Ask the Expert

Ultrasound Imaging of the Cervix during Pregnancy

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Dear Expert,

As part of an obstetric scan I am expected to check the cervix, namely the internal os. At times I cannot see the cervix or find myself unsure if the placenta is clear of the os. What techniques would you suggest to image the cervix during pregnancy?

Confused

The sonographic evaluation of the cervix is an important component of every obstetric ultrasound. It provides otherwise unavailable and valuable information about the internal os and any structures overlying it. Physical or digital examination allows only for the assessment of the external os, ultrasound provides a visual assessment of the entire length of the cervix. Both the internal and external os can be identified allowing for the length and path of the cervix to be evaluated. The length of the cervix varies throughout pregnancy but a measurement from the internal to external os of 3 to 4 cm is considered to be a normal cervical length. It should however be remembered that shortening of the cervix is a normal occurrence after 32 week’s gestation.

There are three ultrasound methods available to visualise the cervix, transabdominal, transperineal and transvaginal. In most cases, the transabdominal scanning technique is all that’s required to provide adequate information about the cervix. However, due to the limitations of this technique, further evaluation may be indicated by either the clinical history or the transabdominal scan itself. Transvaginal and/or transperineal techniques may then be necessary to adequately image and evaluate the cervix.

Each of the 3 techniques for cervical assessment is described in the table below along with an evaluation of the advantages and pitfalls of each method. Using one or a combination of these techniques, ultrasound can be used to provide information about the cervix, including cervical incompetence, cervical myoma, endocervical dilation, cervical funnelling, placenta previa, presenting part (fetus or cord) and membrane protrusion.

### Transabdominal Technique

The cervix can be scanned using a curved linear transducer (3-5MHz). Scanning in the sagittal plane, midline above symphysis pubis a distended maternal bladder and/or amniotic fluid can be used as an acoustic window.

**Advantages:**
- Easy to perform and non invasive

**Disadvantages:**
- An inadequately distended bladder can prevent visualisation of the cervix
- An overly distended bladder can cause compression, falsely increasing the true cervical length
- Abdominal scarring and/or obesity may degrade the image
- Fetal parts may obscure the cervix.

### Transperineal Technique

A small amount of fluid in bladder will help to improve visualisation of cervix and vagina. Patients need to give informed consent and be asked about latex sensitivities/allergies. The patients are asked to lay supine with hips abducted. A curved linear transducer (3-5MHz) covered by a glove with a generous amount of gel applied to the glove is used. The cervix is scanned by placing the transducer between the labia minora and the vaginal introitus. If the external os is not visible elevation of the buttocks will help.

**Advantages:**
- Non invasive
- Cervix visualised at right angle to vagina
- Preferred technique for 3rd trimester pregnancies and scans performed post rupture of membranes

**Disadvantages:**
- Limited field of view
- Can only scan in the sagittal plane
- Fetal parts may obscure internal os
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Transvaginal Technique

Patient needs to give informed consent and be asked about latex sensitivities/allergies. After emptying her bladder, the patient is asked to lay supine with either her pelvis elevated or feet lowered with knees flexed. A 5-8MHz dedicated transvaginal probe is covered and gel applied to the cover. The covered transducer is then introduced into vagina to about 3-4cm only so as not to touch cervix. If the external os is not readily visible slight withdrawal of the probe will help.

Advantages:

- Excellent visualisation of the internal and external os
- Improved image resolution due to higher frequency probe
- Multi plane viewing/scanning
- Cervical funnelling can be seen dynamically

Disadvantages:

- Considered invasive
- Not recommended in cases of bleeding, ruptured membranes or bulging of membranes unless under medical supervision.

Transvaginal diagrams and images

Fig 1. Sagittal diagram of transducer placement
Fig 2. Diagram of anatomy seen
Fig 3. Low lying posterior placenta.
Fig 4. Funnelling and dilation of the internal os. Cerclage insitu

Transperineal diagrams and images

Fig 5. Sagittal diagram of transducer placement
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Fig 6. Normal cervix

Fig 7. Low lying anterior placenta (On transabdominal assessment the placenta reached the internal os.)

Ultrasound provides a rapid, accurate and non-invasive method of evaluating the cervix during all stages of pregnancy and an appropriate method of assessment should be part of every obstetric ultrasound examination.

References

POSTERS

A limited number of laminated posters “Prevent Injury - Stretching for Sonographers” are available. Please refer to the enclosed Order Form for further details, or contact the Secretariat on 03 9585 2996.

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Specific ultrasound forums are now available for:
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* Obs & Gynae
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* Cardiac

Together with a forum dealing specifically with Occupational Health & Safety issues.
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