

A Retrospective Study of Feto –Maternal Outcome in Premature Rupture of Membranes at Aswan University Hospital

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Abstract: Background: Premature rupture of membranes (PROM) is a challenging problem to the obstetricians. In the last three decades it has taken a new dimension because of identification of clinical risk factors and improved fetomaternal outcome due to better management. Premature rupture of membranes is a common and important event in obstetrics. It has a major impact on fetal and maternal outcome, complicating the pregnancy leading to maternal and fetal complications, immediate risks such as cord prolapse, cord compression and placental abruptions, and later risks such as maternal or neonatal infection, as well as the use of interventions such as caesarean section and its complications. **Material and Methods:** A list of patients that had PROM admitted to Aswan University Hospital from January 1/2013 to December 31/2013. Diagnosed by history clinical examination and investigations. The case notes was retrieved from the medical records department. The data was entered in the computer for statistical analysis using one proprietary statistical package which is Statistical Packages for the Social Science (SPSS). **Results:** incidence 10.85%, the average age 28.5 year. The patient's parity primigravida (25.47%), multiparas patients (52.47%) and grand multi-paras represent (22.05%) patients. Average gestational age 34 weeks. Caesarean section (38.27%) vaginal delivery 61.72%. About the indications for caesarean section fetal distress 25.28%, failure to progress (40.4%) and previous caesarean section (s) (34.2%) Fetal complications, (NICU) admission 10.07%, respiratory distress (RD) 2.28%, and neonatal sepsis 5.13%. maternal complications, Chorioamnitis 0.57%, postpartum heamorrhage 11.59%, Puerperal pyrexia 8.55%. **Conclusions:** Individualized management of cases with Premature rupture of membranes depending on the gestational age and risk of complications is the best way to achieve a good fetomaternal outcome.

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Keywords: PROM, PPROM, Gestational age, Prematurity, chorioamnionitis.

1. Introduction

A challenging problem to the obstetricians is Premature rupture of membranes (PROM). In the last three decades it has taken a new dimension because of identification of clinical risk factors and improved fetomaternal outcome due to better management.

PROM at term is defined as spontaneous rupture of the membranes after 37 weeks of the gestation before the onset of regular painful uterine contractions. (1)

When PROM occurs before 37 completed weeks of gestation it is termed as preterm premature rupture of membranes (P PROM). (2)

Premature rupture of membranes occurs in approximately 10-20 % of all pregnancies, of which approximately 80% occur at term pregnancy. (1)

PROM at term usually 70-80% goes into spontaneous onset of labor within 12 to 24 hours, and 95% within 48 to 72 hours. If the latent period exceeds 24 hours, the chances of increase rate of complications (3).

Premature rupture of membranes is a common and important event in our field. Because It has a

major impact on fetal and maternal outcome, complicating the pregnancy leading to maternal and fetal complications, immediate risks such as cord prolapse, cord compression and placental abruptions, and later risks such as maternal or neonatal infection, as well as the use of interventions such as caesarean section and its complications. (3)

Pathophysiology is multifactorial and complex. One of the main role is the failure integrity of chorioamniotic membrane, Also reported that prematurely ruptured membranes have less collagen content and hence less tension resistance. (4)

Compact layer of stromal matrix forms the main fibrous integrity of the amniotic membrane.

Collagen contents are secreted by mesenchymal cells in the layer of fibroblast. The interstitial collagens (types I and III) predominate and form parallel bundles that maintain the amniotic membrane mechanical integrity. (5)

PROM occurs when intrauterine pressure overcomes membrane resistance. It happens due to weakening of membranes either congenital or acquired (smoking and vitamin C deficiency), also because of

damaging factors either mechanical during amniocentesis or damage by infection (*Trichomonas* infection, group B *streptococci*, bacterial vaginosis). The failure of mechanical support such as cervical dilatation can lead to premature rupture of membranes of the fetus. (6) Also other etiological factors are over distended uterus, big baby, polyhydramnios and multiple gestation. (7)

Latent period (time interval between rupture of membranes and onset of labor) is inversely proportional to the gestational age and directly proportional to the incidence of infection rate. Many of the problems of PROM are infection related and also due to premature delivery. (2)

2. Material and Methods

A list of patients that had PROM admitted to Aswan University Hospital from January 1/2013 to December 31/2013. Diagnosed by history clinical examination and investigations. The case notes were retrieved from the medical records department in the form of data relating to the age, parity, gestational age, method of termination, perinatal outcomes, and related maternal complications. The data was entered in the computer for statistical analysis using one proprietary statistical package which is Statistical Packages for the Social Science (SPSS).

