

## Management of Spontaneous Abortion in Family Practices and Hospitals

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**Background and Objectives:** *We performed two retrospective chart surveys, the first of 200 consecutive hospital emergency visits for spontaneous abortion and the second in 33 family physicians' offices examining 245 patients with spontaneous abortions. This study determined the rate of surgical management of spontaneous abortions within family practices and hospitals, as well as the rate of referrals and complications. Methods:* *In the retrospective chart surveys, the information collected included the number of spontaneous abortions, dilation and curettages (D&Cs), referrals, and complications. Results:* *Of the women presenting to the hospitals, 92.5% had D&Cs, while 51% of the women presenting to family physicians had D&Cs. Of the women presenting to the hospitals, 99.5% were referred to gynecologists, compared with 41% of the family practice patients. Hemorrhage occurred in 4.6% of the hospital patients and 2% of the family practice patients. Infection occurred in 6% of the hospital patients and .8% of the family practice patients. Conclusions:* *Patients with spontaneous abortions who saw their family physicians were more likely to be managed conservatively than those seen in the hospitals. There was no increase in complications in the conservatively managed patients.*

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Approximately 15% of pregnancies abort spontaneously.<sup>1</sup> For 50 years, the recommended management of uncomplicated spontaneous abortion has been surgical (dilation and curettage [D&C]). In 1944, a *New England Journal of Medicine* article stated, "Once the abortion has become inevitable or is in the process of happening, treatment becomes a matter of emptying the uterus as quickly and safely as possible."<sup>2</sup> A more recent example of this same approach comes from an article that states that in uncomplicated, inevitable, and incomplete abortions, "Prompt curettage is needed to evacuate the uterus and stop the bleeding."<sup>3</sup>

A review of the literature for the past 20 years revealed no studies showing that such surgical management improved outcome. An observational prospective study by the Ambulatory Sentinel Practice Network (ASPN) in 1988 reported on 171 spontaneous abortions. Forty-nine family physicians managed 40% of spontaneous abortions at home or in the office without surgical evacuation of the uterus, and only

51% had D&Cs. There was no increase in complications in the conservatively managed patients.<sup>4</sup> A case-control study in 1991 compared 68 women who were treated surgically with 46 women treated conservatively and also found no difference in complications.<sup>5</sup> The same trial found both the rate and outcome of subsequent pregnancies to be similar. In a trial published in 1995, Nielson and Hahlin<sup>6</sup> randomized 103 women to either surgical or conservative management for spontaneous incomplete abortions of less than 13 weeks. Within 3 days, 79% of the conservative group had aborted completely. The complication rate was 11% for the surgical group and 3% for the conservative group (nonsignificant difference). There was no difference between the two groups in convalescence time, duration of pain, or blood loss as determined by packed cell volume.<sup>6</sup> It has been shown that complete spontaneous abortions as diagnosed by ultrasound can be safely managed conservatively; none of the 43 patients had excessive bleeding or infection.<sup>7</sup>

Several articles have reported medical management of spontaneous abortion using prostaglandins instead of surgery to evacuate the uterus.<sup>8,9</sup> These cases all involved admission to the hospital, and the side effects of the prostaglandins included vomiting and diarrhea.

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Only three of 23 women aborted within 12 hours of taking 400 mcg of misoprostol orally, and 88 of 141 aborted after three doses. These treatments were not compared with placebo, and since Nielson showed that conservative management was effective in 79% of patients within 3 days, these studies have not proven prostaglandins to be effective.

It is interesting to note that the custom of surgical management of spontaneous abortions began when the incidence of sepsis from criminal abortions was high. Then, as many as one third of women were infected by the time they sought medical care. Now, with the availability of safe, legal abortions, the rate of sepsis is low.

