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MATERNAL & FETAL OUTCOME IN CASES OF PREMATURE RUPTURE OF MEMBRANES

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ABSTRACT

This is a prospective study conducted during a period of 1 year from October 2009 to September 2010 in the department of Obstetrics & Gynaecology at Government General Hospital,Kurnool,to evaluate the incidence, risk factors, operative intervention, feto-maternal outcome in 120 cases of spontaneous PROM(fulfilling inclusion criteria) from 28 weeks to 40 weeks of gestation. The incidence of PROM is higher in primigravida, unbooked cases,singleton pregnancy & with latent period < 12 hours. Cause is idiopathic in most of the cases. Majority of the cases delivered vaginally. Caesarean section rate is high in failed induction,failed progress,fetal distress. Fetal morbidity is more in cases of prolonged latency (,PROM >12 hrs.) & in preterm PROM.

KEYWORDS : PROM, PPROM, Latent period

INTRODUCTION: Premature rupture of membranes is defined as **rupture of chorioamniotic membranes with the release of amniotic fluid prior to the onset of labor irrespective of gestational age**. Incidence of PROM is 2-15% of total deliveries. 70% of the cases of PROM occur in term patients. Preterm PROM is responsible for 30% of all preterm deliveries. Different etiologies & mechanisms are attributed to PROM. Risk factors for PROM includes maternal factors like infection,cervical incompetence,increased intra uterine pressure (polyhydramnios, multiple pregnancy), iatrogenic trauma (amniocentesis,cervical encirclage), coitus, connective tissue disorders,(Ehlers-Danlos syndrome),deficiencies of ascorbic acid, copper, zinc, vitamin-E, smoking, frequent per vaginal examinations, past h/o PROM & fetal factors like IUD, multiple pregnancies, congenital anomalies.

Mechanism of membrane rupture is mainly because of reduced tensile strength of amniotic membranes due to changes in collagen content & structure, increased collagen degradation(MMP1 & MMP8 cleaves type-1 & 3 collagens),apoptosis,infection,(cytokines-IL-1, & TNF-alpha, increase prostaglandin production & MMP-1& 3), decreased progesterone & estradiol (TMP-1 & MMP-1&3). Fetal complications are mainly due to prematurity,infections,hypoxia due to cord prolapse,cord compression & abruption. Maternal morbidity & mortality in PROM is mainly due to chorioamnionitis, peritonitis,puerperial sepsis, septic shock, abruptio placenta, retained placenta, primary & secondary PPH, endometritis, increased operative intervention, psychological disturbances due to prolonged hospitalisation & uncertain fetal & neonatal prognosis.

Confirmation of PROM is by microscopic fetal cell identification with & without staining, nitrazine test, fern test, intra amniotic injection of dyes, glucose & fructose measurements, fetal fibronectin, alpha feto protein estimation, diamine oxidase test, insulin like growth factor binding protein (Actim-PROM-kit), placental alpha microglobulin-1(amniosure),non-invasive absorbent pad test (amnio sense).

Maternal complications are inversely proportional to gestational age at which PROM occurs & directly proportional to the duration of latent period.. Prophylactic antibiotics & steroids for fetal lung maturity in PPROM & to decrease latent period (induction/ augmentation) are necessary to decrease fetal and maternal complications.

In managing PPROM, gestational age, estimated fetal weight, sophisticated neonatal care, fetal presentation,fetal heart rate stability, state of fetal lung development, degree of cervical dilatation & presence or absence of uterine contractions are considered. In term PROM management is somewhat less complicated but still challenging particularly in women whose cervix is not favourable for induction of labor.

MATERIALS & METHODS: This is a prospective study conducted during a period of 1 year from October 2009 to September 2010 in the department of Obstetrics & Gynaecology at Government General Hospital,Kurnool.

Inclusion criteria in the present study are gestational age 28 – 40 weeks, History of PROM at least one hour before the onset of labour pains,Live fetus,Cephalic presentation**. Exclusion Criteria** being malpresentations,hypertensive disorders, HIV infection,fetal growth restriction,congenital anomalies,heart disease complicating pregnancy,diabetes mellitus & high leak.A detailed history about duration of leak,frequency of uterine contractions noted. Complete obsteitric history ,menstrual history . Vitals were noted. Complete physical examination,obstetrical examination,fetal position & presentation were noted. Sterile speculum examination without using any antiseptic was done to know the presence or absence of amniotic fluid leak through cervix with or without application of fundal pressure. For confirmation of PROM nitrazine test & arborisation techniques were used. Presence of risk factors were noted. On per vaginal exam Bishop score assessed. Ultrasonography done & cervical swabs sent for C/S for all cases. NST done for cases > 32 weeks .Duration of latent period was noted**. Latent period is defined as the time elapsed between onset of leaking & onset of labor pains**. Irrespective of gestational age prophylactic antibiotics Inj.Ampicillin-1g. followed by 500mg. 6th hrly. given. Inj.Betamethasone given to all cases of PPROM. Mode of induction planned depending on the Bishop score(BS). Misoprostol induction if BS<7 & oxytocin augmentation if BS>7. Labor monitoring done with partogram. Maternal & fetal outcome were assessed in term & preterm PROM. Time from admission to delivery noted. Mothers & babies were followed for 1 week postpartum to observe morbidity & mortality.

