Average: 4.0 cm
- Lower limit of normal: 3.0 cm
- Pathologically decreased: 2.0 cm

**Straight Cervix**

**Curved Cervix**
“One step” vs. “Two step” Technique

Curved Cervix

If height ≥ 5 mm → “two step” technique

Cervical Changes

• Essentially the same in
  - Term labor
  - Preterm labor
  - Cervical incompetence

Cervical Changes

• T
• Y
• V
• U

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Cervical Changes

- Dilation
  - Widening of the endocervical canal from side to side

- Effacement
  - Shortening of the cervix
  - Reduction of the cervical length from internal end to external end

- Funneling or Beaking
  - Extension of amniotic fluid for some variable distance (≥ 5mm) into the endocervical canal from internal os toward external os
    - ‘V’ shape
      - More common, triangular “notch” at the internal os
    - ‘U’ shape
      - Uncommon, typically larger than V-shaped variety
      - Usually deeper than it is broad and may be dynamic

Cervical Changes – V Shape
Cervical Funneling – U Shape

Funnel Length
> 1.6 cm

Cervical Length
< 2.0 cm

Funnel Width
> 1.4 cm

Sonographic Criteria

Diagnostic Challenge

Diagnostic Challenge

Diagnostic Challenge

Diagnostic Challenge
Diagnostic Challenge

Cervical Changes

- Posterior→Caudal
  - In the early to mid pregnancy the cervix points posteriorly toward the sacrum
  - As the woman progresses towards labor the cervix starts to rotate to line up with vagina

Cervical Changes

- Bulging of membranes
  - Fluid extends all the way to the external os
  - If into vagina, delivery likely unstoppable

Preterm Labor

“to evaluate for cervical dilation”
Preterm Labor
“to evaluate for cervical dilation”

Diagnostic Challenge

Remember

Cervical Change
is Dynamic!

Cervix – Dynamic Changes

Cervix – Dynamic Changes
Cervical Stress Test with Gentle Pressure

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Thank You