Despite the fact that no evidence exists that surgical treatment confers any benefit, the majority of women seeking medical care for spontaneous abortions in North America are treated surgically. Surgery adds the risks of anesthesia, cervical damage, and postoperative infection. Surgery is more expensive to the health care system and may add emotional trauma to an already traumatic event. Many women experience intense emotional distress during and after spontaneous abortions.<sup>10,11</sup> A British study showed that the majority of women treated in the hospital for spontaneous abortions were dissatisfied with their care.<sup>12</sup>

In the past 3 years, there have been a number of reports of medical abortions induced with methotrexate and misoprostol in women with pregnancies of less than 8 weeks' gestation.<sup>13-16</sup> The surgical aspiration rate for incomplete abortions was 2%–8%. These women were deliberately avoiding surgery and may have been willing to cope with more bleeding and pain than most women. Therefore, they may have a lower rate of surgery than spontaneous abortion patients when managed conservatively.

This study compared the rates of surgical management of spontaneous abortion in hospitals versus family practice offices, as well as the rate of referral to gynecologists, indications for surgery, and complications.

## Methods

We conducted a retrospective chart survey of 100 consecutive hospital emergency visits for spontaneous abortion at each of two Vancouver hospitals, beginning January 1, 1995. Information was gathered on rates of surgery, indications for surgical management, rates of referral, and complications such as hemorrhage and infection.

We conducted a second retrospective chart survey of family physicians' offices of records from all 245 patients with spontaneous abortions seen between January 1, 1994, and June 1, 1995. The same information was gathered in the office-based cases. The principal investigator contacted all 47 family physi-

cians who did more than 20 deliveries the previous year at BC Women's Hospital. Of these 47 physicians, 33 agreed to participate in the study. The most common reason for refusing to participate was having a preponderance of non-English-speaking patients.

In reviewing medical records, inclusion criteria included positive diagnosis of pregnancy by urine or serum beta HCG tests or surgical pathology evidence of pregnancy. Evidence of infection included elevated temperature, use of antibiotics, charted words such as "pelvic inflammatory disease or PID," "endometritis" "fever," etc. Evidence of hemorrhage included a single hemoglobin of less than 90 g/L, a drop of 20 g/L, or charted words such as "hemorrhage" or "excessive blood loss."

In British Columbia, about 95% of the population has government medical insurance. Under this insurance system, a referral from a family physician is required for a visit to a gynecologist. Therefore, almost all women with spontaneous abortions seeking medical care would either see a family physician or go to an emergency department, where they would be treated by a gynecologist. Thus, we are confident that these cases are representative of all cases of spontaneous abortion seen in Vancouver during the study period.

Approval was granted by the Clinical Screening Committee for Research Involving Human Subjects of the University of British Columbia. The sample size was calculated on an approximate D&C rate of 90% in the hospitals in Vancouver. A sample size of 200 in each group gave us >99% power to detect a 20% difference in D&C rates between the hospital and office (family physician) group with a type 1 error of .05%.

## Results

The maternal ages and obstetrical histories were similar in the two groups. However, mean gestational age was lower in the family practice group (Table 1).

### Hospitals

Data from the women presenting to the two hospitals were combined because the women were similar with respect to obstetrical characteristics (gravidity, parity, gestational age). Of the women presenting with spontaneous abortions to the two Vancouver hospitals, 92.5% had D&Cs. In the 200 hospital charts, there were only eight that listed complications (such as hemorrhage or infection) as an indication for surgery. The indications were usually listed as missed abortion or incomplete abortion. All but one of the 200 women were referred to gynecologists. The hemorrhage rate was 4.6%, and the infection rate was 6%. Of the women who presented at less than 8 weeks' gestation, 73.9% had D&Cs (Table 2).

*Family Practices*

The rate of surgery (D&C) was 51%, and the referral rate was 41%. Of the non-referred group, 24.6% had D&Cs; of the referred group, 86.1% had D&Cs. The complication rate (hemorrhage, infection) was 1/100 in the referred women and 5/153 in the non-referred women ( $P=.2$ ). All six complications occurred in women who had D&Cs. The women whose pregnancies were less than 8 weeks' gestation had a 26.4% D&C rate. Thirteen of the 126 women who had surgery had an indication charted (Table 2).

