Management of Postabortion Complications for the Emergency Medicine Clinician

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Although induced abortion is generally a safe outpatient procedure, many patients subsequently present to the emergency department, concerned about a postabortion complication. It is helpful for emergency physicians to understand the medications and procedures used in abortion care in the United States to effectively and efficiently triage and treat women presenting with potential complications from an abortion. Furthermore, because many states are experiencing increased abortion restrictions that limit access to care, emergency medicine physicians may encounter more patients presenting after self-managed abortions, which presents additional challenges. This article reviews the epidemiology and background of abortion care, including the range of symptoms and adverse effects that are within the scope of an uncomplicated procedure. This review also offers a comprehensive overview of management of abortion complications, including algorithms for more common complications and descriptions of less common but more severe adverse events. The article concludes with a recognition of the social stigma and legal regulations unique to abortion care. [Ann Emerg Med. 2021;77:221-232.]

INTRODUCTION

Induced abortion is one of the safest outpatient medical procedures performed, with major complication rates between 0.11% and 0.16% and mortality rates of 0.62 per 100,000 in the United States.1-3 Despite the low complication rate, a number of women seek emergency department (ED) care after an abortion, with approximately 14 of every 100,000 ED visits among women aged 15 to 49 years for a chief complaint related to induced abortion.1 Although many patients who present to the ED after an induced abortion need no acute intervention, these visits may be stressful to ED physicians, who infrequently encounter rare, life-threatening, postabortion complications.

CRITICAL APPRAISAL OF THE LITERATURE

A literature search was performed with PubMed online with the following search terms: “(abortion OR postabortion) AND (induced OR elective) AND (emergency),” “abortion AND emergency,” “abortion AND complication,” “abortion AND infection,” “abortion AND sepsis,” “abortion AND chorioamnionitis,” “abortion AND DIC,” “abortion AND bleeding,” “abortion AND amniotic fluid embolism,” “abortion AND uterine perforation,” “abortion AND cervical laceration,” “abortion AND laminaria,” “self-managed OR self-induced OR unsafe AND abortion,” “abortion AND safety,” and “abortion AND laws.” Approximately 2,000 articles from 1960 to the present were reviewed. Guidelines released by the National Abortion Federation, American College of Obstetricians and Gynecologists, and Society of Family Planning were also reviewed. To find additional emergency medicine–specific literature, a search for “abortion” was performed in the following emergency medicine journals: Annals of Emergency Medicine, American Journal of Emergency Medicine, Pediatric Emergency Care, Emergency Medicine Journal, Journal of Emergency Medical Services, European Journal of Emergency Medicine, Academic Emergency Medicine, BMC Emergency Medicine, Canadian Journal of Emergency Medicine, Emergency Medicine Clinics of North America, Journal of Emergency Medicine, and Western Journal of Emergency Medicine. The bibliographies from articles mentioned earlier were examined to verify accurate representation from the literature.

EPIDEMIOLOGY

In the United States, there are approximately 11.8 abortions per 1,000 women aged 15 to 44 years, with the majority of induced abortions obtained by women aged 20 to 29 years.3 Greater than half (59.3%) of abortions are performed in women who have had at least 1 previous live birth, and 56.3% are performed in women who had never had an abortion.3
Most abortions occur in the first trimester. In 2015, 65.4% of abortions were obtained at or before 8 weeks of gestation, and 91.1% of abortions were obtained at or before 13 weeks of gestation. Although the majority (73%) of abortions are surgical ones, the proportion of early medical abortions increased 114% from 2006 to 2015.

The average out-of-pocket cost for women seeking abortions is almost $500. Because of the Hyde Amendment, since 1976 federal funds to pay for abortions have been limited to cases of maternal life endangerment, rape, or incest. However, 16 states have policies to use state-based Medicaid to expand abortion coverage beyond federal restrictions, either voluntarily or with a court order. Hawaii, Maine, Illinois, Maryland, Massachusetts, New Mexico, New York, Oregon, and Washington provide funds voluntarily.

