Premature Rupture of Membranes

Gregory L. Goyert, MD
Division Head, MFM
Women's Health Services
HFHS

Premature Rupture of Membranes
PROM

- PROM
  - Ruptured membranes prior to labor
- Preterm PROM
  - Ruptured membranes prior to 37 weeks
- Keys to appropriate management
  - Accurate gestational age assessment
  - Dynamic, intensive maternal & fetal assessment

PROM Etiology

- Intraamniotic infection
- Preterm contractions
- Low socioeconomic status
- 2nd/3rd trimester bleeding
- Low BMI
- Copper/zinc deficiencies
- Connective tissue disorders
- Cigarette smoking
- Uterine overdistension
- Pulmonary disease
- Amniocentesis
- Short CL
- Cervical conization
- Cerclage
- History prior PTD
- No identifiable risk factors
PROM after Midtrimester Amniocentesis

- Outcome much better than after spontaneous preterm PROM
- Risk after amniocentesis 1-1.2%
- Attributable risk of pregnancy loss 0.06%
- Typical clinical course is resealing with restoration of normal amniotic fluid volume

PROM Diagnosis

- History and Physical
  - Speculum examination, not digital unless
    - Active labor is obvious
    - Imminent delivery is planned
  - Confirmed by visualization of fluid per os
  - Ferning
    - Vaginal secretion pH assessment-Nitrazine
      - Basic if amniotic fluid
      - False positives with blood, semen, bacterial vaginosis
  - Ultrasound for amniotic fluid volume
    - Instillation of indigo carmine dye
PROM Diagnosis

- **AmniSure**
  - Placental alpha-microglobulin-1 (PAM-1) assay
  - Concentration in AF 1k-10k higher than vagina
  - Prospective observational study 184 patients
    - Sensitivity 98.7%; specificity 87.5%
    - Positive PV 98.1%; negative PV 91.3%
    - Cost: $55/test kit
- **ROM +**
  - Placental Protein 12 (PP12) and Alpha-fetoprotein (AFP)
  - Similar/better performance than AmniSure
    - Cost: $35/test kit
  - Not recommended for routine use at term

Initial Management PROM

- Confirm gestational age, presentation, fetal status
- Delivery indicated regardless of gestational age
  - Evident intrauterine infection
  - Abruption
  - Fetal compromise
- **PROM at term**
  - Labor induction
  - GBS prophylaxis based on prior culture/risk factors
  - Decreased risk chorioamnionitis, postpartum endometritis, neonatal antibiotic therapy

Expectant Management Preterm PROM

- Proceed with delivery at or beyond 34 wks
  - It is assumed that patients with preterm PROM will benefit from betamethasone in the late preterm period
- 23-34 weeks, manage expectantly
  - Inpatient management
  - Frequent maternal/fetal surveillance
    - Daily fetal testing
    - Maternal fever, tachycardia, uterine tenderness
  - Initial AFV and CL, in isolation, not useful
  - Specific recommendations for or against tocolysis with preterm PROM cannot be made
    - Conflicting data
      - Longer latency, increased risk of chorioamnionitis
    - Therapeutic usage not recommended
Expectant Management Preterm PROM

Corticosteroid administration
- Single course for patients 23-34 weeks
  - Reduced risk RDS, IVH, NEC, mortality
- Utility of rescue course of BMZ
  - Insufficient evidence to make a recommendation for or against
- It is assumed that patients with preterm PROM will benefit from betamethasone in the late preterm period

Adjunctive antibiotic therapy
- Widely studied and debated
- NICHD-MFMU Research Network 1997
  - Intravenous ampicillin/erythromycin 48 hours
  - Followed by oral amoxicillin/erythromycin 5 days
  - Decreased risk chorioamnionitis, increased latency
  - Reduced risk RDS, NEC, and PDA
- Intrapartum GBS prophylaxis indicated regardless of prior antibiotic therapy
  - Oral erythromycin/extended spectrum amoxicillin-clavulanic acid not beneficial, may be harmful, not recommended

After viability, safety of expectant management at home not established
- Hospitalization with MF surveillance recommended
- No controlled studies have found cerclage retention or removal after PROM improves outcome
- Either removal or retention is reasonable
- With active HSV, expectant management with antiviral therapy may be preferable
  - Need to balance against risk of prematurity
  - Literature does not show increased risk neonatal HSV
Expectant Management Preterm PROM before Viability

- Accurate, current outcomes information crucial
  - Rapidly evolving landscape
  - Perinatology.com
- Extremely Preterm Birth Outcome Data
- No evidence-based guidelines
  - Initial period of inpatient monitoring
  - Delivery should be offered
  - Early identification of infection or abruption
  - Monitor temperatures at home
  - Readmit to hospital at viability
- Corticosteroids and latency antibiotics

Percentage Survival by Gestational Age
Percentage with severe or moderate disability by gestational age among surviving newborns

ACOG/SMFM Obstetric Care Consensus
November 2015

ACOG Practice Bulletin #172 October 2016
PROM Management
Overview

- Early Term and Term: 37 weeks and beyond
  - Proceed to delivery
  - GBS prophylaxis as indicated
- Late Preterm: 34-37
  - Same as for Early Term and Term
  - Consider course of betamethasone
- Preterm: 23-34 weeks
  - Expectant management
  - GBS prophylaxis
  - Single course corticosteroid
  - Consider rescue course
  - Antibiotics to prolong latency
  - Magnesium sulfate for neuroprotection at < 32 weeks at delivery

ACOG Practice Bulletin #172 October 2016
PROM Management
Overview

- Preivable Gestations: < 23 weeks?
  - Intensive counseling
  - Expectant management or labor induction
  - Not recommended prior to viability:
    - GBS prophylaxis
    - Corticosteroids
    - Antibiotics (7)
    - Tocolysis
    - Magnesium sulfate for neuroprotection
PROM