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Clinical Approaches to Medical Termination of Pregnancy in Felines

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Abstract

Medical termination of pregnancy (MTP) is commonly used in cats to prevent unwanted pregnancies, especially in feral cats. Pregnancy can be terminated using medicines or surgery, depending on the stage of pregnancy and the animal's health. Medical methods are preferred in cats and include drugs such as prostaglandins, dopamine agonists, and anti-progesterone agents. Using these drugs in combination gives better results with fewer side effects. Treatment success is confirmed by ultrasound and observation of vaginal discharge. This review discusses the indications, pregnancy detection, and safe medical protocols for effective pregnancy termination in cats.

Introduction

Mis mating or unplanned mating is common in sexually mature queen cats due to their free-roaming behavior, making medical termination of pregnancy (MTP) a frequent clinical request. MTP is indicated in cases of unwanted pregnancy, poor breeding value, or when pregnancy poses health risks, particularly in very young, aged, or medically compromised queens. Pregnancy may be terminated immediately after mating or after confirmation, depending on gestational stage, which is determined by mating history and ultrasonography under veterinary supervision. Different medical protocols are used based on the stage of pregnancy. Estrogens are used in very early pregnancy, whereas prostaglandin $F_2\alpha$, dopamine agonists, and anti-progesterone drugs are used in mid to late pregnancy, either alone or in combination. Prostaglandin $F_2\alpha$ induces luteolysis but is associated with notable side effects. Since progesterone is essential for pregnancy maintenance, drugs that block progesterone action or inhibit prolactin secretion effectively induce pregnancy termination. Aglepristone, a progesterone receptor antagonist, is currently considered a safe and effective option for medical termination of pregnancy in cats.

What owners can do after a mis-mating?

In queen cats, mating during estrus commonly results in pregnancy because ovulation is induced by mating through an LH surge. If the owner does not want kittens, ovariohysterectomy is the most reliable and permanent solution after mismating.Following accidental mating, owners should first confirm estrus by observing behavioral and physical signs such as increased vocalization, lordosis, vulvar swelling or discharge, and attraction toward the male. Successful mating can be suspected by detecting spermatozoa in a vaginal smear or by the absence of return to estrus within 14–28 days.If mating was not observed, pregnancy may be suspected based on clinical signs including weight gain, abdominal enlargement, mammary development, and cessation of estrus. Regardless of mating history, pregnancy should be definitively confirmed by ultrasonography 25–30 days after estrus before planning further intervention.

