Amnioscopy Revival as a Fetal surveillance tool

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Abstract

Background: This study was carried out to explore whether amnioscopy could help us to management of the uncertain date fetus to differ the prematurity from growth-restriction and assessment of post term pregnancies as well. Notify the meconium staining of amniotic fluid is another aspect of amnioscopy, too.

Study Design: This was a descriptive study of 80 pregnant women from 2007 to 2008 at a university hospital, Tehran, Iran. The characteristics of amniotic fluid were documented on admission by inspection with transcervical amnioscopy, in all singleton pregnancies. Data were analyzed statistically.

Results: 80 Women were admitted in labor during the study period and fulfilled the study inclusion criteria and had amniotic fluid evaluation available. Three pregnancies were uncertain date that managed according to amnioscope findings. Amniotic fluid were meconium stain in 22.5% (n=18), and were clear 58.7% (n= 47) at amnioscopy and it was confirmed after delivery.

Conclusion: This study suggests that amnioscopy is an easy and safe procedure for assessment of amniotic fluid characteristics. It could help us to differ prematurity (with vernix) from growth restriction(with yellowish or meconium staining) . Further analysis will determine its role in the perinatal outcome.

Key words: Amnioscopy, amniotic fluid, perinatal outcome

Introduction:

Prediction and diagnosis of antepartum hazards threaten the life of fetus, is the major obstacle in obstetrics. Nowadays, the fetus' health is evaluated by assessment of the fetal heart rate (FHR), non stress test(NST), stress test, ultrasonography, biophysical profile(BPP) and doppler velocimetry, etc . There is no evidence from comparative trials on which to base a recommendation for use of one method of fetal assessment over another(1,2,3).

Traditionally, amnioscopy that was proposed by Saling in 1962, had been used as a first line intervention for detection of meconium passage(1,2,3,4,5). Amnioscopy is a form of obstetric endoscopy employed to visualise the forebag of the amnionic sac and to determine the characteristics of amniotic fluid such as color, consistency, presence of meconium, etc(1,4,5). The accuracy and reliability of amnioscopy in predicting fetal distress is uncertain.The precise incidence of usage and indications of amnioscopy is unknown. Although it is still apply in some of the obstetric units, there is controversy surrounding this method(1,2,3).

Serial amnioscopy can be used to monitor the fetus in the last weeks of pregnancy (6,7). Levran et al, evaluated the value of amnioscopy in surveillance of 289 postdate pregnancies. They showed that amnioscopy failed to detect the presence of meconium antenatally in most cases (57%), and positive amnioscopy for meconium was unrelated to the incidence of fetal distress(8). Raboni in Italy, suggested that amnioscopy is an invasive exam with many limitation such as rupture of membranes in 1.4% and serious infections that maybe leading to fetal death(9). Although, amnioscopy is not popular in modern obstetrics, the goal of this study is to define it as a safe method to recognize fetuses in whom timely intervention will prevent perinatal morbidity and mortality.

We conducted present study to show more light to the significance of amnioscopy in labor. Todays, scopies have been utilized to improve our vision in the field of gynecology such as hysteroscopy, vaginoscopy, … so we can restore and expand amnioscopy for evaluation of amniotic fluid details as well.

Therefore present study has been conducted to show more light to assess this method at the field of obstetrics.

Material and Methods:

A descriptive study was carried out during 2007-2008 at Taleghani teaching hospital in Iran.

The study protocol was approved by the institutional ethics advisory committee. 80 women with a singleton cephalic pregnancy with no pre-defined risk factor were recruited into the study. All women signed consent forms before participation. Pregnant women with premature rupture of membranes, fetal anomaly, closed cervix, unexplained vaginal bleeding and active labor were excluded. Patient information, demographics, and clinical data were then extracted from the chart. Amnioscopy was done for was performed for cases with uncertain date pregnancy to estimate whether they have vernix within clear amniotic fluid at sufficiently forbag or they have meconium staining with scanty fluid. Selection of the cases was by convenience non-randomized method all of cases with instrument(Amnioscope, Light Protector 4000, 220 Volt, 50 Htz,German) as follows;

The patient is placed in the lithotomy position. According to the state of the cervix, the largest suitable amnioscope is selected. The external diameters of the amnioscope tubes available being 12, 20 and 25 mm.

