



Common Predisposing Factor for Meconium Stained Liquor and Management in Rural Set Up

KEYWORDS

APGAR Score, Meconium Stained Liquor, Meconium Aspiration Syndrome

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ABSTRACT *AIMS & OBJECTIVES: To study common predisposing factor for meconium stained liquor, mode of delivery in meconium stained liquor and role of intrapartum management in improving perinatal outcome. MATERIALS & METHODS: This retrospective study was conducted from from January 1 to 30 June 2014 on patients admitted to Labour ward, S.R.T. Rural Medical College and Hospital Ambajogai. Out of 2580 deliveries, 240 patients who met the inclusion criteria were enrolled in our study. The data was collected in a predesigned proforma. RESULTS: The results of fetal outcome and mode of delivery were analysed. CONCLUSION: Meconium Stained Liquor alone is not associated with an adverse neonatal outcome, 86% of babies remained asymptomatic. Increasing Grade of MSL is associated with poor outcome, increased caesarean section rate and increased neonatal complications.*

Introduction

Meconium staining of the amniotic fluid has long been regarded as a sign of fetal distress. Although the exact cause is not known, meconium is thought to be passed from the fetal gastro-intestinal tract as a response to hypoxia, mesenteric vasoconstriction induced gut hyperperistalsis, falling umbilical venous saturation, vagal stimulation and normal physiological function of a mature fetus¹. Conflicting outcomes have been reported in the labour, complicated by meconium staining of the amniotic fluid.

Fetal distress is defined as alterations in the fetal heart rate (FHR) more commonly bradycardia and the passage of meconium in response to the underlying fetal hypoxia. Variations in FHR, passage of the meconium in the amniotic fluid, pathological or abnormal CTG and decreased fetal scalp blood pH are strong indicators of fetal distress². MSAF is associated with higher rate of caesarean delivery, increased need for neonatal resuscitation and meconium aspiration syndrome³. The risk factors for meconium stained amniotic fluid are both maternal and fetal. The maternal factors are hypertension, Gestational Diabetes mellitus, post term pregnancy, preeclampsia, eclampsia. The fetal factors include oligohydramnios, intrauterine growth restriction⁴. Aspiration of meconium by the fetus remains relatively common cause of perinatal morbidity and mortality because it is difficult to prevent. The meconium stained amniotic fluid is a clinical diagnosis. However, various methods have been tried to detect the presence of meconium in liquor and to prevent meconium aspiration syndrome. These methods include Amnioscopy during early labour and oropharyngeal suction and endotracheal intubation after birth. The perinatal morbidity and mortality associated with meconium aspiration can be brought down if the high risks are identified in the antenatal period and careful decisions are made about the timing and mode of delivery and vigilant monitoring of the labour. This study

was carried out to determine fetal outcome and mode of delivery in pregnant women with meconium stained liquor in rural set up of Ambajogai.

AIMS AND OBJECTIVES-

- 1 Common predisposing factor for meconium stained liquor.
- 2 Mode of delivery in meconium stained liquor.
- 3 Role of intrapartum management in improving perinatal outcome.

INCLUSION CRITERIA-

Cases of cephalic presentation irrespective of cervical dilatation, contractions, fetal heart rate, spontaneous or artificial rupture of membranes.

EXCLUSION CRITERIA-

Malpresentations, malpositions, IUD, anomalous baby, twins, CPD.

MATERIALS AND METHODS

This study was conducted in the department of OBGY at S.R.T. Rural Government hospital Ambajogai. A retrospective analysis of 240 cases of women coming to labour room, with spontaneous or induced labour, having meconium stained liquor, thin moderate or thick (grade I, II, III) on spontaneous or artificial rupture of membranes of cephalic presentation irrespective of cervical dilatation, contractions, fetal heart rate. Out of 2580 deliveries, 240 patients had meconium stained liquor. These cases are managed with intensive intrapartum monitoring with CST, active management, augmentation or operative delivery. Patients detailed history, gestational age, per abdominal examination, per vaginal examination, admission tests including intrapartum CTG were recorded in a pre-designed proforma. The fetal heart rate was strictly monitored continuously. All cases are attended and managed by trained staff and residents of

