PREMATURE (PRELABOUR) RUPTURE OF MEMBRANES 2.0

A. Definitions

Premature Pre-labour Rupture of Membranes (PROM)

- Spontaneous ROM at least 1hour before the onset of labour

Preterm Pre-labour Rupture of Membranes (PPROM)

- Spontaneous rupture of fetal membranes at least 1hour before the onset of labour
- AND prior to 37 completed weeks of gestation

Rupture of membranes determined by:

The Gold standard is a 'ferning' pattern observed under microscope but the composite of the following 5 elements can also be of assistance when a microscope is not available:

- Convincing history
- Clinical observation of amniotic fluid pooling in the posterior fornix and draining from the cervical os
- Alkaline test with lithmus paper (blue litmus stays blue and red turns blue)
- AmniSure® test strip.
- Amniotic fluid index (AFI) on ultrasound < 5cm (not to be used in isolation as diagnostic of P(P)ROM)

Avoid digital examination unless there is a strong suspicion that the woman might be in active labour.

B. Complications of PPROM

- Preterm birth with associated prematurity including respiratory distress syndrome
- Cord compression or cord prolapse
- Fetal malpresentation
- Chorioamnionitis
- Ante partum fetal death
- Abruptio placenta
- Antepartum haemorrhage

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- Post-partum endometritis or sepsis
- Post-partum haemorrhage
- Retained placenta

C. Management: initial assessment and work-up of PPROM

1. General assessment

1.1 Obtain a clear history of any symptoms of P R O M , including predisposing risk factors.

1.2 Check antenatal record for MSU-MCS, HIV and Syphilis results and normal fetal anatomy scan.

1.3 Ensure correct gestational age.

1.4 General examination

- Maternal vital signs
- Assess for uterine contractions by abdominal palpation; descent of the fetal presenting part, irritability of uterus, tenderness.

1.5 Further investigations:

- Ward Hb
- Urine dipstick
- Mid-stream urine specimen for culture and sensitivity
- Ultrasound for AFI if indicated
- Perform CTG if considered viable according to gestational age and fetal weight (use viability criteria as applicable in your setting)

2. Perform sterile speculum examination

2.1 Exclude cord prolapse

- If cord prolapse is present: follow protocol for cord prolapse
- This is super-urgent if the CTG is pathological

2.2 Take low vaginal swab for MC&S, prior to administration of antibiotics.

2.3 Document any evidence of ruptured membranes (details above) and timing

2.4 Visually assess if the cervix is dilated (do NOT perform a digital examination)

- If no evidence of rupture of membranes: see Section D.

Digital cervical assessment should never be performed in suspected or confirmed PPROM unless a clear decision for delivery has already been taken (i.e., suppression of labour is not being considered anymore) AND there is established labour – i.e. 3 strong contractions per 10min on abdominal palpation WITH fetal presenting part ≤ 2/5 above pelvic brim

If unsure about whether to perform PV exam to confirm with Doctor first

NB: One inadvertent vaginal examination should not exclude further conservative management!

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D. Management: if no clinical evidence of PROM but highly suspicious history

1. Admit patient to antenatal ward for:

1.1 24 hours.
1.2 Routine observations (4-6 hourly temperature, pulse and respiratory rate) and twice daily CTGs if viable and not contracting.
1.3 Monitor for signs of chorioamnionitis:
- Maternal fever (> 37.8°C), tachycardia (> 120bpm), uterine tenderness, foul/purulent amniotic fluid or vaginal discharge.
- Fetal tachycardia (> 160bpm)

1.4 Pad checks – if wet
- Redo speculum (after a period of bed rest 6-8hours) to look for clinical signs and symptoms suggestive of ROM.

NB! If any signs of chorioamnionitis, abruptio or fetal distress then the patient should be delivered!

2. **If PROM confirmed: follow protocol for confirmed PPROM**

3. **If PTL confirmed: follow protocol for PTL**

4. **If no PROM confirmed and no signs of chorioamnionitis after 24hrs, consider:**

4.1 Ultrasound to confirm normal AFI (> 5cm) or deepest vertical pool (3 cm).
4.2 Discharge with follow up in 1 week.
4.3 Adequate counseling on warning signs (see below)

E. Conservative management of PPROM

Absolute contraindications for conservative management of PPROM - indication for delivery

- Gestation of ≥ 37w0d (Discuss individual cases with Paediatrician)
- Intrauterine death
- Severe/lethal fetal anomaly
- Suspicious/Pathological CTG
- Clinical suspicion of chorioamnionitis
- Severe maternal disease

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Relative contraindications for conservative management of PPROM

