

Spontaneous Abortion and Pregnancy Loss in Cats

Basics

OVERVIEW

- “Abortion” is the delivery of one or more fetuses before it is (they are) capable of surviving outside of the uterus; a “fetus” (plural, fetuses) is the unborn young (that is, still in the uterus) kitten
- “Early pregnancy loss” is the death of the embryo, reabsorption of early fetuses, mummification (shriveling or drying up of the fetus, like a mummy)
- The “queen” is a female cat

GENETICS

- Non-specific; inbred lines experience higher levels of pregnancy failure than seen in other cats
- Genetic defects are more common in highly inbred cats than other cats; inbreeding increases risk of genetic disease
- Abortion may be a consequence of certain forms of inherited diseases
- Heritability of susceptibility to feline infectious peritonitis (FIP) virus is very high

SIGNALMENT/DESCRIPTION OF PET

Species

- Cats

Breed Predilections

- Purebred cats—higher likelihood of having a non-infectious abortion
- Predisposition to FIP in Bengal, Birman and Himalayan

Mean Age and Range

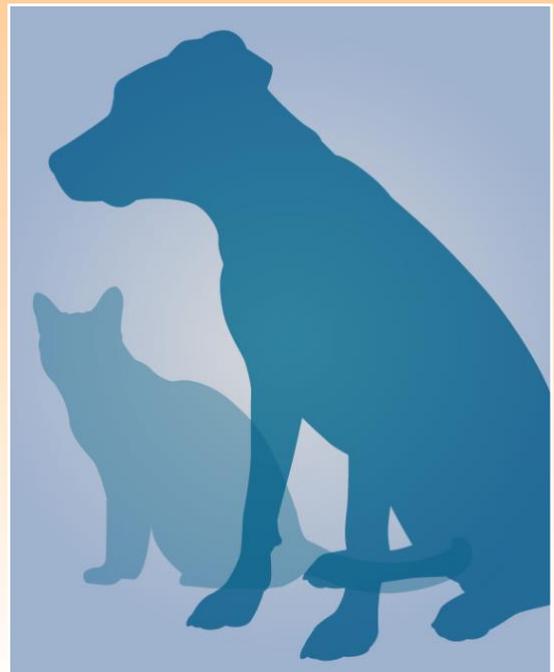
- Non-infectious causes—more common in young and aged queens
- Infectious causes—all ages

Predominant Sex

- Females

SIGNS/OBSERVED CHANGES IN THE PET

- May have no clinical signs, especially early in pregnancy or gestation
- Failure to give birth on time
- Return to “heat” or “estrus” earlier than expected
- Decrease in abdominal size
- Weight loss
- Lack of appetite (known as “anorexia”)
- Vomiting, diarrhea
- Behavioral changes



- Discharge from the vulva that contains blood or pus or discovery of fetal material—frequently unnoticed in fastidious queens (that is, queens that groom or clean themselves with meticulous attention) or with early pregnancy or gestational losses; the “vulva” is the external genitalia of females
- Disappearance of fetuses previously documented by physical examination (palpation), ultrasound examination, or x-rays (radiographs)
- Abdominal straining, discomfort
- Dehydration
- Fever

CAUSES

Infectious Disease

- Viruses—feline herpesvirus 1; feline immunodeficiency virus (FIV); feline infectious peritonitis (FIP) virus; feline leukemia virus (FeLV); feline panleukopenia virus (FPLV); viruses are the most common reported cause of infectious abortion in the queen
- Bacteria—*Salmonella*, *Chlamydophila*, and *Pasteurella*, *Escherichia coli*, *Staphylococcus*, *Streptococcus*, *Klebsiella*, *Pseudomonas*, *Mycoplasma*, and *Ureaplasma*
- Protozoa—*Toxoplasma gondii* (probably uncommon)

Non-infectious

- Uterine—disease of the lining of the uterus (known as “endometrial disease”)—cystic endometrial hyperplasia (CEH), a condition in which the lining of the uterus thickens abnormally and contains fluid-filled sacs or cysts; very common, pyometra (pus in the uterus); anatomic defects of the uterus, mechanical trauma to uterus or fetus
- Ovarian—insufficient secretion of progesterone by the “corpora luteum” or “yellow body” during pregnancy (known as “hypoluteoidism”)—abnormal function of the corpora luteum in the absence of fetal, or placental disease (secondary hypoluteoidism associated with chronic stress, certain drugs, uterus inflammation); a decline in serum progesterone levels leads to abortion
- Fetal defects—genetic or developmental (anatomic, metabolic, and chromosomal) abnormalities
- Systemic—agents that are toxic to the fetus (fetotoxic, teratogenic, chemotherapy drugs, antifungal drugs, some antibiotics); agents that induce abortion (known as “abortifacient drugs”)—luteolytics drugs (such as the prostaglandin, PGF₂α); estrogens; cabergoline, bromocriptine; steroids; modified live vaccines

Nutrition— low taurine intake (taurine is an amino acid [protein] that is an important component of the diet of cats; cats cannot produce enough taurine in their bodies and so, must obtain taurine from their food to maintain health); malnutrition; vitamin A excess or deficiency

- Consequence of severe, generalized (systemic) disease involving systems other than the reproductive system

