Successful eradication of group B Streptococcus in intra-amniotic infection in preterm PROM
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Objective
Intra-amniotic infection, a major cause of the preterm labor syndrome, is a risk factor for neonatal morbidity and mortality as well as long-term handicap. The conventional view has been that intra-amniotic infection cannot be successfully treated. Yet, recent evidence suggests that intra-amniotic infection can be treated successfully with antimicrobial agents. We report herein a case with preterm PROM who had Streptococcus Group B intra-amniotic infection at 28 weeks of gestation in which the administration of antibiotics has led to a resolution of intra-amniotic infection and prolong pregnancy. When the antibiotic regimen was initiated, the maternal white blood cell count (WBC) and C-reactive protein concentration were elevated, but normalized seven days later during treatment. A 35-year-old, gravida 1 at 28 weeks of gestation, presented with preterm PROM to the delivery unit. Ultrasound examination showed normal fetal anatomy with estimated fetal weight of 1,308 g and her amniotic fluid index was 8.5 cm. Transvaginal ultrasound showed a cervical length of 22.6 mm. The patient had an elevated white blood cell count (WBC 18,580 cells/µl; normal 5,600-15,000 cells/µl) and an elevated C-reactive protein level (CRP, 10.5 mg/L; normal 0.15-1.5 mg/L). Antenatal glucocorticosteroid treatment was administered to promote fetal lung maturity and tocolytic agent (beta 2 agonist) was given. Since preterm PROM is associated with intra-amniotic infection and intra-amniotic inflammation, the patient was counseled and offered a diagnostic amniocentesis.

Methods
The amniotic fluid was clear yellowish in color but not malodorous. The amniotic fluid analysis showed a WBC count of 167 cells/mm3 (polymorphonuclear 70%, mononuclear 30%). Amniotic fluid culture and 16S rRNA PCR consistently showed Streptococcus agalactiae. Rectovaginal swab culture also demonstrated Streptococcus agalactiae. Therefore, the patient was diagnosed with intra-amniotic infection. Since she was remotely from term gestation and we performed extensive counselling of benefit and risk of delivery versus antibiotic treatment. The patient opted antibiotic treatment with repeat amniocentesis. We administered triple antibiotics (ceftriaxone, clarithromycin, and metronidazole). During the 2 weeks, the patient had no uterine contraction and no sign or symptom of chorioamnionitis. Her CBC and CRP were normalized seven days after the initiation of antimicrobial treatment (WBC 13,340 cells/µl, CRP 4.49 mg/L). Amniocentesis was repeated (at 29 3/7 weeks of gestation) to assess the resolution of Group B streptococcus intra-amniotic infection and amniotic fluid showed yellowish color with WBC count of 315 cells/mm3 (polymorphonuclear 86%, mononuclear 14%). Amniotic fluid culture and 16S rRNA PCR showed no bacteria. Rectovaginal swab for GBS was also negative. Since GBS intra-amniotic infection was eliminated, we performed expectant management and close monitoring with the aim to delivery at 34 weeks of gestation.

Results
At 32nd weeks of gestation (33 days after the onset of preterm PROM), the patient suddenly developed a several spikes of fever (38.9-39°C). Physical examination showed maternal tachycardia (pulse rate 120 per min) but no uterine contraction or tenderness. External fetal heart rate monitoring showed fetal tachycardia (180 beat per min) with moderate variability. Maternal WBC and CRP was elevated to 24,170 cells/µl and 7.62 mg/L, respectively. Therefore, the diagnosis of preterm PROM with clinical chorioamnionitis was made. Clindamycin and gentamicin were given to the patient for the treatment of clinical chorioamnionitis and cesarean delivery was performed due to unfavorable cervix. A female neonate was delivered with Apgar scores of 10 and 10 at 1 and 5 minutes after delivery, respectively; the birthweight was 2,080 grams.

Conclusion
The main message of this report is that the administration of antibiotics can eliminate Group B streptococcus (GBS) intra-amniotic infection and prolong pregnancy in women presented with preterm PROM. The resolution of Group B Streptococcus in the amniotic fluid was confirmed by both cultivation and molecular microbiologic technique (16S rRNA Sanger sequencing).