



CASE REPORT

Different Sizes and Degrees of Foetal Mummification during Pregnancy in A Dog; A Case Report

Ahmet Sabuncu^{1*}, Zeynep Günay¹, Melih Uçmak¹, Sinem Özlem Enginler¹, Ömer Mehmet Erzençin¹, İbrahim Kurban¹ and Beren Başaran Kahraman²

¹Department of Obstetrics and Gynaecology, Faculty of Veterinary Medicine, University of Istanbul, Avcılar, 34320, Istanbul, Turkey; ²Department of Microbiology, Faculty of Veterinary Medicine, University of Istanbul, Avcılar, 34320, Istanbul, Turkey

ARTICLE INFO

Received: June 29, 2013

Revised: July 04, 2013

Accepted: July 13, 2013

Key words:

Abdominal enlargement

Dog

Fetal mummification

Vaginal discharge

*Corresponding Author

Ahmet Sabuncu

ahmetsabuncu1968@yahoo.com

ABSTRACT

In the current report we present a case of the mummification of fetuses in a five year-old German shepherd dog that was presented with complaint of abdominal enlargement and vaginal discharges. Case history revealed that estradiol benzoate was administered to the dog in an attempt to terminate the unwanted mating that occurred 5 months earlier. Ultrasonographic examination revealed death of the fetuses and accumulation of hypoechoic fluid in both uterine horns. Ovariohysterectomy was performed on the dog. After the surgery, two mummified fetuses of different sizes and exhibiting different degrees of mummification were detected. This condition is likely due to the fact that the two fetuses died at different stages of the gestation. After the surgery, vaginal discharges ceased and postoperatively by the 10th day, the dog was observed to be clinically normal. Our case reveals that although fetal mummification is a rare condition in dogs, it should be considered for differential diagnosis during treatment of conditions that show abdominal enlargement. The aim of this case report is to describe a successful diagnosis and treatment of canine fetal mummification in which the fetuses were of different sizes and exhibiting different degrees of fetal mummification coupled with a large amount of fluid accumulation (13kg) in the uterus of a dog.

Cite This Article as: Sabuncu A, Z Günay, M Uçmak, SÖ Enginler, ÖM Erzençin, İ Kurban and BB Kahraman, 2013. Different sizes and degrees of foetal mummification during pregnancy in a dog; a case report. *Inter J Vet Sci*, 2(2): 75-77. www.ijvets.com

INTRODUCTION

Fetal mummification is the term commonly employed to describe fetal death and reabsorption of fetal fluids, persistence of the corpus luteum and the retention of the fetuses within the uterus (Noakes 1986). Fetal mummification has been reported in several species but it is relatively uncommon in canids (Roberts 2004). Fetal mummification is a sterile condition with the morphological details being significantly retained after the death of the fetus and fetus shows a mature fetal skin which is resistant to autolysis; a condition commonly observed after the first third of the pregnancy (Johnston and Raksil 1987; Johnston *et al* 2001 a, b; Jackson 2004b; Grunert *et al* 2005; Linde-Forsberg 2010).

In dogs and cats embryonic and foetal deaths can occur due to developmental and chromosomal abnormalities in the foetus, viral and bacterial agents,

maternal endocrine disorders, trauma, exogenous drug usage, uterine torsion and dystocia. These conditions can worsen the living environment of the fetus and thus lead to foetal death and subsequent mummification (Planellas *et al*.2012).

During the first half of the pregnancy, foetal bones are not fully formed and mummification of the foetuses can not be observed because the dead foetuses are usually reabsorbed by the uterus (Johnston *et al*. 2001a, Alaçam 2010).

