# Internal Fetal Monitoring

Internal fetal monitoring (IFM) is very similar to electronic fetal monitoring. The difference is that the monitoring devises are placed internally; inside the mother, rather than externally; strapped to her belly on the outside. One electrode monitors the baby's heart rate; another electrode monitors uterine contractions. Internal fetal monitoring is an invasive procedure which requires that the mother's amniotic sac first be ruptured. In then entails screwing a miniature electrode onto the baby's presenting part (usually the head). This must be traumatic for the baby. Just imagine a baby, safe and warm inside its mother, suddenly being pierced by a small, screw-like devise. One study (1) even states, "As expected, fetal distress was more commonly seen in the internal fetal monitor group (10% in the no IFM group, versus 38% in the IFM group)."

Internal fetal monitoring is often used on a laboring woman, especially one who is receiving an epidural and/or Pitocin. These drugs can cause fetal distress and it is felt that a woman receiving these medications needs to be more closely monitored.

Internal fetal monitoring carries risk. Amniotic fluid became contaminated with bacteria within one hour after the insertion of the internal monitoring pressure catheter half of the time (50%) (2). The water was initially sterile, concluding that the placement of the catheter led to the bacteria being introduced. When IFM was evaluated in 30 consecutive labors (3), eleven women developed puerperal (pertaining to childbirth) fever. The overall risk for developing an infection with internal monitoring was 50%; for developing a fever, the risk was 37%.

Complications caused by the fetal scalp electrode are trauma to the baby, hemorrhage and infection. The infection is usually localized, but can, at times,

be serious and lead to sepsis and death (4).

There is also a higher risk of intrauterine infection in women whose babies are monitored internally (5). When women undergo a primary cesarean section, those having had internal fetal monitoring have an increased incidence of endometritis, (6) which is an inflammation of the lining of the inner surface of the uterus, produced by bacterial invasion.

There is also a significant consideration for babies who have been monitored by internal scalp electrodes in women who test positive for group B strep. Among the babies who do develop group B strep infections within the first seven days of life, the ones who were internally monitored by scalp electrodes were eight times more likely to die than those who had the infection but were not monitored internally (7).

The risk of introducing the herpes simplex virus into the baby needs to be evaluated when considered internal monitoring. The herpes simplex virus infection has been reported to start around the site of electrode placement (8). A careful maternal history should be taken to determine if this will be a risk factor.

Another rare occurrence was the baby who received an eyelid laceration when the fetal scalp electrode was inadvertently affixed to his upper eyelid during labor (9). This laceration did heal without permanent injury to the eye, but this must have been a painful ordeal for this tiny newborn.

There is also a very slight risk that the baby will develop septic dermatitis of the neonatal scalp (i.e. infection). (10). Scalp abscess is usually a benign complication of IFM that becomes apparent from two to ten days following birth. Local treatment is usually all that is required, although sometimes antibiotics are necessary (11). Factors contributing to infection were the number of vaginal exams performed and the use of more than one spiral electrode.

The risk of serious complication as a result of an internal fetal scalp electrode is low, at less than one percent, and obstetricians feel that the benefits of internal monitoring far outweigh any risks involved.