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Original Research Article

Fetal outcome and mode of delivery in a patient with meconium-stained amniotic fluid

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ABSTRACT

Background: Meconium-stained amniotic fluid (MSAF), especially observed before term, is considered a sign of meconium fetal jeopardy.
Methods: All data were retrieved from pregnant patients with MSAF who delivered at OBGY department of C. U. Shah medical college and hospital from February 2022 to July 2022.
Results: In this study meconium-stained liquor was more common in primigravida within the age group of 21-30 years of age with moderate type of meconium being more common.
Conclusions: In this study we concluded that meconium-stained liquor more commonly seen in primigravida which have associated risk factors like preeclampsia, malposition, prolonged labour and abnormal uterine inertia. It was also reconfirmed that MSAF is associated with a new-born risk, especially meconium aspiration syndrome. Patients had a higher rate for emergent caesarean section and baby admission to NICU. These data may be useful to make health/reproductive-health progress in area.

Keywords: Emergency caesarean section, Fetal distress, MSAF, Primigravida

INTRODUCTION

MAS it is diagnosed if any of 2 criteria are present Meconium staining of liquor or meconium staining nails or toes or umbilical cord.[1]

Meconium is the name given to elements which have collected in the fetal gut in the time of intrauterine life. The parts of Meconium incorporate water, desquamated cells from the digestive system and skin, gastro-intestinal bodily fluid, lanugo hair, material from vernix caseosa, amniotic liquid, intestinal emissions, blood bunch explicit glycoproteins, and bile and medication metabolite.[2]

Respiratory distress soon after birth within one hour. Radiological evidence of aspiration pneumonitis. Severe meconium aspiration syndrome (MSAF) is associated with profound hypoxia, persistent foetal circulation, resistant pulmonary hypertension, pulmonary hemorrahage and necrosis of pulmonary vessels. It also enhances bacterial growth and is associated with intrauterine infection and can lead to infectious pneumonitis.[3]

Objective

To determine the fetal outcome and mode of delivery in patients with meconium-stained amniotic fluid (MSAF).

METHODS

All data were retrieved from pregnant patients with MSAF who delivered at OBGY department of C U shah medical college and hospital from February 2022 to July 2022. Pregnant women with singleton pregnancy, cephalic presentation with gestational age more than 37 week were studied. Study also included patients referred from various

sub centers, PHC, CHC while we excluded the patients that did not have meconium-stained amniotic fluid. The patients who fulfilled the inclusion criteria were enrolled in study. The patients were carefully monitored for the progress of labor by plotting the parameters on partogram. The fetal heart rate was strictly monitored by continuous electrical fetal monitoring.[4]

Type of study and study location

It was a prospective observational study conducted at obstetrics and gynecology department of C. U. Shah medical college and hospital for a period of 6 months from February 2022 to July 2022.

Study population

Laboring mothers with meconium-stained fluid who delivered or underwent cesarean section in the institute.

Inclusion criteria

Laboring mothers with mecconium stained liqour, cephalic presentation, live singleton pregnancy, pregnancy without any congenital malformation.

Exclusion criteria

Pre-term labour (<34 completed weeks), antepartum hemorrhage, breech presentation, transverse lie, multiple pregnancy, pregnancy with congenital malformation, intrauterine death.

Data was entered in MS excel spread sheet and analysed using SPSS software version 19.0. For categorical variables, data was compiled as frequency and percent.

RESULTS

Majority of the patients were in the age group of 21-30 years that 74%. This could be because in our maximum number of deliveries occur in this group. Mean maternal age was 29 years in which meconium in liquor was observed.

Table 1: Age wise distribution of patients.

Age	Number of cases	Percentage
<20	19	19
21-25	57	57
26-30	18	18
31-35	5	5
>35	1	1
Total	100	

Table 2: Correlation between parity and meconium stained liquor.

Parity	Number of cases	Percentage
Primigravida	58	58
Multigravida	42	42
Total	100	

Table 3: Correlation between type of admission, character of meconium and perinatal mortality.

Type of admission	No. of cases	No. of cases with thick meconium	Perinatal mortality (no. of cases)	Perinatal mortality (%)
Registered	70	11	1	1.42
Emergency	30	17	4	13.33
Total	100	28	5	

Table 4: Correlation between meconium staining and fetal distress.

