FOLEY CATHETER PLACEMENT FOR INDUCTION OF LABOR IN THE SETTING OF RUPTURED MEMBRANES

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BACKGROUND
Cervical ripening agents aid in the softening and dilating of the cervix during the induction of labor.
- Non-Mechanical: prostaglandins, Pitocin
- Mechanical: laminaria, Foley catheter, extra-amniotic saline infusion

Foley catheters are a safe and effective cervical ripening agent in women with intact membranes.
- Advantages: simplicity of use, low cost, reversibility and decreased risk of systemic or serious side effects

Safeguard of mechanical methods for induction of labor in the setting of premature ruptured of membranes (PPROM) are not well studied.
- Preterm PROM (≥37 weeks) and PROM (≥37 weeks) complications approximately 5% and 8% of all pregnancies in the United States, respectively.
- Labor induction is recommended with PPROM ≥34 weeks of gestation.
- Risks of preterm birth and its complications have better prognosis with labor induction when compared with expectant management until term.

Several studies including large randomized control trials concluded important management of PPROM or PROM is associated with increased risk of:
- Chorioamnionitis
- Postpartum fever
- Longer hospital stay
- Longer NICU admissions

OBJECTIVE
Our case series aimed to discuss the maternal and neonatal outcomes of women at or beyond 34 weeks’ gestation with ruptured membranes who received a Foley catheter for labor induction and to contribute to the current evidence.

METHODS
Retrospective chart review of women ≥16 years of age who presented to an Aurora Health Care facility with ruptured membranes from January 2011 through March 2016 were included.

Inclusion criteria further required women to have:
- Singleton pregnancy at or beyond 33 completed weeks of gestation
- Patients were excluded if they did not have a Foley catheter placed in the state of ruptured membranes.

Patient medical records were obtained and further reviewed through our electronic medical records.
- Following chart review in EPIC, we identified that many of the patients did not have a Foley catheter placed in the state of ruptured membranes.
- Out of the 73 patients identified with Foley catheter placement, only 7 patients had a Foley catheter placed in the state of ruptured membranes.
- The majority of patients had a Foley catheter placed in the setting of intact membranes who then inadvertently underwent rupture of membranes and the Foley catheter was removed.
- Therefore, our study warranted a case series.

RESULTS
- Of the 7 patients who met inclusion criteria, 6 (85.7%) delivered within the same hospital.
- Women were of mean age 30.5 years, with mean body mass index of 30.8 kg/m² and gestational age 37.8 weeks.
- Women were predominantly White non-Hispanic (85.7%) and married (57.4%).
- None had a history of diabetes, hypertension or anemia this pregnancy. However, one patient ultimately met criteria for gestational hypertension during labor.
- Only one patient was diagnosed with PPROM and required early admission to the hospital prior to the induction of labor.
- All others (85.7%) were diagnosed with PROM at term.

Table 1: Maternal characteristics at the time of delivery
- One patient was positive for group B Streptococcus (GBS) and ultimately met criteria for chorioamnionitis.
- All women sought prenatal care.
- Following induction of labor, 57.4% of women delivered vaginally.
- The average length of labor was 9.0 hours and the average length of stay was 3.4 days.

Table 2: Labor characteristics
- Neonates were predominately female (57.4%).
- All newborns had APGAR scores ≥8 at 1- and 5-minutes.
- Mean birth weight was 3.066 grams.
- One neonate was admitted to the NICU for 7.9 days due to prematurity.
- No neonatal infection noted complicating the admission.

Table 3: Neonatal characteristics
- Gestational age (GA) at delivery:
  - Term: 40 weeks
  - Preterm: 37 weeks
- Birth weight:
  - Mean: 3,211.406 kg
  - 3rd quartile: 2,959 kg
- APGAR scores at 1 and 5 minutes:
  - Mean: 9.21
- Neonatal admission:
  - NICU: 17.57%
- Other outcomes:
  - NICU admissions: 17.57%
- Gestational age at delivery:
  - Mean: 39 weeks
  - 3rd quartile: 40 weeks

CONCLUSIONS
Similar to other studies, our case series suggested that the use of Foley catheter for cervical ripening in the state of ruptured membrane is safe and effective.

We hope that our case series encourages randomized prospective clinical trials that will further investigate the complications of Foley catheter placement in the state of ruptured membranes, specifically as it relates to:
- The rate of intrapartum infection when compared to other induction methods
- The correlation between positive GBS status and Foley catheter placement
- The effectiveness of Foley catheters as a cervical ripening agent for the induction of labor in PPROM for gestational ages ≥34 weeks

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