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Prelabour rupture of membranes

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The currently accepted definition of Prelabour Rupture of Membranes (PROM) is, rupture of membranes before the onset of labour (regular contractions and concomitant cervical change). Preterm birth incidence in Sri Lanka is approximately 10-15 per 1000 of all live births [1]. It is one of the main contributing factors of perinatal morbidity and mortality. Across 184 countries, the rate of preterm birth ranges from 5% to 18% of live births. Globally, prematurity is the leading cause of death in children under the age of 5 years. In almost all countries with reliable data, preterm birth rates are increasing[1].

Management decisions depend on gestational age and evaluation of the relative risks of delivery versus the risks such as maternal and foetal infection, occurrence of abruptio placentae and umbilical cord prolapse/ compression, when pregnancy is allowed to progress to a advanced gestational age.

Current understanding of PROM diagnosis and management is reviewed in this guideline, an attempt at providing guidance in management that have been validated by outcome-based research when available taking Sri Lankan infrastructure facilities into consideration. Where comprehensive and solid evidence is not yet available, recommendations are made on expert opinion and conclusions are made based on limited and inconsistent scientific evidence denoted by Level B. Some of the guidance is based on consensus and expert opinion.

This guideline consists of recommendations relating to the diagnosis, assessment, and timing of birth of women presenting with suspected Preterm Pre Labour Rupture of Membranes (PPROM) from 24 to 36 weeks of gestation and at term PROM. (Term defined for this guide is 37th week to 40 weeks of gestation.)

Initial evaluation

When a patient presents with possible PROM, it is essential to evaluate the following criteria. They are;

- Gestational age,
- Presence or absence of maternal and or foetal infection,
- Presence or absence of labour,
- Foetal presentation,
- Foetal well-being,
- Expectation of foetal lung maturity based on gestational age,
- Cervical status (by visual inspection),
- Available level of neonatal care in the institution.

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Current guidance of Prelabour of Rupture of Membranes can be divided into two groups according to gestational age.
They are;

- Term Prelabour Rupture of Membranes,
- Preterm Prelabour Rupture of Membranes (PPROM)

Diagnosis of rupture of membranes in pregnancy

Presentation with a history of vaginal leak of watery fluid is the most common presenting complaint. However, other than rupture of membranes, the symptom could be due to passage of urine, and candidiasis.

Inspection with a sterile speculum could offer strong evidence of leak of amniotic fluid if the amniotic fluid leak is continuing at the moment of examination. If the amniotic fluid has drained in full, speculum examination could give a false negative result.

Combining an ultrasound scan examination in such a clinical scenario would give a clue towards the status of existing amniotic fluid volume in relation to the period of gestation. The presence of a history of leak with no or minimal liquor is strongly suggestive of PROM. With minimal leak, ultrasound assessment would not give strong evidence for diagnosis.

In order to make a final diagnosis of the leaking fluid as amniotic fluid and not anything else, chemical testing would be necessary. Tests are available to detect specific characteristics and ingredients of the amniotic fluid. Historically, the litmus test has been used to test for alkalinity of the liquor fluid. But now this test is not used for diagnosis. At present consideration should be given for testing either Insulin Like Growth Factor Binding Protein 1 (IGFBP-1) or Placental Alpha MicroGlobulin (PAMG). Studies on these two biomarkers have shown high levels of reliability. (In the UK obtaining a vaginal swab for microbiological testing while undergoing diagnosis of PROM is done. But evidence to support such practice is poor.)

If the diagnosis of rupture of membranes is equivocal, it is recommended to keep the patient under observation for further 24 to 48 hours to observe for any new developments. However, if the clinical tools refute amniotic fluid leak, the patient could be discharged with the advice to return for management at any time with any new changes to the clinical picture.

Concomitant performing of tests to predict imminent establishment of labour by detecting foetal fibronectin or phosphorylated IGFBP-1 may be useful in management decisions.

In the case of diagnostic doubt, at the level 1 and 2 members of the team, consultant participation is advised to make the final decision regarding management.

Clinical assessment of a confirmed case of PROM/PPROM

Risks of PROM is about ascending infection leading to maternal and foetal infection.

