

Early Pregnancy Loss

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THE STORY IN ONE SENTENCE

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“Confirm the pregnancy has ended. Check for ectopic. Choose expectant, medicine, or surgery. Give anti-D if Rh-negative. Watch for heavy bleeding or infection. Support emotionally and plan follow-up.”

Normal anatomy — the body's job

A sperm fertilizes an egg in the fallopian tube, and the new embryo travels down into the uterus and burrows into the lining (implantation). Cells divide in an exact pattern, hormones—especially human chorionic gonadotropin (hCG, the pregnancy hormone) and progesterone—rise steadily to support growth. The uterus stays relaxed, the cervix stays closed and firm, and blood vessels in the lining deliver oxygen and nutrients. By about 6 weeks, a heartbeat appears on ultrasound, and the embryo continues to grow week by week.

BODY'S JOB

The uterus provides a cushioned, nutrient-rich home. Progesterone keeps the uterine muscle calm so it does not contract and expel the embryo. hCG signals the ovary to keep making progesterone. Blood vessels in the lining expand to feed the growing embryo. The cervix stays tightly closed to hold everything safely inside.

1. Sperm meets egg in the tube → fertilization creates a single cell with 46 chromosomes (23 from each parent).
2. The fertilized egg divides as it drifts down the tube over 5–7 days, becoming a ball of cells (blastocyst).
3. The blastocyst reaches the uterus and burrows into the thick, blood-rich lining (implantation).

4. Implantation triggers hCG release, which keeps the ovary's corpus luteum making progesterone.
5. Progesterone keeps the uterine lining thick and the muscle relaxed; blood vessels grow to nourish the embryo.
6. By 5–6 weeks, the embryo's heart begins to beat; by 8 weeks, all major organs are forming.
7. The cervix stays closed and firm, holding the pregnancy safely inside until full term.

What breaks

The pregnancy stops growing. The embryo or early fetus dies, hormone levels drop, and the body begins to expel the tissue through cramping and bleeding.

CLINICAL TERM

Spontaneous abortion (clinical term) or miscarriage (lay term): non-viable intrauterine pregnancy with embryonic or fetal demise before 20 weeks of gestation.

How the body compensates

The body does not have a way to rescue a non-viable embryo. Instead, it launches a cleanup program: hormone levels drop, the uterus begins cramping contractions to push tissue out, and blood vessels in the lining constrict to limit bleeding. Vital signs often stay normal during the process, but watch for danger signs—heavy bleeding that soaks two pads per hour for two hours, severe pain, fever, or dizziness—because those mean the tissue is not passing completely or infection is setting in.

1. hCG and progesterone levels fall because the dying embryo stops signaling the ovary. The uterine lining is no longer supported.
2. The uterus senses dead tissue and begins rhythmic contractions (cramping) to push it toward the cervix, like squeezing a sponge.
3. The cervix softens and opens slightly to let blood, clots, and tissue pass out through the vagina.
4. Blood vessels in the lining constrict to slow bleeding once tissue is expelled; the uterus clamps down to seal off open vessels.
5. If tissue remains inside (incomplete miscarriage), bleeding continues and infection risk rises—the uterus cannot fully contract and seal.
6. Vital signs (heart rate, blood pressure) often stay stable during light to moderate bleeding because the body can replace small blood losses quickly.

7. Watch for the tipping point: soaking ≥ 2 pads/hour for 2 hours, feeling faint or dizzy, fever $\geq 100.4^{\circ}\text{F}$, or severe pain—these signal bleeding (hemorrhage), retained tissue, or infection and need urgent care.

