Medical Abortion- Overview of the Clostridium infections and American practice

Mary Fjerstad, NP, MHS
Senior Clinical Advisor
Ipas
Context

These data were collected when I worked for Planned Parenthood Federation of America.

The global context is not the same as the US context since there have been no reports of infection-related deaths outside the U.S.

Review of quality data is local to your population.
Clostridia sordellii

*Clostridium sordellii* is a gram-positive anaerobic spore-forming Bacillus that typically resides in soil. It colonizes the gastrointestinal and genital tracts of approximately 0.5% of healthy humans.

Immediately after childbirth or abortion, the rate of *C. sordellii* colonization may be as high as 29%.¹

Clostridium sordellii

The virulence and clinical manifestations of *C. sordellii* are determined by two cytotoxins: lethal toxin and hemorrhagic toxin.

Some *C. sordellii* strains are more lethal than others.
Fatal Toxic Shock Syndrome associated with *Clostridium sordelli* after medical abortion in the U.S.

- 8 deaths in the U.S. (4 from California)
- Young, previously healthy women; death within 7 days after medical abortion (one case after 12 days)

Cohen et al. *Obstet & Gynecol* 2007, 1027-1033
Ho et al. *Am J Obstet & Gynecol* 2009, 459e1-7
<table>
<thead>
<tr>
<th>Organism</th>
<th>misoprostol route</th>
<th>antibiotics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>C. sordellii</em></td>
<td>vaginal</td>
<td>no</td>
</tr>
<tr>
<td>2. <em>C. sordellii</em></td>
<td>vaginal</td>
<td>no</td>
</tr>
<tr>
<td>3. <em>C. sordellii</em></td>
<td>vaginal</td>
<td>no</td>
</tr>
<tr>
<td>4. <em>C. sordellii</em></td>
<td>vaginal</td>
<td>no</td>
</tr>
<tr>
<td>5. <em>C. perfringens</em></td>
<td>vaginal</td>
<td>no</td>
</tr>
<tr>
<td>6. <em>C. sordellii</em></td>
<td>buccal</td>
<td>no</td>
</tr>
<tr>
<td>7. <em>C. sordellii</em></td>
<td>vaginal</td>
<td>no</td>
</tr>
<tr>
<td>8. <em>C. sordellii</em></td>
<td>vaginal</td>
<td>no</td>
</tr>
</tbody>
</table>
C. Sordellii Fatal TSS

Notable clinical features

- absence of fever and rash
- Woman feels very ill (nausea, vomiting, abdominal pain, diarrhea)
- dramatic leukemoid reaction (WBC 45-120,000)
- marked edema of infected tissues without gas
- Absence of retained POC

Fisher M et al  *NEJM* 2005, 353:22
Toxin cascade causes profound capillary leak syndrome:

Essentially, fluid leaks out of the blood stream through the capillaries. “And all that’s really left are circulating red blood cells and elevated white count”.

Results in:

• Low BP, high hematocrit, tachycardia
• Third-spacing (abdominal pain)
• Adult respiratory distress syndrome
• Multi-organ failure

C. Sordellii Fatal TSS

Transcript of CDC conference May 11, 2006
Rate of Serious Infection at Planned Parenthood Clinics when misoprostol was administered vaginally and no antibiotics were given

Serious infections: 1/1000 (0.1%)

Definition of serious infection:
• Fever with pelvic pain - treated with I.V. antibiotics in ER
• Inpatient admission for treatment of infection
• Sepsis (+ blood culture) or organ removal due to infection
• Death caused by infection

Fjerstad M et al NEJM 2009; 361:145-51
Feasibility of a RCT of antibiotics and serious infection

• PPFA met with scientists for two years
• Formally consulted with CDC
• RCT was not feasible
### Planned Parenthood Changes in Regimen for Medical Abortion

<table>
<thead>
<tr>
<th>Period</th>
<th>1 Jan ’05 – Mar ’06</th>
<th>2 Apr ’06 – Jun ’07</th>
<th>3 Jul ’07 – Dec ’07</th>
<th>4 Jan ’08 – June ’08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misoprostol Route</td>
<td>Vaginal</td>
<td>Buccal</td>
<td>Buccal</td>
<td>Buccal</td>
</tr>
<tr>
<td>Maximum days of gestation</td>
<td>63</td>
<td>56</td>
<td>56</td>
<td>63</td>
</tr>
<tr>
<td>Number of infections/Rate per 1000</td>
<td>67</td>
<td>20</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Infection prevention</td>
<td>No standardized approach- no antibiotics</td>
<td>STI screen and treat or Doxy x7d</td>
<td>Doxy x7d</td>
<td>Doxy x7d</td>
</tr>
</tbody>
</table>

N = 72,195 78,794 33,468 43,366
Rate of Serious Infection

Group 1- STI testing in Period 2

Group 2- antibiotic coverage in Period 2

Switch to buccal
Switch to universal antibiotics

Per Thousand

PERIOD 1 PERIOD 2 PERIOD 3

Vaginal misoprostol Buccal misoprostol
Overall 93% reduction in rate of serious infection

Serious infections per 100,000 abortions

Period 1: Group 1 - 115, Group 2 - 69
Period 2: Group 1 - 45*, Group 2 - 5
Period 3: Group 1 - 11, Group 2 - 0
Period 4: Group 1 - 14, Group 2 - 0
What was the contribution of change in route from vaginal to buccal misoprostol versus antibiotics?

<table>
<thead>
<tr>
<th></th>
<th>Minimum effect</th>
<th>Maximum effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buccal</td>
<td>0%</td>
<td>67%</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>33%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Why have *Clostridium* deaths been reported only in North America?

- Unknown
- Hypothesis that the lethal toxin of *Clostridium* has mutated in North America
Why do Planned Parenthood data show a higher rate of serious infection following medical abortion than previously reported?

• Active surveillance
• Rigorous reporting system
• Clear definition of serious infection
Conclusions

We don’t know if 7 days of doxycycline will prevent a future *Clostridium* death. Gynuity study underway will provide more evidence about *Clostridium* colonization and whether doxycycline is protective.

There has not been a death or surgery to remove infected organ among >310,000 women who have received the new regimen.

Each country/ organization has to analyze its data and provide the regimen they find to be the safest and most effective.

There is no evidence elsewhere in the world that the vaginal route of misoprostol contributes to a higher rate of serious infection or that antibiotics are warranted.