AMNIOSCOPY AND ASSESSMENT OF FETO-PLACENTAL COMPLEX
(A Preliminary Study of 266 Cases)

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The recognition that the fetus can be jeopardised long before the onset of labour has had a major influence in obstetric practice over the last 10 years. A new science of perinatal medicine has been developed around this theme, accompanied by a large number of biochemical and biophysical techniques to study placental function and assess fetal wellbeing. The obstetrician today is faced with an extensive literature on various biochemical tests with conflicting reports about their reliability. Amnioscopy is a very useful and simple procedure to detect foetal danger due to hypoxia in last weeks of the pregnancy. During this time amnioscopic examination is a very easy method of screening antenatal mothers with history and examination findings suspicious of intrauterine hypoxia.

We have tried to evaluate the use of amnioscopy for antenatal screening of high risk pregnancies. We have also corelated our amnioscopy findings with other available parameters of placental function.

Material and Method

We have used amnioscopy as a diagnostic antenatal screening procedure in 266 "high-risk" pregnancies. A 16 mm. amnioscope with built in battery operated light source was used for all the cases. (Fig. 1). This instrument eliminates need of the costly fiberoptic system. Examination was possible if cervix admitted one finger easily.

The technique described was as described by Saling and Dudenhausen (1976). After initial cleaning and draping is done, the vagina is thoroughly swabbed with dettol. The cervix is exposed with a Sims speculum and steadied with sponge holder holding the anterior cervical lip. Amnioscope with an obturator is passed through the cervix till it reaches the internal os. The instrument is then advanced 1 cm. into the uterus towards the sacral hollow at an angle of 30 degrees. After removal of the obturator the lower pole of the amniotic sac was visualised by somewhat retracting the instrument and bringing it into horizontal position.

The amniotic fluid was then examined as if it contained in a cuvette consisting on one side of a transparent amnion and on the other side the light skin of the presenting part or large flakes of vernix. The examiner's eye should be applied closely to the instrument to judge the colour of the fluid. Accurate inspection of the amniotic fluid is of great import-

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ance because even slight discolouration should be taken as positive.

All our patients were also screened by cervical mucus ferning and hormonal vaginal cytology before taking them up for amnioscopic evaluation.

Observations

Cases for amnioscopy included were 82 cases of toxaemias of various grades of severity 12 cases of postdatism, 17 cases of Rh. incompatibility, 7 cases of I.U.F.D., 13 cases of suspected I.U.G.R. and 21 cases of suspected premature rupture of membranes. In 114 cases of high-risk pregnancy, amnioscopy was done in labour at the time of admission.

Table I shows amnioscopy findings in these cases. Out of 82 cases of toxaemia of pregnancy, amnioscopy showed light meconium stained liquor in 16 cases and dark meconium stained liquor in 4 cases. Amnioscopy confirmed intrauterine foetal death in 7 cases by showing dark meconium, coloured liquor in 5 cases and light meconium coloured liquor in 2 cases, when other placental function tests and clinical examination had raised suspicion. In 13 cases of suspected I.U.G.R., 7 cases showed light meconium coloured liquor and 3 showed dark meconium coloured liquor. In 21 cases with history of leaking membranes amnioscopy confirmed rupture of membranes in 14 cases. In 114 cases of admission amnioscopy 4 revealed dark meconium coloured liquor whereas in 24 liquor was light meconium coloured.

Table II shows corelation between positive amnioscopy findings, cervical mucus ferning and hormonal vaginal cytology. All the cases in whom amnioscopy had revealed dark meconium coloured liquor cervical mucus ferning was positive, ferning was also positive in 2 cases of I.U.G.R. (?) and I.U.F.D. (?) in whom amnioscopy had revealed light meconium coloured liquor In all these cases hormonal vaginal cytology revealed K.P.I. of more than 20% showing progesterone deficiency. Cases in whom amnioscopy was done during early labour (admission amnioscopy) cervical mucus ferning and vaginal cytology could not be done.

TABLE I
Amnioscopy Findings

Indications	No.	Amnioscopy findings			
		Clear Liquor	Light meconium	Dark meconium	Absent membranes
Mild Toxaemia	39	34	5	—	—
Moderate Toxaemia	31	26	4	1	—
Severe Toxaemia	12	2	7	3	—
Postdatism	12	9	2	1	—
Rh. Incompatibility	17	14	3	—	—
I.U.G.R. (?)	13	3	7	3	—
I.U.F.D. (?)	7	—	2	5	—
P.R.O.M. (?)	21	7	—	—	14
Admission Amnioscopy	114	86	24	4	—
Total:	266	181	17	54	14

TABLE II

Corelation of Amnioscopy with Other Available Tests

Indication	No.	Amnioscopy			Ferning		Hormonal cytology	
		Clear	Light Meconium	Dark Meconium	Neg.	Positive	K.P.I. <20%	K.P.I. >20%
Toxaemias	83	62	16	4	68	14	68	14
Postdatism	12	9	2	1	11	1	10	2
Rh. Incompatibility	17	14	3	—	17	—	15	2
I.U.G.R. (?)	13	3	7	3	8	5	8	5
I.U.F.D. (?)	7	..	2	5	—	7	—	7
Admission Amnioscopy	114	86	24	4*	—	—	—	—

(*All 4 cases with dark meconium on Admission Amnioscopy had vary low Apgar Scores at births and required resuscitation).

