COMPLICATIONS OF PREGNANCY

Preterm Prelabour Rupture of Membranes (PPROM)

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MEDICAL AND MIDWIFERY MANAGEMENT

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BACKGROUND INFORMATION

PPROM is defined as spontaneous rupture of the membranes before the onset of labour prior to 37 weeks gestation. It complicates 2 - 4% of all singleton and 7 - 20% of twin pregnancies and is associated with over 60% of preterm births.

The aetiology is multifactorial and risk factors for PPROM include intra-amniotic infection, placental abruption and invasive uterine procedures (e.g. amniocentesis, cordocentesis, chorionic villus sampling, cervical cerclage). Typically women with PPROM present with a large gush or steady trickle of clear vaginal fluid. The clinical signs of PPROM may become less accurate after 1 hour has elapsed.

The interval between PPROM and the onset of labour, is influenced by many factors including gestational age. Women with PPROM have a 50% chance of going into labour within 24 to 48 hours and 70 to 90% chance within 7 days. If PPROM occurs between 24 and 28 weeks gestation the latency period before birth is generally longer than if occurring closer to term.

PPROM is associated with an increase in perinatal mortality and an increase in neonatal morbidity. Perinatal complications include respiratory distress syndrome, infections, intraventricular haemorrhage, pulmonary hypoplasia, skeletal deformities, cord prolapse, and malpresentation.
KEY POINTS

1. Digital vaginal examination should be avoided unless the woman is in active labour or birth is imminent.2
2. Between 23 and 23+6 weeks gestation the decision for corticosteroids administration is made following consultation between the obstetric/paediatric medical team and the parents.
3. A single course of antenatal corticosteroids should be administered to women with PPROM without signs of infection between 23 and 34 weeks gestation.5, 6
4. If gestation is less than 34 weeks and in the absence of infection or complications, and in circumstances when a course of corticosteroids has not been completed, tocolysis may be considered for threatened premature labour.
5. Broad spectrum antibiotic administration is recommended following PPROM to prevent infection and prolong the pregnancy in the short term, leading to a reduction in neonatal and maternal morbidity.6, 7
6. It is the Obstetric Consultant's decision, as to when to deliver a preterm baby. If expectant management continues, women should be advised of the increased risk for chorioamnionitis and the decreased risk of respiratory problems in the neonate.1, 6

DIAGNOSIS

Diagnosis of PPROM is usually made on the basis of maternal history, physical examination, and ultrasound examination.

MEDICAL HISTORY

On admission note and document:
- Time of PPROM.
- Type and colour of fluid loss.
- Amount of fluid loss.
- Signs of infection including 'offensive smelling' vaginal discharge, uterine tenderness, maternal fever, and fetal tachycardia.

Assess for a differential diagnosis:
- Leakage of urine (incontinence).2
- Physiological vaginal discharge.2
- Bacterial infection e.g. bacterial vaginosis.2
- Cervical mucous (show) which may be a sign of impending labour.2

PHYSICAL EXAMINATION

Abdominal Palpation
- Depending on the gestation abdominal palpation may be appropriate to assess fetal size and presentation.
- Note any abdominal tenderness which may indicate infection.

Vaginal Examination

NOTE: Avoid digital examination unless birth is imminent. This decreases risk of infection and prevents shortening of the latency period.
Perform a sterile speculum examination. Observe for a pooling of amniotic fluid in the posterior vaginal fornix or clear fluid passing through the cervical canal. If the diagnosis remains uncertain, ask the woman to perform a Valsalva manoeuvre.

Obtain a low vaginal swab (LVS) for microscopy and sensitivity. Collect LVS and ano-rectal swab for Group B Streptococcus screening. Offer screening for Chlamydia if unbooked and no results are available.

ULTRASOUND EXAMINATION

Arrange ultrasound examination for gestational age, fetal well-being, growth and estimation of amniotic fluid index (AFI). This provides a useful adjunct for diagnosis of oligohydramnios but is not diagnostic.