DEFINITIONS

Medical Abortion
Medical abortion is defined as the early termination of pregnancy through medication and can be used until 70 days of gestation. In the United States, medical abortion involves a 2-drug regimen of a 200-mg dose of mifepristone (Mifeprex; Danco Laboratories, New York, NY), a progesterone antagonist, which is followed by an 800-mg dose of misoprostol (Cytotec; G.D. Searle and Co., Chicago, IL), a prostaglandin analog, taken vaginally, buccally, or sublingually. The mifepristone disrupts pregnancy growth and the misoprostol causes uterine contractions to expel the pregnancy tissue, with an efficacy rate of approximately 96%. Although mifepristone and misoprostol were first required by the Food and Drug Administration to be administered in a medical facility, current guidelines have removed that requirement, allowing patients flexibility with the timing of medication. If mifepristone is inaccessible, either misoprostol alone or methotrexate followed in 3 to 5 days by misoprostol can be used.

Normal adverse effects of medical abortion can include cramping and vaginal bleeding, a brief low-grade fever, headache, dizziness, nausea, vomiting, and diarrhea (Table). Health care physicians who prescribe mifepristone are required by the Food and Drug Administration to complete a prescriber agreement and registration. Mifepristone prescribers are required to have the ability to date pregnancies, diagnose ectopic pregnancies, and provide or arrange access for patients to receive surgical care, blood transfusions, and resuscitation if necessary in the event of complications. Physicians must also review and sign a patient agreement form with patients.

Patients receiving a medical or surgical abortion should be offered Rh status testing and receive Rh immunoglobulin if found to be Rh negative, although there is emerging evidence that patients at 8 weeks’ gestation and earlier do not need Rh immunoglobulin. If patients have an intrauterine device in place, it must be removed before initiation of medical abortion. There is currently insufficient evidence to recommend routine prophylactic antibiotics for medical abortions, and current practices vary, with some clinics opting to provide prophylactic antibiotics.

Surgical Abortion (First Trimester)
First-trimester surgical abortion is performed with vacuum aspiration. This procedure is often referred to as suction curettage, but it is important to clarify that aspiration abortion does not use sharp curettage. During vacuum aspiration, the cervix is dilated, a cannula is inserted through the cervix into the uterine cavity, and the uterine contents are aspirated. This can be done with a manual vacuum aspirator or an electric vacuum aspirator, both of which work by negative pressure. The manual vacuum aspirator has been increasingly used in EDs for treatment of early pregnancy failures. Additionally, trained teams can perform a vacuum aspiration in the ED for appropriately selected patients requiring surgical treatment for complications of abortion care.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Normal Course</th>
<th>Abnormal</th>
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<tbody>
<tr>
<td>Cramping and pain</td>
<td>Gradual improvement</td>
<td>Worsening pain, pain uncontrolled by oral medication</td>
</tr>
<tr>
<td>Bleeding</td>
<td>Heaviest 3–8 h after misoprostol; should gradually decrease</td>
<td>Soaking &gt;2 pads/h for 2 h</td>
</tr>
<tr>
<td>Low-grade fever, flushing</td>
<td>Occurs briefly and resolves spontaneously</td>
<td>Temperature exceeding 38.0°C (100.4°F) for several hours despite antipyretics</td>
</tr>
<tr>
<td>Headache, dizziness</td>
<td>Mild and self-limiting</td>
<td></td>
</tr>
<tr>
<td>Nausea, vomiting, diarrhea</td>
<td>Self-limiting; should improve without treatment</td>
<td>Intractable vomiting</td>
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Ripening agents are sometimes used for cervical preparation before surgical abortion. Pharmacologic agents used in first-trimester surgical abortion are often prostaglandins such as misoprostol (Cytotec). Physicians are more likely to use cervical preparation at later gestational dates, with most physicians using misoprostol in the late first trimester. Pain control during the procedure can be managed with intravenous sedation (moderate to deep) or local anesthetic (paracervical and intracervical nerve blocks) combined with oral medications, with significant variation between physicians.

Routine prophylactic antibiotic administration is the standard of care for surgical abortion procedures, and current evidence indicates that prophylactic antibiotics should not be continued after the day of the procedure.

Surgical Abortion (Second Trimester)

Second-trimester surgical abortions make up a small portion of total abortions, with only 8.8% of all abortions in 2015 being greater than 13 weeks’ gestation. However, many factors such as delayed diagnosis of pregnancy and referral to an abortion physician, financial or geographic barriers to receiving care, development of maternal health problems, or identification of major fetal anomalies can lead women to seeking abortion in the second trimester.

