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Case Report

MANAGEMENT OF FETAL MACERATION AND PYOMETRA IN A 3-YEAR-OLD QUEEN: A CASE REPORT

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ABSTRACT

This is a case of foetal maceration in a three-year-old queen which was presented to Veterinary Teaching Hospital of Federal University of Agriculture Zuru, Kebbi State Nigeria with the complaint of anorexia for one week. There is history of quuening twice previously, unwanted pregnancy with complicated abortion 3 months ago, with a litter size of three, queen placed on birth control pillls/injection. Hard masses were palpated in the abdomen without any pain sensation and per vaginal examination showed narrowing of birth canal. Hematology showed severe leukopenia and thrombocytopenia. Lateral abdominal radiography, trans-abdominal ultrasound and right lateral flank laparotomy were employed as part of the diagnostic and interventional procedures for uterine rupture and foetal maceration. After stabilizing the queen with antibiotics and fluid therapy, explorative laparotomy was performed to reveal the queens ruptured uterine horn with fetal skeletal parts scattered in abdominal cavity mostly encapsulated in adnexa. Ovariohysterectomy and abdominal lavage were done as part of the case management procedure, to remove the whole skeleton as well as the fetal remnants from the abdomen. However the queen died thirteen hours after intervention.

Keywords: cat, foetal maceration, pyometra, uterine rupture

INTRODUCTION

In domestic animals, pregnancy loss is inevitable at any stage of the gestation (Bhattacharyya *et al.*, 2015). When fetal death occurs during the second half of pregnancy, the result is an abortion or a stillbirth. Failure to expel the fetus may be due to uterine inertia and intrauterine infections resulting in fetal emphysema and maceration (Johnston *et al.*, 2001). In instances where bacteria enter into the uterus through the dilated cervix, and by a combination of putrefaction and autolysis, the soft tissues of the fetal remnant may become digested, leaving a mass of fetal bones within the uterus termed fetal maceration (Jones *et al.*, 1997; Drost, 2007). However, when proceeding in-utero fetal death is a series of morphological alterations, such as fetal fluid reabsorbtion by the uterus with the persistence of corpus luteum, the resulting tissues is termed fetal mummification (Darvelid & Linde-Forsberg, 1994). Fetal mummification or maceration sequel to fetal death, especially after complete ossification of fetal bones and without abortion is usually a complicated and an undesirable incidence (Khasatiya *et al.*, 2011). The conditions are common occurrences in polytocous animals than in the monotocous animals (Perumal & Srivatsava, 2011). If mummification/maceration occurs with existence of normal live fetuses in the polytocous species, then the termination of pregnancy at parturition of the live fetus may be accompanied by voiding

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of mummified fetus (Yadav *et al.,* 2021). In dogs, some certain conditions may alter the physiological environment of the uterus and eventually lead to embryonic or fetal death and subsequent mummification/maceration (Planellas *et al.*, 2012); such conditions may include abnormalities at chromosomal divisions or development stages, infectious agents, maternal endocrine disorders, contraceptive drugs, torsion of uterus and dystocia. Sequel to fetal death at the first half of pregnancy, fetal mummification may not occur especially if the fetal bones are not completely developed yet, instead there may be voidance of unabsorbed tissue or resorption by the uterus (Lorenz *et al.* 2009). Fetal mummification is considered not to affect future fertility of affected animal upon correct surgical intervention (Sony *et al.,* 2018). In the cats, the condition is sporadically reported and it is an incidental occurrence whose actual cause may vary widely (Yadav *et al.,* 2021). In this case, rupture of the uterus, pyometra, peritoneal effusion and presence of macerated fetuses with friable encapsulated tissues were reported.

