

GUIDELINE FOR INSERTING A FETAL SPIRAL ELECTRODE FOR USE WITH AN ELECTRONIC FETAL HEART MONITOR

This guideline is meant to be used along with the *CMBC Guideline for Fetal Health Surveillance in Labour*. It is expected that the midwife will use best clinical judgment in assessing and responding to each labour and incorporate appropriate monitoring during labour including fetal well-being within the plan of care. It should be used in combination with the College's *Indications for Discussion, Consultation and Transfer of Care* and *Indications for Planned Place of Birth*, as well as other College guidelines and the midwife's own practice protocols for the provision of care in labour.

It is critical to remember that Fetal Health Surveillance is only one aspect of the clinical picture. Decisions about management should always be made in light of the total clinical picture, with the midwife providing information to the client throughout the course of labour to enable participation in the decision-making process.

While intermittent auscultation of the fetal heart is the preferred method of fetal surveillance for low-risk labours and an external fetal monitor would be applied if there was an indication for EFM, there are times when an internal spiral electrode may be necessary. An electronic internal fetal heart monitor using a fetal spiral electrode is an effective and safe method to monitor the fetal heart rate when indicated and used appropriately.

1. Responsibilities Associated with Electronic Fetal Monitoring

- The attending midwife should understand the benefits and limitations of EFM and be qualified and able to assess the tracing every 15 minutes while it is being carried out;
- The reasons, benefits and limitations for EFM use should be explained to the client so the client can make an informed choice about its use in labour;
- The electronic EFM tracing becomes a part of the record of care and relevant events and interventions are noted on the tracing¹
- Registered Midwives performing EFM are responsible for: obtaining an interpretable EFM tracing including both the fetal heart rate and contraction pattern, and;
- Interpreting the EFM tracing and consulting with a physician when an abnormal tracing is present, or when more than one atypical feature is present², and;
- Ensuring that EFM data is documented on the client's chart, and;
- Carrying out appropriate emergency interventions when indicated including such things as: client position changes, vaginal assessments for progress and to rule out cord prolapse, providing oxygen by mask, initiating or increasing IV fluids, and discontinuing oxytocin infusion, etc.

¹ Documentation on the tracing paper is only done in an emergency if absolutely necessary.

² The more there are atypical or abnormal features present in a FHR tracing, the greater risk of a possible fetal compromise.

Internal Monitoring

Indications

- When the external tracing is inadequate for accurate interpretation
- When unable to assess the FHR with any other method

Advantages

- Continuous, accurate assessment of FHR baseline, variability, accelerations and decelerations
- Comfortable and allows greater freedom of movement during labour without the repositioning of an abdominal transducer
- Can detect FHR dysrhythmia

Disadvantages

- Invasive
- Requires cervical dilation and ruptured membranes

Potential Contraindications

Contraindications to the use of internal fetal monitoring include but are not limited to the following:

- Placenta previa;
- Face presentation;
- Unknown presentation;
- Fetal thrombocytopenia or hemorrhagic complications
- HIV or Hepatitis B or C seropositive;
- Active genital herpes or any other active infection where the fetus may be affected.

Relative Contraindications³

- Extreme fetal prematurity;
- GBS, syphilis or gonorrhoea;
- Genital tract infection.

Note:

Intrauterine fetal monitoring is an independent risk factor for neonatal GBS disease (OR 1.94, 95% CI 1.09 – 3.42). Although more research is necessary on this issue, this suggests that caution be used when considering the use of a fetal spiral (scalp) electrode in those known to be colonized with GBS. (Adair et. al., 2003)

Risks (rare and minimized by proper insertion, removal and aseptic technique)

- Scalp infection
- Fetal trauma
- Infection

Note:

Very little additional clinical information will be gained by the application of a scalp electrode when compared with a consistent ultrasound-derived FHR pattern (Murray 2007).

³ Applying an internal fetal monitor is not recommended in these situations but may be acceptable if there are clinical benefits.

Technique for Inserting a Fetal Spiral Electrode⁴

A spiral electrode is introduced through the vagina and cervix and attached to the fetal scalp. Membranes must be ruptured.

- Using sterile technique, remove from package, leaving the electrode wires locked in the handle notch;
- Gently form the guide tube to the desired angle;
- Perform a vaginal exam and identify the fetal presenting part;
- Holding the drive handle, ensure the spiral electrode is retracted approximately 2.5 cm from the distal end of the guide tube;
- Place guide tube firmly against the fetal presenting part;
- Should be applied to the fetal scalp or buttock and attached to the monitor
- Must not be applied on the face, fontanelles, suture lines, genitals, or to an undiagnosed presenting part;
- Maintain pressure against the fetal presenting part with guide and drive tubes;
- Turn the drive tube by rotating the drive handle clockwise until gentle resistance is encountered;
- Resistance to further rotation and recoil of the drive handle indicates attachment. This usually occurs after one complete rotation;
- While holding the scalp electrode introducer against the fetal scalp, release the electrode wires from the handle notch with your other hand, straighten them, slowly remove the introducer, slide the drive and guide tubes off the electrode wires;
- Keep your fingers in the vagina protecting the FSE while an assistant connects the FSE to the fetal monitor by inserting the safety cap into the leg plate cable and confirms signal pick up;
- If no pick up, try gently turning the FSE clockwise;
- Confirm placement while assessing maternal pulse, (a FSE may pick up maternal heart rate in the event of a fetal demise);
- To detach the fetal spiral electrode, rotate it counter-clockwise until it is free from the fetal presenting part;
- Do not pull the electrode from the fetal skin.

****After two unsuccessful insertion attempts, a request should be made for a health care practitioner experienced in inserting a fetal spiral electrode.***

⁴ In service training may be available at some hospitals.

References

Society of Obstetricians and Gynaecologists of Canada, 2008, Fetal Health Surveillance: Antepartum and Intrapartum Consensus Guideline. *Journal of Obstetrics and Gynaecology Canada*. 2008. Vol. 29, no. 9.

Society of Obstetricians and Gynecologists of Canada, 2007, Clinical Practice Guidelines [online]. Retrieved from: <http://sogc.org/clinical-practice-guidelines/>

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Fundamentals of Fetal Health Surveillance: A Self-Learning Manual. Produced by the Canadian Perinatal Programs Coalition. Posted August 7, 2013. <http://www.cesei.org/education/courses/index.php>