Domino effect

1. The embryo stops growing. — A chromosome error (or rarely, a clotting disorder, infection, anatomic problem, or hormone failure) makes the embryo unable to build cells and organs correctly, so development halts—usually between 5 and 10 weeks.
2. hCG and progesterone levels drop. — The dying embryo stops sending signals, so the ovary's corpus luteum stops making progesterone. Without progesterone, the uterine lining cannot stay thick and nourished.
3. The uterus senses the loss and begins cramping. — Falling hormones release the brake on uterine muscle. The muscle contracts rhythmically to squeeze out the dead tissue, just as it will during labor at full term—this is the body's cleanup program.
4. Vaginal bleeding begins. — As the lining detaches and blood vessels tear, blood flows out through the vagina. Bleeding may be light spotting, heavy flow with clots, or anywhere in between, depending on how much tissue is passing and how fast.
5. Tissue and clots pass out. — Cramping pushes the pregnancy sac, placenta pieces, and blood clots through the softened, slightly open cervix and out as vaginal discharge.
6. Sometimes there are no symptoms at all. — In a missed miscarriage, the embryo dies but the body does not yet start contractions—so bleeding and cramping have not begun. An ultrasound shows an empty sac or absent heartbeat even though the patient feels fine.
7. If tissue stays inside, bleeding continues and infection risk climbs. — An incomplete miscarriage leaves the cervix open and the uterus unable to clamp down fully. Open blood vessels keep bleeding, and bacteria from the vagina can travel up into the uterus, causing fever, foul discharge, and pelvic pain (septic abortion).
8. The uterus clamps down and bleeding stops once tissue is fully out. — After the uterus is empty, muscle fibers squeeze tightly around blood vessels, sealing them off like tying a knot in a garden hose. hCG falls to zero over days to weeks, and the lining begins to heal and rebuild for the next cycle.

Symptoms · what the patient feels, and why

- Vaginal bleeding: When the pregnancy tissue starts to pull away from the wall of the uterus (womb), tiny blood vessels break open and bleed—just like peeling a sticker off skin can leave a raw spot that oozes.

- Cramping or pain low in the belly: The uterus muscle squeezes (contracts) to push out the pregnancy tissue that is separating, similar to how your stomach cramps when it tries to push out something it doesn't want.
- Passing clots or tissue from the vagina: When the pregnancy stops growing, the body recognizes it and starts to shed the gestational sac and lining, just like how a tree drops a leaf that has died.
- Pregnancy symptoms suddenly stop (breast tenderness goes away, nausea disappears): The placenta (the organ that feeds the baby) stops making pregnancy hormones once the embryo stops growing, so the body no longer gets the chemical signals that were causing those symptoms.
- Ultrasound shows an empty gestational sac or a sac that is too small for the dates: The embryo either never formed or stopped growing very early, leaving behind only the fluid-filled sac—like a deflated balloon with nothing inside.
- Beta-hCG hormone level stops rising normally or starts to drop: A healthy early pregnancy doubles its hCG (pregnancy hormone made by the placenta) every 48–72 hours. When the pregnancy fails, the placenta stops working and hormone production slows down or falls, like a battery losing its charge.
- No fetal heartbeat seen on ultrasound when the embryo is big enough to have one: By the time the embryo measures about 5–7 millimeters (roughly the size of a peppercorn), the heart should be beating. If it isn't, the embryo has stopped developing.
- Heavy bleeding soaking through more than one pad per hour, or feeling dizzy and weak: Losing a lot of blood quickly drops the volume of fluid in your blood vessels, so less oxygen reaches your brain and muscles—like a garden hose losing pressure when too many sprinklers are on at once.

Focused exam

- Vaginal bleeding before 20 weeks of pregnancy: Bleeding is the body's signal that the pregnancy is ending. Whether the blood is bright red or dark brown, it means tissue is coming away from the wall of the uterus. This happens because the pregnancy stopped growing days or weeks earlier, and now the uterus is pushing it out.
- Cramping or pain low in the belly or pelvis: The uterus is a muscle that squeezes to push out tissue that is no longer alive. The cramping tells you the uterus is actively working. When you see cramping plus bleeding together in early pregnancy, early pregnancy loss is the most likely answer until tests show otherwise.

- Closed cervix versus open cervix on speculum exam: If the cervix is still closed and bleeding is light, the pregnancy might still survive—this is called a threatened miscarriage. If the cervix is open and you see tissue or clots, the miscarriage is already happening and cannot be stopped. This one finding tells you whether the loss is complete, incomplete, or still uncertain.
- No fetal pole visible, or no heartbeat seen, on transvaginal ultrasound: When the gestational sac measures 25 mm or bigger but has no fetal pole inside, or when the fetal pole is 7 mm or longer but shows no heartbeat, the pregnancy has stopped developing. These ultrasound findings—called the definitive criteria—prove the loss and guide treatment choices.
- Falling or plateau beta-hCG level over 48 hours: In a healthy early pregnancy, beta-hCG (the hormone made by pregnancy cells) should rise by at least 53% every two days. When the number drops or stays flat, it means the pregnancy cells are dying. This pattern matches a failing pregnancy and helps confirm the ultrasound findings.
- Rh blood type (check if mother is Rh-negative): If the mother is Rh-negative and the baby was Rh-positive, some of the baby's blood can mix with hers during the bleeding. Her immune system might then build antibodies that attack Rh-positive babies in future pregnancies. Giving an anti-D shot within 72 hours stops this from happening.
- Fever, foul-smelling vaginal discharge, or severe continuous pain: These signs mean infection may be growing inside the uterus, usually because tissue stayed inside too long and bacteria moved in. Infection after early pregnancy loss can spread fast and harm the mother. When you see fever plus bleeding after a loss, you must start antibiotics and consider urgent surgical removal of the infected tissue.

