MIDWIFERY TRIAGE OF FIRST TRIMESTER BLEEDING

Susan A. Krause, CNM, MSN and Barbara W. Graves, CNM, MN, MPH

ABSTRACT
Approximately one of five pregnant women will experience bleeding during the first trimester of pregnancy. Of these women, about half will go on to have a spontaneous abortion. Comfort with triaging this common problem assists the midwife in providing quality, cost-effective care without eliminating continuity. This article reviews the causes of early pregnancy bleeding, offers strategies to differentiate between these causes, and identifies emergent from nonemergent presentations. Triage and management strategies for women with an impending or threatened spontaneous abortion are reviewed, exploring the alternative of expectant management.


INTRODUCTION
Certified nurse-midwives (CNMs) and certified midwives (CMs)* are often called upon to triage the complaint of bleeding in the first trimester. This article offers midwives a safe, holistic, cost-effective, and minimally interventionist approach to triaging this common problem. Increased midwifery* expertise in this area can increase continuity of care provided to women, while minimizing inappropriate utilization of available diagnostic tests. Women who experience early pregnancy bleeding are concerned and look to midwives for answers about what is happening and what the outcome will be. In the quest to care for these women, tests may be ordered that contribute little to either making a final diagnosis or offering a prognosis.

The development of rapid, sensitive measures of human chorionic gonadotropin (hCG) and transvaginal ultrasound has greatly changed the accuracy of diagnosis in early pregnancy failure. The diagnosis is now made in some cases even before the woman has become symptomatic, yet medical management of this problem has not changed. Triage of first trimester bleeding includes appropriate utilization of diagnostic tools, ascertaining the cause of the bleeding, if possible, and determining which women would benefit from intervention and which would benefit from watchful waiting.

INCIDENCE OF FIRST TRIMESTER BLEEDING
A number of studies (1–6) have addressed the frequency of first trimester bleeding and the risk of subsequent spontaneous pregnancy loss. In a prospective study of 657 women who had begun obstetric (OB) care, bleeding in the first 20 weeks occurred in about 21% of all pregnancies. Of those who experienced bleeding, 59% went on to experience a miscarriage and 41% continued to carry the pregnancy. The overall spontaneous abortion rate was 12% (1). Stabile et al (2) prospectively followed another cohort of 466 pregnant women who were initially evaluated for vaginal bleeding with or without abdominal pain. Sixty of these women had ectopic pregnancies and were omitted from further analysis. Of the remaining women, approximately 54% had normal pregnancy progress while 46% had nonviable pregnancies, with the two most common diagnoses being anembryonic pregnancy (14.4%) and incomplete or missed abortion (16.1%). Other less frequent outcomes were subsequent spontaneous abortion, complete abortion, and one case of hydatidiform mole.

Bleeding occurs in about one out of five clinically recognized pregnancies. Of women who experience bleeding prior to 10 weeks gestation, approximately half will lose the pregnancy. If the bleeding occurs after fetal cardiac activity is noted, the loss rate is substantially lower: 5.5% in a prospective cohort of 255 women (5). Midwifery expertise and comfort in triaging this problem are warranted in light of the frequency with which it occurs.
The pregnancy. Between 23% and 33% of conceptions abort after chemical diagnosis, but prior to clinical diagnosis of the pregnancy, and 10–13.7% of recognized pregnancies go on to spontaneously abort (6,7). Chromosomal abnormalities are the most common cause of first trimester loss in the clinically recognized pregnancy, comprising approximately 50% of losses. The chromosomal abnormalities break down as follows: 56% trisomies, 20% polyploidy, 18% 45X, and 6% other (8).

Maternal disease and general maternal health issues account for the remaining causes of SAB. Luteal phase deficiency is a common cause of recurrent pregnancy loss but can also play a role in isolated losses. In studying up to 10 sequential cycles in regularly menstruating, fertile women, Davis et al (9) found that 51% of serial cycles had a luteal phase defect detected by endometrial biopsy and 27% had the defect in sequential cycles. Maternal illness, such as thyroid abnormalities or diabetes, can affect either implantation or placentation, as will intrauterine adhesions (from overzealous curettage, intrauterine surgery, or endometriosis). Uterine anomalies, leiomyomas, and incompetent cervix can cause SAB but are implicated more commonly in late first and second trimester losses. Maternal infection (cytomegalovirus, toxoplasmosis, Mycoplasma hominis, Chlamydia, Salmonella typhi, to mention a few) can play a role in early fetal loss (8). Development of antifetal antibodies, maternal autoimmune disease, and alloimmune disease have all been implicated in pregnancy loss, but their precise role is unclear. Behaviors that affect a woman’s general health, such as cigarette smoking, alcohol and drug abuse, and environmental factors, also affect the risk for SAB (8). Risk of miscarriage increases with age but not until well into the thirties. Increasing rates of SAB related to abnormal chromosomes begin at about age 34 years whereas the age-related risk of miscarriage of infants with normal chromosomes begins at about age 36 years (10). There are also generalized effects of severe maternal illness that have an adverse effect on pregnancy success through endocrinologic, immunologic, or infectious mechanisms (8). A summary of the causes of SAB can be found in Table 2.

