Short Communication

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Surgical Management of Fetal Maceration in a Bitch

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ABSTRACT

A 7-year-old intact bitch was presented with a history of foul smelling serosanguinous vaginal discharge and in-appetence since the last 15 days. Radiographic examination revealed radiopaque structures resembling scattered bony masses. Based on the history, clinical findings and radiographic analysis the case was suspected for fetal maceration and it was immediately referred for surgical intervention. Three macerated fetal masses were removed. The detailed clinical examination, diagnosis and surgical treatment is discussed.

Keywords: Fetal Maceration, Bitch, Serosanguinous Vaginal Discharge

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INTRODUCTION

Embryonic or fetal death may result in resorption, mummification, maceration or abortion depending on the period of the gestation (Givens and Marley, 2008). Fetal maceration is characterized by fetal death and incomplete abortion as a result of uterine inertia and intrauterine infections (Johnston *et al*., 2001). The pathogenic bacteria enter the uterus via the cervix after the death of the fetus and causes putrefaction and autolysis of the soft tissues, leaving fetal bones *in utero* (Konwar *et al.,* 2020). After bacterial contamination, fetal emphysema begins within 24-48 hours and maceration occurs within 3-4 days. The fetus or fetuses are putrefied and autolyzed with different degrees according to the pathogenicity of the bacteria. If maceration occurs after bone formation, autolysis could continue until all fetal soft tissues become autolyzed leaving behind only bones (Saini *et al.,* 2024).

CASE HISTORY AND OBSERVATIONS

A four-year-old intact Mongrel bitch was brought to Teaching Veterinary Clinical complex, Faculty of Veterinary & Animal Sciences, BHU with complaint of foul-smelling vaginal discharge and inappetence since last 15 days. Further interaction with the owner revealed that unintentional mating was there 4 months ago and the bitch was administered unwanted 72, dexamethasone and Premarin tablets (conjugated estrogen). Physical examination revealed the body temperature 102.9 °F, the respiratory rate 26/min, the pulse rate 100/min and the appearance of its mucous membranes were severely congested. The animal was dull and depressed with lymph adenopathy, signs of epigastric pain and on abdominal palpation, there were multiple hard masses. In addition to that, there was foul smelling black pus discharge through the vulva.

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Table 1: Haematological and serum biochemical analysis of a four-year-old intact Mongrel bitch suffering from fetal maceration.

Laboratory Investigation	Parameters	Value/Conc.
Haematology analysis	Hb	14.2 gm%
	PCV	39.1%
	TEC	6.05 M/mm3
	TLC	33.4 TH/mm3
	Neutrophils	77.3%
	Lymphocytes	16.9%
	Monocytes	2.2%
	Eosinophils	3.6%
	Platelets	490 TH/mm3
	MCV	64.6 fl
	MCH	23.5pg
	MCHC	36.3%
Liver Function Test	Albumin	2.60 gm %
	Total protein	5.2 gm%
	Direct bilirubin	0.02mg%
	Indirect bilirubin	0.08 mg%
	Total bilirubin	0.10 mg %
	AST	19.9 IU/L
	ALT	74.0 IU/L
	GGT	4.9IU/L
	ALP	56 IU/L
Kidney Function Test	Blood urea	18.80 mg %
	BUN	8.79 mg %
	Serum creatinine	0.60 mg%

From the history, physical examinations, lab findings and imaging techniques, it was diagnosed as fetal maceration and referred for surgical intervention.

TREATMENT AND DISCUSSION

The animal was premedicated with Atropine sulphate @0.04 mg/kg i/m, Xylazine Hcl @2 mg/kg and Butorphanol @0.8 mg/kg intramuscular. A 20G IV cannula was fixed in the right fore-limb cephalic vein with NS line @10 ml/kg for operative period and prophylactic antibiotic (Intacef Tazo™ @25 mg/kg) given intravenously. Induction of anaesthesia was done with midazolam 0.1 mg/kg i/v and Propofol @1 mg/kg slow IV and maintenance of anaesthesia was done with propofol. Animal was fixed in dorsoventral position and caudal midline incision was given to expose the uterus. It was observed that there was intense vascularization and hard solid structures in both uterine horns and body of uterus and some part of intestine and omentum were also adhered to uterine horns (Fig 1). The uterus and the ovaries were excised after ligation as per the standard procedure using triple clamp technique followed by suture of the uterus, the muscles and subcutaneous suture with PGA no.1. Finally, the skin was sutured with monofilament non-absorbable no.1 nylon in horizontal suture pattern and protective bandage was applied after aseptic dressing of the incision site. For post-operative care, the animal was prescribed with Ceftriaxone tazobactam @25mg/kg b.wt. IV for 5 days, Meloxicam 0.3 mg/kg b.wt im for 3 days, Pantop 1 mg/kg b.wt IV for 5 days .Furthermore, alternate

day dressing was done. Dog was advised for complete rest, light food and plenty of clean drinking water. Sutures were removed on 12th day post-surgery, and the animal recovered uneventfully. Fetal maceration is incomplete abortion

manifested as a consequence of the failure of an aborting fetus to be expelled due to uterine inertia (Johnston *et al.,* 2001), complicated by entry of pathogens into the uterus through the completely or partially dilated cervix. In some cases, fetuses fail to be expelled after abortion due to uterine inertia (Johnston *et al.,* 2001) or may be due to abnormal presentation, position and posture of dead fetuses/ normal contraction of dilated cervix (Saini *et al.,* 2024) resulting in the loss of fetal life. This facilitates the entry of autolytic bacteria into the uterus through the dilated cervix which has been noted earlier by other researchers (Mahla *et al.,* 2016; Sagar *et al.,* 2017).

Fig. 1: A: Multiple radiopaque masses consisting of fetal skeleton in lateral abdominal radiograph; B-C: Fetal maceration bumps as observed after ovariohysterectomy; D-F: macerated fetal mass.

CONCLUSION

Fetal maceration is a serious reproductive issue which jeopardises uterine health. Therefore, diagnosis and treatment at earliest is of paramount importance.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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