Diagnostics · every test answers a question

- Quantitative serum beta-hCG → Is the pregnancy hormone rising normally, or is it falling or staying flat—showing the pregnancy is failing?
- Transvaginal pelvic ultrasound → Is there a gestational sac in the uterus, and if so, does it contain a living embryo with a heartbeat?
- Complete blood count (CBC) → Has the bleeding been heavy enough to drop the patient's red blood cell count and hemoglobin?
- Rh blood type and antibody screen → Is the mother Rh-negative, and does she need anti-D immunoglobulin to prevent antibodies from forming?
- White blood cell count (WBC) and C-reactive protein (CRP) if infection suspected → Is there infection inside the uterus causing fever, pain, and foul discharge?
- Blood type and screen (for transfusion readiness) → If the patient is bleeding heavily, what is her blood type in case she needs emergency transfusion?

Treatment logic

- Expectant management (waiting 1–4 weeks for the body to complete the miscarriage naturally) → The uterus contracts and pushes out the pregnancy tissue on its own through cramping and bleeding. About 50–80% of early losses complete this way without medicine or surgery within two weeks. This avoids medication side effects and surgical risks.
- Misoprostol 800 mcg placed in the vagina (can repeat once after 24 hours if tissue does not pass) → Misoprostol makes the uterus contract more strongly, speeding up tissue expulsion from weeks down to hours or 1–2 days. Success rate is about 80–90% for incomplete or missed miscarriage. Cramping and bleeding increase temporarily as the medicine works.
- Suction dilation and curettage (D&C) under anesthesia → Surgically removes all pregnancy tissue from the uterus in one procedure, stopping bleeding immediately and lowering infection risk by clearing out dead material. Fastest option (complete in 10–15 minutes). Allows tissue to be sent to pathology if needed.
- Anti-D immunoglobulin (RhoGAM) 300 mcg intramuscular injection if mother is Rh-negative → Blocks the mother's immune system from building antibodies against Rh-positive red blood cells. Must be given within 72 hours of bleeding. Protects future Rh-positive babies from destroying red blood cells (hemolytic) disease (destruction of their red blood cells).
- Broad-spectrum intravenous antibiotics (such as clindamycin plus gentamicin) if septic miscarriage suspected → Kills bacteria growing inside the infected uterus, stops sepsis from spreading into the bloodstream, and stabilizes the patient. Must be paired with urgent D&C to remove the infected tissue—antibiotics alone cannot clear the source.
- Pain control with ibuprofen 600–800 mg every 6–8 hours, or acetaminophen with codeine for severe cramping → Reduces cramping pain during expectant or medical management. Ibuprofen also lowers inflammation. Makes the experience more tolerable as the body or medicine expels tissue.
- Counseling about recurrence risk and workup after two or more consecutive losses → Explains that one early pregnancy loss is common (occurs in 15–20% of known pregnancies) and usually does not repeat—most people go on to have healthy pregnancies. After two losses in a row, testing for blood-clotting disorders (antiphospholipid syndrome), uterine shape problems, and parental chromosome rearrangements is recommended.

Medications

Misoprostol · Prostaglandin E1 analog

Misoprostol is a man-made version of a natural body chemical called prostaglandin.

Prostaglandins tell the muscles in the uterus (womb) to squeeze and contract. When the uterus contracts, it pushes out tissue. At the same time, misoprostol softens and opens the cervix (the

door at the bottom of the uterus) so tissue can pass through. Think of it like a tube of toothpaste: the medicine squeezes the tube (uterus) and loosens the cap (cervix) so everything can come out.