MATERIALS AND METHODS

Case history

A five year-old, German Shephard bitch, weighing 40 kg with abdominal enlargement and vaginal discharge for 10 days was presented to the Department of Obstetrics and Gynaecology clinic. Case history revealed that an

unwanted mating occurred 5 months ago. In order to terminate the undesirable pregnancy, estradiol benzoate (Estrandon prolongatum® ampul 1mg) was administered to the bitch in a private clinic a week after the mating. Recently, the owner noticed an unusual abdominal enlargement in the dog (Figure 1A). Upon physical examination, there was no external injuries and other abnormalities. Thus, blood sample was collected for assessing the blood profile. Haematological and biochemical profile showed no abnormalities. The blood profile was as follows; RBC 6.21 u/L, HGB 13.7 g/dl, Hematocrite 43 %, WBC 14.9 u/L, PLT 591 u/L, MCV 69, MCH 22 pg, MCHC 32 %, ALT 58 IU/L, AST 54 IU/L, BUN 18 mg/dl, creatinine 0.9 mg/dl, glucose 110 mg/dl. Only in the PLT count a slight increase was detected. We then proceeded with ultrasonographic examination, which revealed foetal death and fluid accumulation with debris in both the uterine horns. Ovariohysterectomy was performed on the bitch immediately.

For induction of the anesthesia propofol (Pofol ampul®, Dongkook Pharm, Korea) was used at 6mg/kg iv and % 3-4 isoflurane (Foran liquid®, Abbott Laboratories, England) and oxygen combination was used to maintain the depth of the anesthesia. Median line was preferred for the surgery. The bitch was positioned dorsally. A flat incision was made from the umbilicus extending to the pubis. After opening the abdominal cavity the uterine horns (Figure 1B) were carefully pulled out and ligated at a point beneath the ovaries and ovariohysterectomy was then performed. After the surgery, the uterine wall was opened and two mummified foetuses (Figure 1C) were detected in brown mud coloured accumulation (Figure 1D). A fluid swab was collected from the accumulation and was sent for microbiological evaluation to the Department of Microbiology. No bacteria were recorded during the bacteriological evaluation. The weight of the excised masses was found to be 13kg and the bitch's body weight was found to be 27 kg after the surgery. This indicates that the enlargement was enormous prior to the surgery. Postoperatively, enrofloxacin (Baytril -K 5% flc.®), B and C complex vitamin (Hepargriseovin ampul®), carprofen (Rimadyl flc. ®) and ranitidine (Ulcuran ampul®) were administered to the dog for a week. An Elizabethan collar was placed in order to prevent the dog from accessing the sutures so that the sutures will not be ruptured. The sutures were removed on the 10th day without any complications.

Thus, this case report describes the successful removal of two mummified fetuses coupled with a large amount of uterine fluid accumulation, a rare condition in dogs.

RESULTS AND DISCUSSION

Baştan (1996) reported that the efficacy of the estradiol benzoate administration in terminating unwanted pregnancies in dogs to be 75% when this preparation was used within two days following the undesirable mating, and when it is used between 3-5 days following mating the success to prevent pregnancy was found to be even higher. In that study, the pregnancies of all the dogs could be successfully terminated using estradiol benzoate. In our case, the drug of choice to terminate the pregnancy in the



Fig. 1A: Enlargement of the abdomen due to fluid accumulation in the uterus; **B:** Highly enlarged uterine horns, observed during the surgery; **C:** The two mummified foetuses that were obtained after the surgery; **D:** A brown mud colored accumulation in the uterine lumen.

dog was the same but the way it was administered was different. Thus, the pregnancy could not be successfully terminated in this dog. Furthermore, instead of using the drug twice, it was used only once in this case.

In this case, one of the foetuses was found to be well-developed, whereas the other was not fully developed, and we concluded that this foetus died in the earlier period of the gestation when compared the other well-developed one. Furthermore, there was no odor in the accumulated uterine fluid indicating an absence of bacterial infections.

The reason for the foetal mummification in this case might be primarily due to erroneous estradiol benzoate application. Acar *et al.* (2013) reported a hematic mummification in a dog and they concluded that this condition could be primarily attributed to the repetitive application of progesterone and estradiol cypionate, and in our case estradiol benzoate was used only once in order to terminate the unwanted pregnancy and we suggest that this condition may have resulted due to this exogenous hormone application.

Mummified foetuses can be retained in the uterus of the animals for long periods without causing any apparent symptoms and can be detected during ovariohysterectomy by mere chance (Planellas *et al.* 2012). However, in some cases lethargy, fever, vomiting, vaginal discharges and anorexia can be observed (Özenç *et al.* 2009; Voorwald *et al.* 2012). The blood profile and the general physical condition was normal in this dog, however the owner noticed an abnormal abdominal enlargement and vaginal discharges in the pet. This led us to perform ultrasonographic evaluation which revealed the presence of foetal bones and hypoechoic fluid accumulation. However in the study of Acar *et al.* (2013) they could only detect the foetuses during radiographic examination and they were unable to visualize clear foetal images during their ultrasonographic examination. In their study, only acoustic shadow artifacts could be observed in the

ultrasonography. Thus, they also performed radiography in order to clearly diagnose cases of mummified fetuses in the uterus.