Second-trimester abortion is generally done by a dilation and evacuation procedure. As mentioned earlier, cervical dilation is often used to improve safety and efficiency, with most physicians using osmotic dilators, misoprostol, or both. Physicians often use mechanical agents as osmotic dilators, which include natural or synthetic absorptive dilators that expand as they absorb fluid from the cervix. The osmotic dilators are often placed on the day before the procedure, and the patients return to the clinic the following day, where the dilators are removed as the procedure is initiated. When misoprostol is used for dilation, it should be administered approximately 90 to 180 minutes before the procedure. These agents are generally safe and decrease the abortion procedure time.

During the dilation and evacuation procedure, the cervix is dilated to sufficient diameter to complete the procedure, the amniotic fluid is aspirated, and the fetus is grasped and removed with forceps. Once the fetal parts have been removed, suction aspiration is performed to ensure complete uterine evacuation. Physicians may use methylergonovine, misoprostol, or oxytocin as a uterotonic agent to prevent or treat postoperative bleeding, with vasopressin or lidocaine with epinephrine used in a paracervical block to reduce blood loss. Approximately 85% of physicians in the United States offer moderate sedation for dilation and evacuation and approximately half offer general anesthesia.

ED EVALUATION

The goal of evaluation of the patient who presents to the ED after a medical or surgical abortion is to rule out rare but dangerous complications. As such, the history and physical examination are important to guide decisions about further tests and imaging.

The history should include a gestational history, as well as details regarding the current abortion procedure. Important details include differentiation of medical or surgical abortion, use of medications or cervical ripening agents, complications during the procedure, and type of analgesia used during the procedure. If available, the facility that performed the abortion should be contacted to confirm pertinent details. Additionally, pertinent medical history should be obtained, including a history of coagulopathy or bleeding disorders, diabetes, or other conditions that might increase the likelihood of infection, as well as previous abdominal or gynecologic surgeries.

Physical examination should document full vital signs, as well as include a detailed abdominal examination for evidence of peritonitis or significant guarding. The physician should perform a pelvic examination, including a speculum examination and bimanual examination, especially in cases of postabortion hemorrhage or to assess for infectious complications of surgical abortion.

Hemorrhage

When patients have a medical abortion, they are typically informed about cramping and bleeding that will begin 1 to 4 hours after ingestion of misoprostol. They are instructed to call the clinic if they have not experienced any bleeding within 24 hours of misoprostol administration. The heaviest bleeding should occur 3 to 8 hours after misoprostol administration as the pregnancy tissue is expelled from the uterus and should subsequently decrease. Excessive bleeding is often described as soaking through 2 pads per hour for at least 2 hours in a row. The median duration of bleeding most women will experience is 11 to 13 days, although 25% of women may experience bleeding for 17 days or longer.

Women are likely to experience more bleeding with medical abortion compared with surgical abortion, but hemorrhage is rare in either case. Studies have shown 0.13% to 2% of women experience a hemorrhage after any type of legal induced abortion, with an increased risk at later gestational ages and with increasing body mass index. Transfusions are necessary in less than 0.1% of...
Although blood transfusion is rare, approximately 5% of women who present to the ED for an abortion-related complication will receive one, emphasizing the inherent increased risk of complications of those presenting to the ED.

The differential diagnosis when a woman presents with heavy vaginal bleeding after an abortion includes uterine atony, cervical laceration, retained products of conception, uterine perforation, and coagulopathies. Less common causes include acquired uterine arteriovenous malformations, uterine artery pseudoaneurysms, abnormal placentaion, and undiagnosed ectopic pregnancy.

Initial management includes a CBC count, type and screen, and coagulation studies. A pelvic examination should be performed to assess the quantity of ongoing bleeding, look for cervical lacerations, and assess for uterine atony. Pelvic ultrasonography may demonstrate retained products of conception, hematometra (accumulation of blood in the uterus), or, less frequently, free fluid in the abdomen, suggesting uterine perforation (Figure 1).

Cervical lacerations are most likely to occur and be managed in the immediate postoperative period. In the unlikely event that cervical lacerations are observed in the ED, small ones can be treated with direct pressure and silver nitrate and more extensive ones can be repaired with absorbable sutures. This may require gynecologic consultation.

