



PRELABOUR RUPTURE OF MEMBRANE AT TERM: ACTIVE MANAGEMENT VIA EARLY INDUCTION VERSUS EXPECTANT MANAGEMENT

Obstetrics & Gynaecology

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ABSTRACT

Spontaneous rupture of membrane prior to onset of regular uterine contractions is defined as prelabour rupture of membrane (PROM). Premature rupture of membranes can be managed expectantly or actively via induction of labour as per institutional labour room protocols. In our study we tried to assess the effectiveness of early labour induction with cervical prostaglandin E2 gel versus expectant management in women with prelabour rupture of membrane at term. This study was conducted over a period of one year in a tertiary center in north India. A total of 100 term PROM patients were enrolled in the study and were divided into 2 groups randomly. Group A had 50 patients who were managed conservatively and in group B which also included 50 patients were managed actively by early induction of labour. Labour induction was done by prostaglandin E2 gel. In group A spontaneous onset of labour pains was awaited for at least 24 hours from rupture of membrane. In group B patients were induced with prostaglandin E2 gel within 6 hours of rupture of membrane. Prostaglandin E2 gel was applied every 6 hours for a total of 3 doses maximum. ROM to delivery interval was <18 hours in 64% of induced group (group B) and 12% of expectant group (group A). The caesarean section rate was 22% in group B and 12% in group A. The maternal sepsis rate 12% in group A and 4% in group B, also neonatal sepsis rate was 6% in group A and there was no cases of neonatal sepsis in the induced group that is group B.

KEYWORDS

INTRODUCTION:

Prelabour rupture of membrane is defined as loss of integrity of the fetal membranes before the onset of spontaneous labour resulting in leakage of amniotic fluid [1]. PROM occurs in approximately 5-10% of all pregnancies of which approximately 80% occurs at term. The incidence of term PROM is approximately 0.8-0.9%[2]. Approximately 60-70% of term PROM cases are followed by spontaneous onset of labour within 24 hours and an additional 20-30% will go into labour within 72 hours[3]. Timely diagnosis and proper management of term PROM is very important as it can lead to various maternal and fetal complications due to infections. In order to avoid and minimize maternal and fetal complication labour is induced once PROM is confirmed. However, the management of term PROM is debatable. With induction of labour the chances of caesarean section rate is higher due to fetal distress and maternal hyperstimulation however the chances of sepsis are decreased. Kappy et al. reported excess caesarean deliveries in term pregnancies with ruptured membranes managed with labour stimulation compared with those expectantly managed [4]. On the other hand expectant management of term PROM leads to prolonged hospitalisation with uncertain fetal and neonatal prognosis leads to psychological sequelae to the mother[5]. Induction of labour with unfavourable cervix remains a challenge. Prostaglandins PGE2 and PGE1 have been used for cervical ripening and myometrial stimulation in unfavourable cervixes with low Bishop's preinduction score.

MATERIAL AND METHOD:

Ours is a prospective study conducted on 100 women with single live fetus in cephalic presentation and spontaneous PROM at term. The study was done over a period of one year at a tertiary center, Patna medical college and hospital, Patna. The women who fulfilled inclusion criteria were enrolled for the study after taking written informed consent. The approval of ethical committee was taken for the study.

The inclusion criteria were as followed

- Age 20-30 years
- Gestational age 37-40 years
- single live fetus
- cephalic presentation
- Pelvis adequate
- spontaneous PROM confirmed by history and examination
- admission to labour room within 6 hours of PROM and cervical dilatation <3cm for early induction

The exclusion criteria were as follows

- Age <20 years or >30 years

- gestational age <37 weeks or >40 weeks
- previous LSCS
- intrauterine death
- malpresentation
- meconium stained liquor
- chorioamnionitis
- multiple pregnancy
- any medical disorders
- cephalopelvic disproportion

All patients who were enrolled after fulfilling the inclusion criteria for the study were subjected to a detailed history and thorough clinical examination to rule out any exclusion criteria. Thorough obstetrical examination including per speculum examination and Bishop's scoring was done for all patients. All patients were given intravenous antibiotic of 1 gram ceftriaxone, 100ml metronidazole and gentamycin 80mg after negative skin test till delivery. Patients were randomly allocated to either Group A (expectant management group) or Group B (active management group).

In group A which included 50 women were kept under observation for next 24 hours from the time of rupture of membrane for spontaneous onset of labour pains. Strict vital charting which included pulse rate, blood pressure and temperature charting was done also any uterine contraction and fetal heart rate were also monitored. Sterile vulval pad was applied and the color of liquor was also monitored carefully. Unnecessary vaginal examinations were not done and pelvic examination was done only if uterine contractions were good to see for progress of labour. Most of the patients of this group went into spontaneous labour within 24 hours. In case there was no contraction for more than 24 hours or if patient did not go into labour then induction of labour was done after 24 hours. In few cases emergency LSCS was done for fetal distress, failed induction, non-progression of labour and chorioamnionitis.