obstetric and paediatric department. The meconium staining of the amniotic fluid was classified as Grade I, II, III by visual examination after spontaneous or artificial rupture of membranes. Grade I meconium stained liquor is translucent, light yellow green in colour, grade II MSL is opalescent with deep green and light yellow in colour. Grade III is opaque and deep green in color. Delivery is expedited when fetal heart rate abnormalities were detected by safest mode of delivery either by instrumental vaginal delivery or caesarean section. All patients underwent full trial of labour and caesarean section was done only if trial of labour was unsuccessful or if there were obstetric indications including fetal distress. The APGAR score of neonates at 5 minutes, birth weight, NICU admission, the neonates who had meconium aspiration syndrome and birth asphyxia were recorded.

OBSERVATIONS-

Table I MODE OF LABOUR

Total deliveries (2580)	less than 40 weeks	40 weeks onwards
Total Meconium Stained Liquor deliveries(240) (9.30%)	86	154
	35.83 %	64.16%
MODE OF LABOUR	Spontaneous labour	Induced labour
(240)	14	226
	5.3%	94.16%

Table II: Mode of delivery

240	THIN (grade I)	MODRATE (GRADE II)	THICK (grade III)	%
Normal	30	22	10	62(25.83%)
Instrumental Delivery	4	6	4	14(5.83%)
C.S.	34	58	72	164(68.33%)
Total	68 (28.33%)	86 (35.83%)	86 (35.83%)	240

Table III- Potential Risk Factors for Meconium Stained Liquor

Sr no	Associated antenatal and intrapartum risk Factors/complication	Mode of delivery			Total cases
		Normal	Instrumental Delivery	Caesarean	
1	Postdatism	52	8	94	154
2	PIH	10	6	44	72
3	Oligohydroamios	2	0	18	20
4	Prolonged PROM	0	0	20	20
5	Prematurity	2	0	0	2
6	Previous Caesarean section	0	0	10	10
7	Primary infertility	0	0	6	6
8	Cholestasis of pregnancy	2	0	0	2
9	IUGR	2	0	18	20
10	Gestational diabetes	2	0	0	2
11	Heart disease	2	0	0	2

Table IV Meconium detection-delivery interval and Cervical dilatation at time of meconium detection

SN	Meconium detection-delivery interval	Normal Delivery	Instrumental Delivery	Caesarean Delivery	Total	NND
1	0-2 hrs	34	10	160	204 (85%)	5(2.45%)
2	2-4 hrs	16	4	4	24 (10%)	2(8.33%)
3	4-6 hrs	12	0	0	12 (5%)	3(25%)
	Total	62 (25.83%)	14 (5.83%)	164 (68.33%)	240	10(4.16%)
SN	Cervical dilatation at time of meconium detection	Normal Delivery	Instrumental Delivery	Cesarean Delivery	Total	NND
1	8-10cm	48	8	4	60 (25%)	0
2	6-8cm	10	4	54	68 (28.3%)	2(2.94%)
3	<6cm	4	2	106	112 (46.6%)	8(7.14%)
	Total	62 (25.83%)	14 (5.83%)	164 (68.33%)	240	10(4.16%)
	NND	7 (11.29%)	1 (7.14%)	2 (1.21%)	10	

Table V: Correlation of grade of meconium, MAS and NND

S.N.	Grades of meconium	MAS	NND
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1	THIN (grade I) n(68)	1(1.4%)	0
2	MODRATE (GRADE II) n(86)	9(10.4%)	4
3	THICK (grade III) n(86)	8(9.30%)	6

Apgar score was good in thin meconium stained cases. The meconium aspiration was more in moderate to thick meconium.