The nomenclature surrounding SAB arose a century ago and is based on clinical presentation and the presumed salvagability of the pregnancy until proven otherwise. Threatened abortion refers to any painless vaginal bleeding occurring prior to 24 weeks of pregnancy, regardless of fetal status. Traditionally, it was always treated expectantly. Inevitable abortion refers to the presence of vaginal bleeding and uterine cramping leading to an open cervix, indicating that the loss of the pregnancy is “inevitable.” The process will progress to either a complete abortion (all products of conception are expelled from the uterus) or an incomplete abortion.

### TABLE 1
Causes of First Trimester Bleeding

<table>
<thead>
<tr>
<th>Category</th>
<th>Causes of First Trimester Bleeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implantation bleeding</td>
<td>Subchorionic hemorrhage, ectopic pregnancy, spontaneous abortion</td>
</tr>
<tr>
<td>Rectal bleeding</td>
<td>Lesions of the cervix and vagina, cervical polyps, malignancies</td>
</tr>
<tr>
<td>Hemorrhagic cystitis</td>
<td>Perineal lesions, vulvar varicosities</td>
</tr>
<tr>
<td>Perineal lesions</td>
<td>Vulvar varicosities, rare medical conditions</td>
</tr>
<tr>
<td>Cervicitis/vaginitis</td>
<td>Endometriosis, gonorrhea, trichomonias, mycoplasma, chlamydia, salmonellla typhi</td>
</tr>
<tr>
<td>Subchorionic hemorrhage</td>
<td>Intrauterine bleeding, cervical polyps, malignancies</td>
</tr>
<tr>
<td>Ectopic pregnancy</td>
<td>Incomplete abortion, complete abortion, missed abortion</td>
</tr>
<tr>
<td>Spontaneous abortion</td>
<td>Miscarriage, threatened abortion, impending abortion</td>
</tr>
</tbody>
</table>

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(some products of conception are retained within the uterus). **Recurrent, or habitual, abortion** is defined as three or more consecutive spontaneous abortions. **Septic abortion** is said to occur when infection complicates the miscarriage.

A **missed abortion** has two current uses in the literature. The traditional use was to refer to pregnancy in which nonviable products of conception were retained for a period of weeks without expulsion. Some current authors continue to use the traditional definition. Others use the term **missed abortion** to indicate diagnosis of a nonviable pregnancy in the absence of vaginal bleeding, regardless of the estimated time of retention of products of conception.

Increased accuracy in determining pregnancy viability requires new terminology. Hurd et al (11) proposed the term **impending abortion** to refer to the diagnosis of a nonviable pregnancy in a woman with a closed cervix. The term **blighted ovum or anembryonic pregnancy** can be used if a gestational sac greater than 18 mm or 2.5 mL remains empty (12). **Embryonic demise** can be used to describe the presence of an embryo larger than 5 mm without a heart rate (13). There is accumulating evidence that some empty gestational sacs may have contained an embryo at one time, which, subsequently, resorbed (14). Correlation of hCG levels with expected intrauterine ultrasound findings have also enhanced the diagnosis of ectopic pregnancy versus early intrauterine pregnancy (IUP) versus complete SAB. A gestational sac should be visible in the uterus via transvaginal ultrasound when hCG reaches 2,000 IU/L or via transabdominal ultrasound when hCG reaches 6,500 IU/L (15).

In the presence of a normal intrauterine pregnancy, the most common source of vaginal bleeding is perigestational hemorrhage from the chorionic frondosum, or subchorionic hemorrhage. Pedersen and Mantoni (16) followed 358 women who presented with vaginal bleeding between 9 and 20 weeks who were identified as having a live fetus. Eighteen percent of these women had an accompanying subchorionic bleed. The overall SAB rate for the cohort of women with a live fetus and vaginal bleeding was 10%, and was not found to be higher in those with the subchorionic hemorrhage. Large hemorrhages may carry a poor prognosis since loss is common despite the presence of a living embryo (13).

Another potential cause is described as “physiologic” or “implantation” bleeding. Speert and Guttmacher (17) found that in the absence of cervical lesions, 8% of women experienced bleeding on or prior to the 40th day of pregnancy.

In addition to bleeding originating from the uterus, cervix, or vagina, other sources of bleeding may need to be excluded. These include hemorrhagic cystitis, rectal bleeding from hemorrhoids, vulvar varicosities, and perineal lesions such as those caused by vulvovaginitis. A few extremely rare, but serious, medical conditions such as bleeding dyscrasias, von Willebrand’s deficiency, thrombocytopenia, and leukemia should be considered if the bleeding persists and no other etiology can be determined.

