

Summary

Premature rupture of membranes is defined as rupture of the fetal membranes before the onset of labor regardless the gestational age at the time of rupture, while preterm rupture of the membranes is rupture before the fetal maturity (37 weeks).

The fetal membranes that surround the amniotic cavity are composed of the amnion and the chorion, which are closely adherent layers consisting of several cell types, including epithelial cells, mesenchymal cells, and trophoblast cells. The great importance of fetal membranes protection of the developing fetus. The fetal membranes are the boundaries of the amniotic compartment and play a role in maintaining of amniotic fluid volume to protect the fetus against blunt trauma, as well as protect the umbilical cord and the fetal blood supply against compression.

It is apparent till now that there is no single cause of PROM. For all practical purposes, the a etiology of PROM is multifactorial. Reduction in membrane strength by the effect of bacterial proteases and other factors that may facilitate ascending infection such as sexual transmitted disease (neisseria gonorrhea, Chlamydia, bacterial vaginosis trichomonas vaginalis), the frequency of PROM is increased in pregnant women complicated by vaginal bleeding, prior preterm delivery (especially due to PROM), cigarette smoking during pregnancy, nutritional deficiencies, miscarriage or abortion, cervical incompetence, cerclage during past pregnancy, polyhydramnios, multiple pregnancy, sexual activity, a mniocentesis and women with Ehler Donlos syndromes

The correct and timely diagnosis of PROM is of a critical importance to the clinician because PROM and PPROM may be associated with serious maternal and fetal complication. There are two main steps of diagnosis; prediction of PROM which include risk factor; tests of prediction and diagnosis of PROM. The diagnosis of PROM covers other three elements. History of PROM, physical examination include speculum examination, fern test, nitrazaine test, ultrasound and amniocentesis and vaginal fluid markers include AFP, FFN, B-HCG, IGFBP-1 PAM-1, DAO, creatinine, urea and prolactin assay

Management protocols of PROM firstly must be exclude cases that require immediate delivery such as patients in labor, patients with mature fetal lung, patients with fetal malformation, patients with fetal distress and patient with overt infection.

The optimal management of women with PROM prior to 37 weeks is not known.

Prophylactic management of PROM include patients who have risk factors. These risk factors are classified into obstetric, gynecological risk factors and risk factors in current pregnancy.

Scientists have not so far agreed upon the best management protocol. They are divided into two groups. One group believe in preterm delivery and the other group believe in strict supervision of the mother and fetus. The former believe that the latter suggestion increases the risk of infection. The second group also criticizes the first solution as it increase the risks of prematurely.

The primary factor that determines management protocols is gestational age.

The majority of patients will deliver within one week when preterm PROM occurs before 24 weeks' gestation, with an average latency period of six days.

Many infants who are delivered after previable rupture of membranes suffer from numerous long-term problems including chronic lung disease, developmental and neurologic abnormalities, hydrocephalus and cerebral palsy. Previabile rupture of fetal membranes can also lead to Potter's syndrome, which is characterist by deformities of limbs, face and pulmonary hypoplasia.

The different management protocols of this gestational age include aminioinfusion, fibrin glue, aminopatch, endoscopic closure of fetal membranes with platelets, fibrin glue and powdered collagen slurry, prophylactic antibiotics and tocolysis. Some of these such as amnioinfusion, fibrin glue, prophylactic antibiotic and tocolysis covered in many studies. Others such as amniopatch, gelatin sponge glue and platelate occur only in single sporadic studies.

Delivery before 32 weeks gestation may lead to severe neonatal morbidity and mortality. In the absence of intra-amniotic infection, the physician should attempt to prolong the pregnancy until 34 weeks gestation. For that there are many studies dealing with management of PROM of this gestation age including corticosteroid prophylactic antibiotic, tocolysis and role of vitamins C and E.

Administration of corticosteroids before 30 to 32 weeks gestation assuming fetal viability and no evidence of intra-amniotic infection. Use of corticosteroids between 32 and 34 weeks is controversial. Administration of corticosteroids after 34 weeks gestation is not recommended unless there is evidence of fetal lung immaturity by amniocentesis.

Some authors reported that multiple courses are not recommended because studies have shown that two or more courses can result in decreased infant birth weight, head circumference, and body length while there is no improving in neonatal outcome beyond that achieved with single course therapy.

Antibiotic prophylaxis must be considered for patients with premature rupture of membranes to prolong the latency period between membrane rupture and delivery.

Tocolytic therapy may prolong the latent period for a short time but do not appear to improve neonatal outcomes. It is not unreasonable to administer a short course of tocolysis after preterm PROM to allow initiation of antibiotic, corticosteroid administration and maternal transport, although this is controversial.

Many studies pointed out the intake of vitamin C and E slow the destruction of collagen and fetal membranes and reduces infection-related morbidity in women with PPROM. Supplemental administration of two vitamins with antioxidant properties –vitamin C and E may reduce the incidence of adverse outcome such as chorioamnionitis and neonatal sepsis.

Physicians must balance the risk of respiratory distress syndrome and other sequelae of premature delivery with the risks of pregnancy prolongation, such as neonatal sepsis and cord accidents. Physicians should administer a course of corticosteroids and antibiotics to patients without documented fetal lung maturity and consider delivery 48 hours later.

When PPROM occurs at 34 to 36 weeks' gestation, physicians should avoid the urge to prolong pregnancy. Studies had shown that labor induction is clearly beneficial at or after 34 weeks' gestation.

PROM places the mother and fetus at increased risk of short-term and long-term morbidity and mortality.

Maternal hazard of PROM included chorioamnionitis. The risk of infection increases with decreasing gestational age at membrane rupture and with increasing duration of membrane rupture.

Neonatal hazard of PROM including neonatal morbidity and mortality associated with prematurity which complicated by respiratory distress syndrome, intraventricular hemorrhage and necrotizing enterocolitis. The complication during labor and delivery due to intra uterine infection, umbilical cord compression, placental abruption and prolonged fetal compression increase the risk for neonatal resuscitation.

The various studies that deal with PROM had agreed that termination of pregnancy at 34 week gestational age is recommended. However, they differed in the method used in termination. Most of the

studies deal with three main methods, namely misoprostol, prostaglandin E2 and oxytocin.

Misoprostol is a prostaglandin E1 analogue marketed for use in the prevention and treatment of peptic ulcer disease. It is inexpensive, easily stored at room temperature and has few systemic side effects. It is rapidly absorbed orally and vaginally. Misoprostol has been widely used for obstetric and gynaecological indications, such as induction of abortion and of labor

Labor induction with prostaglandin F2 alpha was introduced in the 1960s. Subsequently, formulations of prostaglandin E2 was developed which largely replaced the use of PGF2 alpha. The most common route of administration is vaginal, tablets, suppositories, gels and pessaries.

Synthetic oxytocin is one of the most commonly used medications in the United States. It was the first polypeptide hormone synthesized, at 1955 Nobel Prize in chemistry was awarded for this.

With oxytocin use, the goal of induction or augmentation is to effect uterine activity sufficiently to produce cervical change and fetal descent while avoiding development of a nonreassuring fetal status.

The effectiveness of oxytocin is optimized with rupture membranes. If oxytocin is used after PGE2, 6 hours should elapse after the last vaginal dose of PGE2 to reduce the risk of uterine hyperstimulation.