PATIENT DESCRIPTION AND CASE REPORT

A 3-year old local queen weighing 3.5kg, who had littered twice previously and placed on birth control pills/injection, (following history of unwanted pregnancy and complicated abortion 3 months before presentation) was presented to the small animal unit of the Veterinary Teaching Hospital (VTH), Federal University of Agriculture, Zuru, Kebbi State. The primary complaint was obvious straining, discharge from the vulva, inappetance and dullness. History further revealed that the cat was presented to a veterinarian about a month earlier who conducted an ultrasound scan and discovered some non-viable fetuses. The veterinarian was said to have administered oxytocin to the cat and some of the fetuses were expelled. Thereafter, the cat resumed normal feeding for a week and it eventually became annorhexic once more. Due to the relapse, the queen was re-presented to the veterinarian who re-administered oxytocin, along with dexamethasone and ceftriaxone. The queen returned to apparent good health for another 2 weeks. Thereafter, it became sick and was presented to the VTH. It was fed on homemade meal, commercial canned and dry foods and its anti-rabies vaccination and deworming records are up to date.

WORK PLAN

- Conduct thorough physical and clinical examination such as obtaing queens vital parameters, abdominopelvic palpation, and blood sample collection for haematology
- Conduct abdominopelvic radiography and ultrasound
- Manage the case accordingly

PHYSICAL EXAMINATION RESULTS

The vital parameter readings and blood work on the day of presentation were summarized in the Tables I and II.

Other clinical examination findings included distended abdomen, periodic straining and licking of vent (Figure Ib), purulent discharge from the vulva, firm-hard non-painful mass upon abdominal palpation, and lethargy. Per vaginal examination showed narrowing of birth canal.

DIAGNOSIS

Differential diagnoses included fetal maceration, fetal murmification, pyometra, cecal tumors, while tentative diagnoses included fetal maceration and pyometra.

DIAGNOSTIC TEST

Transabdominal ultrasound was performed, which revealed intra-uterine masses/fetal material without continuity and no heart beats (Figure III) indicating non-viability of the foetus. Thereafter, a right lateral abdomino-pelvic radiograph was conducted, which indicated radio-opaque masses demonstrating shattered and misaligned foetal skeleton with gas pockets in the pelvic and abdominal cavities (Figure II), suggestive of autolytic changes following fetal death.

Management/Treatment plan: the case was regarded as an emergency situation and therefore explorative laparotomy was fixed. The plan were to prepare the patient for surgery, to carry out ovariohysterectomy.

PATIENT PREPARATION

The Patient was fasted 12 hours before surgery. Pre-medication was with Atropine Sulphate inj. 0.04 mg/kg (0.14mg) IM, once; and Xylazine inj 0.5mg/kg (1.75mg) IM., once was used to sedate the queen. Proper clipping and shaving of the right lateral abdomen was performed. The surgical site was made aseptic by using chlorhexidine followed by 70% alcohol. Anaesthetic induction was achieved by Ketamine HCL inj. 22mg/kg (77mg) IM. Intrasurgical medication was with Ceftriaxone Inj 50 mg/kg (175mg), half dose IP and Fluid therapy (5% dextrose saline) was maintained during surgery.

Surgical procedure

The patient was positioned on a left lateral recumbancy during surgery and the surgical site was properly and sterilely draped. Under general anaesthesia explorative laparotomy was performed. Using scalpel blade (no. 10) a transverse midline 2 to 3cm straight incision was performed at the surgical site. Blunt dissection was performed by metzenbaum scissors to separate adipose tissue and the abdominal muscle was incised to get access into the

abdominal cavity which revealed the presence of clowdy fluid (which was drained). The engorged uterus was identified and exteriorized out from abdominal cavity; the uterus had ruptured and contained a hard mass. Two separate ligatures were placed below each individual ovary to ligate the ovarian blood vessels using 2/0 chromic cat gut. By using same suture material the uterine body was also ligated and Overiohysterectomy was performed based on standard procedure. The abdominal muscle was closed by using 2/0 chromic catgut on a simple continuous suture pattern. Subcutaneous fascia was closed and skin was closed by interrupted mattress pattern using nylon material.

POSTOPERATIVE CARE

The patient was monitored for recovery. A broad spectrum antibiotic- Ceftriaxone Inj 50 mg/kg (175mg), half dose IM; anti-inflammatory drug- Diclofenac sodium inj 0.3mg/Kg (0.15mg), IM once and anti-histaminic drug- Diphenhydramine hydrochloride inj 1mg/kg IM were administered.