Type of meconium	No. of babies with fetal distress	Percentage
Thin	3	12
Moderate	9	36
Thick	13	52
Total	25	

Maximum incidence of meconium-stained amniotic fluid was found in primigravida i.e. 58%. This may be due to associated risk factors like PIH Prolonged labour due to minor degree of cephalo pelvic disproportion, malposition uterine inertia is also more common in primies.

70% of patients with meconium-stained amniotic fluid were registered and rest 30% patients were emergency cases. Out of 30 emergency cases, most were referred from private hospital or coming from remote areas. Many of them having associated maternal illness like preeclampsia, anemia, fever, jaundice, etc. So, number of cases having thick meconium and perinatal mortality was also higher in emergency cases.

Foetal distress may be alone or associated with obstructed labour, failed progress and cord problems like tight loop around neck of foetus. The overall incidence of foetal distress in meconium-stained amniotic fluid was 25%. Out of which, 52% cases with thick meconium liquor developed foetal distress as compared to 36% cases with moderate and only 12% with thin meconium-stained liquor.

Table 5: Mode of delivery and meconium stained amniotic fluid.

Type of meconium	Vaginal delivery	LSCS	Vacuum (instrumental delivery)
Thin	24 (63.15%)	12 (31.57%)	2 (5.26%)
Moderate	15 (44.11%)	17 (50%)	2 (5.88%)
Thick	2 (7.14%)	25 (89.28%)	1 (3.57%)
Total	41	54	5

46% of patients delivered vaginally (spontaneous 41%, instrumental 5%) 54% underwent cesarean section.

TABLE 6: Meconium-stained liquor and NICU admission.

Type of meconium	No. of cases	NICU admission
Thin	38	04
Moderate	34	13
Thin	28	13
Total	100	30

NICU admission was required in 30 cases, 13 cases had thick meconium. Moderate and thin meconium was noted in 13 cases and 4 cases respectively. All 4 cases with thin meconium recovered well with oxygen therapy and hence were kept with mother.

Table 7: Meconium-stained liquor and APGAR score.

APGAR score	Thick meconium staining	Thin meconium staining	Total
4 to 6	1	0	1
7 to 10	59	40	99

APGAR score more than 7 has 59% associated with thick MSFA.

DISCUSSION

Meconium staining of amniotic fluid and meconium aspiration syndrome are not uncommon problem. There were association of maternal age, parity, gestational age more at term pregnancy and predisposing factors like postdate, oligohydramnios, hypertensive disorder, preterm delivery with meconium-stained liquor. So, incidence of msl causing neonatal morbidity and mortality was higher in those who had completed their birth term and had appropriate birth weight for gestational age with more incidence of grade 1 MSL.[5]

There were significant association with different method induction of labor, non-reactive NST with higher grade of MSL 2 and 3. MSL alone was not associated with adverse neonatal outcome. Perinatal mortality more with grade 3 had MAS, required intervention like CPAP, ventilator support had mortality rate 3.5%. So, grade 3 MSL had major impact on both mode of delivery and neonatal outcome than other grade of msl. Fetal condition during labor is usually assessed by fetal heart rate and checking the presence of meconium in amniotic fluid.[6,7]

The exact cause of passage of meconium in liquor is poorly understood. It could reflect the state of compensated fetal distress as it is suggested by few babies who are actually acidotic during labor. Acute or chronic fetal hypoxia can result in the passage of meconium in utero.[8,9]

Comparison

Meconium passage might be a natural physiological event that is reflecting fetal development. One of the essential concerns we fear for any patient with MSAF that the baby may aspirate the Meconium substance and cause problems in the lung. Hence, we aimed to observe fetal outcome and Mode of delivery in the pa-tient with meconium-stained amniotic fluid.[10]

Meconium-stained amniotic fluid is not an indication for cesarean section. It is not necessary to develop an unfortunate neonatal outcome.

This study has some limitations. This study does not include multiple pregnancy, abnormal presentation, preterm labour.

CONCLUSION

So, required early and timely diagnosis, close monitoring and timely obstetrical intervention and appropriate postnatal care to minimize meconium complication and improve fetal outcome.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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