

Mortality and morbidity following second trimester abortion

Daniel Grossman, MD

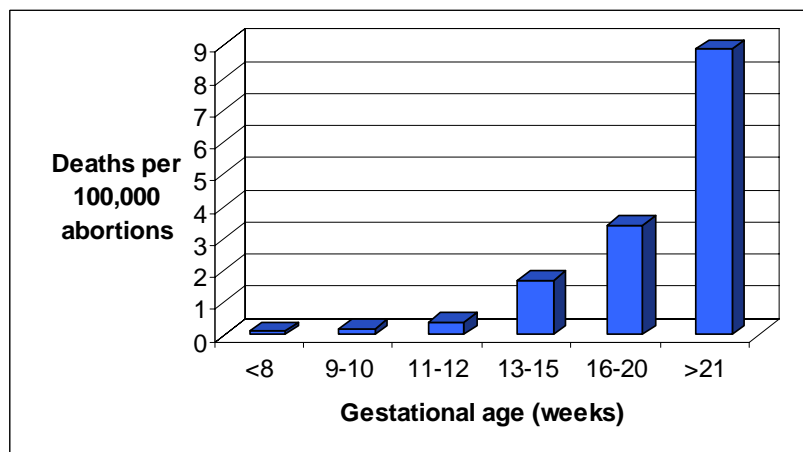


ICMA Conference
March 30, 2007

Objectives of presentation

- Review mortality data related to second trimester abortion in safe and unsafe settings
- Review the serious complications associated with D&E and medical induction
- Briefly discuss techniques to prevent and treat these complications

Abortion-related mortality United States, 1988-1997



Bartlett, et al., *Obstet Gynecol* 2004

Morbidity and mortality in other settings

- Benin City, Nigeria, 1973-1984
 - Retrospective review of all maternal deaths (n=165)
 - 37 abortion-related deaths
 - 59.4% of abortion deaths were induced in second trimester
- Russian Federation, 1999
 - Abortions at 13-27 weeks accounted for 6.6% of all abortions but 76% of abortion-related deaths

Unuigbo, et al., *IJGO* 1988

Zhirova, et al., *SFP* 2004

Data limitations

- Mostly retrospective case series
- No prospective comparison between surgical and medical abortion
- Published data on medical induction complications involves smaller cohorts
- Many of the reports are from 1990 or earlier

Complications related to second trimester abortion

- Uterine perforation
- Uterine rupture
- Hemorrhage
- Cervical laceration
- Infection
- Anesthetic complication

Comparing complications between medical and surgical abortion

Table II. Comparison of complication rates among medical and surgical study subjects

Complication	Medical (n = 158)	Surgical (n = 139)	P value
Patients with any complication	45 ± 28.5	5 ± 3.6	<.001
Failed initial method*	11 ± 7.0	0 ± 0	<.01
Hemorrhage with transfusion*	1 ± 0.6	1 ± 0.7	NS
Infection with intravenous antibiotics*	2 ± 1.3	0 ± 0	NS
Retained products of conception†	33 ± 20.9	1 ± 0.7	<.001
Cervical laceration with repair*	2 ± 1.3	3 ± 2.2	NS
Organ damage*	2 ± 1.3	0 ± 0	NS
Hospital readmission*	1 ± 0.6	1 ± 0.7	NS

Values are given as mean ± SD. All analyses, other than those noted, were by χ^2 for difference of proportions. NS, Not significant.

*Fisher exact test used.

†Requiring dilation and curettage for medical abortions or reoperation for surgical abortions.

Uterine perforation and uterine rupture

Perforation with D&E

■ Incidence of perforation

- 43/11,747 (0.4%), Washington, DC, 1972-81¹
- 2/439 (0.5%), Vietnam, 1999-2002²
- 5/2,218 (0.2%), U.S., 2002-2003³

■ Factors associated perforation⁴⁻⁶

- Underestimating gestational age
- Not using ultrasonography
- Inadequate cervical dilation
- Lower level of training

1. Peterson, et al., Obstet Gynecol 1983
2. Castleman, et al., Contraception 2006
3. Patel, et al., Contraception 2006
4. Darney, et al., Obstet Gynecol 1990
5. Darney & Sweet, J Ultrasound Med 1988
6. Grimes, et al., JAMA 1984

Complications of perforation

- Larger instruments make larger defect in uterus and increase risk of intra-abdominal hemorrhage
 - Grasping instruments can damage bowel, bladder, vascular structures
 - Diagnosis
 - Awake patient complains of upper abdominal pain
 - Observe instrument (or fetal parts) outside of uterus on ultrasound
 - Observe omentum or bowel at cervix or in specimen
 - If suspected, can try to place blunt uterine sound through suspected perforation site
 - Management:
 - Laparotomy with repair or hysterectomy, bowel exploration
 - IV antibiotics
- Darney, et al., 1996

Uterine rupture with medical abortion

■ Case reports

- Reported among women with and without history of prior cesarean section¹

■ Two retrospective observational studies do not indicate increased risk with prior cesarean²⁻³

■ Largest case series with mife-miso at 13-21 weeks³

- 1 partial rupture requiring laparotomy and repair among 999 cases (0.1%)