EXPECTED OUTCOME OF THE TREATMENT PLAN

Prognosis was guarded following the complicated nature of the case prior to intervention, which was confirmed by the presence of clowdy peritoneal effusion (peritonitis). However, it is expected that the adequate intrasurgical and post operate care giving to the patient under intensive management will assist the queen to make an eventful recovery.

ACTUAL OUTCOME

The patient, unfortunately, did not recover after the intervention due to possible complications from standing peritonitis, pyometra and resultant septicemia.

TABLE I: Vital parameters of the 3 year-old Queen on the first day of presentation

Vital Parameters	Patient's values	Reference values
Temperature (℃)	37.3	38.1-39.2
Pulse Rate (beats/mins.)	124	120 -140
Respiratory Rate (cycles/min.)	31	16 - 40

DISCUSSION

Fetal maceration is a condition reported more in feline species than in canine, characterized by indiscriminate and erratic use of contraceptives, causing disruptive degenerative changes of the foetus (Suresh *et al.*, 2023). The diagnosis is based on clinical evaluation by the anamnesis, ultrasound and/or radiography is strictly required for further confirmation of diagnosis, whereas treatment is via ovariohysterectomy (Ate *et al.*, 2011; Bhattacharyya *et al.*, 2015; Suresh *et al.*, 2023). One of the undesirable outcomes of fetal death in mid-to-late pregnancy is fetal maceration (Roberts, 2003).

Figure I: Plate a showing slightly distended abdomen; Plate b showing periodic licking of vent

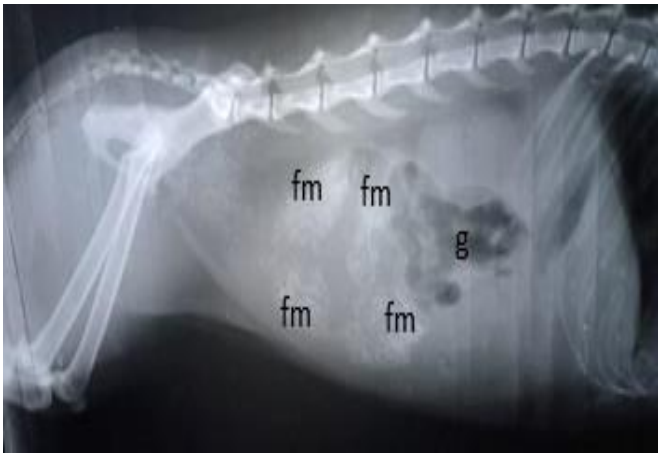

Figure II: Right lateral abdomino-pelvic radiograph of queen showing mummified fetuses (fm) with gas pockets (g) trapped within intestinal lumen and abdomino-pelvic cavities

However, if the condition is managed early accompanied by treatment and prevention of any further secondary infections or complications, animal may recover (Sood *et al.*, 2009).

In the present case treatment was unfortunately unsuccessful due to the long standing peritonitis.

Table II: Hematologic indices obtained from clinical pathology of the 3 year-old Queen upon presentation

Parameters	Patient's Value	Reference values
PCV (%)	22.6	24.00 – 48.00
Hb (g/dl)	7.1	8.60 – 17.00
RBC (× 1012/L)	2.9	3.10 – 6.80
WBC (× 109/L)	7.7	8.00 – 17.00
Neutrophils (× 109/L)	3.1	3.52 – 14.45
Lymphocytes (× 109/L)	0.1	0.23 – 4.87
Eosinophils (× 109/L)	0.1	0.00 – 1.67
Monocytes (× 109/L)	0.0	0.00 – 1.37
Basophils (× 109/L)	0.0	0.00 – 0.00

In mummified fetuses, the remnant tissue may be soft in consistency with or without any odour and with little placental fluids (Nascimento & Santos, 2003; Grunert., *et al*. 2005). Confirmation is by radiography which may reveal the presence of bony structures in the uterus which are likely the shadows of fully developed dead kitten as reported in this case. The cause of retained mummified/macerated fetuses may be due to uterine inertia (Wallet & Lindane, 1994; Romagnoly *et al*., 2004).

