ACTA BIO MEDICA ATENEO PARMENSE 2004; 75; Suppl. 1: 59-61

CONFERENCE REPORT

Amnioscopy: Is it actual?

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Abstract. Amnioscopy is an invasive exam employed to visualise the forebag of the amnionic sac and to look out for meconium staining. Even though recognition of strongly stained fluid is easy, interpretation of those cases that are thinly stained is more difficult, since in these cases which are more common to find there could be an initial staining. On the other hand, visualisation of the forebag does not necessarily depict the condition of the rest of the amniotic fluid, especially in those cases where the fetal head is engaged. Moreover ascertainment that the amniotic fluid is limpid, only holds a temporary significance since it cannot predict successive release of meconium. The incidence of meconium stained fluid prior to labour has been found to range between 6-11%. Amnioscopy hence seems to hold a historical interest, and should only be employed in pregnancies at term where the cervix is sufficiently dilated to permit introduction of the amnioscope. Correlation between finding of meconium stained fluid during labour (1.5-18 % reaching 44 % in post-term pregnancies) with alterations at cardiotocography and above all to fetal acidosis or low Apgar scores at birth still remains controversial. Passage of meconium does not seem to express fetal compromise, at least until other parameters (CTG) do not support this suspicion. Finally it is important to remember that amnioscopy could in some cases lead to serious infections with chorioamnionites occasionally leading to fetal death. Accidental rupture of the membranes could also occur, reported in 1.4 % of the cases, harmful especially when far from labour. From these considerations, and since majority of the cases especially with chronic fetal distress, release of meconium is preceded or accompanied by reduction in the amniotic fluid quantities, the last identifiable through ultrasound. We agree with those authors who advise its use only when adequate management through CTG and ultrasound is not possible, and anyhow only in pregnancies at term.

Key words: Amnioscopy, amniotic fluid, perinatal outcome

Introduction

Amnioscopy is an invasive exam employed to visualise the forebag of the amnionic sac to look out for meconium staining. The concept of finding meconium stained fluid being correlated to increased risk of fetal distress and perinatal mortality has been consolidated (table 1).

Ideally, amnioscopy should serve both to verify presence of fluid with its amount and verify its quality (whether limpid or in its various degrees of meconium staining).

It is now of common knowledge that amnioscopy is unuseful for the first case, since only the lower part (forebag), of the amnionic sac, not indicative of the remaining portion is observed. Furthermore this is easily evaluated using ultrasound where amniotic pockets are measured. Visualisation of the membrane moreover does not exclude rupture of membranes.

The second aim is that of evaluating the quality of the amniotic fluid. Even though recognition of strongly stained fluid is easy, the most frequent and not less relevant number of cases that contain minor quantities of meconium, probably expressing an initial

Table 1

Classification	Prognostic significance	Perinatal mortality
Limpid: limpid and in normal quantities	Fetal-well-being	2/1000
Grade 1 Meconium: light meconium staining, with amniotic fluid in normal quantities	Possible fetal compromise	2/1000
Grade 2 Meconium staining: thickly stained of meconium, reduced volume of the amniotic fluid	Possible fetal compromise	11/1000
Grade 3 Meconium staining: pea-soup meconium	Pathological	11/1000
Absen : amniotic fluid not evaluatable	Possible fetal compromise (to be considered as in grade 2)	11/1000

colouring are more difficult to interpret. On the other hand, the forebag does not necessarily express the condition of the remaining portion, especially when the fetal head is engaged. Furthermore observation of limpid liquid is only of temporary importance since it cannot predict successive and possible releases of meconium.

Three degrees of staining can be distinguished, as reported in literature (table 1): thinly stained liquid, thickly stained fluid, pea-soup meconium. This distinction is fundamental since for the first case no relevant clinical implications in terms of fetal compromise have been observed.

For the second degree, intensive fetal surveillance needs to be carried out, to assure immediate delivery eventually through Caesarean section, on appearance of alterations on cardiotocography if spontaneous delivery is not imminent. The third degree should always induce immediate delivery, eventually through Caesarean section unless spontaneous delivery is imminent (2). The question that therefore needs to be made is, when is it useful to know the quality of the fluid? Knowing that the incidence of meconium stained fluid is 6-11% according to Woods (3), amnioscopy holds a historical interest and should be used in pregnancies at term, in those patients with a sufficiently dilated cervix, that allow introduction of the amnioscope. The same author also emphasises, the controversial and yet to be demonstrated correlation between finding of meconium stained fluid (1.5-18 % reaching 44 % in pregnancies at term) with alterations at cardiotocography and above all to fetal acidosis and low apgar scores at birth. Meconium alone does not seem to indicate fetal distress, atleast until other parameters do not support this suspicion.

The second query is, if finding of meconium staining especially of grade III, is not really associated to increased fetal distress, then why does it in all cases necessitate immediate delivery by Caesarean section? The answer comes from observation of a 5-7 times increase in neonatal mortality associated to finding of thickly stained amniotic fluid, although not observed for intrauterine fetal death. The cause of this dramatic event is only attributable to aspiration of the amniotic fluid, frequent among the more compromised newborns, and occurs during labour. This led to the erroneous belief that meconium was responsible for this pathology and for fetal distress, which instead has only been found to have an increased incidence when alterations on cardiotocography were observed.

The third query is: Is amnioscopy harmful or is it always innocuous? Does it lack complications, and therefore always feasible? Experience has shown (4) that amnioscopy can at times cause serious infections with chorionamnionitis which occasionally leads to fetal death. Moreover in 1.4% of the cases (5) it can accidentally cause rupture of membranes, which could be dangerous especially when far from labour.

From these considerations therefore, and considering that majority of the cases and especially those with chronic fetal distress, passage of meconium, is usually preceded or accompanied by reduction in the amniotic fluid quantities, identifiable through ultrasound, we agree with those authors who advise use of this exam only where monitoring using ultrasound and cardiotocography is not possible and anyway in pregnancies at term.

Reference

1. Valle A, Bottino S, Meregalli V, Zanini A. Manuale di Sala Parto. Edi-ermes-Milano, 1992.
2. Manning, Fetal Medicine, Principle and Practice. 1998: 191.
3. Maternal Fetal Medicine, Creasy and Resnik, 1994: 417.
4. Pescetto G, De Cecco L, Pecorari D, Ragni N. Ginecologia ed Ostetricia. Società Editrice Universo- Roma. Edizione 2001: 1279.
5. Lee KH. Supervision of high risk cases by amnioscopy. *Am J Obstet Ginecol* 1972; 112 (1): 46-9.

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