1. You place the misoprostol tablet in your vagina (or sometimes under your tongue or between cheek and gum).
2. The medicine dissolves and enters your bloodstream.
3. Misoprostol binds to prostaglandin receptors on the muscle cells in your uterus.
4. The muscle cells get the signal to contract (squeeze) over and over.
5. At the same time, the cervix softens and begins to open.
6. The squeezing pushes pregnancy tissue out through the open cervix.
7. Bleeding and cramping happen as the uterus empties itself.

SAFETY WATCH

Expect cramping and bleeding—often heavier than a normal period—for several hours after taking the medicine. This is the medicine working. · Use pads, not tampons, so you and your doctor can see how much you are bleeding. · Fever and chills for a few hours are common side effects. But if fever lasts more than 24 hours or goes above 100.4°F (38°C), call your doctor—that can be a sign of infection. · Nausea, vomiting, and diarrhea happen in some people because prostaglandins also affect the stomach and intestines. · Very heavy bleeding (soaking through two thick pads in one hour for two hours in a row) means you should go to the emergency room. · Do not use misoprostol if you have an IUD (intrauterine device) in place—it must be removed first. · If you have severe asthma, heart disease, or uncontrolled high blood pressure, tell your doctor; misoprostol may not be safe for you.

Mifepristone · Progesterone receptor antagonist (progesterone blocker)

Mifepristone blocks progesterone, a hormone that keeps the lining of the uterus thick and attached during pregnancy. Progesterone is like glue holding the pregnancy tissue to the uterine wall. When mifepristone blocks progesterone, the glue dissolves. The lining softens and begins to break down, and the cervix (the door at the bottom of the uterus) starts to soften and open. This makes it much easier for misoprostol (the second medicine) to push everything out.

1. You swallow the mifepristone tablet.
2. The medicine enters your bloodstream and travels to your uterus.
3. Mifepristone fits into progesterone receptors like a key in a lock, but it does not turn the lock—it blocks the real progesterone from getting in.
4. Without progesterone's signal, the uterine lining stops being maintained.
5. The lining begins to break down and detach from the uterine wall.

6. The cervix softens.
7. 24 to 48 hours later, you take misoprostol, which makes the uterus contract and finish pushing everything out.

SAFETY WATCH

Mifepristone by itself usually causes little cramping or bleeding. Most of the cramping and bleeding happen after you take misoprostol 1 to 2 days later. · Do not take mifepristone if you have an ectopic pregnancy (pregnancy outside the uterus)—it will not work and you need different treatment. · Do not use mifepristone if you are on long-term steroid medicine (like prednisone) or have adrenal gland problems, because it can interfere with how your body handles stress. · Rarely, people feel nauseated, dizzy, or very tired after mifepristone. · Always take mifepristone and misoprostol together as your doctor prescribes; mifepristone makes the misoprostol work much better.

Rho(D) immune globulin (RhoGAM) · Immunoglobulin (antibody medicine)

If your blood type is Rh-negative and the pregnancy tissue is Rh-positive (which can happen if the father is Rh-positive), a small amount of fetal blood can mix with yours during a miscarriage. Your immune system might see that Rh-positive blood as foreign, like a germ, and make antibodies (fighters) against it. Those antibodies can stay in your body for years. In a future pregnancy, if the baby is Rh-positive, your antibodies can cross the placenta and attack the baby's red blood cells, causing serious harm. RhoGAM is a dose of ready-made antibodies that stick to any Rh-positive fetal blood cells in your system and coat them so your own immune system never learns to recognize them. Think of it like covering up a stranger's face so your immune system never gets a good look and never learns to attack.

1. A nurse or doctor gives you a shot of RhoGAM in your arm or hip muscle.
2. The antibodies in RhoGAM enter your bloodstream.
3. They find and coat any Rh-positive fetal red blood cells floating in your blood.
4. Your immune system destroys these coated cells quietly, as routine cleanup.
5. Because the cells were already coated, your immune system never learns to make its own antibodies against Rh-positive blood.
6. The RhoGAM antibodies fade away after a few months, leaving no memory behind.

SAFETY WATCH

RhoGAM is very safe. The most common side effect is soreness at the injection site. · Rarely, people get a mild fever, headache, or feel achy for a day. · Severe allergic reactions are extremely rare. · You must get RhoGAM within 72 hours (3 days) of the miscarriage, bleeding episode, or D&C for it to work. · If you are not sure of your blood type, your doctor will check it before deciding whether you need RhoGAM.