To monitor such;

- Performing high vaginal swab for culture and STI,
- Monitoring maternal parameters such as pulse, blood pressure, temperature,
- Symptoms such as lower abdominal pain,
- Investigations such as white blood cell count and CRP level are recommended.

Monitoring foetus with cardiotocography would facilitate early detection of foetal infection.

Discrepancy of tests with each other and the clinical scenario will necessitate further observation and repetition of the tests.

It is a known fact that white blood cell count rises 24 hours following corticosteroid injections and would return to baseline about 72 hours following administration. According to literature, C-reactive protein has the highest sensitivity and specificity in predicting histological chorioamnionitis[2].

Although outpatient management of PROM is done in countries with higher levels of health care delivery systems and communication, SLCOG does not advise anything other than in-ward patient care for PROM unless it is an exceptional case where the specialist is confident of the monitoring of the pregnant woman as an out-patient.

In addition to monitoring of the patient for infection, monitoring should be concomitantly done for foetal

well-being and growth using serial ultrasound scans and CTG testing. Intervals of repetitions of such should adapt to the clinical indicators especially when the period of gestation is early and the aim of allowing continuation of the pregnancy is contemplated until desired maturity is achieved (applicable to PPROM).

Clinical team should be aware of the need for monitoring of blood sugars in the case of women who needed corticosteroid administration. The effect of corticosteroids on blood sugars would last about 72 hours from the last dose of corticosteroids. However, once high blood sugars are identified, the patient should be cared for the rest of the pregnancy as a latent hyperglycemic and necessary dietary advice should be provided.

Premature baby unit care

One of the most important criteria of timing of delivery and management of a PPROM is the available level of neonatal care. The unit characteristics in the form of their past performance on successful care for low weight and premature neonates, availability of necessary equipment for neonatal care and medicine are very important indicators for management decisions.

If a decision for delivery (especially operative delivery) is made, senior clinical team member's discussion with the pregnant woman about the predicted disease-free survival chance for her baby on the given premature baby unit, should be recorded prior to action.

Management of term pre-labour rupture of membranes

After initial assessment for confirmation, high vaginal swab is recommended for culture and antibiotic sensitivity tests and for STI. In the case of women with a history of being positive for GBS it is recommended to start a course of penicillin or clindamycin.

Recommendation is to avoid digital cervical exam unless the delivery is expected shortly.

Although it is possible for expectant management SLCOG recommend to have active management for diagnosed term PROM. That is either initiating steps for induction of labour or delivery by cesarean within 24 hours of admission, for women who have no history of GBS or have unknown GBS status.

In women with positive GBS or are treated for GBS, induction of labour or cesarean delivery should be done as soon as practically possible.

Induction of labour once decided, clinical assessment of cervix by digital examination should be carried out. Available options for induction depend on cervical favorability.

They are:

1. Oxytocin induction
2. Application of prostaglandin
3. Application of prostaglandin followed by oxytocin
4. Application of soft balloon catheter with closed communication port with concomitant prostaglandin followed by oxytocin however the increase risk of infection needs to be appreciated.

Once oxytocin is started, the patient should be monitored as any other labouring woman with maintenance of a partogram.

Appraisal of patient's condition by a senior team member four hours apart is recommended. High level of monitoring should be done for women in this group for early detection of maternal and foetal infection by monitoring wellbeing indicators. (Pulse, temperature, FHR, CTG etc.)

If the cervical factors for starting oxytocin are not favorable, with the consent of the mother, it is recommended to proceed for cesarean delivery without prevarication.

It is necessary sometimes to provide expectant management for some women who choose to avoid active management. Recommended criteria for such are:

1. Negative GBS status
2. No prior history of neonatal infection in previous pregnancies
3. Engaged head / fixed cephalic presentation
4. Clear liquor
5. Normal foetal assessment including CTG
6. Adequate staff and infrastructure

Routine antibiotic prophylaxis is recommended for women undergoing expectant management as it has shown to reduce maternal infection in these women[2].

However, SLCOG does not recommend continuation of expectant management beyond 48 hours for women with PROM at term.

Management of preterm prelabour rupture of membranes

Under this topic guideline focus on four subgroups in local settings.

1. Late preterm 35 weeks to 36 weeks +6 days
2. Preterm 32 weeks to 34 weeks +6 days
3. Early preterm 28 weeks – 31weeks +6 days
4. Extreme preterm 27 weeks +6 days – limits of viability (24 weeks)

This guideline will focus on the management of the first three categories of PPROM.