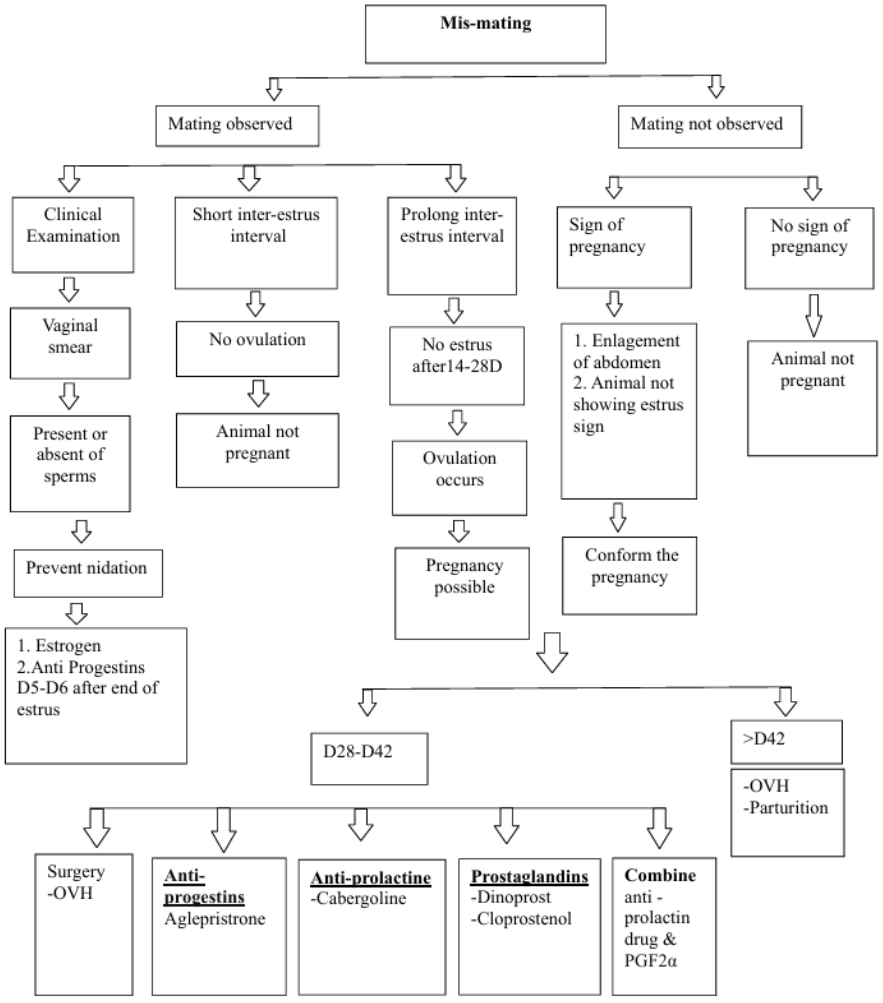

Fig. 1: The figure shows the basic steps for handling mismating and therapeutics in cats (Goericke-Pesch, 2022).

Estrogen	Retards transportation and degenerating of ova (Herron and Sis, 1974)
Dopamine agonist	Suppression of prolactin secretion by endogenous dopamine released from dopaminergic neurons in the hypothalamus
Prostaglandins	Causes regression of corpus lutea and supresses the progesterone secretion
Anti-progestines	Antagonist of progesterone hormone receptor or prevent synthesis
Corticosteroids	Similar mechanism occurring during parturition

Table 1: Role of different hormones in termination of pregnancy

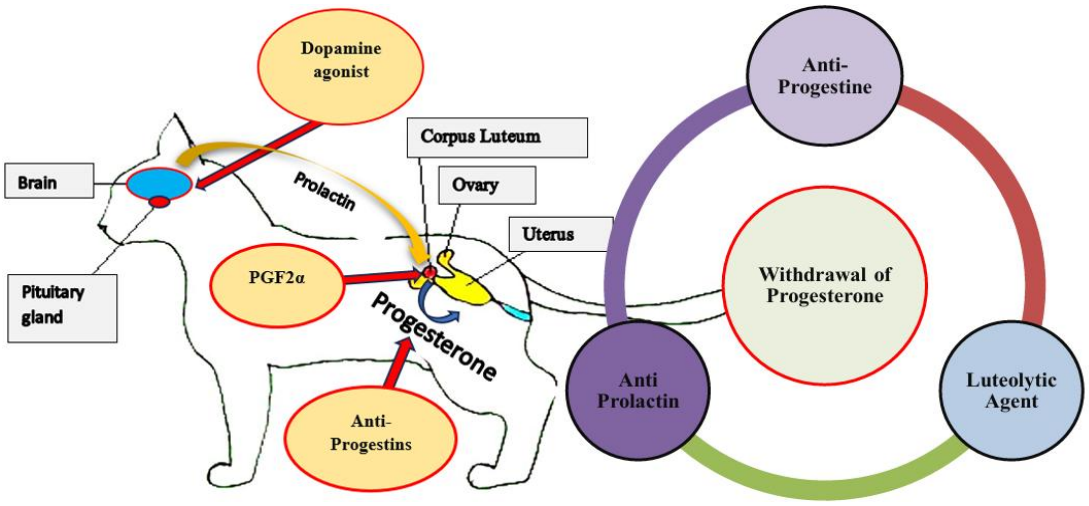

Fig. 2: Mechanism of action of various drugs on reproductive hormone production

Drug	Dose	Side effect	Note	Reference
Estadiol cypionate Supress the movement of egg affect implantation Brand-Depo-Estradiol	0.125 to 0.25 mg/ kg, I/M 2-3 day after coitus one time	Bone marrow toxicity, Aplastic anaemia, Thrombocytopenia, Leukopenia, Pyometra	Behavioural estrus will be extended in duration	Goericke-Pesch et al., 2010; Kustritz, 2011
Aglepristone Brand -Alizin	10 mg/kg S/C on 5th-6th day of mating	No major side effect observed		Goericke-Pesch et al., 2010

Table 3: Drugs used to terminate an early pregnancy just after mating.

