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### Surgical Management of Over-gestation in a Female Dog: A Case Report

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#### ABSTRACT

A 2-year-old female dog was brought to VCC, LUVAS, with a history of over-gestation (68 days' pregnancy). After a complete gynaeco-clinical examination, a caesarean section was performed, and 5 foetuses including one mummified foetus were delivered. The female dog recovered uneventfully following normal postoperative management.

#### Introduction

Canine breeding is a rapidly evolving industry, and there is infiltration of exotic breeds of canines into India. Knowledge of a female dog's reproductive cycle and gestation length is important for clinical opinions regarding the timing of whelping and plans for caesarean section (Razquin and Sones 2024). The commonly observed causes of over-gestation may include fetal mummification, genetic, infectious, iatrogenic, hormonal, phylogenous toxins, and environmental. Fetal mummification is characterized by fetal death, followed by the absorption of fetal fluid and membranes, and the contraction of the uterus over the dead fetus (Noakes et al., 2019). Mummification of one fetus in canines does not interfere with the survival of other fetuses, and mummified/macerated foetus may be delivered along with viable fetuses at full term; otherwise, a caesarean section is required (Singh et al., 2019). Serological surveys in dogs have shown a prevalence of mummification of 30–100% in some kennels (Greene, 2012). This condition is generally not suspected until the expected time of whelping when the birth process is perturbed. Factors associated with the initiation of the parturition cascade seem

to be cortisol, oxytocin, and relaxin hormones, which may trigger PGF<sub>2</sub>α synthesis leading to luteolysis (Arlt, 2020). Upon ultrasonography, there is an absence of anechoic fluid, fetal cardiac activity, rather echogenic areas, and hyperechoic bones are evident (Dutt et al., 2018). In dogs, canine herpes virus infection is one of the chiefly suspected etiological agents (Lefebvre, 2015). The current case report puts on record a case of over-gestation and fetal mummification in a female dog that was managed by caesarean section.

#### Case history and observations

A 2-year-old female dog weighing 25 kg was brought to VCC, LUVAS Hisar, with the history of mating 68 days ago. The general examination revealed a body temperature of 103.4°F and a congested mucous membrane. Laboratory findings revealed Hb 5.8 g%, PCV 35%, TLC 11850 per

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cumm, neutrophil 87%, lymphocyte 9%, monocyte 4%, and platelets 128,000 per cumm. As per the anamnesis, the female dog lacked signs of impending parturition such as vulvar discharge or nest-building behavior. The gynaecological examination revealed signs of pregnancy, including abdominal enlargement and engorged mammary glands. Radiographic examination confirmed the pregnancy (Fig. 1). Upon vaginoscopy, we did not find any signs of cervical dilatation. The animal was already administered at field level with oxytocin (5 I.U. I/M) and calcium Sandoz (5 ml S/C) injections without any success. Therefore, a cesarean section was planned.

## Treatment and discussion

This study used propofol at 5 mg/kg b.wt. I/V and isoflurane (0–4%) to put the person under general anesthesia and keep them asleep. It was preceded by glycopyrrolate at 0.1 mg/kg b.wt. and butorphanol at 0.2 mg/kg b.wt. Following anesthesia, the patient was placed in dorsal recumbency on the surgical table. The operative site was prepared aseptically for a caesarean section. A skin incision of about 5-6 cm long was given at the mid-ventral line, i.e., the linea alba. After incising the skin, muscles, and peritoneum, the uterus was exteriorized by grasping it firmly. The abdominal cavity was packed with drapes to prevent entry of uterine content upon incision. A linear incision was made on the uterine body to retrieve the pups (Fig. 2). A total of 5 dead fetuses were removed, out of which one was mummified (Fig. 3). Each pup was removed gently by milking action over the uterus with a gloved hand with due care to minimize spillage of uterine contents. The placental remnants were also removed. The uterus was thoroughly cleaned using betadine normal saline solution (1:10). The uterus was sutured using no. 1 polyglactin 910 (Vicryl®) in an inverted pattern (Cushing followed by Lambert) from the cervical to the ovarian end. Metronidazole solution (5 mg/ml; 100 ml) was infused in the abdominal cavity. The aponeurotic part of the muscle was opposed by a lock stitch pattern using no. 1 polyglactin 910 (Vicryl®). The skin incision was closed with polyamide (Fig. 3). Post-operative care included antibiotics (Intacef tazo, 562.5 mg @ 20 mg/kg) and analgesics (meloxicam @ 0.3 mg/kg) for 5 days. aRBC iron supplement (Vetoquinol) was advised at 2.5 ml twice a day for 10 days. Antiseptic dressing of the suture line was carried out with povidone iodine, and skin sutures were removed on the 12th postoperative day. This case study signifies the importance of care and management of female dogs during the last week of pregnancy from a clinical perspective. Data on fetal hormone secretion that initiates this luteolytic process in dogs are lacking, but according to Kowalewski et al. (2010), there seems to be a role for the fetal trophoblast cells as the major source of prepartum secretion of placental prostaglandins (Spruijt et

al., 2022). As the event of whelping approaches around day 62 after the LH surge, the indications for fetal monitoring through transabdominal ultrasonography include failure in initiation of whelping as expected, abnormal vaginal discharge, systemic signs of illness, and delay in the whelping process after the birth of a pup. The etiology for over-gestation and fetal mummification in the current case could not be ascertained. However, the possible causes can be genetic, hormonal, toxic, or iatrogenic. Conclusively, the accurate prediction of whelping time through ultrasonography in female dogs is clinically useful for planning prenatal care, veterinary assistance in cases of normally whelping females that may need aid and to prevent/minimize fetal losses by timely intervention.



**Fig. 1.** Radiograph showing multiple fetuses



**Fig. 2.** A linear incision given on the uterine body



**Fig. 3.** Delivery of five dead fetuses including one mummified foetus



**Fig. 4.** The skin incision closure with polyamide

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