UIHC FETAL DIAGNOSIS AND THERAPY OBSTETRIC ULTRASOUND PROTOCOL INDICATIONS FOR TRANSVAGINAL CERVICAL LENGTH

Background:
- Cervical shortening is thought to be one of the early steps of the parturition process.
- Progressive cervical shortening in the second trimester is associated with increased risk of spontaneous preterm delivery.
- Given that effacement of the cervix begins at the internal cervical os, shortening can be detected on ultrasound prior to the ability to detect changes on physical exam.
- Risk factors for preterm birth: prior preterm birth, prior cervical procedures, Muellerian anomalies, multiple gestations.
- Prior preterm birth includes singleton delivered between 16 and 36 6/7 weeks due to spontaneous preterm labor, PPROM, advanced cervical dilation or effacement 20-24 weeks.
- Incidence of short cervix < 20 mm (transvaginal) in low risk women is 0.8%.
- Cervical length <25 mm (10th percentile) is consistently associated with increased risk of spontaneous preterm delivery
  - Especially if identified <24 weeks gestation or in a patient with a prior preterm delivery
- Cervical length at 24-28 weeks can be used for risk stratification for likelihood of preterm delivery in women in a singleton pregnancy with preterm contractions/labor if the Bishop score is < 6. Cervical length > 25 mm at 24-28 weeks has a 99% negative predictive value for preterm delivery.
- Cervical length < 24 weeks in mono/di twins with TTTS is also used for risk stratification and eligibility for laser ablation of intertwine anastomoses.
- Unknown predictive value of cervical length measurements in multiple gestations.

Protocol:

<table>
<thead>
<tr>
<th>Low Risk</th>
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<tbody>
<tr>
<td>Singleton gestation without prior preterm delivery: <strong>Screen transabdominally at the time of routine second trimester anatomy ultrasound (18-24 wk); midline sagittal view of the lower uterine segment. Only screen once per pregnancy.</strong></td>
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<tr>
<td>• If cervix measures &lt;35 mm, perform transvaginal ultrasound</td>
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<tr>
<td>• If cervix &lt;25 mm on transvaginal ultrasound, begin vaginal progesterone. Cerclage not indicated.</td>
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<table>
<thead>
<tr>
<th>Intermediate Risk</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mullerian anomaly</td>
<td></td>
</tr>
<tr>
<td>Prior LEEP or Cone biopsy</td>
<td></td>
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</tbody>
</table>

**Screen transvaginally at the time of routine second trimester anatomy ultrasound (18-24 wk).**
- If cervix <25 mm, recommend vaginal progesterone. Cerclage not indicated.
High Risk
1. Singleton gestation with prior preterm delivery <37 weeks but > 30 wks, includes a history of PPROM: Screen transabdominally at the time of routine second trimester anatomy ultrasound; midline sagittal view of the lower uterine segment.
   - If cervix measures <35 mm, perform transvaginal ultrasound. For management of cervical length, see below.
2. Singleton gestation with prior preterm delivery < 30 weeks, includes a history of PPROM or second trimester loss: Screen transvaginally every 2 weeks from 16-24 weeks
   - If cervix >30 mm, continue scheduled surveillance.
   - If cervix 25-30 mm, increase screening to weekly visits.
   - If cervix <25 mm, discuss cerclage and recommend progesterone if not already using.

Preterm contractions/labor at 24-28 weeks in a singleton gestation, Bishop score < 6:
- Perform transvaginal cervical length.
- If the cervix is > 25 mm, tocolysis and betamethasone are not indicated.
- If the cervix is < 25 mm, betamethasone and tocolysis for 48 hours are indicated.

Mono/di twins with TTTS prior to 24 weeks:
- Perform transvaginal cervical length.
- Cervical length < 25 mm is associated with an increased risk for preterm delivery after laser therapy.

Bishop Scoring:

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dilation</td>
<td>Closed</td>
<td>1-2 cm</td>
<td>3-4 cm</td>
<td>5 cm</td>
</tr>
<tr>
<td>Length</td>
<td>&gt; 4 cm</td>
<td>3-4 cm</td>
<td>1-2 cm</td>
<td>0</td>
</tr>
<tr>
<td>Consistency</td>
<td>Firm</td>
<td>Medium</td>
<td>Soft</td>
<td>--</td>
</tr>
<tr>
<td>Position</td>
<td>Posterior</td>
<td>Midline</td>
<td>Anterior</td>
<td>--</td>
</tr>
<tr>
<td>Station</td>
<td>-3</td>
<td>-2</td>
<td>-1,0</td>
<td>+1,+2</td>
</tr>
</tbody>
</table>

Technical Requirements:
- The patient should have an empty bladder.
- Image: maternal cephalad to the left of the screen, insert transducer in anterior fornix until cervix is visualized-avoid excessive pressure. Cervix should occupy 50% of the screen with equal thickness of anterior and posterior aspects of the cervix.
- Image of the cervix should include v-shaped notch at internal os, triangular area of echodensity at the external os and endocervical canal.
- If endocervical canal curves, use 2 straight lines rather than tracing the canal.
- Obtain 3 measurements, variance of < 10%. Report shortest measurement.
- Apply abdominal pressure for 15 seconds, allow a few minutes. If short cervix develops, record 3 measurements.
- If cervical funneling is observed, usually associated with a cervical length < 25 mm. Record cervical length but measurements of the depth and width of funnel is not needed. Note funneling present or not in the ultrasound report.

- Also note in the report if sludge is present in the amniotic fluid at the cervix. Sludge and a CL < 25 mm is associated with an increased risk of preterm delivery.

References:

- UpToDate Sept 2014