- GA 34-36w
- GA remote from viability
- Antepartum haemorrhage of unknown cause
- HIV infection with high viral load/Immunocompromise
- Severe FGR (< 3rd percentile)

  (can consider completion of a course of steroids to enhance fetal lung maturity before expediting delivery)

High risk patients for chorioamnionitis developing during expectant management

- Preterm prelabour rupture of membranes (PPROM)
- Prolonged rupture of membranes (> 24 hours)
- Recent history of active genito-urinary infections
- HIV infected patients that are not virally suppressed
- Diabetes
- Recent sexual intercourse
- Digital PV

Admit patient with PPROM for conservative management to antenatal ward for:

- Monitoring:
  - Routine observations (4-6 hourly temperature, pulse and respiratory rate)
  - Daily CTGs if viable
  - Monitor for signs of chorioamnionitis
  - 6 hourly pad-checks
- Treatment
  - Antenatal corticosteroid administration (Sure gestation < 34w, unsure gestation estimated fetal weight (EFW) < 1850g AND considered at least periviable)
  - Routine empiric antibiotic therapy for 7 days
  - Therapeutic tocolysis if PTL < 48hrs after 1st steroid administration and with no contraindication for tocolysis (Refer to PTL tocolysis)

Patient counselling

- Avoid bathing, rather shower
- Allowed to mobilize (no bedrest) and use toilet at own convenience
- Monitor fetal movements and report when decreased
- Notify medical personnel if:
  - Any contractions felt
  - Fevers or chills
  - Foul smelling discharge on pad
  - Any vaginal bleeding

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Nursing instructions (written or SOP)

- 4-6 hourly temperature and vitals monitoring (BP, P, RR).
- 6 hourly pad-checks.
- CTG once or twice daily.
- Notify the responsible obstetrician immediately if any of the following:
  - Vaginal bleeding
  - Foul/purulent discharge on pad
  - Maternal fever (> 37.8°C)
  - Tachycardia (> 100 bpm)
  - Any abnormality on CTG, shift in Baseline etc.
- TED stockings

If no more amniotic fluid drainage for > 48h and > 48h after 1st steroid administration

- Stop antibiotics after the full 7-days course.
- Risk for ascending infection continues even though there is no more documented drainage. Outpatient management can be considered (in a selected group of patients) if AFI > 5cm and patient remains dry, with repeat counseling (as above).

F. Management: gestation specific

1. **PROM > 37 weeks**

   Offer 24 hours for spontaneous labour onset, then induce, OR induce immediately
   Antibiotics only for prolonged PROM.

2. **PPROM at 34w0d – 36w6d sure gestation or EFW ≥ 2kg if unsure gestation –**

   2.1 Corticosteroids not indicated
   2.2 Offer 24 hours for spontaneous labour, then induce OR induce immediately OR offer further expectant management in selected patients (not those with risk factors)
   2.3 Broad spectrum antibiotics (and immediate induction) if suspected chorioamnionitis or > 24h PPROM.

3. **PPROM at clearly viable gestation (according to local criteria) but < 34 weeks (sure gestation) or EFW < 1850g (unsure gestation)**

   3.1 Admit to antenatal ward if there are no contra-indications for conservative management (see above)
   3.2 Administer corticosteroids
   3.3 Administer combination AB (Ampicillin/amoxycillin; azithromycin) (genta/clinda if penicillin and cephalosporin allergy).
   3.4 If contractions develop in the first 24 hours of conservative management, therapeutic tocolysis can be added to allow the corticosteroid duration to reach 48 hours. Do not continue or restart tocolysis after this.
   3.5 Deliver if suspected chorioamnionitis, abruptio placentae, advanced labour, suspicious or pathological CTG

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4. PPROM at stage approaching peri-viability (20-22w0d – 24w6d sure gestation or EFW 550g – 800g if unsure gestation)

4.1 Ensure there are no contraindications to conservative management

4.2 If not, shared decision making is essential as survival is possible but with significant maternal, perinatal and long-term risks

4.3 It is recommended that written material is provided with statistics of what is achievable in the parents' specific circumstances.

4.4 Keep in mind that outcomes are generally poorer for
- Earlier GA at PPROM
- Neonates born after PPROM compared to neonates of the same gestational age without PPROM
- Cases where PPROM results in anhydramnios

4.5 If the parents accept the risks associated with conservative management, manage as above with the exception that steroids should only be given 48 hours before viability and that CTG is only started when viability is reached

4.6 If the mother/parents do not accept the risks, expedite delivery

5. PPROM at extremely early gestation (< 20-22w0d (sure gestation) or EFW < 400-550g (unsure gestation)

5.1 The prognosis is poor and adequate counselling by obstetrician and neonatologist must be provided on the risks and outcomes of continuation of the pregnancy, taking the level of care available to the parents into account.