The relative risk (RR) of surgery was 1.82 (95% CI=1.6, 2.07) in the hospital versus family practice. In a stratified analysis, controlling for gestational age and parity, the weighted RR for surgery was 1.64 (95% CI=1.45,1.84) in the hospital versus family practice. The difference in referral rates and incidence of infection was significant (Table 2).

**Discussion**

A retrospective chart survey always has the limitations of nonstandardized charting. Comparing charts of patients in hospital settings to those in family practice settings compounds the problem. The criteria for complications were inclusive; that is, anything that might have possibly been considered a complication was included. Therefore, the rate of complications may be inflated. For example, if a physician placed a woman on antibiotics with no evidence of infection, that woman was coded as having had an infection. On the other hand, some real complications may have occurred but were not charted.

In addition, the two groups may not be comparable. It is likely that the higher complication rate in the hospital patients reflects selection bias rather than response to treatment. Women with the heaviest bleeding, the worst infections, and the most pain may be more likely to go to hospital emergency departments. The infection rate of 6% and hemorrhage rate of 4.6% in the hospital group indicates that most spontaneous abortions are uncomplicated and, therefore, there was no medical indication for most of the D&Cs.

Nonetheless, the fact that complications were rarely listed as an indication for surgery supports the conclusion that these D&Cs were performed as routine care for spontaneous abortions. The findings from the family practice chart survey, in which half of the patients had surgery, confirm the ASPN finding that many family physicians do not invariably perform or refer for D&Cs on patients undergoing spontaneous abortion. Like the ASPN study, our study shows no increase in complications in patients managed conservatively. Although the women referred to gynecologists did not have a higher complication rate, they also had a much higher surgery rate.

Table 1

Demographic and Obstetrical Factors

	Hospital Charts (n=200)	Family Practice Charts (n=245)	P Value
Mean maternal age	31.9 (SD=6.2)	31.9 (SD=5.5)	NS
Mean gestational age	11.1 (SD=3.1)	9.5 (SD=2.8)	$P<.001$
Primigravidae	51 (25.5 %)	70 (28.8 %)	$P=.05$

NS—not significant  
SD—standard deviation

Spontaneous abortion is rarely a medical emergency but almost always an emotional crisis.<sup>10,11</sup> The woman and her partner need information and support to deal with their loss. The family physician is the best person to give that support because he or she has an ongoing relationship with the woman and her family. The family physician can help prevent unnecessary visits to the emergency department, referrals to gynecologists, and surgery.

Findings from Nielson's randomized controlled trial and the information gained from medical abortion patients indicate that many D&Cs after spontaneous abortions can be avoided. The optimal rate of surgery has not yet been determined but is likely to be between the rate that occurs after medical abortions and the rate seen in family physicians' offices among patients managed conservatively (ie, between 10% and 50%). Given a fully informed choice with a recommendation to avoid surgery, however, some women will still choose surgery because they want the abortion to be over as quickly as possible.

Table 2

Management and Outcomes of Spontaneous Abortions

	Hospital Charts (n=200) # (%)	Family Practice Charts (n=245) # (%)	P Value
Surgical management	185 (92.5)	126 (51.2)	$P<.001$
Referred to obstetrician	199 (99.5)	101 (42.3)	$P<.001$
Hemorrhage	9 (4.6)	5 (2.0)	$P=.11$
Infection	12 (6.0)	2 (.8)	$P=.002$

## Conclusions

Conservative management of spontaneous abortion has been shown to be as safe as surgical management in several studies. Our study shows that surgical management is still routine in hospitals. Family physicians are more likely to be conservative with similar patients. More research is needed to see whether the rate of surgery can be decreased by patient and physician education.

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