Management of extreme prematurity should be individualized, taking points mentioned below into consideration in the management of the first three categories by senior clinical team members working in a multidisciplinary care approach.

In the first category management of late preterm pregnancy with PPROM, the recommendations are not very different from the management of term PROM other than the emphasis on corticosteroid administration with accompanied monitoring giving sufficient time for the action of corticosteroids on lung maturity. That is for 24 hours from the last dose of corticosteroids administration. Here the emphasis on antibiotic coverage in the form of administration of erythromycin (250 mg 6 hourly for maximum 10 days) is more emphasized.

Furthermore, there could be an option of administering magnesium sulfate in recommended doses for neuroprotection as in the guidance on hypertensive disorders. In Cochrane review and another two meta-analysis[3,4,5] neuro protection of the offspring has shown to reduce cerebral palsy and motor dysfunction when magnesium sulfate was used within 24 hours of the time of delivery. The benefit was greatest before 30 weeks of gestation. However, the recommendation of RCOG regarding administering magnesium sulfate is about the use of the drug when delivery is planned in the following 24 hours for the gestations up to 33 weeks +6 days[6,7,8].

Management of group 2 and 3, i.e. preterm PROM and early preterm PROM is aimed at deciding for a delivery time for the baby taking into consideration gestational maturity. For timing of the delivery, successes of the neonatal care by the premature baby unit serving for the pregnancy is vital. SLCOG recommends having statistics of at least 70% disease free survival of the neonate considering operative delivery against a 50% chance of disease-free survival when the delivery is aimed as a vaginal delivery.

However, the decisions of deviation from the recommendations are allowed for consideration of case specific indicators of the clinical scenario. Decision is to be taken by in-person meeting of the patient, patient's family, the obstetrician and the neonatologist with clear documentation of the reason for deviation. The guideline acknowledges the woman's right to a physical meeting of the lead obstetrician and the lead neonatologist when the decision of active delivery is taken, be it operative or otherwise, in the case of preterm delivery.

Administration of corticosteroids is recommended when the decision is made for delivery. Corticosteroids regime should be completed 24 hours before or within next 7 days of the completion of a course of corticosteroids in ideal circumstances. There are no firm evidence-based recommendations for repetition of corticosteroids in pregnancy aimed at lung maturity.

Expectant management for category 2 and 3 should be abandoned and appropriate delivery should be done at the outset of detection of any foetal or maternal infection.

References

1. WHO fact sheet on preterm birth; https://www.who.int/news-room/fact-sheets/detail/preterm-birth, accessed 10/02/2022
2. Cotton DB, Hill LM, Strassner HT, Platt LD, Ledger WJ. Use of amniocentesis in preterm gestation with ruptured membranes. Obstet Gynecol 1984; 63: 38-43.
3. Kurki T, Teramo K, Ylikorkala O, Paavonen J. C-reactive protein in preterm premature rupture of membranes. Arch Gynecol Obstet 1990; 247: 31-7.
4. Carrolll SG, Papaionnanou S, Ntumazah IL, Philpott-Howard J, Nicolaides KH. Lower genital

tract swabs in the prediction of intrauterine infection in preterm prelabour rupture of the membranes. Br J Obstet Gynaecol 1996; 103: 54-9.

5. Yucel N, Yucel O, Yekeler H, The relationship between umbilical artery Doppler findings, foetal biophysical score and placental inflammation in cases of premature rupture of membranes. Acta Obstet Gynecol Scand 1997; 76: 532-5.
6. Neerhof MG, Gravello C, Haney El, Silver RK. Timing of labor induction after premature rupture of membranes between 32 and 36 weeks' gestation. Am J Obstet Gynecol 1999; 180: 349-52.
7. Lacaze-Masmonteil T, Chari R. Safety and Efficacy Study of Intentional Delivery in Women with Preterm and Prelabour Rupture of the Membranes. Clinical Trials. gov indentifier NCT00259519.
8. Morris J. Immediate delivery versus expectant care in women with ruptured membranes close to term. ISRCTN44485060
9. Mercer BM. Preterm premature rupture of the membranes. Obstet Gynecol 2003; 101: 178-93.