1. Daskalakis, et al., BJOG 2005
2. Dickinson, Obstet Gynecol 2005
3. Ashok, et al., Contraception 2004

Hemorrhage

Hemorrhage and D&E

- Normal blood loss : 100-400 mL
- Factors that decrease blood loss
 - Use of local anesthesia
 - Rapid evacuation of uterus
 - Use of vasopressin in paracervical block

Schulz, et al., Lancet 1985

- Factors that increase blood loss
 - Use of general anesthesia
 - More advanced gestational age
 - Prolonged operating time
 - Placenta previa and accreta

Peterson, et al., Obstet Gynecol 1983; Thomas, et al., Obstet Gynecol 1994; Rashbaum, et al., Obstet Gynecol 1995

Blood transfusion

- Excessive bleeding noted in 1.4% of D&E cases¹
- Blood transfusion
 - 5/2,218 (0.2%) D&E cases²
 - 7/999 (0.7%) medical induction with mife+miso³
 - No significant difference in risk of transfusion in retrospective cohort study (0.6%-0.7%)⁴

1. Peterson, et al., Obstet Gynecol 1983
2. Patel, et al., Contraception 2006
3. Ashok, et al., Contraception 2004
4. Autry, et al., AJOG 2002

Causes and treatment of hemorrhage during second trimester abortion

Uterine atony

- Poor uterine tone
- Treatment
 - Uterine massage
 - Uterotonic agents
 - Methylergonovine 0.2 mg IM
 - Oxytocin infusion
 - Prostaglandins
 - Uterine tamponade
 - Intrauterine Foley balloon
 - Uterine artery embolization
 - Laparotomy with surgical treatment

Cervical laceration

- May occur during extraction of fetal bony parts, especially if cervix not adequately dilated
- Can occur with surgical or medical abortion
- Cervical laceration requiring repair
 - 125/11,747 (1%) D&E cases¹
 - 3/2,218 (0.1%) D&E cases (9 observed only)²
 - No significant difference in risk of cervical laceration in retrospective cohort study (1%-2%)³

1. Peterson, et al., Obstet Gynecol 1983
2. Patel, et al., Contraception 2006
3. Autry, et al., AJOG 2002

Other causes of hemorrhage

- Retained products of conception
 - Significantly more common with medical induction¹
 - Repeat procedure necessary in 22/11,747 (0.2%) D&E cases²
- Coagulopathy
 - More common with saline instillation than D&E³
 - More common with abortion after fetal death⁴

1. Autry, et al., AJOG 2002
2. Peterson, et al., Obstet Gynecol 1983
3. Kafriksen, et al., AJOG 1983
4. Darney, et al., 1996

Infection

- Approximately 1-2% of surgical abortions complicated by infection
- Infectious complications much more common in unsafe settings¹
- Antibiotic prophylaxis significantly reduces risk of infection (RR 0.58, 95% CI 0.47-0.71)²

1. Unuigbo, et al., IJGO 1988
2. Sawaya, et al., Obstet Gynecol 1996

Incidence of infection

- Of 10,348 D&E cases with follow-up¹
 - Fever: 81 (0.8%)
 - Hospitalization for infection: 6 (0.05%)
- Of 2,218 D&E cases²
 - 2 cases of fever not requiring intervention
 - 1 case of sepsis/DIC/death
- Medical induction: 8 of 354 (2.6%) who attended follow-up after mife+miso required antibiotics³
- No significant difference in risk of infection needing IV antibiotics in retrospective cohort study (0%-1%)⁴

1. Peterson, et al., Obstet Gynecol 1983
2. Patel, et al., Contraception 2006
3. Ashok, et al., Contraception 2004
4. Autry, et al., AJOG 2002

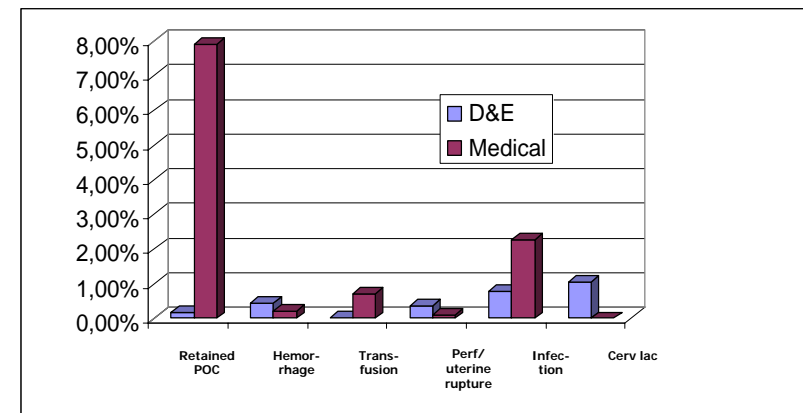
Other complications

Other complications after D&E

- Anesthetic complications
 - 3/11,747 (0.03%) D&E cases had significant complication associated with paracervical block
 - Mild convulsive episode (2)
 - Cardiac arrest (1)
- Long-term complications
 - No evidence of infertility if no infection and abortion complete
 - No increased risk of preterm delivery

Chasen, et al., AJOG 2005; Kalish, et al., AJOG 2002;
Schneider, et al., Obstet Gynecol 1996; Darney, et al., 1996

Comparison of complications



Peterson, et al., Obstet Gynecol 1983; Ashok, et al., Contraception 2004