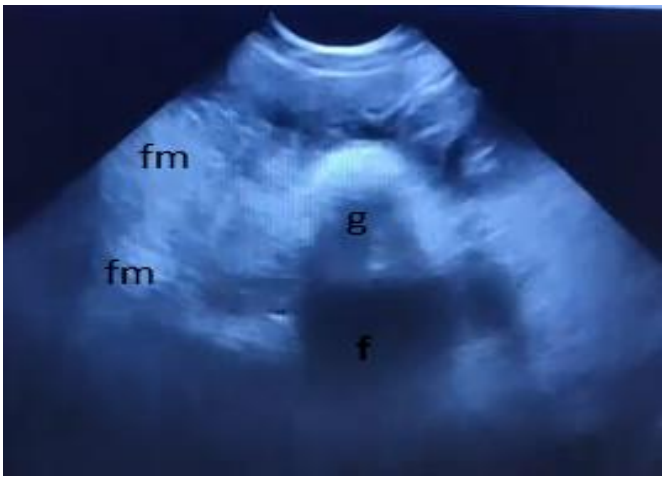

Figure III: transabdominal sonograph of queen showing intra-uterine masses/fetal material (fm) without continuity and no heart beats, and some gas (g) and fluid collection (f)

Fetal maceration is characterized by poorly dilated cervix after fetal death, therefore the dead fetus is retained within the uterus and there may be history of chronic fetid mucopurulent discharge from the vulva over a long period of time (Bhattacharyya *et al.*, 2015). However, the dead fetuses can be expelled with the use of some drugs such as estrogen, stillbestrol or prostaglandin F2α, though this intervention may be successful only if fetal skeletal material is not present in the uterus (Feldman & Nelson, 1996). Thus, the longer the condition of maceration exists the greater the damage of the endometrium and poorer the prognosis. Animals suffering from fetal maceration will show signs and symptoms of severe septicemia (England, 1998; Ate *et al.*, 2011) and in extreme cases death may occur (Ate *et al.*, 2011).

