

MECONIUM STAINED LIQUOR AMNII—ITS SIGNIFICANCE AND EFFECT ON FOETAL OUTCOME

by

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Meconium staining of liquor amnii (MSLA) is a commonly observed phenomenon in day to day practice of obstetrics. It is supposed to be one of the signs of foetal distress in cases other than breech presentations. The aim of the present study is to find out the incidence of this phenomenon and its co-relation with various other significant obstetrical conditions and foetal outcome.

Incidence

Between August 1979 and December 1980 the total number of deliveries were 5812 and meconium stained liquor amnii was present in 200 cases, giving an incidence of 3.4% of delivery cases.

Of the 200 cases, 124 were booked and 76 were unbooked cases. One hundred and seven cases were primigravida and 93 were multigravida.

Material and Methods

Two hundred consecutive booked or unbooked cases with MSLA who delivered at Zanana Hospital, Udaipur in all the 3 units from August 1979 to December 1980 were included in the study. Patients with confirmed intra-uterine death, Rh incompatibility and obstructed labour were excluded. Along with detailed history and review of antenatal card when available, complete examination was car-

ried out. All the cases were observed carefully and more frequently for evidence of changes in FHS. After delivery, condition of the cord and placenta was also noted. MSLA was detected only after rupture of membranes. Foetal well-being was assessed by Apgar Score at 1 minute and 5 minutes as well as by general observation for 4 to 6 hours after birth.

The cases were divided into 3 groups as follows:

Group I: Cases with MSLA showing other signs of acute foetal distress.

Group II: Cases with MSLA not showing other signs of acute foetal distress, but who had significant associated antenatal and intrapartum factors.

Group III: Cases with MSLA not showing other signs of foetal distress and had no associated significant antenatal and intrapartum factors.

Observations

Group I: Other clinical signs of foetal distress taken into consideration are significant alteration in foetal heart rate, irregularity in rhythm, slowness to recover normal rate after slowing down during a uterine contraction and excessive or tumultuous foetal movements.

Seventy-six cases showed abnormality in foetal heart sound as shown in Table I. Foetal heart monitor was not available all the time, hence most of the abnormalities were detected clinically.

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Accepted for publication on 10-3-81.

TABLE I
Foetal Heart Sound Patterns With MSLA

Pattern	No. of cases	Percentage
Bradycardia	42	55.2
Tachycardia	20	26.3
Bradycardia with irregular rhythm	14	38.4

Exaggerated foetal movements were recorded only in 4 cases.

Group II: This group included cases who had various significant associated antenatal and intrapartum factors and did not show any other sign of foetal distress.

Passage of meconium into the liquor amnii might have occurred sometime or long time before it was detected. That is why, interval between first detection of MSLA and delivery may not be a significant factor in most of the cases included in the study.

Management depended upon number of factors like stage at which it was first detected, associated other evidences of foetal distress, associated antenatal and intrapartum factors and lastly thinking of the clinician. In general, oxygen inhalation was given in 104 (54%) cases. I.V. Lomodex was given in 54 (27%) cases. Syntocinon drip for acceleration of labour was given in 26 (13%) cases. Left lateral position in suspected cases of placental insufficiency was given in 8 cases. In 76 (38%) cases no treatment was given.

Cases included in Groups I and II were given special attention and attempt was made to accelerate the labour process,

TABLE II
Significant Antenatal and Intrapartum Factors in 200 Cases With MSLA

S. No.	Factor	No. of cases
1.	Cord around the neck	40
2.	Toxaemia of pregnancy	27
3.	Chronic placental insufficiency leading to I.U.G.R.	26
4.	Prematurity and postmaturity	26
5.	Abnormal obstetrical history	22
6.	Cord prolapse and other abnormalities of cord	17
7.	P.R.M. and H/C handling before admission	12
8.	Abruptio and other abnormalities of placenta	7
9.	Hydramnios	6
10.	Congenital malformation of foetus	4
11.	Abnormal presentations other than breach	3
12.	Diabetes mellitus	3
13.	Severe anaemia	2
14.	Multiple pregnancy (9.3%)	2

cut short the second stage of labour or terminate the labour by early caesarean section. Mode of delivery in 3 groups is as shown in Table III.