**Table 2**

<table>
<thead>
<tr>
<th>Causes of Spontaneous Abortion</th>
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<tr>
<td>Chromosomal abnormalities</td>
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<tr>
<td>Trisomies</td>
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<td>Polyploidy</td>
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<tr>
<td>45X</td>
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<tr>
<td>Other</td>
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<td>Maternal disease</td>
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<td>Luteal phase deficiency</td>
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<tr>
<td>Thyroid abnormalities</td>
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<tr>
<td>Carbohydrate abnormalities (diabetes)</td>
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<tr>
<td>Intrauterine adhesions (synechiae)</td>
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<tr>
<td>Incomplete Mullerian fusion/other uterine anomalies</td>
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<td>Leiomyomas</td>
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<tr>
<td>Incompetent cervix</td>
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<tr>
<td>Infections</td>
</tr>
<tr>
<td>Anti-fetal antibodies</td>
</tr>
<tr>
<td>Autoimmune disease</td>
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<tr>
<td>Alloimmune disease (shared parental histocompatibility)</td>
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<tr>
<td>Irradiation and antineoplastic agents</td>
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<tr>
<td>Maternal health</td>
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<tr>
<td>Cigarette smoking</td>
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<td>Alcohol consumption</td>
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<td>Drug abuse</td>
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<td>Environmental factors</td>
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<td>IUD</td>
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<tr>
<td>Trauma</td>
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<tr>
<td>Age</td>
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<tr>
<td>Generalized effects of severe maternal illness</td>
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</table>

Midwifery Triage of First Trimester Bleeding

The majority of causes of bleeding in the first trimester are nonemergent in nature and are, therefore, appropriately triaged by midwives. One of five women may present complaining of vaginal bleeding in early pregnancy. A woman with bleeding often presents for an episodic encounter, either an office or emergency room (ER)/OB triage unit visit, and many women telephone the midwife with this common complaint. A thorough assessment, starting with the “history of the present illness,” will provide clues about the etiology of the bleeding and how emergently a woman needs to be evaluated. As with many diagnostic questions, more can be gained from a complete history than from quickly proceeding to physical and laboratory investigations.

1 All β human chorionic gonadotropin units in this article refer to Third International Reference Preparation.
If the interview occurs over the telephone, enough information must be gathered to determine the appropriate timing and site of an initial evaluation. An ER visit is rarely needed for evaluation of first trimester bleeding, but women may present there believing such bleeding to be an emergency (18). Regardless of the nature of the first interview, the challenge is to collect a thorough enough history to ensure a complete evaluation in a timely manner. In addition to the usual GYN history, key points from other aspects of the medical and surgical history also contribute to assessment of the complaint. Areas to be explored are listed in Table 3.

If there is scant, painless bleeding, further evaluation is not immediately needed, but close follow-up and a visit within a few days are indicated if the bleeding does not resolve. If the woman is experiencing moderately heavy bleeding and uterine cramping, she is probably in the process of miscarrying. She may be given the option of staying at home to await a complete abortion, since this is the most likely scenario and may be easier than going to the hospital at this time. In this case, cramping and heavy bleeding will resolve within 2 to 4 hours. The woman can also choose to come for immediate evaluation if she does not feel comfortable being at home. If moderate-heavy bleeding and cramping continue for more than 4 hours, a visit is indicated.

If the woman has not yet had an initial antepartum visit, it is reasonable to schedule a visit within the next few days, giving appropriate anticipatory guidance and warning signs and symptoms. A complete database is needed to determine OB from nonobstetric causes of vaginal bleeding. Painless, first trimester spotting is not indicative of an emergency but it must be acknowledged that anxiety concerning the well-being of the pregnancy is often acute and bleeding can create great anxiety on the part of the woman. An appropriate amount of reassurance and education will often enable a woman to await this visit.

The critical aspects of the physical and laboratory evaluation of the woman experiencing persistent spotting or bleeding are listed in Table 4. The first major goal is to determine the source of the bleeding. A severe *Trichomonas* or *Candida* infection can be associated...
with significant spotting, especially following intercourse. Bleeding from hemorrhoids can be confused with vaginal bleeding. If the bleeding is found to be from a nonuterine source, treatment can avoid a costly evaluation of the pregnancy involving hCGs and/or ultrasounds. If, on the other hand, the bleeding is determined to be of uterine origin, further evaluation may be indicated.

Watchful waiting is a reasonable approach to take with painless vaginal bleeding in the first trimester. The bleeding will either resolve or progress, and testing will have no effect on outcome. If bleeding resolves and uterine growth continues over the following weeks, the patient can be reassured that the pregnancy is most likely developing normally. If the bleeding progresses over the next several days and uterine cramping develops, a complete SAB is likely. This is the most cost-effective approach to the management of first trimester bleeding. Bleeding that persists unchanged for more than 3 days warrants further evaluation. It is important to stress to patients that no intervention is available to prevent pregnancy loss in the woman destined to abort.

