

To study the perinatal outcome in meconium stained amniotic fluid

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Abstract- Objective: To study the fetal outcome and mode of delivery in patients with meconium stained amniotic fluid.

Material and methods : This is a prospective observational study carried out in department of obstetric and gynaec at P.V.P.G.H.sangli. over a period of 6 months. Total 200 cases of more than 37 weeks of gestation with singleton pregnancies and cephalic presentation were included in the study with thin or thick meconium stained liquor during labour. The data was collected on predesigned proforma and analysed using SPSS version 10. Chisquare test was applied with 95% interval and P value less than 0.05 was considered significant.

Result: Among 200 cases 60% were not booked and came as emergency. Primigravida constituted 62% ,with PIH being 28% and postdate 21%. APGAR score was > 7 for 82 % of babies and only 18 % had APGAR score <7. At 1 minute .111 patients (56%) delivered by L.S.C.S., 49 patients(24%) had instrumental delivery (more with forceps 18% and vacume 6%), and 40 patients (20 %) delivered normally.

Conclusion: Meconium stained amniotic fluid has importance both for obstetrician and paediatrician point of view. It increases the caesarean section rate causes birth asphyxia and increases NICU admission rate.

Index Terms- Meconium stained liquor , L.S.C.S.

I. INTRODUCTION

Meconium stained amniotic fluid is a routinely observed emergency in obstetric practice . The passage of meconium , variation of fetal heart rate, nonreactive CTG and decreased fetal scalp blood pH are strong indicators of fetal distress.¹ It constitutes about 12 % of live births .² In upto 5% meconium is aspirated and can lead to meconium aspiration syndrome. The MAS can cause or contribute to neonatal death and in addition up to one third of all cases in which aspiration occurs, develop long-term respiratory compromise. ³.As such meconium stained amniotic fluid has become an indication of L.S.C.S. irrespective of fetal heart rate pattern or status of cervix . . The morbidity and mortality associated with MAS can be brought down if the high-risk patients are identified in the antenatal period and careful decisions are made about the timing and mode of delivery and vigilant monitoring of the labour. It requires a composite effort of both obstetrician and neonatologist to have a fetal good outcome.

II. AIMS AND OBJECTIVES

To study perinatal outcome in meconium stained amniotic fluid .

To study fetomaternal risk factors causing meconium stained amniotic fluid .

III. MATERIAL AND METHODS

This is a prospective study carried out at P.V.P.G.H., sangli Maharashtra in a duration of January 2015 to January 2016. Total 200 patients with meconium stained amniotic fluid during labour were studied.

Inclusion criteria :

1. Patients with > 37 weeks of gestational age and presenting with MSL;
2. Patients with MSL and cephalic presentation;
3. Patients presenting with light yellow to thick dark green colour liquor after spontaneous or artificial rupture of membrane

Exclusion criteria:

1. Patients with other than cephalic presentation;
2. Patients with clear liquor after spontaneous or artificial rupture of membrane;
3. Preterm , intrauterine death , congenital anomalies, multiple pregnancies and the non-cooperative patients who refused to give their consent for the participation in the study.

The patients who fulfilled the inclusion criteria were evaluated and enrolled in the study after explaining to them the procedure and purpose of the study. Informed consent was taken from all of them. Patient's biodata, detailed history, booking status, relevant clinical examination, including general physical examination, per abdomen examination, per speculum, per vaginal examination, and investigations, including intermittent CTG, were recorded on a pre-designed proforma. The patients were carefully monitored for progress of labour and were strictly monitored for FHR. Where needed, augmentation with oxytocin was done. Delivery was expedited, when FHR abnormalities were detected the decision for instrumental , normal or L.S.C.S. was taken depending upon cervical dilatation. A paediatrician was present for all deliveries and attended the babies. Those who needed observation were shifted to the intensive care unit as per the paediatrician's advice. Foetal outcomes like low apgar score,

low birth weight, meconium over cord, birth asphyxia were evaluated and documented.

IV. OBSERVATION AND RESULTS

The study population was 200. The average age group was 20 – 24; mean being 22 which constituted 50%. 129 patients (65%) had yellowish coloured thin meconium and 71 patients (35%) had thick greenish liquor. Relation between parity and meconium is tabulated.

Gravida	Thin meconium	Thick meconium
Primi	87 (44%)	52 (26%)
Second	23 (11%)	18 (9%)
Third	12 (6%)	1 (0.5%)
Fourth and above	7 (3.5%)	0

65% of patients were not registered and booked with us and came as emergency admissions while 35% were booked and had regular ANC visits. The average gestational age for thin meconium was 38.2 weeks and for thick meconium 40.2 weeks. Following risk factors were studied

Risk factor	Number of patients	Percentage(%)
PIH	56	28(%)
Postdate	42	21(%)
Anemia	24	12(%)
Previous L.S.C.S.	32	16(%)
Premature rupture of membranes	20	10(%)
Asthama	4	2(%)
Diabetes	6	3(%)
Cephalopelvic disproportion	16	8(%)
total	200	100