3. Results

There were 4284 deliveries during the period. Under review among them 526 cases premature rupture of membranes with incidence 10.85%, the age of the patients ranged from 20-37 years with average age 28.5 year.

As regard the patient's parity primigravida represents 134 patients with incidence (25.47%), multiparas patient represent 276 patients with incidence (52.47%) and grand multi-paras (delivered five times or more) were 116 patients represent (22.05%) patients.

The gestational age were ranged from 28 weeks to 40 weeks with average gestational age 34 weeks.

About the methods of termination 178 patients were delivered by caesarean section with incidence (38.27%) and 287 patients terminated by vaginal delivery with incidence 61.72%. About the indications for caesarean section fetal distress 45 patients with incidence 25.28%, failure to progress 72 patients with incidence (40.4%) and previous caesarean section (s) 61 patients with incidence (34.2%).

About the complications of premature rupture of membranes. Fetal complications, admission to neonatal intensive care unit (NICU) 53 cases with incidence 10.07%, respiratory distress (RD) 12 cases with incidence 2.28%, and neonatal sepsis 27 cases with incidence 5.13%.

About maternal complications, Chorioamnitis 3 cases with incidence 0.57%, postpartum hemorrhage 61 cases with incidence 11.59%, Puerperal pyrexia 45 cases with incidence 8.55%.

Table (1): Patients age

Variables	Range	Average
Patients age	20-37	28.5

Table (2): Patient parity.

Parity	Number	Incidence
Primigravida*	134	25.47%
Multipara**	276	52.47%
Grand multipara***	116	22.05%
Total	526	100%

*: First pregnancy

**: Delivered 2 to 4 times.

***: Delivered 5 times or more.

Table (3): Gestational age

Variables	Range	Average
Gestational age	28-40	34

Table (4): Indications for caesarean section

Indications for caesarean section	Number	Incidence
fetal distress	45	25.28%
failure to progress	72	40.4%
previous caesarean section	61	34.2%
Total	178	100%

Table (4): Fetal complications

complication	Number	Incidence
NICU admission	53	10.07%
respiratory distress	12	2.28%
neonatal sepsis	27	5.13%

Table (5): Maternal complications

complication	Number	Incidence
, Chorioamnitis	3	0.57%
postpartum hemorrhage	61	11.59%
Puerperal pyrexia	45	8.55%

4. Discussion

Premature rupture of membranes is not uncommon yet the management, even at term, the management is controversial. When a pregnancy reaches term, women normally expect labour to begin spontaneously, without medical or surgical assistance. However, for approximately more than 8% of women, the membrane ruptures but labour does not begin spontaneously within the next few hours. Because the risk of maternal and fetal infection is known to increase risk of maternal and fetal infection is known

to increase risk of maternal and fetal infection is known to increase with increasing duration. In majority of the reports, where immediate induction with misoprostol was done, the latency period was significantly shorter, hence the duration of labor and hospitalization period were reduced. However, expectant management was another approach used where in, the operative intervention rate was lesser, without rise in the perinatal and maternal complications. (8)

The results of the present study showed the age of the patients ranged from 20-37 years with average age 28.5 year, This was comparable to the study done by Rajanietal (9) who found that The mean age of PROM patients was 24.00 ± 2.77 years. As regard the parity of the patients 25.47% were primigravida this results is less than results reported by Rajanietal (9) who found that 54% were primigravida. In the present study, vaginal deliveries were noted in 61.72% cases. Sanyal MK et al reported 87% vaginal deliveries in PROM cases. (10)

In the present study, caesarean section incidence (38.27%), this incidence is high in relation to the caesarean section rates reported by different authors in PROM patients which are as follows: Schreiber J et al-24% (11), Spinnato JA-15.4%(12), Egan et al-8% in primigravida, 2% in multigravida. (13) may be due to increase incidence of caesarean section. In the present study, the indications for caesarean section were fetal distress with incidence 25.28%, failure to progress with incidence (40.4%) and previous caesarean section (s) with incidence (34.2%) This was comparable to the study done by Rajanietal (9) who found that most common indication of caesarean section was meconium stained liquor/nonreassuringfoetal heart rate.

In this study NICU admission was seen in 10.07%, this results in agree with Rajanietal (9) who found that NICU admission was seen in 10% neonates of expectant management of PROM patients.

Conclusion:

PROM once has occurred, controversy lies regarding whether or not to deliver the baby at that particular gestational age. The concern is that, not delivering the baby exposes the fetus to the risk of infection. Alternately, delivering the baby increases the risk of prematurity and its risk. So careful identification of present or impending complications, and individualizing the management based on gestational age and the presence or likelihood of these complications currently holds best hopes for optimizing fetomaternal outcome in PROM patients.

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