For women who are uncomfortable with watchful waiting or whose symptoms persist, a variety of testing options are available for evaluating first trimester bleeding that avoid unnecessary expenditure. Quantitative hCG correlates directly with the number of trophoblasts; hCG becomes positive 7–10 days after ovulation if conception has occurred and increases exponentially. Serial hCG levels are helpful through the seventh week of gestation but of little use after that. It doubles every 1.6 days through week 5, every 2 days during week 6, and every 2.5 days during week 7 after the last menstrual period (LMP). Levels continue to rise more slowly until they peak at 10 weeks then drop rapidly until a plateau is reached at 24 weeks. Consecutive levels in the first trimester that are found to be decreasing are diagnostic of nonviable pregnancy. Appropriate doubling is consistent with a pregnancy that is continuing to develop but is not prognostic of success of the pregnancy. Levels that are rising but not at the appropriate rate indicate a nonviable pregnancy with persistently functioning trophoblastic tissue or an ectopic pregnancy. Ultrasound will be needed in these instances to complete a diagnosis. Each quantitative hCG costs approximately $55.

A single level of hCG has no diagnostic value but can be used to correlate with ultrasound findings, and is a more cost-effective adjunct to an equivocal ultrasound than repeating the ultrasound in another week. A level drawn before an ultrasound may save an unnecessary, expensive, and nonhelpful procedure. At a level of 1,000 mIU/mL, a gestational sac should be visible (although this may not be the case in twin gestation). For this reason, 2,000 mIU/mL is becoming the accepted level. A sac visible at levels below 1,000 mIU/mL with hCG levels that were higher but are now dropping is diagnostic for a blighted ovum. If an ultrasound is desired, the timing can be extrapolated from a single level. For example, if the hCG level is 800 mIU/mL, one would not expect to see anything on ultrasound. However, if this were a normal pregnancy, a gestational sac will be seen in 3–4 days, and an abnormal ultrasound at that time would be diagnostic for a nonviable pregnancy. Single values are not otherwise of much help since the range is so great for any specific finding. The most appropriate use of hCG is serial levels drawn 48 hours apart.

Serum progesterone drawn at the time of bleeding can be helpful (19). In asymptomatic women, serum progesterone is not helpful in distinguishing missed abortion from normal intrauterine pregnancy. Once bleeding with or without uterine cramping develops, serum progesterone becomes a valuable diagnostic tool. Progesterone rises during the luteal phase and remains at high levels if conception is successful. The normal progesterone range is very narrow for the first half of pregnancy and is 20–30 ng/mL in the first trimester. Luteal and/or placental progesterone production will become defective days to weeks before a SAB occurs (19). A serum progesterone level greater than or equal to 25 ng/mL is consistent with a normal intrauterine pregnancy, and occurs in only 1% of miscarriages or ectopic pregnancies. A level less than or equal to 8 ng/mL rules out a viable pregnancy in 84% of cases; however, values between 8 and 25 require further investigation (20,21). The cost of a single serum progesterone is roughly $60.

Before the completion of the sixth week of gestation as measured from the LMP, transvaginal ultrasound is of little diagnostic help and has no prognostic value. (An exception is the confirmation of an IUP when ectopic pregnancy is suspected.) Cardiac activity should be seen when the pregnancy is more advanced than 6 weeks, 4 days. At earlier gestations, it is difficult to differentiate between a normal gestational sac prior to the development of the embryo and a blighted ovum. The key discriminatory findings are the following:

- A yolk sac should always be seen when the gestational sac measures more than 10 mm.
- A gestational sac that is 18 mm (6.9 weeks) by transvaginal ultrasound or 2.5 cm by abdominal ultrasound should always contain an embryo.
- Any embryo longer than 5 mm should have a heart rate (13).

Abnormal ultrasound findings that occur at later gestations are diagnostic of nonviable pregnancy (blighted ovum or embryonic demise). Embryonic bradycardia after 8 weeks, an irregularly shaped gestational sac, an
abnormal yolk sac, or a gestational sac less than 4 mm larger than the crown rump length (CRL) are all poor prognosticators, and a guarded prognosis should be given (13). If ultrasound findings are equivocal, a follow-up may be indicated. Timing such a follow-up for 7–10 days allows many impending abortions to become complete without unnecessary further testing. The cost of an ultrasound is roughly $200–$300.