Caesarean section was done primarily for foetal distress in 18 cases and in 7 cases it was done for some other indication. Forceps were applied primarily for foetal distress in 23 cases and for other indications in 13 cases.

Foetal outcome in three different groups is as shown in Table IV. Moderate

TABLE III
Mode of Delivery in Cases With MSLA

Group	No. of N.D.	Percentage	Forceps delivery	Percentage	L.S.C.S.	Percentage
I and II	112	65.1	35	20.3	25	14.5
III	27	96.4	1	3.6	Nil	—

TABLE IV
Foetal Outcome With MSLA

Group	Normal	ASPHYXIA			Could not be revived
		Mild degree	Moderate degree	Severe degree	
I and II	83 (48.2%)	41 (23.8%)	18 (10.4%)	14 (8.1%)	16 (9.3%)
III	23 (82.1%)	4 (14.2%)	1 (3.5%)	—	—

degree of asphyxia in one baby in Group III was because of meconium aspiration. Meconium aspiration was also the problem in 7 babies in groups I and II who manifested moderate to severe degree of asphyxia.

Discussion

With meconium stained liquor amnii others signs of foetal distress present were abnormalities of foetal heart rate, rhythm and tone, delay in gaining normal rate after slowing during a uterine contraction and exaggerated foetal movements. These were present only in 76 (38%) cases commonest abnormality detected was bradycardia i.e. rate below 110/min, which was present in 42 (55.2%) cases. Exaggerated foetal movements were present in only 4 cases. It is a subjective sign and hence can not be a reliable phenomenon.

Intrauterine foetal hypoxia is the main cause of neonatal asphyxia. Intrauterine foetal hypoxia may be because of some of the known and unknown factors. Some of the known factors are immaturity, placental insufficiency or inadequate placental reserves, interference with placental and cord circulation from large variety of causes, maternal asphyxia, with general anaesthesia, action of drugs, intrauterine infection, mechanical stresses in labour etc. Our methods of assessing

foetal well being before birth are only few and depend mainly upon observation of foetal heart rate patterns, passage of meconium and biochemical study of foetal scalp blood.

Leaving aside a few, most of the centres in our country lack facilities for foetal heart monitoring and foetal scalp blood studies. Under such circumstances only clinical evaluation of cases in MSLA is possible as was done in this study.

Passage of meconium in liquor amnii is a peculiar phenomenon. It is supposed to be indicative of intrauterine hypoxia. Observations on delivery cases with good foetal outcome in Group III puts this concept in doubt. According to Miller *et al* (1975) the presence of meconium in the amniotic fluid without signs of foetal asphyxia (abnormal foetal heart rate pattern and foetal acidosis) is not a sign of foetal distress and need not be an indication for active intervention. Observations on delivery cases with good foetal outcome included in Group III tallies with opinion of Miller *et al*.

In Group I, cases with MSLA had frank manifestations of intrauterine hypoxia in the form of changes in foetal heart rate patterns. In Group II, various antenatal and intrapartum factor were present contributing to intrauterine hypoxia. Foetal outcome collectively in these two groups is highly suggestive of it.

Majority of patients with MSLA i.e. 172 (86%) belong to these two groups. To improve the neonatal morbidity and mortality, patients belonging to these two groups need careful watching, screening and active intervention during labour. In these groups MSLA must be considered a real warning sign of foetal distress.

Minority of cases (14%) with MSLA belonged to Group III. MSLA appears to be of little or no clinical significance in cases belonging to this group as indicated by good foetal outcome. Occasionally meconium aspiration is the only problem. Lastly, the question remains, why this phenomenon occurs in a small number of cases in the absence of other evidences causing and suggestive of it? It only demands better understanding of intra-uterine foetal physiology.

Summary

Two hundred delivery cases with meconium stained liquor amnii were analysed. Effect of this condition on the foetal outcome in the presence or absence of other signs of foetal distress and various antenatal and intrapartum factors was studied.

In 28 (14%) cases MSLA was not associated with significant antenatal and intrapartum factors and did not show other signs of foetal distress. Foetal outcome in this group was normal except for the occasionally encountered problem of meconium aspiration.

References

1. Miller, F. C., Sacks, D. A., Yeh, S., Paul, R. H., Schifrin, B. S., Martin, C. B. and Hon, E. H.: *Am. J. Obstet. Gynec.* 122: 573, 1975.