Opinion paper

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Management of prelabour rupture of membranes (PROM) at term

Abstract: Over a 20-month period we identified several cases of neonatal pneumonia associated with prelabour rupture of membranes (PROM) at term. PROM complicates 8%–10% of all pregnancies, yet 60% of cases occur at term. Ascending infection is a contributing factor and the incidence of chorioamnionitis in these patients is relatively high, especially with prolonged membrane rupture. The signs and symptoms NICE recommends patients look out for are not always present as the majority of infections are subclinical, yet associated maternal and neonatal morbidity of chorioamnionitis is potentially devastating. A survey of maternity units in the West Midlands reveals significant variance in management of these cases. Given the lack of consensus and clear evidence on optimal management of PROM at term, we believe early detection of developing infections could be enhanced by using a combination of investigations (at presentation, 12 and 24 h), as well as current advice to self-monitor temperature and vaginal loss.

Keywords: Chorioamnionitis; prelabour rupture of membranes at term.

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Over a 20-month period at Walsall Manor hospital we received 647 women with prelabour rupture of membranes (PROM), associated with seven cases of neonatal congenital pneumonia [of which two had Group B streptococcus (GBS) positive skin swabs]. PROM ranged from 12 to 45 h until delivery, either spontaneous, induced, or caesarean section (for foetal distress). There were no maternal symptoms or pyrexia. These cases resulted in the analysis of whether our management was evidence based.

Current National Institute for Health and Care Excellence (NICE) (UK) guidelines on management of term PROM recommend 24 h of expectant management followed by induction [17]. Antibiotics should not be prescribed even if PROM is prolonged. Women should self-monitor, and if pyrexial, feeling unwell, or the colour or smell of their vaginal loss changes/becomes offensive, they should seek medical attention. A high vaginal swab (HVS) should not be offered. A telephone survey of the 18 maternity units in the West Midlands revealed differing practice. Nearly a third used IV benzyl penicillin to treat women with PROM of 18–24 h. The other two that routinely used antibiotics did so at 48 h. Only ten units induced at 24 h, with the rest varying between offering it at time of ROM to 96 h later. This reveals a significant discrepancy from NICE guidelines, and general variance in management of PROM at term.

Therefore, what does the evidence say? PROM complicates 8%–10% of all pregnancies, yet 60% of cases occur at term [7, 8]; 79%–95% of women will labour spontaneously within 12–24 h [6]. Incidence of chorioamnionitis in these women is 6%–10%, but as high as 40% with prolonged rupture (>24 h) [19]. Chorioamnionitis is typically as a result of ascending bacterial infection from the genital tract, usually in the presence of ruptured membranes, for which it is considered a contributing factor. The inflammatory response results in prostaglandin release, “ripening” of the cervix, and labour.

Chorioamnionitis can be clinical, or subclinical/histological, which is defined as tissue infiltration by neutrophils, macrophages, and lymphocytes, resulting in clinical signs of inflammation but beginning earlier with production of chemotactic signals. Therefore absence of clinical signs does not mean lack of inflammation/infection. In fact, the majority of cases are subclinical, with detection of amniotic microbial invasion in 30% of women with term PROM, lending weight to the theory of a causative link between the two [19].

Maternal sequelae of chorioamnionitis include increased risk of caesarean section, wound infection, bacteraemia, and postpartum haemorrhage [13, 15, 20]. For the baby, prolonged rupture of membranes is a major risk factor for early onset neonatal sepsis, which, if untreated, has mortality as high as 50% [3]. Rates of neonatal infections in PROM is 2%–3%, which is ten times higher than in normal deliveries but this figure doubles
in cases of chorioamnionitis [9]. Other neonatal complications include depressed APGAR scores, IVH, and neonatal encephalopathy [2, 12, 22].

There is strong evidence linking PROM with chorioamnionitis and subsequent neonatal morbidity. A Cochrane review of trials including patients with PROM but otherwise uncomplicated pregnancies compared planned to expectant management and found that women in the former group had a significantly shorter delay from PROM to delivery, corresponding to a reduced risk of developing chorioamnionitis [6]. Secondary analysis showed association between longer time periods from membrane rupture to delivery and a higher incidence of neonatal infection. Secondary analysis of data from the International Multicentre Term Prelabour Rupture of Membranes Study found duration of active labour to be the strongest independent predictor of clinical chorioamnionitis [21].

Therefore, patients with PROM at term are at increased risk of chorioamnionitis. Even with induction at 24 h, delays occur as a result of obstetric emergencies, patients refusing induction, and others with prolonged labour. Furthermore, the true burden of disease is hidden due to relatively higher rates of subclinical chorioamnionitis, which would not be picked up by self-monitoring. The UK does not have a GBS screening program. Up to a third of women have vaginal colonisation, which is an independent predictor for chorioamnionitis [21], and their babies are at a 25-fold higher risk of early onset GBS sepsis [6]. By the time women deliver, PROM may have exceeded the 18 h stated in the Royal College of Obstetricians and Gynaecologists (RCOG) guideline as a risk factor for early onset neonatal GBS sepsis (2.0–8.7 fold increased risk) [17].

Given the above, what is the “right” answer? Some units have a policy of routine IV antibiotics once PROM is prolonged, however, as ROM is in itself an indication for the presence of infection, is it wise to wait until rupture is prolonged before intervening? Given the lack of consensus and clear evidence on optimal management, we believe early detection of developing infections could be enhanced by using a combination of investigations along with current advice to self-monitor temperature and vaginal loss [11, 16]. These would involve a speculum examination at presentation to verify ROM, high vaginal swab (although not helpful in the acute setting, results could guide antibiotic therapy if subsequent neonatal infection develops), blood infection markers (C-reactive protein and differential white blood cell counts) [14, 18], observations (heart rate, temperature) [10], and cardiotocography (CTG) [1, 5]. Relevant investigations can be repeated at 12 and 24 h when the woman presents for induction, if she has not yet spontaneously laboured. If introduction of such guidelines could be shown to reduce incidence of neonatal infections secondary to chorioamnionitis as a result of early detection and appropriate management, an update to NICE guidelines may ensure a more uniform management of women with term PROM.

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References


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