Title of procedure: PIPER Perinatal – Threatened Preterm Birth with rupture of membranes

Key words:

Alternative alphabetical listing:

1. Overview/procedure description

The majority of women who undergo pre-labour rupture of their membranes (PROM) go into labour spontaneously.

In patients with preterm PROM who are managed expectantly, there is an inverse relationship between gestational age at the time of membrane rupture and delivery—in women near term, 50% labour within 5 hours of PROM and 95% give birth within 28 hours\(^1\)—with mid-trimester pPROM, only 56% will deliver within 7 days and 22% remain undelivered after 4 weeks\(^2\).

In general, prior to 34 weeks, the risks of prematurity predominate – respiratory distress syndrome, chronic lung disease, intraventricular haemorrhage, retinopathy and necrotising enterocolitis. After 34 weeks the greatest risk to the foetus is infection.

2. Related Policy

3. Definition of Terms

PROM Pre-labour rupture of membranes

PIPER Paediatric Infant Perinatal Emergency Retrieval

4. Procedure details

Objectives

1. Confirm the diagnosis
2. Achieve safe delivery at the optimum gestation, balancing the risks of prematurity and the risks of perinatal infection.
3. If not at a site equipped to safely deliver prior to 34 weeks, if possible arrange safe in utero transfer.
4. If in utero transfer not feasible due to the progress of labour, facilitate support/retrieval by PIPER Neonatal.

Confirming the diagnosis

An accurate diagnosis of rupture of the membranes is crucial to management decision-making. Avoid digital examination (unless there is a suspicion of cord presentation/prolapse) and perform a gentle speculum examination, visualising the cervix and posterior fornix.

While lower genital tract swabs are overall a poor predictor of the development of infection in women with pPROM\(^3\), take the opportunity to perform vaginal swabs for group B streptococcus, trichomonas vaginalis and mycoplasma hominis, and consider
uPCR subsequently for chlamydia, gonorrhoea and ureaplasma. Note any apparent
dilatation of the cervix, obvious liquor leakage through the os and a ‘washed out’
appearance of the upper vagina. Various proprietary indicator strips are also
available to assist in the diagnosis, but may have a significant false positive rate.

The presence of contractions should be noted, and a cardiotocograph trace
commenced.

Signs of infection should be actively sought. Clinically this includes maternal fever,
tachycardia, an offensive discharge and uterine tenderness.

An ultrasound scan is useful to assess fetal size, presentation and normality, as well
as liquor volume.

**Optimising the gestation at delivery**

There is no evidence to support the use of prophylactic tocolytics to improve
neonatal outcome prior to the onset of contractions.

If pPROM occurs before 34 weeks and labour begins, it should be inhibited to allow
the use of corticosteroids, providing there is no sign of sepsis, antepartum
haemorrhage or any other contraindication to steroid use. If pPROM occurs between
34-37 weeks and labour begins, there is no satisfactory evidence to guide
management.

If a cervical suture is present, there is a very high risk of developing sepsis. The
suture should be removed as soon as possible, though ideally after arrival at a site
equipped to safely deliver, and prompt delivery should be considered whatever the
gestation.

Prospective randomised controlled trials have found a significant prolongation of
pregnancy and a significant reduction in the incidence of chorioamnionitis, neonatal
sepsis, necrotising enterocolitis and respiratory distress syndrome where antibiotics
have been used. The recommendations of the ORACLE trial (oral erythromycin
250mg four times per day for 7 days) would be the standard treatment used, though
other regimes have been proposed and are of comparable efficacy.

Women with rupture of membranes >18 hours should be given IV group B
streptococcus prophylaxis when they labour. Known carriers of group B
streptococcus who present with PROM should be treated with IV penicillin
(alternatively use clindamycin or erythromycin in case of penicillin allergy), and in
most cases labour should be augmented within 6 hours of presentation. Note that
the presence of gram positive cocci on a Gram stain of a cervical swab should not
lead to a presumptive diagnosis of GBS, and cultures should be awaited.

Amniocentesis has been suggested between 32-36 weeks gestation to assess fetal
lung maturity and suitability for induction of labour. This approach has not been
widely adopted, and should be reserved to centres with experience in invasive
ultrasound-guided procedures. Where intrauterine infection is suspected,
amniocentesis may be useful, seeking an amniotic fluid glucose <1mM, a positive
Gram stain or a positive amniotic fluid culture.

If there is clinical evidence of sepsis or pathogens are detected from the genital
tract swabs, antibiotics should be prescribed and delivery expedited. Where the
pathogen has not been clearly identified, IV penicillin, gentamicin and metronidazole
should provide appropriate cover.
Call PIPER Perinatal on 1300 137 650

Unless already at a site with appropriate neonatal facilities to manage a potential preterm birth at the gestation presenting, in utero transfer is usually required.

A midwife escort is NOT usually required, as the skill set of the paramedics are sufficient to provide safe care in most cases, and delivery in transit is not anticipated.

In most cases, you will be asked to reassess cervical dilatation before the patient leaves by ambulance, and if there has been further cervical dilatation despite tocolysis, call back the PIPER Perinatal consultant immediately, as in utero transfer may no longer be a safe option.

While extremely preterm infants are significantly advantaged by being born in a tertiary centre after a successful in utero transfer, delivery in transit is to be avoided as it will seriously compromise the infant. The PIPER Perinatal on-call consultants are all senior clinicians, and will be assisted in determining the safety of a particular transfer by receiving timely and accurate information from referring clinicians, as well as input from the duty PIPER Neonatal consultant. If transfer is not considered feasible, PIPER Neonatal will provide neonatal support and retrieval.

Use of magnesium sulphate as prophylaxis against cerebral palsy

While there is evidence that pre-birth administration of magnesium sulphate reduces the incidence of cerebral palsy in surviving extremely premature infants, it is NOT recommended that this be administered prior to in utero transfer.

- the concurrent use of nifedipine and magnesium sulphate may result in profound maternal hypotension
- safe continuation of the magnesium sulphate infusion can be problematic during ambulance transfer and
- in many cases, after tocolysis birth may not occur for days/weeks.

After discussion with the Directors of the three tertiary maternity services, it has been agreed that use of magnesium sulphate will be deferred until the patient has arrived at the tertiary centre and been assessed there.

The exception could be in those cases where in utero transfer has been deemed inappropriate due to labour progressing, and birth is intended to occur at the peripheral maternity unit, where it MAY be feasible to administer magnesium sulphate. But note that in most cases, nifedipine tocolysis will be continuing, in order to slow labour and increase the likelihood of the PIPER Neonatal retrieval team arriving before or very soon after birth, so magnesium sulphate will remain relatively contra-indicated. Please discuss on a case-by-case basis with the PIPER Perinatal consultant.

5. Reference


Other Readings

### 6. Contacts

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