The suitable speculum applied, then, the selected tube is guided into the cervical canal. The obturator is removed and a light source is inserted so that the amnion sac could be inspected through the intact forewaters.

Patients were classified as amniotic fluid characteristics as follows: group A: clear, group B: emulsification of vernix (indicate prematurity), group C: green or yellow, scanty that are signs of threatened danger to the fetus.

SPSS Statistical programs(SPSS, software 11.0, Chicago, USA) were used to analyze results.

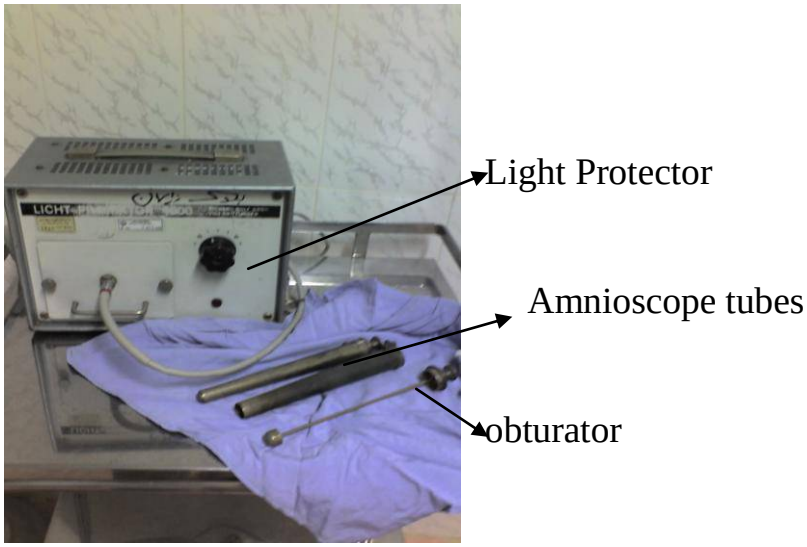

Figure (1) Instruments for Amnioscopy

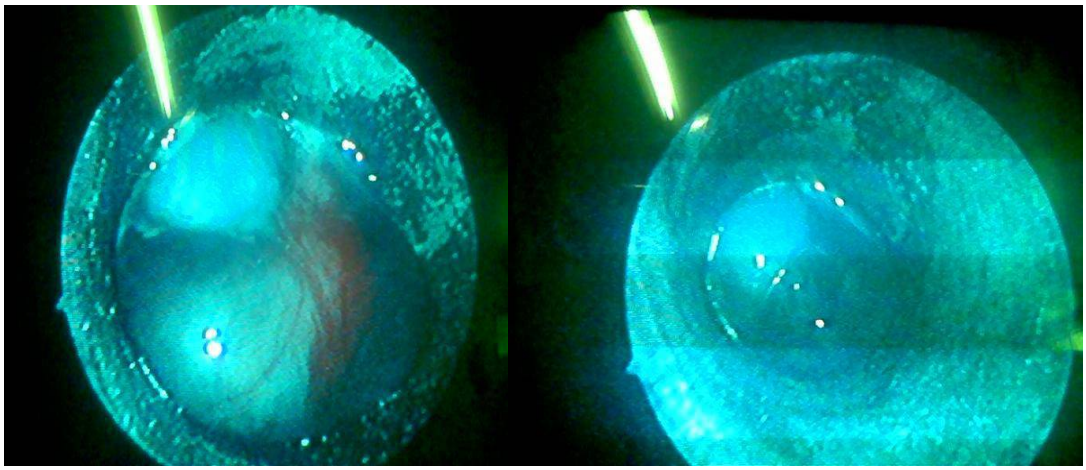

Figure (2):clear amniontic fluid via amnioscope

Result:

Eighty pregnant women were evaluated. The mean maternal age was 26.06±3.36 years, gestational age at admission was 38.3 ±2.6 weeks. The mean birth weight of the pregnancies that were terminated was 3108.12±257.96 g. Three pregnancies were uncertain date. One of these deliverd premature and another was full term. The third, deliverd at one week later that was appropriate for gestational age. The randomization sequence placed 47 patients in the A group, 15 in the B group and 18 in the C group. Table 1 illustrates that maternal demographics were equivalent between the groups. 7(8.75%) of the 80 patients experienced intrauterine growth restriction that all of them were in group C except two that were clear at amnioscope. There were no perinatal deaths in the

series. There was no significant difference in maternal length of stay. We did not have any incidence of postpartum morbidity in patients subjected to amnioscopy and no incidence of inadvertent rupture of the membranes.