RISK FACTORS

- Prior history of pregnancy loss or poor reproductive performance (may be history of individual queen or the cattery)
- Coexistent, severe sudden (acute) or long-term (chronic) disease
- Purebred with high degree of inbreeding
- Recent trauma
- Very young or old queen
- Previous progestin hormone use to suppress estrus
- Malnutrition, imbalanced nutrients (homemade diets, raw)
- Environmental stress—crowding, poor sanitation, noise, temperature or humidity extremes

Treatment

HEALTH CARE

- Outpatient medical management—typically no medical management required for stable queens having non-infectious, spontaneous abortions
- Queens with systemic infectious diseases causing abortion should be isolated and treated appropriately; aborted fetus or discharge may be infectious; practice strict sanitation

- Inpatient medical management—abortion imminent or taking place; clinical illness; potential zoonoses (*Toxoplasma gondii*)—diseases that can be passed from animals to people (unless safe and effective outpatient treatment can be assured); pets being treated with the prostaglandin, PGF_{2α}

ACTIVITY

- No limitations, unless an infectious agent is suspected or documented
- Isolate infectious queens (preferred)
- Restrict activity if pregnancy loss was secondary to trauma, as recommended by your pet's veterinarian

DIET

- No special dietary considerations for uncomplicated cases—typical diet labeled for pregnant queen; avoid hunting and raw diets during pregnancy (avoid contact with infectious agents, such as *Toxoplasma*)
- Persistent diarrhea or other causes of fluid loss—veterinary diet and fluid therapy
- Correct diets with inadequate taurine or Vitamin A levels

SURGERY

- Surgical management—spay or ovariohysterectomy (surgical removal of the ovaries and uterus) for queens with inflammation of the lining of the uterus (lining known as “endometrium”; condition known as “metritis”) or inflammation with accumulation of pus in the uterus (known as “pyometra”) or if necessary to preserve queen's life

Medications

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

- Depend on underlying causes
- Antibiotics—amoxicillin-clavulanate for example, pending results of bacterial culture and sensitivity testing
- Prostaglandin (PGF_{2α})—may be used to stimulate and evacuate the uterus in cases with non-viable fetuses or significant uterine contents noted on ultrasound examination; discuss risks and benefits of dinoprost treatment with your cat's veterinarian
- Terbutaline—medication used to attempt to prevent uterus contractions, maintain the pregnancy
- Progesterone/progestogens—for confirmed hypoluteoidism, based on serum levels monitoring

Follow-Up Care

PATIENT MONITORING

- Repeat ultrasound examination every 3-5 days for queens treated with prostaglandin (PGF_{2α}) —evaluate uterine evacuation
- Repeat ultrasound examination every 5-7 days for queens receiving medications to maintain the pregnancy— evaluate status of remaining fetus(es) to determine if they are continuing to live and develop
- Fetal monitor may be used, if available

PREVENTIONS AND AVOIDANCE

- Genetic problems require attention to breeding program; replace queens with more reproductively fit
- Infectious causes require prevention, surveillance and control measures
- Avoid treatment with/exposure to medications that may cause abortions or abnormal fetal development
- Spay or ovariohysterectomy

POSSIBLE COMPLICATIONS

- Depends on cause
- Generalized bacterial infection (known as “sepsis”)
- Shock
- Uterine rupture
- Inflammation of the lining of the abdomen (known as “peritonitis”)
- Inflammation of the lining of the uterus (metritis, endometritis)

- Inflammation with accumulation of pus in the uterus (pyometra)
- Bleeding
- Infertility
- Diabetes mellitus (“sugar diabetes”)
- Cystic endometrial hyperplasia (CEH, a condition in which the lining of the uterus thickens abnormally and contains fluid-filled sacs or cysts) and masculinization of fetuses following progestogen therapy; progestogen is any substance capable of producing the effects of the female hormone, progesterone

EXPECTED COURSE AND PROGNOSIS

- Infectious disease—may have normal pregnancy, repeated abortion, or infertility with subsequent pregnancies/breedings
- Long-term (chronic) infertility—common after 6 years of age
- Severe cystic endometrial hyperplasia (CEH)—poor prognosis for recovery of fertility and normal pregnancy
- Fair prognosis for primary hypoluteoidism; significant monitoring required for a good outcome
- Genetic abnormalities—pregnancy loss—recurrence likely if bred to a tom with a similar pedigree

Key Points

- Infectious diseases causing abortion—maintain good vaccination protocols; establish disease surveillance and control measures; quarantine new cats arriving at the home or cattery
- Zoonoses (diseases that can be passed from animals to people) can be causes of abortion or pregnancy loss in cats; discuss the potential of a zoonosis (such as Toxoplasmosis) causing your cat's abortion or pregnancy loss with your pet's veterinarian
- Maintain careful records of reproductive performance for each queen and for the cattery
- Discuss nutritional recommendations for breeding queens with your pet's veterinarian
- For breeding cats—consider risks and possible side effects associated with non-surgical solutions, particularly with infectious or genetic causes of pregnancy loss
- Infertility—may result despite successful treatment; may be secondary to conditions preexisting the pregnancy loss
- Prostaglandin treatment—consider risks and possible side effects
- Spay or ovariectomy—indicated for primary disease of the uterus