

## **Abstract**

### **Microbial flora of high vaginal swabs in pregnant mothers with premature rupture of membranes (PROM) and the effect of PROM on neonates in a tertiary care hospital in Sri Lanka**

#### **Background:**

Premature rupture of membranes (PROM) can cause both maternal and foetal complications with a significant perinatal morbidity and mortality as open membranes provide a path for bacteria to enter into the amniotic cavity causing life-threatening infection which is usually due to ascending flora of the vagina.

#### **Objectives:**

To describe the colonizing aerobic bacterial flora and their antibiotic susceptibility pattern in high vaginal swabs (HVS) in mothers admitted with PROM to Teaching Hospital Mahamodara and the effect of PROM on neonates

#### **Method:**

This is a cohort study conducted at Teaching Hospital Mahamodara from December 2016 to March 2017. The study group included 144 pregnant mothers with clinically confirmed PROM and randomly selected 148 mothers without PROM. HVS were collected from mothers with PROM. Processing of swabs, identification of aerobic bacteria and their antibiotic sensitivity testing were performed according to standard methods. All neonates born to both groups were followed up for one month to detect the development of neonatal sepsis. An interviewer administered questionnaire was used to collect data on selected socio-demographic factors and relevant obstetric data.

**Results:**

A positive culture result was found in 131 (90.97%) specimens. The predominant organism isolated was coagulase negative *Staphylococcus* sp (37.15%). Other organisms that were isolated in HVS were *Staphylococcus aureus* (2.75%), coliform (14.67%), streptococci (15.59%), *Enterococcus avium* (2.29%), *Pseudomonas* spp (2.75%), *Acinetobacter calcoaceticus* (4.12%) and *Candida* spp (10.09%). All bacteria demonstrated sensitivity to the current antibiotics used in PROM. There was a statistically significant difference in infection rates in neonates of PROM mothers (n= 24, 17.4%) compared to that of mothers without PROM (n=5, 3.5%) (p=0.002). The relative risk of getting an infection in neonates of PROM mothers was 4.94 (95%CI = 1.93 - 12.57)

**Conclusions:**

Coagulase negative *Staphylococcus* sp is the predominant colonising flora (37.15%) while other important aerobic flora colonising the vagina of PROM mothers are coliform (14.67%), streptococci (15.59%), *Staphylococcus aureus* (2.75%), *Enterococcus avium* (2.29%), *Pseudomonas* spp (2.75%), *Acinetobacter calcoaceticus* (4.12%) and *Candida* spp (10.09%). There is a strong association observed between PROM and neonatal sepsis. If PROM can be prevented there is 79.7% possibility of preventing neonatal infections.

**Key words:** Premature rupture of membranes, Neonatal sepsis