Managing Complications of Procedural Abortion

Jennifer Kerns, MD, MPH
Assistant Professor,
Obstetrics, Gynecology and Reproductive Sciences
University of California San Francisco
Complications After First Trimester Abortion
Defining Complication

Major
- Hemorrhage
- Unanticipated surgery
- Infection
- Perforation
- Death

Minor
- Cervical laceration
- Re-aspiration

Side effects
- Excessive bleeding
- Excessive pain
### How do we measure complications?

<table>
<thead>
<tr>
<th>Complication</th>
<th>Ways to measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemorrhage</td>
<td>Transfusion, blood loss &gt; 250cc/ 500cc, % drop in hemoglobin, re-aspiration</td>
</tr>
<tr>
<td>Infection</td>
<td>Fever, antibiotics</td>
</tr>
<tr>
<td>Perforation</td>
<td>Clinical versus surgical diagnosis</td>
</tr>
<tr>
<td>Unanticipated surgery</td>
<td>Laparoscopy, laparotomy, re-aspiration</td>
</tr>
<tr>
<td>Cervical laceration</td>
<td>Chemical cauterization, suture repair</td>
</tr>
<tr>
<td>DIC</td>
<td>Clinical versus laboratory diagnosis</td>
</tr>
</tbody>
</table>
• 14 year old G0 presents for an abortion
• By last menstrual period (LMP), she is 7 weeks, but on exam is 13 week size
• Seen in ER 2 days ago for abdominal pain
• She undergoes counseling and consents for a surgical abortion

• What complications is she at risk for?
• What measures can you take to decrease her risk of complications?
## MM’s Risk for Complications

<table>
<thead>
<tr>
<th></th>
<th>1st trimester medical</th>
<th>1st trimester surgical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td>0.07% (major)</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>0.1 – 0.4% (transfusion)</td>
<td>0.01%</td>
</tr>
<tr>
<td>Infection</td>
<td>0.9%</td>
<td>0.1 – 0.4%</td>
</tr>
<tr>
<td>Perforation</td>
<td></td>
<td>0.1%</td>
</tr>
<tr>
<td>Cervical laceration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retained products</td>
<td>2 – 5% (~8% for 9wks)</td>
<td>0.3 – 2%</td>
</tr>
</tbody>
</table>

References:
- Peterson 1983; Hern 1984; Ben-Ami 2009; Autry 2002; Frick 2010; Paul 2009; Hakim-Elahi 1990
Assessing MM’s Individual Risk

• Pertinent factors for MM
  – Patient age
  – Gestational age (discrepancy between LMP and exam)
  – Experience of the clinicians and staff
  – Symptoms of abdominal pain
# Levels of Evidence

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Randomized controlled trials</td>
</tr>
<tr>
<td>B</td>
<td>Observational studies (cohort, case-control)</td>
</tr>
<tr>
<td>C</td>
<td>Case series or expert opinion</td>
</tr>
</tbody>
</table>
Evidence for Preoperative Measures to Prevent Complications

- **Ultrasound** to confirm gestational age
  (Level B evidence)
  - Especially in training scenarios

- **Cervical preparation**
  (Level C evidence)

**Society of Family Planning**
- Adolescents
- Provider inexperience
- Risk factors for complication from inadequate dilation

Kapp 2012; Allen 2007; Nichols 2002; Fakih 1986; Kapp 2010
Knowing the evidence, what are the next steps?

- Ultrasound to determine gestational age → 10w 2d
  - Same day misoprostol or overnight dilators
  - Equal efficacy and patient satisfaction at 12-15 wks

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**World Health Organization**
- < 18 years old
- Nulliparous, >9 weeks
- All women >12 weeks

**Royal College Obstetrics & Gynaecology (U.K.)**
- < 18 years old
- All women >10 weeks

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Bartz et al. *Obstetrics and Gynecology* 2013
Intra- and Post-operative Measures to Prevent Complications

- Immediate contraception (Level A evidence)
- Antibiotic prophylaxis (Level A evidence)
- Visual inspection of Products of Conception (POC) (Level C evidence)

Prevention Strategies for 1st Trimester Medical Abortion

• Preventing failed abortion
  – No sac on follow-up ultrasound = complete

• Preventing hemorrhage and/or transfusion
  – Pre-procedure hemoglobin
  – Screening for coagulopathy

• Preventing infection
  – Prophylactic antibiotics
  – 7 days Planned Parenthood vs. shorter regimen
Complications After Later Abortion
Abortion-related Mortality

• 0.7 per 100,000 (2007)
• Decrease in overall abortion-related mortality
• For each additional week gestation... 38% increased risk of death
• African-American race = next strongest risk factor

Bartlett et al. Obstet Gynecol 2004
Abortions by Gestational Age

- <12 wks: 91.6%
- 13-15 wks: 3.3%
- 16-20 wks: 3.8%
- 21+ wks: 1.3%

Abortion-related Mortality by Gestational Age

- <12 wks: 61%
- 13-15 wks: 23.1%
- 16-20 wks: 11.6%
- 21+ wks: 4.8%

Pazol et al. *MMWR Surveill Summ* 2011
Bartlett et al. *Obstet Gynecol* 2004
Case 2: BB

• 34 year old G4P2, African-American, 22w 4d by LMP
• 2 prior cesarean sections, BMI 35, fetus with trisomy 18
• Told 2-3 weeks ago that “the baby is not alive”

• What complications is she at risk for?
• What measures can you take to decrease her risk of complications?
## BB’s Risk for Complications