If postabortion bleeding is determined to be due to retained products of conception or hematometra, the treatment is a repeated vacuum aspiration, which will allow the uterus to contract and stop bleeding. Manual vacuum aspiration performed bedside in the ED could play a crucial role in addressing brisk bleeding nonresponsive to medications in resource-limited settings. If there is concern for uterine atony, ED treatment may include fundal massage and uterotonic agents. Misoprostol 800 to 1,000 μg by rectum is the first-line agent used for uterine atony, followed by methylergonovine 0.2 mg intramuscularly (can be repeated up to 5 times and acts rapidly) and carboprost (Hemabate) intramuscularly. Patients with hypertension should not receive methylergonovine. Patients with asthma or active cardiac, pulmonary, renal, or hepatic disease should not receive carboprost. Misoprostol is safe in all patients except those with an allergy to misoprostol.

In resource-poor or international settings without access to obstetrics and gynecology, a sterile catheter balloon (most commonly a Foley balloon) can be inserted into the uterus and used to tamponade uncontrolled bleeding.

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**Figure 1.** Management of postabortion hemorrhage. D&C = Dilation and curettage, DIC = disseminated intravascular coagulopathy, OB/GYN, obstetrician-gynecologist; RPOC = retained products of conception.
caused by uterine atony.29 These devices should be considered a last resort and must be inserted carefully and preferably under ultrasonographic guidance to reduce the risk of uterine perforation.

Irrespective of cause, for patients with hemorrhage requiring transfusion, ED physicians may consider administering tranexamic acid,29,43 which has been shown to decrease the risk of postpartum hemorrhage without increasing the risk of clotting events.44 Additionally, patients with significant hemorrhage requiring multiple transfusions are at risk for disseminated intravascular coagulation. For patients with hemorrhage who are unstable and require more than 2 units of blood, consider balanced transfusions of RBCs, platelets, and fresh frozen plasma. Initiating massive-transfusion protocols may be indicated, as well as emergency consultation with intensivists and obstetrics and gynecology or surgical specialists.29

Additional treatments may include interventional radiology, if available, for uterine artery embolization in patients when bleeding is not responsive to initial treatments, or in the cases of other rare conditions such as abnormal placenta or uterine artery pseudoaneurysm.29,38,39,45 When interventional radiology is unavailable or the patient is hemodynamically unstable, laparotomy or laparoscopy must be undertaken for refractory bleeding.29 Surgical management is also indicated if the diagnosis cannot be confirmed, such as in a possible heterotopic pregnancy. The last and most definitive treatment for postabortion hemorrhage refractory to all other treatments is a hysterectomy.29

Infection

The rates of infection after abortion are low, estimated between 0.016% and 0.23%.2,33 That said, prompt recognition and initiation of treatment for postabortion infection is crucial because types of infections range from mild endometritis to fatal septic shock.

The initial evaluation for a suspected postabortion infection includes a pelvic examination, pelvic ultrasonography to evaluate for retained products of conception, blood and cervical cultures, and laboratory testing, including a CBC count, lactic acid level, renal function tests, and coagulation studies.46,47 (Figure 2).

Most cases of postabortion infections are due to polymicrobial infections, often with endogenous vaginal flora or preexisting infections with *Chlamydia trachomatis*, *Neisseria gonorrhoea*, *Trichomonas vaginalis*, or bacterial vaginosis.36 Group B streptococcus, *Escherichia coli*, *Staphylococcus aureus*, and anaerobic bacteria including *Bacteroides fragilis* and *Peptostreptococcus* species are commonly implicated in infections.46 Bacteria that produce toxins such as group A streptococcus and clostridial species can cause particularly dangerous infections.46 In cases of suspected postabortion infection in patients who do not have evidence of retained products of conception or severe sepsis, broad-spectrum intravenous antibiotics, with common regimens including gentamicin and clindamycin, with or without ampicillin or ampicillin, as well as gentamicin and metronidazole should be administered, with admission to the hospital for continued management.46,47 Clindamycin has been shown to inhibit bacterial toxins and so is an important component of therapy when toxin-producing organisms may be involved.47

In cases of postabortion infection in which there is concern for retained products of conception, in addition to broad-spectrum antibiotics, obstetrics and gynecology should be consulted to perform source control by vacuum aspiration dilation and curettage.47