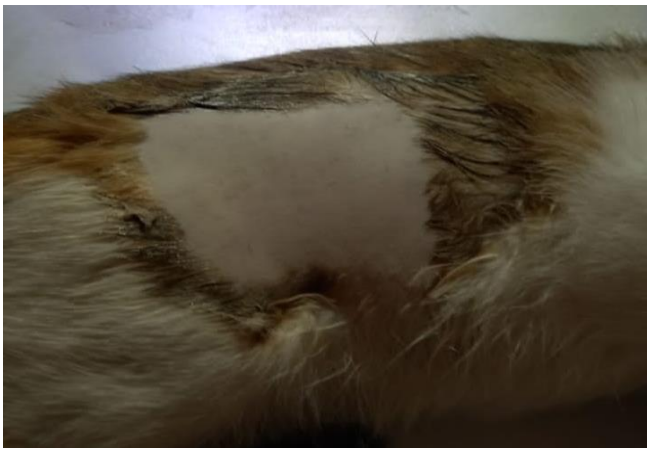

Figure IV: Clipping of hair at surgical site

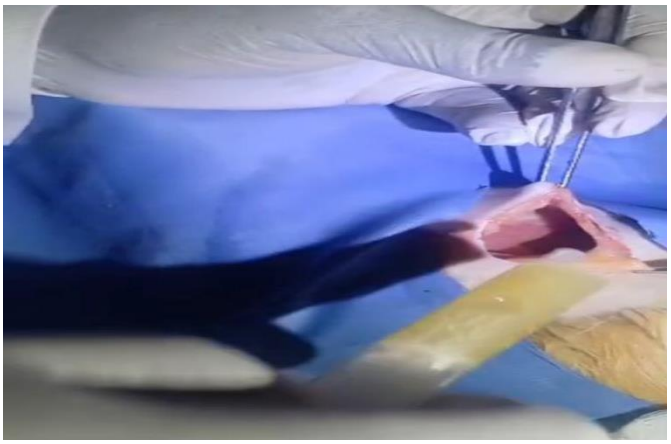

Figure V: Abdominal incision, draining of clowdy fluid

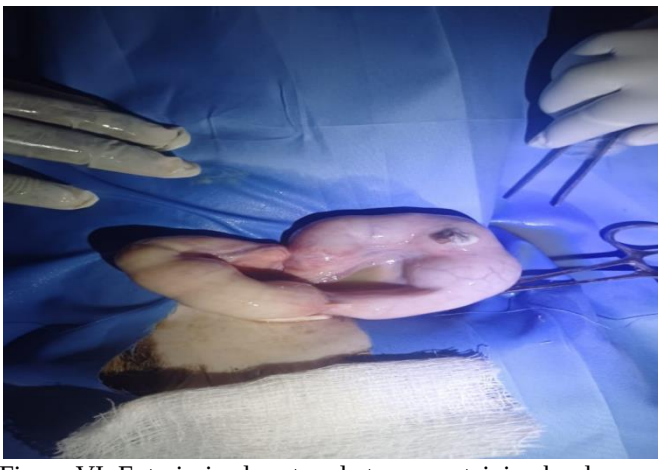

Figure VI: Exteriorized ruptured uterus containing hard mass

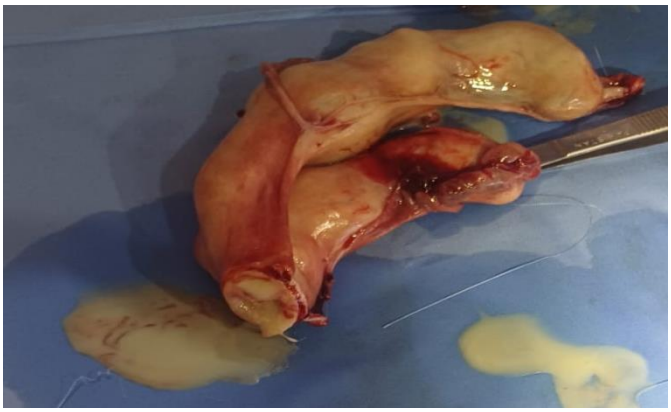

Figure VII: Transected uterus and ovaries, with purulent discharge and hard mass

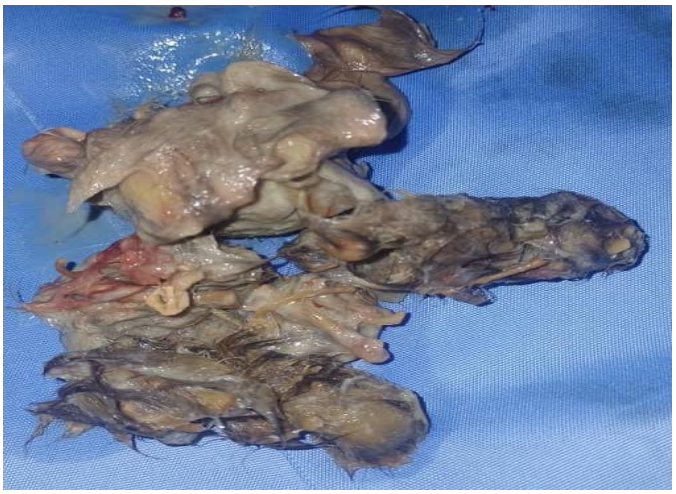

Figure VIII: Macerated putrified fetuses removed from the dissected uterus

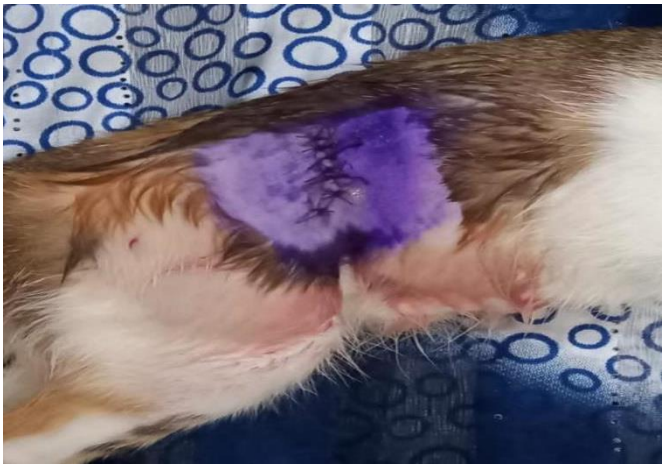

Figure IX: Surgical site post surgery

CONCLUSION

The Patient's condition was complicated by two batches of oxytocin administration prior to presentation, and anamnesis indicated an indiscriminate and erratic use of contraceptives. Also, clinical findings indicated an on-going septcemic condition with peritonitis and pyometra and surgical intervention was highly indicated. In this case, 7 mummified/macerated putrified foestues were removed from the dissected uterus after overiohysterectomy and there was foul odor fluid within the abodominal and uterine cavities. Unfortunately, the patient did not recover from the condition after the intervention.