MANAGEMENT

Management is influenced by gestation age of the fetus, presence of infection, advanced labour and evidence of fetal compromise.

MATERNAL ASSESSMENT AND ANTENATAL CARE

Observations

1. On admission – perform baseline assessment for temperature, pulse, and blood pressure (BP), uterine activity or tenderness, vaginal discharge and urinalysis.

2. Ongoing observations include:
   - 4 hourly:
     - Temperature
     - Pulse
     - Vaginal discharge – assess colour and amount. Note if discharge is ‘offensive smelling’ which may indicate infection.
     - Uterine activity and/or tenderness
     - Fetal activity
   - Twice daily
     - Fetal heart rate
   - Daily
     - BP
     - Assess bowel activity

Note: Unless otherwise instructed by the medical team night-time observations shall be performed at 2200 and 0600.

Pathology tests

On admission with PPROM collect:

- Full blood picture (FBP)
- C-reactive protein (CRP) if clinically indicated – while studies have shown a CRP is a poor predictor of chorioamnionitis, studies cannot conclude that it is ineffective in detection of chorioamnionitis or neonatal sepsis.⁹,¹⁰
- Mid stream urine (MSU)
• Low vaginal swab (LVS) and/or endocervical swab (ECS) if screening required for Chlamydia.

Ongoing follow-up pathology tests may be ordered by the medical team if clinically indicated:

1. FBP and/or CRP if there is suspicion of infection
2. LVS as required.

If a woman is unbooked to KEMH ensure a copy of all tests and results done in her pregnancy are available for review. Order booking antenatal bloods and pathology tests as required. See Clinical Guideline Antepartum clinic visits – Initial visit.

Maternal Education

1. Instruct the woman about personal hygiene including changing her sanitary pad 4 hourly or as required. Tampons should not be used.
2. Encourage frequent leg exercises and instruct the woman to wear graduated compressions until full ongoing mobility is assured. Elastic compression stockings assist in prevention of deep vein thrombosis.
3. Arrange a Paediatric consultation for gestations under 32 weeks or in pregnancies with other complications. Discuss management of preterm birth e.g. feeding methods, Neonatal Intensive Care (NICU) admissions, risk factors and outcomes.
4. Arrange a tour of Neonatal Intensive Care (NICU) for the woman and her support person.
5. Inform the woman about the Health Information Resource Services (HIRS).
6. Advise women sexual intercourse should be avoided with PPROM.

Referrals

As required offer referral to specialist services:

• Aboriginal Liaison Office
• Social worker
• Psychological Medicine
• Physiotherapy
• Parent Education
• Dietician
• Activities Co-ordinator
FETAL SURVEILLANCE

There is no clear evidence on the optimum frequency to perform fetal surveillance tests for women with PPROM. The frequency of tests is adjusted according to the maternal and fetal clinical situation.

<table>
<thead>
<tr>
<th>Fetal Surveillance</th>
<th>Frequency</th>
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<tbody>
<tr>
<td><strong>Fetal Heart Rate (FHR)</strong></td>
<td>Perform a FHR on admission. Thereafter, twice daily (morning / evening).</td>
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<tr>
<td><strong>Fetal Activity</strong></td>
<td>4 hourly</td>
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<tr>
<td><strong>Cardiotocograph Monitoring (CTG)</strong></td>
<td>Weekly if the gestation is more than 30 weeks.</td>
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<tr>
<td><strong>Ultrasound</strong></td>
<td>If the fetus is more than 23 weeks gestation:</td>
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<td>● Weekly AFI, BPP, umbilical artery (UA) doppler studies</td>
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<td></td>
<td>● 2 weekly fetal biometry</td>
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NOTE: Report any abnormalities to the medical obstetric team.

ANTIBIOTICS ADMINISTRATION

Certain antibiotic administration to women with PPROM provides short-term benefits by prolonging pregnancy and reducing risk for infection. It has been shown to reduce some markers of maternal and neonatal morbidity and although it does not equate to a statistically significant reduction in perinatal mortality, research indicates it makes it possible to reduce risk or mortality. The demonstrated delay in onset of labour may allow sufficient time for effective prophylactic corticosteroids. Avoid the use of Amoxicillin/Clavulanate as it is associated with neonatal necrotizing enterocolitis.