The study of Jubb *et al.* (1985) showed that in multiparous species, often the death of the fetuses can occur at different ages, different sizes and show different degrees of maceration or mummification. Because our case revealed different degrees of mummification and sizes of the fetuses, we conclude that the deaths of the fetuses occurred at different periods during pregnancy.

In conclusion, our case report describes a successful diagnosis and treatment of canine fetal mummification in which the fetuses were of different sizes and showed different degrees of fetal mummification coupled with large amount of fluid accumulation in the uterus in a dog.

REFERENCES

- Acar DB, MK Birdane, B Elitok, 2013. Bir köpekte hematik mumifikasyon olgusu. *Kocatepe Vet J*, 6: 77-81.
- Alaçam E, 2010. Dişi üreme organlarının muayenesi, in: Alaçam E, (editor). *Evcil Hayvanlarda Doğum ve İnfertilite*. 3rd edition. Medisan yayınları, Ankara, pp: 55-68.
- Baştan A, 1996. Köpeklerde istenmeyen gebeliklerin sonlandırılmasında östradiol benzoat'ın etkinliğinin araştırılması. *Ankara Üniv Vet Fak Derg*, 43: 387-390.
- Grunert E, Birgel EH, Vale G, 2005. *Clinic reproduction and pathology of domestic animals*. 1st edition. Sao Paulo, Brazil.
- Jackson PGG, 2004. Problems of pregnancy, in: Jackson, PGG (editor), *Handbook of Veterinary Obstetrics*. 2nd edition. WB, Saunders, pp: 233-237.
- Johnston SD and Raksil S, 1987. *Veterinary Clinics of North America*. Fetal loss in the dog and cat: *Small Animal Practice*, Vol 4, Elsevier publishing, USA.
- Johnston SD, Kustritz MVR, Olson PNS, 2001a. Canine parturition-eutocia and dystocia, in: Johnston SD (editor). *Canine and Feline Theriogenology*, WB Saunders, Philadelphia, pp: 105-128.
- Johnston SD, Kustritz MVR, Olson PNS, 2001b. Disorders of the canine uterus and uterine tubes (oviducts), in: Johnston SD (editor). *Canine and Feline Theriogenology*, WB Saunders, Philadelphia, pp: 206-224.
- Jubb KVF, Kennedy PC, Palmer N. 1985. The Female Genital System, in: *Pathology of Domestic Animals*. 3rd edition, Vol 3, Chapter 4. Academic Press Inc, San Diego, California, pp: 306-409.
- Linde-Forseberg C, 2010. Abnormalities in pregnancy, parturition, and the periparturient period. In: Ettinger SJ and Feldmen J, editors. *Textbook of Veterinary Internal Medicine*. Elsevier Saunders, St Louis, Missouri, pp: 1890-1901.
- Noakes DE, 1986. *Fertility and Obstetrics in Cattle*. 1st edition. Black Well Scientific Publishing, Great Britain.
- Planellas M, Martin N, Pons C, Font J, Cairo J. 2012. Mummified fetus in the thoracic cavity of a domestic short-haired cat. *Topics In Compan An Med*, 27: 36-37.
- Roberts SJ, 2004. *Veterinary Obstetric and Genital Disease*. 2nd edition. CSB Publishers and Distribuors, India.
- Özenç E, Birdane MK, Çelik HA, Uçar M, Tekerli M, 2009. Pırlak ırkı bir koyunda ikizlerden birinde görülen fetal mumifikasyon olgusu. *Kocatepe Vet J*, 2: 45-48.
- Voorwald FA, Tiosso CF, Cardilli DJ, Toniollo GH, 2012. Mummified papyraceous fetuses in the abdominal cavity of an elderly female dog with pyometra. *Arq Braz Med Vet Zootec*, 64: 311-317.