REFERENCES

Ate, I.U., Bello, A., Nenshi, P.M., Allam, L. & Rashidat, M. (2011). Fetal maceration associated with brucella ovis infection in a yankassa ewe. *Resist Electronic a De Veterinaria,* 12, 1-6.

Bhattacharyya, H.K., Dar, S.A.& Fazili, M.R (2015). Fetal maceration in crossbred Holstein- Frisian heifer-a case report. *International Journal of Veterinary Sciences Research*, 1(1), 1-4.

Darvelid, A.W. & Linde-Forsberg, C. (1994). Dystocia in the bitch: a retrospective study of 182 cases. *Journal of Small Animal Practice*,35(8), 402-407.

Drost, M. (2007). Complication during gestation in the cow. *Theriogenology, 68*, 487-491.

England, G. (1998). *Pregnancy diagnosis, abnormalities of pregnancy and pregnancy termination. In: England G., Harvey M. (Eds). Manual of small animal reproduction and neonatology*. Hampshire: BSAVA Manuals.

Feldman, E.C. & Nelson, R.W. (1996). *Periparturient diseases. In: Feldman E.C., Nelson R.W., (Eds). Canine and feline endocrinology and reproduction*. Philadelphia: WB Saunders Company.

Grunert E., Birgel, E.H., & Vale, G. (2005). Clinic reproduction and pathology of domestic animals; 1st edition. Sao Paulo, Brazil.

Johnston, S.D., Kusritz, M.V.R. & Olson, P.N.S. (2001). *Canine pregnancy. In: Johnston S.D. (Eds). Canine and feline theriogenology*. Philadelphia: W.B. Saunders.

Jones, T.J., Hunt, R.D.& King, N.W. (1997). *Genital system. In: Veterinary pathology*. Baltimore: Lippincott Williams and Wilkins.

Khasatiya C T., Gangurde, H.B. &Chauhan, G.G. (2011). Vaginal delivery of mummified fetus in a crossbred cow. *Indian Journal of Animal Reproduction,* 32(2), 79-80.

Lorenz, M.D., Neer, T.M. & DeMars, P. (2013). Small animal medical diagnosis. John Wiley and Sons.

Nascimento, E. F. & Santos, R.L.S. (2003). Pathology of reproduction of domestic animals; 2nd edition, Rio de Janerio, Brazil.

Perumal, P. & Srivastava, S.K. (2011). Mummified fetus and a pup with eviscerated intestines in normal litter. *Indian Pet Journal,*10, 122.

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 Companion Animal Medicine,*27 (1), 36-37.

Roberts, S.J. (2004). *Veterinary obstetrics and genital diseases (Theriogenology), Indian reprint,* 2nded. New Dehli: CBS Publishers and Distributors.

Romagnoli, S., de Souza, F.F., Rota, A.& Vannozzi, I. (2004). Prolonged interval between parturition of normal live pups in a bitch.*Journal of Small Animal Practice,*45(5), 249-253.

Sood, P., Vasishta, N.K. & Singh, M. (2009). Use of a novel surgical approach to manage macerated fetus in a crossbred cow. *Veterinary Record,* 165, 347-348.

Suresh, A., Becha, B.B., Simon, S., Abhilash, R.S., Drisya, K.M. and Devarajan, N. (2023).Uterine rupture and foetal maceration in a queen cat. *Indian Journal of Canine Practice,* 15(1), 2277-6729.

Walett, D.A. and Linde-Forsberg, C. (1994). "Dystocia in the bitch: a retrospective study of 182 cases". *Journal of Small Animal Practice,*35(8), 402-407.

Yadav, S.K., Hossain, M.M.A.& Noor, J. (2021).Fetal mummification in a cat. *Acta Scientific Veterinary Sciences,*3(1), 19-22.