Antibiotic and dosage

- Administer oral Erythromycin 250mg four times a day for ten days.  
- If the woman has a positive screening result for Group B Streptococcus (GBS) see Clinical Guideline Group B Streptococcal Disease for management.

CORTICOSTEROID ADMINISTRATION

Evidence supports the use of a course of antenatal corticosteroids to accelerate fetal lung maturation in women at risk of preterm birth. This reduces the risk of neonatal death, respiratory distress syndrome, cerebroventricular haemorrhage, necrotising enterocolitis, infectious morbidity and the need for respiratory support and neonatal intensive care admission.

Dosage and administration

- Administer corticosteroids between 23 weeks and 34 weeks gestation.
- Between 23 and 23’6 weeks gestation the decision for corticosteroids administration is made following consultation between the obstetric/paediatric medical team and the parents.

See Clinical Guideline Use of corticosteroids
AMNIOCENTESIS

Routine amniocentesis should not be performed for women with PPROM. In selected cases it may be an option for detecting subclinical infection or fetal lung maturity.

PROPHYLACTIC TOCOLYSIS

Tocolysis may be used to allow a course of corticosteroids to be completed and if a women is requiring transfer to a tertiary hospital. Use of tocolysis with PPROM does not significantly improve perinatal outcome.

CERVICAL CERCLAGE

For women with PPROM, the optimal timing for cerclage removal is unclear and currently no randomised controlled studies results are available. However a randomised study is currently being conducted and results should be available in 2012. The decision to retain or remove cerclage with PPROM depends on the stability of fetal-maternal clinical condition, with birth reserved for indications such as chorioamnionitis at very preterm gestations.

MANAGEMENT

- < 23 weeks gestation – remove cerclage due to increased risk of maternal chorioamnionitis and neonatal mortality from sepsis (however, antibiotics administration will decrease risks).
- Delayed suture removal until labour occurs or when birth is indicated, is associated with an increased risk of maternal/fetal sepsis, therefore is not recommended.
- Between 23 and 34 weeks gestation, if there are no contraindications such as preterm labour, non-reassuring fetal status, or infection, delayed removal of cerclage may be appropriate to allow for completion of antenatal steroids.

Send the cervical suture for culture, once removed.

OUTPATIENT MANAGEMENT

The safety, cost and women’s views about home management with PPROM has not been established through large studies.

A woman should only be considered for outpatient management if strict criteria are met and following Obstetric Consultant review. The decision is based on:

- Gestation and presentation.
- Close accessibility to the hospital.
- Absence of signs of threatened premature labour.
- No evidence of infection.
- Absence of maternal or fetal risk factors.
- Absence of fetal compromise.
If a woman is deemed suitable for outpatient management she should be counselled to:

- Attend weekly outpatient visits to MFAU to monitor the clinical situation. See Clinical Guideline, Preterm Prolabour Rupture of Membranes Maternal Assessment Unit – Quick Reference Guide.
- And/or attend an antenatal clinic appointment for Obstetric Team Consultant review.
- Monitor her temperature. Instruction and demonstration of temperature taking procedure should be performed and documented prior to discharge. The woman is advised to contact KEMH if she notices any signs of infection or has a temperature of above 37 degrees Celsius.
- Wear sanitary pads not tampons, and return to hospital if she has abnormal smelling vaginal discharge, or abnormal appearance of the vaginal discharge.
- Avoid vaginal intercourse.
- Have showers rather than baths, and avoid swimming.
- Monitor fetal movements and notify the hospital (Maternal Fetal Assessment Unit - MFAU) if fetal movements are decreased.
- Notify and return to the hospital if any signs of threatened premature labour, vaginal bleeding, or abdominal pain / tenderness.

REFERENCES