**PROCESS OF A COMPLETE SPONTANEOUS ABORTION**

Most women who present with vaginal bleeding associated with a nonviable pregnancy do so after 7–10 weeks of amenorrhea. The onset of bleeding generally occurs 2 weeks after the pregnancy stopped developing (22). This can be particularly comforting to women who will scrutinize their actions of just prior to the onset of bleeding to see if they were in any way responsible. It is common for pregnancy symptoms to have diminished or subsided. The initial bleeding is generally painless and dark red or brownish in color. Any woman who is Rh negative should receive Rh(O) immune globulin at the time vaginal bleeding is first noted.

Over time, the bleeding progresses to bright red and becomes associated with uterine cramping. This progression can occur over hours or days. When the cramping becomes severe, the bleeding generally becomes quite heavy, usually frighteningly so. The period of heavy bleeding and severe cramps should last not more than an hour or two. Large amounts of clotted blood can be passed but the products of conception are tiny and may not be identifiable or distinguishable. In some cases, the fetus may have undergone almost complete autolysis, and in many cases of spontaneous abortion, no recognizable fetal tissue is found (22).

After a period of heavy bleeding, abdominal pain, and passage of tissue/clots, the bleeding usually becomes abruptly lighter and pain subsides. Light vaginal bleeding or spotting may persist for up to 2 weeks. Haines et al (23) followed 32 women after complete SABs and found that bleeding had stopped and hCGs were negative for 12 women after 1 week, and for the remaining 20, after 2 weeks. Bleeding that continues to be heavy for more than a day or spotting that persists for more than 2 weeks can be an indication of persistent trophoblastic tissue and indicates a need for medical consultation since, although further expectancy is not contraindicated, medical and/or surgical intervention may be needed. The risk of bleeding abnormalities such as disseminated intravascular coagulation (DIC) or sepsis is minimal in spontaneous first trimester losses (12). The greatest risk appears to be hemorrhage, but the risk is low. Lack of quickly accessible emergency care could, however, impact on the midwife’s choice of management.

As the midwife triages the complaint of first trimester bleeding, ruling out ectopic pregnancy is of critical importance. Situations which warrant immediate assessment in the office, triage, or ER to evaluate for possible ectopic pregnancy, minimize maternal morbidity, and increase the chance of preserving future fertility include the following:

- First trimester bleeding associated with unilateral pelvic pain or pain inconsistent with SAB
- A prior ectopic pregnancy or tubal surgery
- An intrauterine device (IUD) in situ

Further evaluation is also warranted if the character of the vaginal blood is abnormal. Bleeding associated with gestational trophoblastic disease is generally heavy in nature, begins in the second trimester, and can be accompanied by the passage of grape-like clusters of vesicles. Immediate diagnosis of viable versus nonviable pregnancy utilizing ultrasound and hCG is warranted under these circumstances.

The resolution of hCG levels is extremely variable and is dependent on the level of hCG at the time of loss. Extrapolating from data obtained from post-termination hCG levels, it can be assumed that following a known complete SAB or a dilatation and curette (D&C), hCG levels return to nonpregnancy levels in approximately 29–44 days (14–23.5 days if hCG levels at time of loss were less than 10,000 IU/mL to 30–40 days for hCG levels of 20,000–40,000 IU/mL (24). The hCG levels are low enough to allow release of LH and FSH by 20–25 days after loss stimulating ovulation, a fact that should be considered when counseling clients regarding family planning needs. After spontaneous first trimester loss, it is not always possible to say if the abortion was complete or not. Often, residual trophoblastic tissue persists and is absorbed in the weeks following the loss. Letterie et al (25) measured levels of hCG in 21 women with first trimester losses associated with minimal intrauterine tissue (no identifiable gestational sac or fetal parts on pelvic ultrasound) and hCG levels less than 6,500 mIU/mL (range was 72–5,686 mIU/mL). The mean (±SD) time to clear hCG was 25.6 ± 19.8 days, with a range of 7–97 days. Eighty-five percent of women cleared within 30 days. The time until disappearance of hCG was not related to initial serum concentrations of hCG in this study. The clearance pattern of serum hCG exhibits a characteristic biphasic mode. For the first 10 days or so, hCG concentrations decrease rapidly to fairly low levels; after day 15, the levels continue to decrease steadily but at a dramatically slower rate (26).
Traditional Management of Spontaneous Abortion: D&C, Medication Induced

Dilatation and curettage has been the mainstay for the management of first trimester SAB for most of the 20th century. “Emptying the uterus of [the products of conception (POC)] as quickly and safely as possible” was recommended in the 1940s for the management of inevitable abortion (27). This was the management proposed when diagnosis of pregnancy was dependent on subjective report and physical examination findings alone, and an inevitable abortion was diagnosed once the cervix was open. Prior to the advent of antibiotics and blood transfusions, and when self-induced and illegal abortions were common, maternal morbidity and mortality related to sepsis and/or hemorrhage was significant. The risk of infection from retained products of conception and the consequences of such an infection were far more common and serious in that era. Curettage was justified since it removed any source of infection as quickly as possible and reduced blood loss (28). In today’s medical climate, however, there is no evidence to support routine, immediate curettage. The advent of legalized abortion has eliminated the complications attributed to this usually dangerous procedure. The complications of hemorrhage and sepsis are rare in first trimester SAB and the ready availability of antibiotics and blood transfusion makes treatment of these complications easily achieved; furthermore, the cost of unnecessary D&C for incomplete SAB has been conservatively estimated at greater than $100 million annually (28).