5.2 As the infant outcomes are dismal and maternal risks substantial, induction of labour should be offered.

5.3 If the mother/parents insist on conservative management then:
- Exclude any medical contraindications (chorioamnionitis, abruptio placentae, fetal abnormality…)
- Ensure maternal condition is stable.
- Manage as under 4.

G. Management: role of tocolysis in PPROM

1. Value

1.1 There is no place for prophylactic tocolysis in PPROM presenting without contractions

1.2 Tocolytic therapy has been shown to prolong pregnancy to provide benefit of administering antenatal corticosteroids if PTL develops after PPROM

1.3 Tocolytic therapy may play a role in safe transport for women with PPROM and preterm labour.

1.4 There is no evidence of benefit from continuing tocolysis for longer than 48 hours after steroid administration.

2. Indication for Tocolysis in PPROM

2.1 Women in ***preterm labour*** ***at viability to*** 33w6d sure gestation or EFW 2000g if gestation is unsure.

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3. **Contraindications for Tocolysis**

3.1 Mother does not consent to suppression.
3.2 If ≥ 34w0d sure gestation or EFW ≥ 1850g in unsure gestation.
3.3 Pathological or suspicious fetal heart rate pattern.
3.4 Lethal fetal anomaly.
3.5 Intra uterine fetal death.
3.6 Suspected chorioamnionitis (clinical signs of infection)
3.7 Severe hypertensive conditions in pregnancy.
3.8 Abruptio Placentae.
3.9 Severe IUGR (<3rd percentile)

4. **Relative contraindications for Tocolysis**

4.1 Gestation remote from peri-viability
4.2 Antepartum haemorrhage of unknown cause.
4.3 HIV infection with high viral load/Immunocompromised patients

Drugs see tocolysis protocol in Preterm Labour with Intact Membranes Guideline

H. Management: role of antenatal steroids in PPROM

1. **Value**
This is the most beneficial intervention for patients with PPROM.

2. **Indications**
All pregnant women between 24w5d and 33w6d sure gestation with confirmed PPROM should receive single course corticosteroids.

3. **Relative Contraindications**
Severe maternal infection/septicaemia.

4. **Drugs and Dose**
Betamethasone

- Dose**:** 12mg IMI repeat the same dosage after 24 hours (or 12 hours)
  The first does should be given as soon as possible.
- Steroids should not be repeated weekly.
- Rescue therapy (single dose betamethasone 12mg) can be considered < 34w if 7 days have lapsed since initial course

5. **Side-effects and complications**
5.1 May accentuate glucose intolerance/hyperglycaemia (avoid glucose screening for 1 week and do not react on glycosuria). Caution: women with Diabetes will need close blood glucose monitoring and correction doses of insulin.
5.2 Pulmonary edema (NB! Use with caution in multiple pregnancies and in conjunction with ß2 stimulant use)

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I. Management: role of antibiotics in PPROM

1. **Value**
   Antimicrobial cover in women with PPROM is given to treat or prevent ascending decidual infection.

2. **Indications for antibiotics**
   2.1 Overt maternal or fetal infection with expedited delivery
   2.2 Women with preterm labour with ruptured membranes.
   2.3 Women with PPROM without labour.

3. **Drugs and Dose**
   No clear first line drug but the following drugs can be used:

- Erythromycin 500mg PO every 6 hours for 10 days (RCOG) **OR**
- Ampicillin 2g IVI every 6 hours for 48 hours, then oral Amoxicillin 500g PO 8 hourly for 5 days plus Azithromycin 500mg PO daily for 3 days.
- Add Metronidazole 400mg PO TDS for 5 days if patient has a caesarean delivery (ACOG)
- Treatment of clinical chorioamnionitis – delivery plus Ampicillin 2gm IVI every 6 hours and Gentamycin 240mg IVI daily. Consider adding Metronidazole

Remember MgSO4 for fetal neuroprotection after viability and before 32 weeks if delivery imminent in next 24 hours

Authorship

These guidelines were drafted by a clinical team from Mediclinic and were reviewed by a panel of experts from SASOG and the BetterObs clinical team in 2019 and revised by the Scientific committee of BetterObs in 2023. All attempts were made to ensure that the guidance provided is clinically safe, locally relevant and in line with current global and South African best practice. Succinctness was considered more important than comprehensiveness.

All guidelines must be used in conjunction with clinical evaluation and judgement; care must be individualised when appropriate. The writing team, reviewers and SASOG do not accept accountability for any untoward clinical, financial or other outcome related to the use of these documents. Comments are welcome and will be used at the time of next review.

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