Average time interval between detection of meconium and delivery of baby was about 45 minutes. 111 patients (56%) delivered by L.S.C.S., 49 patients (24%) had instrumental delivery (more with forceps 18% and vacume 6%), and 40 patients (20%) delivered normally. Of 200, 142 babies (71%) had APGAR > 7 at birth and after one minute while 48 babies (24%) had APGAR less than 7 at birth but later improved APGAR after 5 minutes of resuscitation. Only 10 babies (5%) needed intubation and resuscitation for a longer time. Reasons for NICU admission were as follows (% calculated in proportion to 200 deliveries)

Birth asphyxia	10	5%
Septicemia	3	1.5%
Hyperbilirubinemia	4	2%
Fever	9	4.5%
Aspiration pneumonia	4	2%
Meconium aspiration syndrome	11	5.5%
Early neonatal death	3	1.5%

Total	44	
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V. DISCUSSION

The passage of fetal meconium in the amniotic cavity causes the MSAF and is a commonly encountered finding in the obstetric practice with an overall frequency between 12% and 19%.^{4,5} The MSAF and its associations are still very important determinants of perinatal morbidity and mortality, and a successful management of such pregnancies is possible only after a better understanding of patho-physiology of the meconium passage. In our study the average age group was 21-24 years. Rajlaxmi⁶ et al and Vaghela⁷ et al also had similar results. Majority of patients were not registered with us which is similar to study carried out by Bhide⁸ et al. Out of the 200; 130 patients were not booked with us. Most were referred from nearby health centers or from private hospitals. Many of them had undergone prolonged labour and also had associated maternal illnesses like preeclampsia or anemia. Nulliparity itself may lead to an increased risk of obstetric complications.¹² The duration of labor of a nulliparous woman is significantly longer than that of a multiparous woman^[13,14]. Several investigators have demonstrated that prolonged duration of the second stage of labor is associated with a higher risk of the occurrence of MSAF^{15,16}. These observations suggest that the frequency of MSAF is higher among nulliparous women than among multiparous women after the onset of labor because of a longer duration of the second stage of labor in nulliparous women. The results of our study support the view and are consistent with findings of the previous studies^{17,18}. About 21% patients had advanced gestational age suggestive of significant association of postdate pregnancy with meconium. The frequency of MSAF increased with advance gestational age at delivery independent of the presence or absence of labor¹¹. Naveen S⁹ et al., conducted a study on 1500 deliveries to identify predictors of MSAF in India and they observed that a postdated pregnancy was one of the risk factors for MSAF. Meconium aspiration syndrome refers to respiratory compromise with tachypnea, cyanosis, and reduced pulmonary compliance in newborn infants is seen in higher rates in postterm neonates.¹⁰ Pregnancy induced hypertension (PIH) was associated with MSAF, but the incidence in our study was 28%. Factors such as placental insufficiency, maternal hypertension, pre-eclampsia, oligohydramnios or maternal drug abuse (tobacco, cocaine) increase the in utero passage of meconium.

PROM is a well-known risk factor for intrauterine infection¹⁹. Several investigators have suggested that MSAF is highly associated with infection, including endometritis and chorioamnionitis²⁰. We had 10% patients with PROM with meconium stained liquor which is a significant association. (p value >0.05) The longer the duration of labor, the higher the risk of MSAF in term singleton gestation.¹¹ We had 8% patients with cephalopelvic disproportions and many had been given a vigorous trial and were referred with prolonged second stage or dystocia. Positive relationships between MSAF and the duration of the second stage of labor and also between MSAF and the duration of the first stage and total duration of labor¹¹. In our study 111 patients (56%) delivered by L.S.C.S., 49 patients (24%) had instrumental delivery (more with forceps 18% and vacume

6%), and 40 patients (20 %) delivered normally. Saunders et al.,²¹ reported that caesarean sections were performed twice as frequently in subjects with meconium stained amniotic fluid. This higher rate may be due to lack of facilities such as, foetal scalp pH monitoring and tracings of foetal electronic monitoring. The consistency of meconium has a direct correlation with foetal outcome. The risk of perinatal death is increased five to seven times when a thick meconium is present at the onset of labour²¹. In our study 71 patients had thick meconium stained liquor and majority of them underwent L.S.C.S. Average time interval between detection of meconium and delivery of baby was about 45 minutes irrespective of type of meconium. Expedition of delivery was to prevent complications like birth asphyxia, meconium aspiration syndrome and was also result of lack of facility of fetal scalp blood pH at our set up. In our study (71%) had APGAR > 7 at birth while 48 babies (29%) had APGAR less than 7 at birth but later improved APGAR after 5 minutes of resuscitation. This was similar to the study conducted by Rekha kumari²³ et al. Vigilant and careful monitoring of high-risk pregnancies can reduce perinatal morbidity and mortality. Conclusion: Meconium stained amniotic fluid is really worrisome for both obstetrician and paediatrician point of view. It increases caesarean section rate, causes birth asphyxia, meconium aspiration syndrome and increases neonatal intensive care admission. Mode of delivery depends upon cervical dilatation, type of meconium and fetal heart rate. Early detection of meconium and timely interference with careful monitoring improve fetal outcome in high risk pregnancies.

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