Clostridial toxic shock is a rare but almost universally fatal condition that can occur postpartum or postabortion; it was the leading cause of death after first-trimester abortion in the United States between 1998 and 2010.46,48,49 Ten cases of clostridial toxic shock occurred between 2003 and 2010; 9 were in the United States and 1 was in Canada, all of which were fatal.50 This syndrome involves gynecologic infections with *Clostridium* species, most commonly *C. sordellii*, but *C. perfringens*, *C. septicum*, and *C. bifermentans* have also been reported.51 Clostridial toxicins lead to septic shock with rapid deterioration.49 In these case studies, patients presented between 1 and 7 days after a medically induced abortion.50,52 Initial symptoms are nonspecific and can include abdominal pain or cramping, nausea, vomiting, diarrhea, and chills.49 Patients develop signs of septic shock, including tachycardia and hypotension.49 Blood culture results are typically negative and Gram’s stain of uterine tissue may be required for diagnosis.49 Most patients with clostridial septic shock caused by a gynecologic source are afebrile and develop a massive leukocytosis, with WBC counts rapidly increasing and reaching greater than 100,000 cells/µL in many patients.49,52

Management of clostridial toxic shock, as well as infections with other organisms that produce systemic toxins such as group A streptococcus, may require ICU admission, aggressive sepsis management, and emergency obstetrics and gynecology consultation to consider surgical hysterectomy.46,47 In addition to surgical removal of the toxin source, clostridial toxic shock should be treated with intravenous antibiotics, with recommendations including penicillin and clindamycin.49
Complications Specific to Medical Abortions

When a patient presents to the ED after a medical abortion, physicians must determine whether the abortion was completed and assess the patient for complications that may require immediate treatment, including a misdiagnosed ectopic or heterotopic pregnancy. In addition to the history and physical examination, patients should receive pelvic ultrasonography to evaluate the status of the pregnancy, as well as laboratory testing including CBC count, type and screen, and quantitative beta-human chorionic gonadotropin (Figure 3).

When complications related to medical abortions are evaluated, it is important to determine whether and when misoprostol was received. Pregnancy expulsion typically occurs within 3 to 8 hours after misoprostol administration, so if the patient presents within this time, she may not have expelled the pregnancy. Patients who present less than 8 hours after misoprostol administration who are clinically stable and have minimal pain controlled with oral medications may be able to safely follow up in their outpatient clinic.

If misoprostol was received greater than 8 hours before presentation, pregnancy expulsion should have occurred. The most important finding on ultrasonography to assess for successful expulsion is the presence or absence of a gestational sac. If there are obvious retained products of conception—specifically, if a gestational sac is identified—this is concerning for incomplete abortion and an obstetrics and gynecology consultation is recommended.

That said, the lack of an identified gestational sac does not guarantee completed abortion or absence of other complications requiring treatment. In 1 study of 525 patients, a gestational sac was observed in only one third of patients who required medical or surgical intervention. If a gestational sac is not clearly identified, the decision for further medical or surgical intervention must be based on the ultrasonographic findings in the context of the physical examination, laboratory testing.
It is crucial to realize that the same ultrasonographic findings could mean different things in the context of a stable patient versus one with a significant decrease in hemoglobin level or unstable vital signs.

Clots or debris are commonly observed in the uterus after medical and surgical abortion and should not immediately trigger further intervention. Other measures, including endometrial thickness, have poor predictive value for the need for further surgical management after a medical abortion and should not be used to evaluate for a successful abortion.

If the patient has a reassuring ultrasonographic result (ie, no gestational sac observed in the uterus), normal laboratory testing results, stable vital signs, and a benign examination result, discharge from the ED can be considered with clinic follow-up. Many abortion clinics provide follow-up care as part of the service package offered with an abortion. If any of these parameters are not met, consultation with obstetrics and gynecology is recommended. Although quantitative beta-human chorionic gonadotropin levels can be challenging to interpret postabortion, an 80% decrease in human chorionic gonadotropin levels 1 week after medical abortion is highly suggestive of a successful expulsion.

Patients who have evidence of retained products of conception greater than 8 hours after misoprostol, who are unstable, who have severe pain not controlled with oral medications, or who have evidence of heavy bleeding (typically defined as soaking more than 2 pads per hour for 2 hours or having a significant decrease in blood volume or other signs of hemodynamic instability), infection, or allergic reaction require emergency obstetrics consultation.