The different types of hormones being used in termination of pregnancy (Table 1) and their mechanism illustrated in Fig. 2. However, the use of the therapeutics for medical termination of pregnancy in queen cats can be subdivided into 2 stages, namely, for use in MTP just after copulation (within a week) or for use 25–30 days after confirmed pregnancy.

Medical termination of pregnancy in queen cats (within 1 week of mating)

In cats, ovum transport through the reproductive tract takes about 4–5 days after copulation to reach the uterine isthmus. Administration of oestrogen around 40 hours post-coitus can slow ovum transport, leading to degenerative changes that prevent pregnancy establishment.

Estrogenic-treated feline endometrium resembles the late proliferative phase, not the secretory phase required for implantation (Herron & Sis, 1974). Several drugs can be used for early pregnancy termination (as outlined in standard tables/references).

Owner advice / clinical caution

Estrogen therapy is strongly discouraged due to severe adverse effects:

- Bone marrow suppression
- Aplastic anemia
- Leukopenia
- Induction of oestrus behaviour
- Risk of blindness in queen cats
- Blind or indiscriminate use of oestrogen is considered unsafe and unethical in feline practice.

Medical termination of pregnancy 25-30 days after confirmed pregnancy prostaglandins

Prostaglandins (PGs) are naturally occurring prostanoids derived from arachidonic acid, present in all body tissues.They exert diverse physiological effects on vascular, gastro intestinal, respiratory, and reproductive systems. In most mammals, Prostaglandin $F_2\alpha$ ($PGF_2\alpha$) shows strong luteolytic (CL regression) and uterotonic (uterine contraction) actions. In queen cats, a highly potent synthetic PG analogue, cloprostenol, has been used for medical termination of pregnancy. Use of $PGF_2\alpha$ or its analogues requires extreme caution because of notable systemic side effects, including:

- Hyper salivation
- Bradycardia
- Reflex defecation and urination
- Emesis (vomiting) (Lein et al., 1989)

Antiprolactin or dopamine agonist: Prolactin is secreted by lactotroph cells of the anterior pituitary gland and its release is regulated by several neurotransmitters and hormones. In queen cats, prolactin levels begin to increase around day 35 of gestation, reach a plateau approximately two weeks later, and remain elevated through parturition and the first four weeks of lactation. After weaning, prolactin concentrations decline rapidly. In felines, prolactin has a luteotropic role, meaning it supports the corpus luteum and progesterone secretion. Therefore, administration of antiprolactin drugs reduces progesterone levels, leading to fetal resorption or abortion. Dopamine agonists such as bromocriptine and cabergoline are commonly used for this purpose. Among these, cabergoline is considered superior due to its longer half-life, higher selectivity for D2

receptors, minimal binding to D1 receptors, and stronger stimulation of 5-HT2B receptors. These pharmacological properties result in fewer adverse effects compared with bromocriptine, making cabergoline a safer and more effective option for pregnancy termination in queens.

Anti progestine: Progesterone is the key hormone responsible for maintenance of pregnancy. It promotes endometrial development, facilitates placental attachment, and maintains uterine quiescence by reducing myometrium contractility. In queen cats, progesterone is mainly produced by the corpus luteum during the first 40–45 days of gestation, while placental production becomes significant during the last three weeks of pregnancy. Antiprogestins act by binding to progesterone receptors and blocking their normal biological action, thereby interrupting pregnancy maintenance. Progesterone receptor antagonists have been shown to effectively terminate pregnancy in several species, and recent studies indicate that aglepristone can also prevent or terminate pregnancy in cats.

Use of corticosteroid: Corticosteroids, particularly dexamethasone, have also been explored for pregnancy termination. Dexamethasone is a synthetic glucocorticoid with anti-inflammatory, immunosuppressive, and abortifacient properties. In dogs, oral dexamethasone administration has been reported to be highly effective for terminating mid-gestational pregnancy by mechanisms similar to those involved in normal parturition. Its advantages include oral administration and lower cost compared to other abortifacient drugs. However, despite its proven efficacy in bitches, there is currently insufficient scientific evidence supporting its effectiveness for pregnancy termination in queen cats.

