

CORRELATION OF MACROSCOPIC EXAMINATION OF LIQUOR WITH THE VARIOUS TESTS OF FOETAL MATURITY

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SUMMARY

Sixty-five pregnant women were studied for correlation between macroscopic appearance of amniotic fluid and amylase content, uric acid level, Nile Blue sulphate test and Shake test. Good correlation was found between clear, slightly turbid and turbid liquor.

Introduction

Determination of foetal maturity in cases of unknown dates is an enigma to every obstetrician in clinical practice. In cases where the mother reports first time in late pregnancy, a very critical decision about timing of induction is to be made. The present study was undertaken to sample amniotic fluid by various tests for foetal maturity as well as to keep record of macroscopic examination of the fluid about turbidity. An attempt was made to correlate the turbidity of the fluid to the maturity determined by amniotic fluid sampling.

Material and Methods

Sixty-five pregnant women with known L.M.P. dates were taken for study. The following category of cases were taken:

(1) Patients admitted in antenatal wards.

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Accepted for publication on 23-9-83.

(2) Patients coming in spontaneous labour at different weeks of gestation.

(3) Patients undergoing caesarean section at term.

Amniotic fluid was obtained either by suprapubic amniocentesis or at caesarean section or by putting a needle into the forewater bag. Macroscopic examination of the fluid was done and it was analysed for the following:

Amylase content, uric acid level, Nile blue sulphate test, shake test.

All the babies were kept in the wards for atleast five days to note any complication including respiratory distress syndrome.

Results

In this series the amylase level of 180 somogyii units was taken as maturity index of foetus at 38 weeks because all the values before 38 weeks were less than 180 somogyii units except in 1 case. Uric acid of 8 mg% was taken as maturity index of foetus at 38 weeks because all the values before 38 weeks were below this except in 2 cases.

Positive shake test was taken as an index of pulmonary maturity of foetus at 37 weeks. At 37 weeks in 100% of cases, the shake test was positive. Since the percentage of accuracy came out to be lower than 100% at 38-40 week, we were of the view that either the test is to be repeated or further biochemical tests may be done like the estimation of palmitic acid as suggested by MacLennan *et al* (1975) or total phospholipid assay (Fairbrothel *et al*, 1975).

Percentage of fat cells of 20% or more was taken as an index of foetal maturity at 38 weeks because all the values were less than 20% before 38 weeks except in one case.

From Table I it is evident that if macroscopically the liquor is clear the probable gestational age will be between 34-36 weeks and mean birth weight will be 2405.74 gms. Similarly, if liquor is turbid slightly, the gestational age lies between 37-38 weeks and mean birth weight at 37 weeks is 2712.5 gms and at 38 weeks, 2837.3 gms. If the liquor is turbid one could predict that gestational age was 39-41 weeks or more and the mean birth weight would be 3062.5 gms.

None of the neonates in all the groups developed RDS in our series. Two cases where liquor was tested at 34 weeks of maturity were induced 3 weeks after. Four cases in the group of 34-36 weeks had maturity of 35 weeks in one patient and 3 cases were at 36 weeks gestation.

Discussion

Woyton (1963) established the value of turbidity of liquor amnii relating to foetal maturity. He said that turbidity increased as pregnancy advanced towards maturity.

Agarwal *et al* (1982) compared the

TABLE I

No. of cases	Gestational age in weeks	Macroscopic exam. of liquor	Percentage of Accuracy			Nile Blue test Fat cells %age Mature value at 38 weeks—20% or more	Mean baby birth wt.	Complimentation to new born
			Amylase Uric acid Shake test level	In mg% mature value at 38 weeks —8 mg%	Mature value positive at 37 weeks			
6	34-36	Clear	100%	100%	50%	100%	2405.74 G	Nil
7	37	Moderately turbid	85.7%	71.42%	100%	100%	2712.5 G	Nil
15	38	-do-	86.6%	46.6%	93.33%	86%	2837.3 G	Nil
29	39-40	Turbid	93.1%	58.6%	93.1%	96.5%	3015.3 G	Nil
8	41 or more	Turbid	—	25%	100%	*87.5%	3062.5 G	Nil

* This percentage is lower than that at 39-40 weeks because of less number of cases in this group i.e. 8 as compared to 29 in former group.

visual examination of amniotic fluid and L/S ratio and development of HMD. They found L/S ratio of more than 3 in liquor turbid or clear with flakes.

In our series we have found a good correlation between clear, slightly turbid and turbid liquor to the gestational age as determined by various tests. Probably the group of Agarwal *et al* (1982) of clear with flakes would be the same as our group of slightly turbid liquor. Thus the macroscopic examination of liquor has a significant value alongwith the tests in

arriving at the estimate of foetal maturity.

References

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Liquor Examination

Case No.	Gestational Age (Weeks)	Liquor Appearance	L/S Ratio	HMD Development	Other Findings
1	36	Clear	2.5	None	
2	37	Slightly turbid	3.0	Minimal	
3	38	Turbid	3.5	Significant	
4	39	Very turbid	4.0	Advanced	

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