Complications of Cervical Dilators

Because osmotic dilators are often placed the day before a dilation and evacuation, patients are sent home with the dilators in place. Complications from the use of osmotic dilators are rare, but could occur at home and result in patients’ presenting to the ED. Patients may experience bleeding, rupture of membranes or preterm labor, infection, or allergic reaction. In the rare circumstances of bleeding or rupture of membranes, formal obstetric care is required.

There have been a few cases of retained cervical dilators postabortion, but this should not typically occur because abortion physicians examine and count cervical dilators on removal. In the few case reports of retained dilators, the
patient presentations involved pelvic pain and vaginal discharge, with the retained foreign object visualized on imaging studies and requiring surgical removal.61,62

Amniotic Fluid Embolism
Amniotic fluid embolism after induced abortion has been reported rarely and occurs because of an abnormal maternal inflammatory response after exposure to fetal tissue.63,64 The most common symptoms include hypotension, acute dyspnea, desaturation, pulmonary edema, cardiovascular collapse, and coagulopathy.63 Treatment is largely supportive, focusing on maintaining cardiovascular function, oxygenation, and aggressive management of coagulopathy and hemorrhage with blood products.63,64

Uterine Perforation
Uterine perforation is also a rare complication of induced surgical abortion, with most cases requiring only observational care.35 Perforation requiring intervention has been reported to range from less than 0.1% to 2.3%.35,63-67 Small perforations that go undetected and cause no serious complications may occur slightly more often.65 However, there have been a few case studies describing perforations leading to retained products of conception in the abdomen, bowel incarceration in the uterus and resulting obstruction, bowel perforation, and surgical emergencies.68-71 These complications have been reported immediately postabortion, as well as days to weeks later.72,73 Ultrasonography is the appropriate initial image modality that will evaluate for a complicated perforation, including defects in the uterine wall, abnormal uterine contents, abdominal free fluid, or visualized fetal tissue.69,74 If perforation is suspected and the ultrasonographic result is inconclusive, abdominopelvic computed tomography or magnetic resonance imaging can be used for further evaluation and surgical planning in a stable patient.66,67,69 Surgical management is required for complicated perforations, with involvement of obstetrics and gynecology and possibly surgery, depending on whether there is bowel involvement.71

Self-managed Abortions
As state legislatures pass an increasing number of laws regulating abortion, more women face additional barriers to legal and safe abortion.75,76 Examples of state-specific laws include 18 states that have requirements for size of facility procedure rooms and corridors, 8 that have requirements for proximity to a hospital, and 11 that require abortion physicians to have some sort of affiliation with a local hospital for transferring patients.76

In addition, 27 states have laws mandating a waiting period between counseling and beginning an abortion procedure (this includes waiting for the insertion of osmotic dilators the day before a surgical abortion, as discussed earlier).75 The most common waiting period is 24 hours, but Arkansas, Missouri, North Carolina, Oklahoma, South Dakota, and Utah currently require a 72-hour waiting period after counseling.75

Many state laws regarding induced abortion ultimately limit patient access. For example, a study published in 2017 showed that in 2014, women in California lived a median distance of 5 miles from an abortion physician, whereas women in North Dakota lived a median distance of 152 miles from the closest abortion physician.77 At least half of all women living in North Dakota, South Dakota, and Wyoming would have to travel greater than 90 miles to reach the closest abortion physician.77 When women are required to make multiple trips to abortion clinics to comply with mandatory consent and waiting laws, the burden placed on them increases significantly.77

Although the majority of complications of self-managed abortions occur in developing countries, many women in the United States face substantial barriers when seeking a safe and legal abortion, which may lead them to attempt a self-managed abortion without medical guidance.78 The financial costs of abortion include not only the cost of the procedure itself but also transportation costs and days of work missed, which increase when women have to make multiple visits to the clinic.77 A retrospective observational study of nationwide ED visits between 2009 and 2013 estimated that 1.4% of all abortion-related ED visits were potentially due to self-managed abortion, with an increased incidence in the southern United States compared with the rest of the country.1