In group B patients were induced early that is within 6 hours of rupture of membrane. All patients of this group were induced with PGE2 gel which was applied intravaginally after preinduction Bishop's scoring. Maximum of 3 dose of PGE2 gel was applied every 6 hourly. Once patient entered the active labour phase augmentation of labour if required was done with intravenous oxytocin drip and the titration of dose was done till effective uterine contractions was achieved. Strict vital charting which included pulse rate, blood pressure, temperature along with fetal heart rate, uterine contractions and descent of head was monitored. Partograph was plotted to watch the progress of labour.

All the labour and delivery events were noted example vaginal

delivery, spontaneous delivery and cesarean section delivery. The fetal outcomes were also noted in terms of APGAR score, birth weight, neonatal sepsis and NICU admission. Any maternal pyrexia, maternal sepsis if any were also noted in the puerperal phase.

Outcomes were measured as PROM to delivery interval, induction to delivery interval, mode of delivery, maternal and neonatal morbidity.

RESULT:

The results of our study are as follows. Our study included a total of 100 patients which were divided into 2 groups and each group included 50 patients. Both the groups included both primigravida and multigravida women belonging to low socioeconomic stratum and they were mostly unbooked cases. The distribution of patients according to parity is shown in table 1.

Table.1: Distribution of patients according to parity

	Group A (n=50) Expectant management	Group B(n=50) Active management
Primigravida	30(60%)	19(38%)
Multigravida	20(40%)	31(62%)

Table 2 shows that the rate of LSCS in the induction of labour group that is group B was 22% as compared to 12% in the expectant management group that is group A. According to our study the rate of LSCS was slightly more in the induction of labour group as compared to the expectantly managed group.

Table.2: Mode of delivery

	Group A (n=50) Expectant management	Group B(n=50) Active management
Vaginal delivery	44(88%)	39(78%)
LSCS	6(12%)	11(22%)

The rupture of membrane to delivery interval was <18 hours in only 12% of the patients of expectant group whereas it was 64% in the actively managed group that is labour induction group. About 76% of patients of the expectant management group delivered within 24 hours whereas 88% of the induced group delivered within 24 hours. The table 3 shows that the ROM to delivery interval was >24 hours in 24% of the group A patients however it was only 12% in group B patients.

Table.3: ROM to delivery interval

	Group A (n=50) Expectant management	Group B(n=50) Active management
<18 hours	6(12%)	32(64%)
18-24 hours	32(64%)	12(24%)
>24 hours	12(24%)	6(12%)

Table.4: Maternal and fetal outcomes

	Group A (n=50) Expectant management	Group B(n=50) Active management
Maternal Pyrexia	4(8%)	1(2%)
Maternal Sepsis	6(12%)	2(4%)
Birth Asphyxia	13(26%)	6(12%)
Neonatal Sepsis	3(6%)	0

The rate of both maternal as well as fetal morbidity was higher in the expectant management group as compared to the induction group as shown in the table 4.

DISCUSSION

There was no demographic difference seen in both the groups with respect to mean maternal age, mean gestational age, parity educational status and socioeconomic status. The study showed that the difference in outcome in both the groups was primarily due to different management plans. According to our study the LSCS rate in expectant group was only 12% whereas it was 22% in the induced group. The vaginal delivery rate was 88% in the expectant group whereas 78% in the induced group. This was comparable to study by Shanti et al (Tirupati) the LSCS rate is 5.7% in expectant group compared to 12% in the active management group [6].

In our study the PROM delivery interval was more than 24 in 12% of the induced group as compared to 24% in the expectant group. In a study by Suneela Kolluri the PROM delivery interval was more than 24 hours in 6.7% in induced group as compared to 26.7% in the expectant group [7]. In study by Shah Krupa et al., (Udipi) it was 12%

in induced group compared to 22% in the expectant group [8].

In our study neonatal sepsis was 6% in the expectant group while there was no case of neonatal sepsis in the induced group. There was no stillbirth or early neonatal deaths noted in either group. Severe birth asphyxia requiring resuscitation was seen in 26% of the neonates in the expectant group compared to only 12% in the induced group. The more neonatal sepsis and birth asphyxia in the expectant group compared to the induced group may be because of the prolonged PROM delivery interval in the expectant group.

The cases of maternal pyrexia was noted (either intrapartum or postpartum period) in 8% of expectant group and it was only 2% in the induced group. This was comparable to the study by Sumaira Yasmin et al., which was 2-4% in induced group and 16% in the expectant group [9].

The benefits of active management in cases of PROM at term has shown to reduce latency and results in better maternal satisfaction [10]. Active management through early induction of term PROM leads to reduced ROM delivery interval, hospital stay is shortened, reduces maternal and fetal morbidity, reduces maternal and clinician's anxiety and distress, without much increase in the LSCS rate.

CONCLUSION

We concluded from our study that in cases of term PROM with early induction of labour the ROM delivery interval is reduced which not only leads to significantly better fetomaternal outcome but also has a positive impact on maternal psychological health as hospital stay is reduced without significantly increasing caesarean section rate as compared to expectant management. The expectant group of PROM patients had higher maternal and fetal morbidity, sepsis, longer hospital stays, more NICU admission and also leads to maternal and clinician's anxiety. Therefore, all term PROM patients should be actively managed by early induction of labour as our study shows that early induction is superior to expectant management irrespective of cervical status.

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