

# Cervical length and the risk of microbial invasion of the amniotic cavity in women with preterm premature rupture of membranes

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**Objective :** To determine whether sonographically measured cervical length is of value in the identification of microbial invasion of the amniotic cavity in women with preterm premature rupture of membranes and compare its performance with maternal blood C-reactive protein, white blood cell count (WBC), and amniotic fluid (AF) WBC.

**Methods :** This prospective observational study enrolled 66 singleton pregnancies with preterm premature rupture of membranes. Transvaginal ultrasound for measurement of cervical length was performed and maternal blood was collected for the determination of C-reactive protein and WBC at the time of amniocentesis. Amniotic fluid obtained by amniocentesis was cultured and WBC determined. Univariate and multivariate analysis, and receiver operating characteristic (ROC) curves were used for statistical analysis.

**Results :** The prevalence of a positive amniotic fluid culture was 23% (15/66). Patients with positive amniotic fluid cultures had a significantly shorter median cervical length and higher median C-reactive protein and AF WBC, but not WBC, than did those with negative cultures ( $p < 0.05$ ). In the ROC curves, the best cut-off value of cervical length for the identification of a positive amniotic fluid culture was 28 mm, with a sensitivity of 80% and a specificity of 67%. Logistic regression analysis using cervical length, AF WBC, and C-reactive protein as explanatory variables indicated that cervical length had the best relationship with the log odds of a positive AF culture (odds ratio 0.6, 95% confidence interval 0.4 to 1.0,  $p = 0.053$ ).

**Conclusion :** Transvaginal sonographic measurement of cervical length is valuable in the identification of microbial invasion of amniotic cavity in women with preterm premature rupture of membranes. Cervical length performs better than AF WBC, maternal blood C-reactive protein and WBC in the identification of a positive amniotic fluid culture.