Common methods used to attempt a self-managed abortion comprise oral medications, including mifepristone; vaginal douches or preparations; cervical dilation; uterine instrumentation; and abdominal trauma.79,80 The leading causes of death worldwide after unsafe abortions are hemorrhage, infection, and poisoning.78 The infectious complications including sepsis (discussed earlier) are all more prevalent with self-managed abortions, especially when cervical or uterine instrumentation is attempted.79 Instrumentation or placement of caustic substances or douches into the vagina can cause trauma to the vagina, cervix, uterus, or abdominal organs.78 Intentional trauma to the abdomen, such as self-inflicted blows or falls, can cause trauma to the abdominal organs or even uterine rupture.78 In the face of increasing restrictions, patients are likely to migrate to the Internet to seek out medications, likely mifepristone and misoprostol, without the oversight
of a health care physician. Products purchased online claiming to be misoprostol are unregulated and could contain any number of substances, and therefore the implications are vast and unknown.

Women presenting to the ED after attempting a self-induced abortion may be reluctant to disclose their attempt for fear of legal or social repercussions. It falls to the emergency physician to maintain vigilance for complications of self-managed abortions. Early recognition is crucial because the potential complications are life threatening. Risk factors include living in developing or resource-poor countries and living in areas with limited access to reproductive health and abortion resources. Physical and pelvic examination findings inconsistent with the history, especially in patients with a positive urine or serum pregnancy test result, should be considered a red flag. Furthermore, women who present with severe sepsis or hypotension with anemia without a source should be evaluated for gynecologic complications. Unfortunately, even with rapid diagnosis, because of the fear of repercussions, women may wait to seek care and be very ill by the time they present to the ED. ED physicians should be aware of self-managed abortions and, when obtaining the medical history, should ask nonjudgmental but directed questions about where and how the abortion was performed.

**Patients Requesting an Abortion Reversal**

In recent years, there have been controversial bills and laws passed in several states requiring abortion physicians to inform patients about the possibility of reversing a medical abortion when they have ingested mifepristone but have yet to ingest misoprostol. Some researchers have speculated that because mifepristone is a competitive inhibitor of progesterone receptors, administering progesterone could reverse the effects of mifepristone. A 2019 randomized controlled trial was halted prematurely because of safety concerns of hemorrhage when patients did not receive misoprostol.

Women can easily access online information promoting the process and may present to the ED asking for reversal treatment. As mentioned earlier, the process of abortion “reversal” is an experimental treatment with possible risks and is not supported by American College of Obstetricians and Gynecologists or other medical authorities. Because abortion reversal is not an evidence-based recommendation and because of the potential risks of hemorrhage, we do not recommend this treatment outside of institutional review board–approved clinical trials. When patients are counseled, it is important that they be informed that there are not currently sufficient data on pregnancy continuation rates and fetal outcomes after receipt of mifepristone alone or mifepristone followed by progesterone. Trials that have examined fetal outcomes after mifepristone without misoprostol looked at various doses and did not all follow up long term, so estimates of continued pregnancy rates range from 8% to 46%. Patients who are hemodynamically stable and who elect to attempt continued pregnancy should be advised to follow up closely with obstetrics and gynecology as outpatients and be counseled on complications to seek immediate medical care for excessive bleeding.

**IMMEDIATE POSTABORTION LONG-ACTING REVERSIBLE CONTRACEPTIVES**

Women may ovulate as early as 10 days after an abortion procedure, so early access to contraception is crucial. Immediate postabortion insertion of long-acting reversible contraceptives, consisting of intrauterine devices or the contraceptive implant, is an evidence-based practice that has been shown to reduce further unintended pregnancies. When patients present to the ED after an abortion, they may already have an intrauterine device or implant in place. If a patient’s contraceptive needs have not already been addressed, the ED physician should inform her she can become pregnant again very soon and recommend follow-up care for contraception.

**DISCUSSION**

Abortion in the United States and other industrialized nations is safe; however, presentations to the ED after an abortion can present challenges. Complications can include hemorrhage, retained products of conception, infection, amniotic fluid embolisms, uterine perforation, and cervical lacerations. As abortion becomes more restricted in the United States and access is limited, abortion-related morbidity and mortality may increase. ED physicians may begin to observe an increase in complications of unsafe abortions and need to be prepared to evaluate patients who present after both legal and self-managed abortions. ED physicians need to remain knowledgeable of the evolving medical practices of legal abortion, as well as the shifting political and social dynamics of abortion care that will affect patients and potential complications they encounter.

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