The ability to diagnose nonviable pregnancy has changed greatly and is now made accurately at early gestations with the availability of transvaginal ultrasound and accurate measures of both serum hCG and progesterone. In some instances, such as when routine ultrasound is used to confirm pregnancy in the first trimester, the diagnosis may predate any symptoms. Despite the absence of data to identify the optimal method of managing a nonviable pregnancy with a closed cervix, D&C (or suction curettage) remains the standard of treatment for SAB.

The definitive indications for D&C include, but are not limited to, the following:

- Second trimester intrauterine fetal death
- Septic abortion
- Medical (medication induced) or expectant management failure
- Persistent heavy bleeding, excessive bleeding/hemorrhage
- Client preference based on informed consent.

Incomplete abortion in the absence of excessive bleeding is not necessarily an indication for curettage and in many cases can be managed expectantly (29). There are, however, reasons for avoiding D&C as a routine procedure and the need for evaluation of this management approach by controlled trials has been identified by numerous authors (11,28–32). The complication rate varies from 4% to 10% (31) and is affected by such variables as whether sharp or suction curettage is utilized and the type of anesthesia administered. Complications can include laceration of the cervix, perforation of the uterus, bowel damage, perforation into the broad ligament, perforation of the bladder, infection, intruterine adhesions due to excessive curettage (Asherman’s syndrome), and hemorrhage (33). It has been suggested that the complication rate could be reduced by using laminaria and suction curettage (12).

Creinen et al established that 50–60% of women studied desire avoiding a surgical procedure in the management of impending SAB (34,35). Medical management, using a prostaglandin analogue such as misoprostil, either alone or in combination with methotrexate, can be an effective means of complete evacuation of the abnormal pregnancy without the uncertainty of timing. It also avoids the potential complications associated with surgical evacuation (36). This treatment is also a possibility following an unsuccessful period of expectant management. Success rates of 45–95% have been reported with the remaining women undergoing D&C (37–40). Accuracy of reported success rates is qualified by the fact that 79% of women with nonviable pregnancy in the first trimester experience complete SAB within 3 days of the onset of vaginal bleeding, and a successful “medical evacuation” may have been coincidental (31). Side effects are present in 25–88% of women and include, primarily, nausea, vomiting, and diarrhea, although headache, dizziness, and hot flushes were also reported (36,39,40). Controlled trials that compare medical with expectant management are warranted. In addition, the cost of the drugs and cost of follow-up must also be considered.

Expectant Management: Watchful Waiting

There is evidence in the literature to support expectant management of SAB. Nielson and Haahlin report routine use of expectant management of nonviable pregnancy with intrauterine contents less than 15 mm (31). Survey data of Irish and English general practitioners identified conservative (expectant) management as a common choice for the management of threatened abortion and that many SABs followed expectantly were resolved spontaneously (1,41). There is anecdotal evidence in the literature questioning the need for any intervention in uncomplicated, early miscarriage (29,42,43). Expectant management decreases hospital admission, office visits,
separation of a woman from her family, and avoids unnecessary surgery and anesthesia (29). Avoiding D&C may also decrease the emotional trauma associated with first trimester loss. In many instances, a D&C is a woman’s first surgical experience, which may add psychological stress to the trauma associated with loss (18).

There are two randomized controlled trials of expectant management of first trimester spontaneous abortion. Nielsen and Hahlin (31) studied 155 women experiencing vaginal bleeding and/or abdominal pain before the 13th week of gestation. Diagnosis of inevitable or incomplete abortion was made by transvaginal ultrasound and women were included in the study if they had 15–50 mm of intrauterine tissue (50 mm gestational sac is consistent with 11.6 weeks gestation). Women with less than 15 mm intrauterine tissue were routinely treated expectantly and not included in the study. In 79% (81/103) of cases, spontaneous resolution of the pregnancy occurred within 3 days. The remaining 22 patients in the expectant management group underwent D&C after 3 days if there was still more than 15 mm of intrauterine tissue noted on transvaginal ultrasound. The authors pointed out that a greater number of pregnancies may have resolved spontaneously with a longer period of expectancy. Complication rates (primarily infection), the time during which patients required analgesics to control pain, convalescence time, and packed-cell volume at 3 and 14 days did not differ significantly between the groups. Women in the expectant management group experienced 1.3 days more vaginal bleeding. It should be noted that all D&Cs in this study were performed under general anesthesia. The investigators concluded that expectant management of selected cases of spontaneous abortion has a similar outcome to D&C (31).