Table 1. Maternal Demographic Data

	A (n=56)	B (n=10)	C (n=14)	P value**
Age(y)*	25.9±3.0	25.7±4.2	26.3±2.7	0.129
Gravidity*	3.66±1.29	2.86±1.61	4.13±1.76	0.101
Parity*	1.73±1.10	1.2±1.3	2.2±1.52	0.137

* Results are mean±standard deviation

**Data analyzed using *Bonferroni t-test* or X^2, as apprppriate.

Discussion:

This study demonstrated that amnioscopy is an easy performing and safe procedure for detection of amniotic fluid quality including color, presence of vernix or meconium passage and may improve accuracy in the evaluation of fetal well-being, as well. Saling believed that amnioscopy is basically a supervisory tool, but other indications include its usefulness as a safe method for artificial rupturing of membranes; differentiation of the type of premature rupture of membranes; antepartum hemorrage differentiation; and suspicion of intrauterine death(1,2). Later,Raboni and Levran describe the amnioscopy with many limitations such as rupture of membranes and serious infections and failed to detect the presence of meconium antenatally in most cases(8,9). Postmaturity was the most frequent causes of amnioscopy in all studies. In addition to detect the presence of meconium antenatally, we could make a decision for cases with uncertain gestational age according to amnioscope findings, whether spontaneous delivery can be safely awaited, or whether any intervention is preferable. This was conceived as a pilot study because there were no previous literature with this idea.

Without a doubt, part of our motivation for performing this study was to increase our obstetricians exposure to amnioscopy. We believe that this technique should be taught in residency training programs. Under the conditions of our study, we suggest that careful targeted amnioscopy

should be performed for pregnancy with uncertain gestational age to identify the time of termination. Options of termination and continuation of the pregnancy should be discussed with the patient. Antenatal fetal well being assessments such as biophysical profile or non stress test etc,

should be performed for suspected cases to support our decision.

Therefore,further comparative studies with a larger number of patients would have permitted for a greater degree of certainty regarding our findings. In order to achieving visual findings via an unripe or even closed cervix, amnioscopy can be developed as a fine fiberoptic technique.

References:

1. Saling E, Dudenhausen JW. Amnioscopy. In: Berci, G., ed. Endoscopy. New York, Appletone-Century-Crofts, 1976; p: 465-472.

2. AI Stupk, NG Kirilenko. Procedure and instrument for amnioscopy. L vov Medical Institue. 1969;2:36-38.

3.Sergent F, Lefèvre A, et al. Decreased fetal movements in the third trimester: what to do? Gynecol Obstet Fertil 2005;33(11):861-9.

4. Locatelli A, Regalia AL, et al. Prognostic value of change in amniotic fluid color during labor. Fetal Diagn Ther 2005;20(1):5-9.

5. Sheiner E, Hadar A, et al. The effect of meconium on perinatal outcome: a prospective analysis. J Matern Fetal Neonatal Med 2002;11(1):54-9.

6. Henry JA, Baker RW,et al. The in utero passage of meconium by very low birth weight infants: a marker for adverse outcomes. J Perinatol 2006;26(2):125-9.

7. Saldana LR, Schulman H. Routine Amnioscopy at Term. Obstetrics & Gynecology 1976;47:521-524.

8. Levran D, Shoham Z, Geranek M, Greenwald M, Mashiach S. The value of amnioscopy in surveillance of postdate pregnancy, Tel-Aviv University, Sackler School of Medicine, Israel. Aust N Z J Obstet Gynaecol 1988;28(4):271-4

9. Raboni S, Kaibura CT.Amnioscopy: is it actual? Acta Biomed. 2004;75 Suppl 1:59-61.