RESULTS:

1. PROM-Incidence

During study Period		NO. Of cases	Percentage
	Total no. Of deliveries	9729	
	No.of PROM cases	689	7.08%
Parity	Primigravidae	75	62.5%
	Multigravidae	45	37.5%
Gestational age	28-36 weeks	31	25.8%
	37-40 weeks	89	74.2%
Antenatal op registration	Booked cases	34	28.4%
	Unbooked cases	86	71.6%

2. PROM-Risk factors

Risk factors	No. Of cases	Percentage
Idiopathic	77	65.2%
H/o P/V examinations	20	16.7%

H/o coitus	10	8.4%
Previous pregnancy with H/o PROM	10	8.4%
Twins	2	1.6%
Poly hydramnios	1	0.8%

3. PROM-Latent period

PROM < 12 hours	78	65%
PROM > 12 hours	42	35%

4. PROM- Labour outcome

	NO. of cases	Percentage
Vaginaldelivery	76	63.3%
Caesarean delivery	44	36.7%

5.PROM- outcomewithinduction/augmentation

Type of induction/ augmentation	No. of cases	Normal vaginal delivery	Instumental vaginal delivery	caesarean section
Misoprostol induction	57	32(56.2%)	6(10.5%)	19(33.3%)
Oxytocin augmentation	55	42(76.4%)	2(3.6%)	11(20%)

6.PROM- Maternal complications

Maternal complications	No. of cases	Percentage
Chorioamnionitis	1	0.83%
Post partum haemorrhage	3	2.5%
Maternal fever on admission	4	3.3%
Puerperal sepsis	3	2.5%
urinary tract infection	1	0.83%

7. PROM- Perinatal morbidity & mortality

perinatal complication	No. of cases	Percentage
Respiratory distress syndrome	2	16%
Birth asphyxia	8	9.2%
Transient tachypnoea of new born	3	2.5%
Meconium aspiration syndrome	7	5.8%
Seizures	2	1.6%
Neonatal sepsis	5	4.2%
Fetal death	5	4.2%

DISCUSSION:

PROM is one of the common & challenging problems in perinatal medicine today.The incidence of PROM in Government General Hospital, Kurnool was 7.08% during the study period.Only 120 cases were included based on inclusion criteria. Maximum number of cases were found in unbooked cases (71.6%), primigravidae(62.5%), with maternal age of 21-25 years(63.1%) & in singleton pregnancies(98.3%). Incidence of PROM is 2-15% of the pregnancies. 70% cases occur in term gestation. In our study,maximum incidence was found in term PROM (74.2%). PPROM seen in 25.8%. When risk factors were analysed, clinically known risk factor could not be identified in most of the cases (65.2%) but in 71.8% cases, cervical swab was positive for culture. Organisms isolated were E.coli (20.9%), Klebsiella(17.58%), Coagulase negative Staphylococci(10.83%). Significant number of cases (64.2%) had a latent period of <12 hrs. Labour induction was planned based on Bishop score(BS). If BS<7,misoprostol induction was done(47.5%). Rest of the cases were augmented with Oxytocin. In misoprostol induced group, 56.2% had vaginal delivery, 10.5% required instrumental vaginal delivery(outlet forceps/ventouse), 33.3% undergone caesarean section for failed induction. In oxytocin augmented cases 76.4% delivered vaginally,3.6% had instrumental vaginal delivery, 20% undergone caesarean section. Admission-delivery interval was 10hrs.± 1.5hrs. in misoprostol induced group & 12 hrs± 2.9 hrs. in oxytocin augmented group. Caesarean section was done for failed induction in 13.6% cases. Other causes for C/S were fetal distress(28.4%), failed progress(20.5%), prior C/S with PROM(18.2%), CPD(13.6%),obstructed labour(1.7%). Majority cases were uneventful. Maternal mortality was not seen in this study. Maternal morbidity in the form of fever(3.3%), post partum haemorrhage (2.5%), puerperial sepsis(2.5%),UTI(0.83%) & chorioamnionitis seen only in 0.83% particularly in those with prolonged PROM>20 hrs. Perinatal morbidity was seen in 29.1% cases & mortality seen in 4.2% cases for RDS, prematurity, Neonatal seizures, Neonatal sepsis & prolonged asphyxia.

CONCLUSION: PROM cannot be totally averted, as 64% cases had no risk factors. Coitus in the last one month of pregnancy is better avoided. Properly managed PROM has minimal maternal & perinatal morbidity. Perinatal morbidity is attributed to prematurity. Hence PPROM cases require individualised management & good NICU back up.

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