Combine use of prostaglandins and anti-prolactin or anti progestin:

To improve efficacy while minimizing adverse effects and reducing the need for repeated clinical visits, combination drug protocols have gained attention. The combined use of prostaglandin analogues, such as cloprostenol, with antiprolactin agents like cabergoline has been shown to effectively induce abortion or complete fetal resorption in cats. Similarly, the combination of aglepristone with cloprostenol has been reported to increase the success rate of late-term pregnancy termination in queens. Additionally, the concurrent use of misoprostol and aglepristone during mid-term pregnancy has been found to be more effective than using either drug alone. Overall, combination therapies appear to offer a more reliable and safer approach to medical termination of pregnancy in cats compared to single-drug protocols, making them increasingly relevant in feline reproductive management.

Drug	Dose	Side effect	Note	Reference
Dinoprost Brand-Lutalyse	0.5 to1 mg/kg BID (S/C) after day of 40 Or 2mg OD (I/M) 5 Consequence day after 30D	Ptyalism, Vomiting, diarrhoea	Side effect include panting and mydriasis and occur within minute of drug administration and subsiding within1h to 3h	Kustritz,2011
Cloprostenol Brand-Pregma,Vetmate	1-5µg/kg OD, S/C, I/M for 5-10 Day			Goericke-Pesch, 2022
Cabergoline Brand-Cabgolin	5-15µg/kg OD, PO 5-7Day			Goericke-Pesch, 2022
Aglepristone Brand-Alizin	10-15mg/kg OD (S/C) for two consequence day (If abortion is in complete treat again in six day)		Efficacy of Aglepristone was found 88.5% and termination of pregnancy.	Goericke-Pesch, 2022; Fieni et al., 2006
Cabergoline + Dinoprost	Cabergoline 5µg/kg PO, OD for 5-7day Dinoprost 20-25µg/kg S/C, BID			Goericke-Pesch, 2022
Cabergoline + Cloprostenol	Cabergoline 5µg/kg PO,OD for 5-7day Cloprostenol (1µg/kg S/C,I/M OD or every other day Or Cabergoline 5µg/kg PO,OD for 5-7day Cloprostenol (5µg/kg S/C every other day Or Cabergoline- 15 µg/kg PO,OD Cloprostenol- 5µg/kg OD or every other day (S/C) till complete reabsorption	Less side effect observed in few cats	All treated animals aborted in 9 ± 1 days without any side effect. Complete reabsorption time-6-8day	Goericke-Pesch, 2022; Onclin and Verstegen,1996; Kumar et al., 2022
Aglepristone + Misoprostol	Aglepristone 10mg/kg SC, OD for 2 consequence day. Misoprostol 200µg /cat BID PO until start of abortion		Termination rate-100% Fetal expulsion time-69.8 ± 3.3 h	Serhan et al., 2018

Medical termination of pregnancy in queen cats is a welfare-friendly option after pregnancy confirmation. Combined use of prostaglandins and antiprolactin drugs leads to complete fetal resorption within 6–8 days. Cloprostenol may cause transient side effects such as panting and mydriasis, which usually resolve within a few hours and can be minimized by prior atropine administration. If termination is attempted after 45 days of gestation, expelled fetuses should be matched with ultra sonographic findings to confirm complete abortion. After mis-mating, timely veterinary intervention greatly reduces the chance of pregnancy. Owners should prevent free roaming during estrus and recognize early signs such as vulvar swelling, discharge, vocalization, and lordosis. When mating is uncertain, vaginal smear examination is advised, and pregnancy confirmation should precede treatment. Ovario-hysterectomy remains the most effective permanent solution to prevent unwanted pregnancies.

Hormonal treatments may cause anorexia, depression, stress, and immunosuppression; therefore, supportive care with antibiotics, NSAIDs, multivitamins, antacids, and vitamin C is recommended. Overall, medical abortion using appropriate drug combinations under veterinary supervision is safe, effective, and essential for responsible feline reproductive management.

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