

Dysbiosis of vaginal microbiota associated with increased risk of preterm premature rupture of fetal membrane and chorioamnionitis in singleton gestations with ultrasound-indicated cerclage

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Abstract

Objective: To investigate dysbiosis of the vaginal microbiota related to increased risk of preterm premature rupture of fetal membrane (PPROM) and chorioamnionitis in singleton gestations with ultrasound-indicated cerclage. **Design:** Retrospective observational study. **Setting:** Fujian Maternity and Child Health Hospital. **Population:** 44 singleton gestations with ultrasound-indicated cerclage, including 13 cases of PPRM and 31 cases of normal-term delivery. **Methods:** Composition of the vaginal microbiota was assessed prior to cervical cerclage at 18–24 weeks of gestation, using MiSeq-based 16S rRNA gene sequencing. **Main Outcome Measures:** To characterize the vaginal microbial profile of women who later experienced PPRM and chorioamnionitis. **Results:** Furthermore, the vaginal microbiota of women who later experienced PPRM was relatively enriched with *Streptococcus anginosus* and *Prevotella timonensis* ($P=0.042$, $P=0.032$, respectively), while that of women who later experienced normal-term delivery was relatively enriched with *Lactobacillus*. Further, enrichment for *Prevotella* was noted in patients diagnosed with chorioamnionitis in the PPRM group (6 of 13, 53.8%), which was absent in women with normal histology in the PPRM group ($P=0.012$). **Conclusions:** Together, these results indicate that dysbiosis of the vaginal microbiota is a risk element for subsequent PPRM and chorioamnionitis in singleton gestations with ultrasound-indicated cerclage. These findings may contribute to the development of methods to identify pregnancies at high risk for cerclage failure following PPRM. **Funding:** This work was supported by a grant from the Fujian Maternity and Child Health Hospital Innovation Project (YCXZ 18-21). **Keywords:** Vaginal microbiota, PPRM, chorioamnionitis, ultrasound-indicated cerclage, *Prevotella*.

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