Table III shows outcome of pregnancy in cases with positive amnioscopy findings. In 20 cases of toxaemia of pregnancy of various grades of severity, 4 showed dark meconium coloured liquor along with positive cervical mucus ferning and K.P.I. more than 20%. Labour had to be induced in these cases, all the 4 babies were of low birth weight (1.2 kg.-1.5 kg.) and dysmature. In 1 case of postdatism where amnioscopy, cervical mucus study and vaginal cytology showed falling placental function, labour was induced and the baby showed signs of post-maturity on examination. In 7 cases of suspected I.U.F.D. and 10 cases of suspected I.U.G.R. the amnioscopic diagnosis was confirmed after delivery. In 14 cases of suspected P.R.O.M. in whom amnioscopy revealed absent membranes, labour was induced and all the cases had very scanty liquor at delivery, most of these babies had some sort of newborn sepsis in the postnatal period. The colour of the liquor on amnioscopy and after rupture of membranes was same in all cases except in 1 case of (?) I.U.G.R. In this case amnioscopy had revealed light meconium coloured liquor, whereas at delivery liquor was clear. In this case cervical mucus ferning was negative, K.P.I. was less than 20% and onset of labour was spontaneous. The baby was 2.00 Kg. and did not show any signs of overt I.U.G.R. Probably the diagnosis of I.U.G.R. was not correct.

Discussion

Amnioscopy was described by Sailing. Sailing and Dudenhaussen (1976) have recommended amnioscopy with other placental function tests for antenatal screening of high-risk foetuses. The antepartum mortality rates are definitely lower in amnioscopically supervised foetuses as compared to non supervised ones. Low time, technical and staff expenses are considered advantages of amnioscopy over cardiotocography.

Vaginal cytology is an useful index to predict foetal jeopardy (Green *et al* 1977). In late pregnancy K.P.I. more than 20% means foetal jeopardy. Similarly, consistent crystal formation in cervi-

TABLE III

Outcome of Pregnancy in Cases with Positive Amnioscopy Findings

Indication	No.	Ppsitive Amnioscopy Findings			Outcome of pregnancy				
		Light Meco.	Dark Meco.	Absent Membrane	Labour		Liquor		Baby
Toxaemias	20	16	4	-	Spont. Induced	16 4	Yellow Green	16 4	2.00-2.5 Kg. 12-1.5 Kg. dysmature 4
Postdatism	3	2	1	-	Spont. Induced	2 1	Clear Dark yellow	1 2	2.00 Kg. 1.5 Kg.-2.00 Kg. dysmature 1
Rh. Incomp.	3	3	-	-	Spont.	3	Light yellow	3	2.00-2.5 Kg.
I.U.F.D. (?)	7	2	5	-	Spont. Induced	1 6	Yellow Green	2 5	S.B. 7
I.U.G.R. (?)	10	7	3	-	Spont. Induced	7 3	Clear Yellow Green	1 6 3	1.5-2.00 Kg. S.B. 1
P.R.O.M. (?)	14	—	-	14	Induced	14	Scanty	14	Neonatal Sepsis
Admission Amnioscopy	28	24	4	-	Spont. Induced	24 4	Yellow Green	24 4	Asphyxia 4

cal mucus also indicates foetal jeopardy. (Zondek and Rozin, 1954). We could not do sophisticated tests such as HPL, cardiotocography, oestriol excretion etc. In the absence of these investigations we have found the two parameters viz. serial hormonal vaginal cytology and cervical mucus ferning, extremly useful.

If foetus dies within 48 hours of amnioscopy showing clear liquor, it is considered as failed amnioscopy. Sailing and Dudenhaussen (1976) had 0.6/1000 failure rate in 10,863 amnioscopies. We did not have a single failure in our series.

Infection, premature rupture of membranes, and preterm labour are dangers of amnioscopy in 1-2% of cases (Sailing and Dudenhaussen 1976). In none of our cases there was preterm labour or rupture of membranes although ours is a relatively small series.

In conclusion amnioscope is a useful tool to monitor high risk pregnancies in late antenatal period.

References

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See Fig. on Art Paper VI