Chipchase and James (32) studied 35 women less than 13 weeks gestation with retained products of conception less than 50 mm intrauterine diameter following an episode of bleeding. Women were randomly assigned to expectant (19/35) or surgical management (16/35). There was no significant difference between the groups in number of days of pain, bleeding, sick leave, return of normal menses, or rate of complication; one pelvic infection was reported in each group. Patient satisfaction with expectant management was attributed to all 19 women, whereas two patients were not satisfied with surgical management.

The literature is generally supportive of expectant management of first trimester SABs in cases of minimal development of the pregnancy (blighted ovum) and most first trimester losses. It is probably accurate to assume that the greater the embryonic development at the time of demise, the less likely that expectant management will be successful. The vast majority of first trimester losses are early however, since the demise rate decreases to 3%

TABLE 5
Clinical Parameters for Medical Consultation/Referral

<table>
<thead>
<tr>
<th>Indications for consultation include:</th>
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<tbody>
<tr>
<td>Persistent missed abortion/failed expectant management</td>
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<tr>
<td>Bleeding persisting more that 2 to 3 weeks after assumed complete SAB</td>
</tr>
<tr>
<td>Suspicion of ectopic pregnancy</td>
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<tr>
<td>Persistent hCG more than 1 month after assumed complete SAB</td>
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<tr>
<td>Suspicion of trophoblastic disease</td>
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<tr>
<td>Client preference for medical or surgical management</td>
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<tr>
<td>Three or more consecutive first trimester losses</td>
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<tr>
<td>Completed second trimester loss</td>
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</tbody>
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Indications for referral include:
- Persistent heavy bleeding or hemorrhage
- Evidence of sepsis (fever)
- Demise beyond 12 weeks gestation (by CRL, not LMP)

or less after fetal cardiac activity is demonstrated (12) and to 0.5% once the embryo reaches 6–10 mm (13).

Midwifery Triage and Management of Spontaneous Abortion

Once the diagnosis of impending SAB has been made, the CNM/CM should discuss with the woman and her family the options for treatment and the potential benefits and risks associated with each. Medical consultation and/or referral may be warranted according to practice guidelines. See Table 5. If a woman chooses to await spontaneous miscarriage, daily telephone contact can be helpful. Women may develop doubts or need teaching reinforced. Analgesics and narcotic-analgesics can be prescribed for use during the time that uterine cramping is most severe. Adhering to pelvic rest until the miscarriage is complete is recommended. Rh(O) immune globulin is given to a woman who has Rh negative blood. Figure 1 illustrates various management strategies for the evaluation of women experiencing uterine bleeding in the first trimester.

Although there is no research on its use in first trimester SABs, some practitioners opt to use ergot alkaloids (methylergonovine and ergonovine) in the management of incomplete or inevitable abortions. Ergot alkaloids act within 10 minutes after oral ingestion by increasing force and frequency of contractions. Their use is contraindicated in women with myocardial disease, conduction defects, and hypertension. Vasomotor side effects, which occur due to peripheral vasoconstriction, include headache (3–4%), blurred vision, nausea and vomiting (20%, 2% intractable) (44,45). Ergots are currently used in the obstetric management of third stage of labor, delayed postpartum hemorrhage, and incomplete abortion. There is no supporting research, however, that
its routine use is either generally needed or effective in these situations (46). Use of oral methylergonovine was found to improve the success of misoprostil for second trimester termination of pregnancy (47). Ergonovine use prior to and during suction curettage decreased blood loss during first trimester termination, but only after 9
weeks gestation; no difference in blood loss was found at earlier gestations (48).

Two to 3 weeks after the loss, women who have experienced a complete SAB should have a follow-up office visit, which should include a pelvic examination to confirm that the uterus is nonpregnant and that bleeding has resolved. A urine pregnancy test should also be performed; however, if it is not yet negative, there is no cause for concern, as only 85% of women will clear hCG in fewer than 30 days and a repeat urine pregnancy test in another 2 weeks would be indicated. This is also an important time to discuss a woman’s emotional response and family planning needs. Women who do not wish to conceive can start hormonal methods at the time of the loss. If a woman wants to attempt to conceive, it is best to await one normal period, indicating that the endometrial lining has returned to normal. Many sources recommend a 3-month delay, but this is generally for emotional reasons and is not medically necessary in most cases (49). In the absence of D&C, the first menses following a loss is often normal.

EMOTIONAL RESPONSE TO PREGNANCY LOSS

Any period of latency in making a diagnosis or in awaiting the inevitable can be very traumatic for the woman and her partner/family. Women often become attached to a pregnancy as soon as it is diagnosed. Many women who become accidentally pregnant and are initially unhappy quickly change their feelings upon further reflection and bond as deeply as women who had planned their pregnancy for years.