Red flags

- Soaking through more than one thick pad per hour for two hours in a row—this can mean dangerous bleeding.
- Severe belly pain on one side, or pain in the shoulder tip—this can mean the pregnancy is in the fallopian tube (ectopic) and the tube may be tearing.
- Feeling very dizzy, weak, or like you might faint—this can mean you have lost too much blood and your body is going into shock.
- Fever (temperature over 100.4°F or 38°C) or foul-smelling vaginal discharge—this can mean an infection in the uterus that needs antibiotics right away.
- Severe, constant pain that does not ease up—this can mean tissue is stuck in the cervix (opening of the womb) or there is another serious problem.

Nursing priorities

1. Check vital signs including blood pressure, heart rate, temperature, and orthostatic blood pressure (lying and standing) every 15 to 30 minutes if bleeding is moderate or heavy. — Dropping blood pressure, rising heart rate, or dizziness when standing up (orthostatic low blood pressure (hypotension)) are early signs of hypovolemia (low blood volume from bleeding) before shock develops, so catching these changes triggers fluid resuscitation and possible transfusion.
2. Start a large-bore intravenous line (18-gauge or bigger) and hang isotonic crystalloid fluids such as normal saline or lactated Ringer solution if the patient is bleeding heavily or showing any signs of shock. — A large IV allows rapid infusion of fluids or blood products to replace intravascular volume and maintain blood flow (perfusion) (blood flow) to the brain, heart, and kidneys when bleeding (hemorrhage) causes hypovolemic shock.
3. Count and weigh all pads and any passed tissue or clots to measure exact blood loss. — One fully soaked thick pad holds about 50 milliliters of blood; measuring loss objectively helps identify bleeding (hemorrhage) early, guides fluid replacement volumes, and tells the provider whether expectant management is safe or evacuation is needed.

4. Give pain medication as ordered, such as ibuprofen 600 to 800 milligrams by mouth every 6 hours or acetaminophen with codeine, before cramping becomes severe. — Uterine cramping happens because the myometrium (muscle wall of the uterus) contracts to expel tissue and close blood vessels; controlling pain helps the patient tolerate the process and prevents vagal response (sudden drop in heart rate and blood pressure from severe pain).
5. Confirm Rh status from the chart or send a type-and-screen blood test, and prepare to give RhoGAM 300 micrograms intramuscular within 72 hours if the mother is Rh-negative. — Fetal red blood cells can cross into maternal circulation during miscarriage; if the mother is Rh-negative and the baby is Rh-positive, her immune system will make antibodies that attack future Rh-positive pregnancies causing destroying red blood cells (hemolytic) disease, but RhoGAM blocks this sensitization.
6. Provide a private, quiet space and offer emotional support, acknowledging the loss and asking if the patient wants family, a chaplain, or a social worker present. — Early pregnancy loss triggers grief, guilt, and hormonal shifts (sudden drop in progesterone and estrogen) that worsen mood; emotional support reduces trauma and helps the patient process the loss, which improves mental health outcomes and reduces risk of depression.
7. Teach the patient warning signs to report immediately: soaking more than one pad per hour, severe one-sided pain, dizziness, fever above 100.4 degrees Fahrenheit, or foul-smelling vaginal discharge. — These signs indicate complications—bleeding (hemorrhage), ectopic rupture, or infection—that can develop hours to days after discharge; early recognition and return to the hospital prevent mortality from shock or sepsis.
8. Schedule follow-up with the obstetrics provider in one to two weeks to confirm the uterus is empty with ultrasound or falling beta-hCG levels, and discuss contraception or trying to conceive again. — Retained products of conception (leftover placenta or fetal tissue) cause prolonged bleeding and infection risk; confirming complete miscarriage prevents these complications, and fertility returns quickly so contraception counseling prevents unplanned pregnancy during physical and emotional recovery.

Sources

- ACOG Practice Bulletin No. 200: Early Pregnancy Loss, 2018 (reaffirmed 2020)
- American College of Radiology Appropriateness Criteria: First Trimester Bleeding
- NICE Guideline: Ectopic Pregnancy and Miscarriage, 2019
- UpToDate Clinical Guidelines (Obstetrics & Gynecology)

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