Table VI NEONATAL OUTCOME

S N	Finding and Cases		Asymptomatic Routine care at birth	NICU admis- sion with or without Intubation	NND among NICU admis- sion
1	Birth weight < 2000 gms.	18(7.5%)	9(50%)	9 (50%)	2 (22.22%)
2	Birth weight 2000-3000 gms	196(81.66%)	153(78.06%)	43(21.93%)	8 (18.6%)
3	Birth weight > 3000 gms.	26(10.83%)	24(92.30%)	2(7.69%)	0

Discussion

In our study, the total number of deliveries were 2580, among which there were 240 (9.30%) patients with meconium stained amniotic fluid. Out of 240 patients 226(94.16%) had induced labour and 14(5.3%) were spontaneous labour (Table I). In our study Grade I MSL were 68(28.33%), Grade 2 were 86(35.83%) and Grade 3 MSL were 86 (35.83%)(Table II). Similar study Nirmala et al⁵, showed that there were 1267 deliveries among which MSL were 100(7.89%); Grade 1 MSL 39%, grade 2 MSL 43%, grade 3 MSL 18%. Surekha et al⁶, in her study, there were 3673 deliveries among which MSL deliveries 120(3.48%); Grade 1 MSL 34.16%, Grade 2 MSL 29.16%, Grade 3 MSL 36.66%. Rev Sauda et al⁷, in his study, observed 11.9% of MSL deliveries.

Out of 240 MSL deliveries, the potential antepartum and intrapartum risk factors for meconium stained liquor were post dated pregnancy(154), PIH(72), Oligohydramnios (20), PROM(20), prematurity(2), previous caesarean section (10), infertility(6), IUGR (20), GDM(2), Heart disease(2) and Cholestasis of pregnancy (2). In most of cases more than 1 risk factor was present. Shankyan et al⁸, in his study, the risk factors for MSL out of 159 deliveries were Postdated pregnancy (47), IUGR(21), PROM(20), PIH(17)(Table III).

In our study 85% of baby delivered in 2 hours after meconium detection and 5% in 6 hours. Mortality was more in babies who had taken more than 2 hours for delivery after meconium detection. In 46.6% cases cervical dilatation at time of meconium detection were less than 6cm and all

were delivered by Cesarean section and rest had given trial of labour as fetal heart rate was regular and they had reactive CTG. (Table IV) Each labour attended by pediatrician and all infants underwent immediate oral and pharyngeal suction. Some required endotracheal suction. 18 babies out of 240 (7.5%) developed meconium aspiration syndrome. Similar study of Patil Kamal⁹ reported meconium aspiration syndrome in 12.85%.

In our study there were 18(7.5%) babies with birth weight <2kg among which 50% were admitted to NICU and 2 baby died among that. 186(77.5%) of babies remained asymptomatic and required only routine care at birth. 54(22.5%) of babies required NICU admission with or without intubation (Table VI). Espinheira MC et al¹⁰ in his study, there were 1.4% of NICU admission of which 43.1% needed ventilatory support and 5% had meconium aspiration syndrome. In our study, the total number of vaginal deliveries were 62(25.83%), instrumental deliveries 14(5.83%) and the caesarean section rate was higher which was 164(68.33%). Patil et al⁹ in their study, had caesarean rate as 42% while Espinheira MC et al¹⁰ in their study, showed the caesarean rate as 62.5%.

Summary and conclusion

- 1) In the study period (six month) the incidence of meconium staining of amniotic fluid was 9.30%.
- 2) Most of cases of meconium staining occurred in induced labour (94.16%).
- 3) There were 172 cases (71.66%) with moderate to thick meconium, mostly delivered by Caesarean section (130) while 68 cases had thin meconium who were delivered vaginally (50%) and by Caesarean section (50%). Caesarean section rate in our study was 68.33%.
- 4) The commonest predisposing factor for meconium Stained Liquor in our study were postdatism (154 cases) and preeclampsia (72 cases). There were combination of factor in many cases.
- 5) In most of cases meconium detection-delivery interval was less than 2hrs and 85% of them were delivered by caesarean section. In 12 cases meconium detection-delivery interval was 6hrs and all delivered vaginally.
- 6) In most cases (56) women were delivered vaginally when dilatation of cervix was more than 8cms at the diagnosis of meconium and there was no neonatal death.
- 7) Total 54 babies required NICU admission, of which 10 were NND, all in moderate and thick meconium cases.

Thus neonatal outcome depends on consistency of meconium, cervical dilatation, meconium detection-delivery interval and NICU care. Early diagnosis, intensive intrapartum monitoring and prompt delivery help to improve the outcome.

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