The absence of rituals or rites commonly associated with first trimester loss may seem to deny the legitimacy of a woman’s grief. The subject is often taboo and, since women do not readily share such an experience, other women may be unaware of friends or family who have shared a similar loss (50). Suggestions for a ritual (such as planting a tree, writing a card or poem, lighting a candle) can be helpful to some (51).

There is limited research specific to a woman’s response to first trimester loss and even less that addresses the response of partners. Grief is experienced by virtually all women. Following a first trimester loss, the reaction tends to be immediate and consists of grief, dysphoria, guilt, and anxiety (51). Feelings of powerlessness, frustration, helplessness, shame, sadness, disbelief, anger, blame, and disappointment may also be experienced (52). Feelings peak then ebb within 4 to 6 weeks and are generally resolved by 4 months (53). Partners also experience grief and stress following a woman’s SAB, although there is a great degree of variance and an increase noted with increasing gestation. After early loss, grief may be intense but tends to resolve quickly. Since it is a cultural expectation that men provide support to their partners, a man’s grief may be in conflict with his expected role as supporter for the grieving woman (53). Anticipatory guidance concerning expected grief reaction can be provided at the time of the loss.

Pathologic grief reactions are uncommon following simple first trimester loss. Women with a history of depression, previous loss of a child, recent loss of a parent, concurrent life stresses, or poor relationship with partner or family are at greater risk for developing pathologic grieving. The follow-up visit is an ideal time to screen for symptoms of abnormal grief reaction. Such symptoms include sleep disturbances, somatic symptoms, frequent flashbacks, inability to resume normal functioning, prolonged sadness, and mood lability (52). The desire to “get pregnant again immediately” or the decision to “never again” attempt to become pregnant are concerning and warrant further discussion between the woman and her provider (50).

Dissatisfaction with the care they received is a common complaint of women who have experienced first trimester loss. Cecil (54) interviewed 50 women who had experienced a first trimester loss. Most of these women felt that their provider did not appreciate the distress they felt over their loss or provide them with adequate information or explanations; when this did happen, it was greatly appreciated by the woman. It has been estimated that one-third of all cases of SAB involve intense anger against caregivers and that 50% of women seek a different care provider in a future pregnancy. In contrast, women were satisfied with their care when they perceived their provider as attentive and sensitive, encouraging discussion of feelings, and when they had a follow-up visit after the loss (51).

Women need to be reassured that nothing they did caused this loss and that there is nothing that could have been done by themselves or by their provider to prevent the loss. It is best to emphasize this whether a woman expresses a sense of guilt or not, since the concern is so pervasive. Guilt may be increased in women who have behaviors that may affect their risk of SAB, such as alcohol or drug use, cigarette smoking, and/or use of certain medications. It is important to put these risks in perspective. There are very few activities or behaviors that increase a woman’s risk of SAB over her preexisting baseline risk (52).

A “substitute” pregnancy should be discouraged. A woman often wants to know when she can attempt to conceive again. This is an opportunity to discuss the need to allow herself to grieve this loss. It is helpful to explain to partners that a woman’s grief can be deep and last some time and to encourage a couple to remain close and keep communication open. Some sources recommend avoiding intercourse until the woman’s vaginal bleeding has stopped, but this can occasionally be protracted, and there is little evidence to support a long
period of abstinence. There is no medical reason for couples to avoid sex for more than 3 days following an uncomplicated miscarriage (49).

Women are also concerned about their risk of SAB recurrence and should be reassured that following a single first trimester SAB, a woman is at no increased risk for loss. The rate of pregnancy failure in healthy women can be used to help a woman understand her risk, emphasizing that the risk is the same for each pregnancy, and that her risk is no lower or higher because of the current loss. Advanced maternal age will increase a woman’s risk of chromosomal abnormalities which, in turn, increase the risk of loss. The risk of recurrence for women with medical conditions or infertility is significantly higher and beyond the scope of this article.

**SUMMARY**

Competency in triaging the complaint of first trimester vaginal bleeding is invaluable for the midwife striving to provide continuity of care and emotional support to women and their families. Assessment begins with a thorough interview to determine how emergently a woman must be seen and which setting is most appropriate for further evaluation. The initial information needed to make this triage decision can often be obtained over the telephone. There are a variety of management options, and making the best use of diagnostic tools available helps maximize the information gained while minimizing unnecessary and expensive testing.

Expectant management is a reasonable approach to managing impending or threatened abortion since, in most cases, a woman’s body is well capable of accomplishing the task of complete SAB without medical intervention. A CNM/CM who is well versed in normal and abnormal findings can safely help a woman through this trying experience. Midwives are also ideally suited to providing the counseling and anticipatory guidance that women and their families benefit from as they come to terms with pregnancy loss. Triaging this common presenting problem is well within the scope of midwifery practice.

**REFERENCES**

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