<table>
<thead>
<tr>
<th></th>
<th>2nd trimester medical</th>
<th>2nd trimester surgical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>------------</td>
<td>0.6%</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>&lt;1%</td>
<td>0.8 – 2.1%</td>
</tr>
<tr>
<td>Infection</td>
<td>2 – 3%</td>
<td>0.3 – 0.6%</td>
</tr>
<tr>
<td>Perforation</td>
<td>------------</td>
<td>0.4%</td>
</tr>
<tr>
<td>Cervical laceration</td>
<td>------------</td>
<td>0.1 – 0.8%</td>
</tr>
<tr>
<td>Retained products</td>
<td>2.5 – 10%</td>
<td>0.4 – 2.7%</td>
</tr>
</tbody>
</table>

Risk Factors for D&E Complications

- Poor cervical dilation → Cervical laceration
- Increased gestational age → Bleeding, Mortality
- Abnormal placentation → Fever, Cervical lac, Perforation
- Prior cesarean delivery → Cervical laceration
- Level of training → Perforation
- Black race → Mortality

Peterson et al. 1983; Fox and Hayes 2007; Diedrich and Steinauer 2009; Bartlett et al. 2004
Assessing BB’s Individual Risk

**Pertinent factors in her history**
- Prior cesarean section
- African-American race
- Gestational age
- Possible fetal demise, unknown size

**What additional work-up does she need?**
- Ultrasound for
  - Gestational age
  - Determination of fetal demise
  - Placental location
### Hemorrhage Risk

#### Hemorrhage risk group

**Low risk**
- No prior cesarean sections
- Fewer than two prior cesarean sections and no previa or accreta
- No bleeding disorder
- No history of obstetrical hemorrhage

**Moderate risk**
- ≥2 cesarean sections
- Prior cesarean section and previa
- Bleeding disorder
- History of obstetrical hemorrhage not requiring transfusion
- Increasing maternal age
- Gestational age >20 weeks
- Fibroids*
- Obesity

**High risk**
- Accreta diagnosis or concern
- History obstetrical hemorrhage requiring transfusion
- Any of the “moderate risk” categories may be considered “high risk,” per discretion of the clinician
Preoperative Measures to Decrease BB’s Risk

• Ultrasound (Level B evidence)
  – Gestational age: 21w 6d by BPD
  – Placental location: Fundal
  – Fetal viability: Demised

• Cervical preparation (Level B evidence)
  – Dilators, +/- misoprostol

Intra-operative Measures to Reduce BB’s Risk

**Evidence-based**
- Training
- Vasopressin in paracervical block
- No halogenated anesthetic gases
- Intraoperative ultrasound *(Level C)*
  - In training institutions

**Not evidence-based**
- Prophylactic uterine massage
- Prophylactic uterotonics

Post-operative Measures to Reduce BB’s Risk

- Prophylactic antibiotics
  *(Level A evidence)*

- Prophylactic uterotonic medication
  *(Level C evidence)*

Saway et al. *Obstet Gynecol* 1996  
Cervical Preparation

• For < 20 week procedure, misoprostol alone is acceptable

• For 14-16 weeks...
  – Mifepristone 24 hours prior—SAME AS 1 day of dilators
  – Less discomfort with mifepristone

(But can complete safely as same-day procedure)
Prevention Strategies for 2nd Trimester Medical (Induction)

Shortening the time to delivery
- Mifepristone/ Misoprostol
- Mife 200mg → 800mcg miso vaginal → then 400mcg q4h vaginal or sublingual (SL) (faster delivery than oral)

Delivering the placenta
- RCT : 10mU IM oxytocin
- Cochrane: SL nitroglycerin after oxytocin fails – decreases manual removal and blood loss
When Things *Still* Go Wrong

- Keep your differential broad & be humble
- Enlist support/ help
  - Talk to the RN, call in another attending
- Think through future steps
  - E.g., if this doesn’t work, then I’ll...

- Look with ultrasound
- Get good exposure
- Assistance – extra hands
- Cannula test
Management of Hemorrhage

Assessment
- Cervical laceration
  - Visual and digital inspection of cervix

Primary treatment
- Repair of cervical laceration
- Uterine massage
- Uterotonics

Secondary treatment
- Resuscitative measures
- Laboratory evaluation
- Re-aspiration
- Balloon tamponade

Tertiary treatment
- Uterine artery embolization
- Laparoscopy
- Laparotomy
- Hysterectomy
Hemorrhage Management

• Cannula test
  – 8 cannula to fundus, slowly withdraw to localize bleeding

• Uterotonic medications
  – Vasopressin
  – Methergine
  – Misoprostol
  – Hemabate
  – Oxytocin

• Balloon tamponade
  – 30cc Foley, filled to 60cc
  – Bakri, max 500cc – typically < 350cc in abortion setting
Management of Cervical Laceration

- Low cervical tears
  - Expectant management (compression)
  - Silver nitrate
  - Ferric subsulfate solution (Monsel’s solution)
  - Suturing

- High cervical tears
  - Compression with ring forceps
  - Monsel’s
  - Balloon tamponade
  - Angiographic embolization
Management of Perforation

• Identifying the perforation

• Evaluation of the patient... stable or unstable?
  – Serial CBCs
  – Serial exams
  – Initial/serial imaging

• Surgical management
  – Laparoscopy – appropriate if small
  – Laparotomy – unstable patient, large injury, ability to run the bowel
Management of the Team

- **Call a colleague** in the moment
- **Call a colleague** after the moment
- **Debrief** with the team
  - What happened?
  - What went well?
  - What could have gone differently?
  - Be a leader with the clinical team
- **Expect** complications and be prepared
Conclusion

- Complications after 2\textsuperscript{nd} trimester abortion are rare
- Individualized preparation is important
- Unanswered questions
  - Effect of prophylactic uterotonics
  - Optimal cervical preparation