Learning objectives

At the end of this lecture you should be able to:

• Visualise & measure the cervix in pregnant patients with vaginal sonography

• Identify & manage pregnant patients with short cervix

• Manage patients with threatened preterm labour
Key questions

• What is the correct technique for assessing cervical length (CL) using transvaginal imaging?

• When in pregnancy are cervical length measurements useful?
Cervix can be visualised transabdominally but poorly.
Vaginal sonography of the cervix
Normal cervix & short cervix

Cervical length

Funneling
Full Bladder:
  • Can artificially increase the cervical length
  • Can obscure the presence of cervical funneling
Normal cervical length
6614 pregnancy Cx measurements between 16 – 36 weeks

Salomon et al, UOG 2009, 33: 459

Risk of premature delivery
23 week CL in 2567 singleton pregnancies

Heath et al, UOG, 1998,12:312
Protocol for cervical assessment

• Patient in gynecological position, empty bladder
• Vaginal probe \( \geq 5 \) MHz in a lubricated disposable sheath
• Gently place the probe in the anterior vaginal fornix and ensure a sagittal view of the cervix is obtained
• Large image (\( > 75\% \) of screen)
• Identify the internal os, external os, cervical canal & endocervical mucosa. Beware segmental contractions of the lower uterus
• Avoid excessive pressure with the probe because it may cause inaccurate estimation of cervical length
• Take time, at least three measurements and use the shortest
Segmental thickening of the lower uterus: be careful not to overestimate the cervical length

- Placenta
  - 6.7 cm
  - 3.7 cm
Visualising the cervical mucosa
Segmental contractions of the lower uterus
Patient rushed in at night for an emergency cerclage

Outpatient scan: ? funneling

Upon admission
Cervix is soft, avoid undue pressure
The proper technique to visualise and measure the cervix with vaginal sonography

1. Exert some pressure to identify cervix & cervical canal

2. Release completely the pressure to measure cervical length
Screening by a combination of obstetric history and cervical length provides a higher detection rate than either method alone. For a screen-positive rate of 10%, the respective detection rates are about 80% and 60% in identifying extreme and early preterm birth.
Vaginal progesterone in women with an asymptomatic sonographic short cervix in the midtrimester

- 775 women
- Significant reduction in the risk of preterm birth 33 weeks of gestation
- 12.4% vs 22.0%; RR, 0.58; 95% CI, 0.42–0.80
- Number needed to treat 11

Romero R et al, AJOG 2012, 206:124.e1-19
Cervical length & threatened preterm labour

Delivery < 7 days and CL

216 women between 24-36 weeks with painful contractions

Randomised control trial (RCT) of CL (cutoff 15 mm, n = 41)

<table>
<thead>
<tr>
<th></th>
<th>CL</th>
<th>Controls</th>
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<tbody>
<tr>
<td>Delivery ≤ 34 weeks</td>
<td>9.5 %</td>
<td>15 %</td>
</tr>
<tr>
<td>Unnecessary steroids</td>
<td>14 %</td>
<td>90 %</td>
</tr>
<tr>
<td>Tocolysis</td>
<td>33.3%</td>
<td>100%</td>
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<tr>
<td>Delivery &lt; 35 weeks</td>
<td>0</td>
<td>0</td>
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Tsoi et al, UOG, 2003, 21:552
Alfirevic et al, UOG 2007, 29:47
## Short term prediction of preterm birth

<table>
<thead>
<tr>
<th>Variable</th>
<th>Probability of delivery &lt; 7 days</th>
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<tr>
<td></td>
<td>Pre-test</td>
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<tr>
<td>Positive fibronectin</td>
<td>20 %</td>
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<tr>
<td>No fetal breathing</td>
<td>20%</td>
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<tr>
<td>Short cervix on ultrasound</td>
<td>20%</td>
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</tbody>
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Boots et al, AJOG 2014, 210:54.e1-10
Contingent use of fetal fibronectin & CL in preterm labour

Threatened preterm labor

Cervical length

- < 15 mm: Fibronectin + → High risk
- 15-30 mm: Fibronectin - → Low risk
- > 30 mm

Key points

• The transvaginal approach should be used in preference to the transabdominal approach when examining the cervix with ultrasound
• The correct technique should always be used
• Care should be taken not to overestimate the cervical length
• Excessive pressure with the probe should be avoided when measuring the cervical length
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