

Dystocia Due to Secondary Uterine Inertia and Fetal Anasarca in A Spitz Dog Breed – A Rare Case Report

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ABSTRACT

A four year old spitz dog was presented to the Department of TVCC, CVSc and AH, RK Nagar, Tripura with a history of parturition of 2 Puppies in the previous night having distended abdomen with no straining. Trans-abdominal palpation reveals the presence of at least one fetus inside the uterus. The case was confirmed as dystocia due to secondary uterine inertia. Oxytocin and calcium along with I/V fluid was administered intravenously to deliver the fetus(s). One relatively oversized fetus was delivered having accumulation of subcutaneous fluid, diagnosed as fetal anasarca. Haematological and biochemical study of the dam confirmed hypocalcemia, hypoglycemia and thrombocytopenia.

Keywords: Anasarca, Bitch, Biochemical Parameters, Haematological Parameters, Secondary Uterine Inertia.

INTRODUCTION

Excessive accumulation of fluid in subcutaneous tissue or anasarca in the fetus is common in cattle and sheep but it is rare in carnivores like bitch (Roberts, 1978). This condition is also called water or walrus (Cunto et al., 2015). Anasarca may occur in one pup or the complete litter. The affected fetus may

be larger than the non-affected normal fetus (Monteagudo et al., 2002; & Hopper, 2004). Anasarca is generally associated with dystocia (difficulty in parturition), uterine inertia (loss of contraction strength during the parturition process) and a high occurrence of fetal death (Hussaini et al., 2022).

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This clinical report will provide a gross morphological description of canine fetal anasarca in a spitz dog breed with the treatment of secondary uterine inertia and also the complete blood count along with serum biochemical profile (Sodium, Potassium, Calcium and Glucose) of the affected dam. The authors want to acknowledge that, no previous study on haematological and biochemical parameters in bitch carrying anasarca fetus was found.

Case history and clinical observation

A four (04) years old Spitz (adult body weight -11.2 kg) bitch has been brought to the Department of TVCC, CVSc and AH, RK Nagar, Tripura for a general pregnancy detection test. After the USG investigation, multiple gestational sacs and fetal heartbeat were seen, indicating approximately 5 weeks of pregnancy. It was further advised for haematological (table1), and Serum biochemical parameters for calcium (Ca), sodium (Na), potassium (K) and glucose, (Table 2) of the pregnant dam from the TVCC pathological Laboratory. The reports suggested that the bitch had anaemia, thrombocytopenia, and hypocalcemia. The following treatment was given: 1. *Redospet powder* [(containing Bacillus coagulant, anhydrous dextrose, Sodium chloride, potassium chloride sodium citrate) (company name- SAVAVET)] - 1/2 sachet with 100 ml of water twice daily 2. *Syp. Remecal* [(containing calcium, Phosphorus, magnesium, manganese, Vit - A, B6, C, D3) (company name- ASSUREM)] - 5 ml orally twice daily 3. *Syp aRBCe PET* [(containing Chelated Ferrous Glycinate, Copper Glycinate, Cobalt Glycinate, Vit B2, B3, B5, B6, B12 & D3) (company name- VETOQUINOL)]-5 ml orally twice daily.

After 1 month, the bitch was again presented to TVCC with a history of whelping 2 Puppies in the previous night and by general clinical examination, it was found that the bitch had a normal rectal temperature, elevated pulse rate and distended abdomen with no abdominal straining. On abdominal palpation, one hard mass (fetal structure) was felt and on vaginal examination, vaginal relaxation and sufficient cervical dilatation seen. That was a clear symptom of secondary uterine inertia (Haben et al., 2020). Treatment was done accordingly to relieve the dystocia.

Treatment and discussion

The bitch was treated with 1. *Inj. DNS (5%)*- 100 ml I/V once. 2. *Inj. Calcium Sandoz* (10 ml) (containing Calcium gluconate and calcium lactobionate) [(company name- NOVARTIS)]- 10 ml slow I/V once with DNS 3. *Inj. Pitocin* (10IU/ml) [(containing oxytocin) (company name- PFIZER)] - 1 ml slow I/V once. Within 10 to 15 minutes after the treatment, an edematous dead puppy was brought out manually through traction after correcting the posture of the puppy. A gross examination of the puppy showed subcutaneous generalized edematous swelling all over the body, especially the abdomen, thoracic and cephalic region (Figures 1 &2) and the size of the puppy was one and a half sizes bigger than the normal newborn puppy of this breed. These findings suggested that the fetus was having anasarca condition (Prabaharan et al., 2016). Immediately after delivery, the blood parameters of the dam indicate severe thrombocytopenia and hypocalcemia (table 1 &2). A second ultrasound of the abdomen was done which revealed no more fetuses inside the uterus.

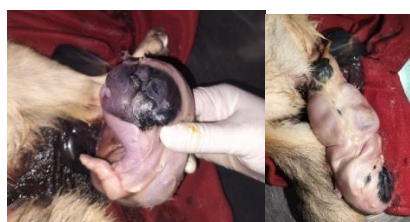


Figure 1

Figure 2

Blood parameters	At 5 th week of pregnancy	After delivery	Standard normal range
Hb (gm/dl)	10	13.5	11.9-18.9
RBC($10^9/\mu\text{l}$)	7	6	4.95-7.87
TLC ($10^3/\mu\text{l}$)	17	15	5-14.1
Neutrophil (%)	70	66	51-84
Lymphocyte (%)	26	30	8-38
Monocyte (%)	3	3	1-9
Eosinophil (%)	1	1	0-9
Basophil (%)	0	0	0-1
Platelet ($10^3/\mu\text{l}$)	130	90	211-621

Blood parameters	At 5 th week of pregnancy	After delivery	Standard normal range
Sodium(mmol/L)	150	156	141-152
Potassium(mmol/L)	3.8	4	4.37-5.35
Calcium(mg/dl)	7.4	7.2	9.0-11.3
Glucose (mg/dl)	50	60	65-118

The factors responsible for fetal anasarca have been attributed to various causes in different species however, the exact etiology of canine fetal anasarca is unknown. Fetal anasarca may occur because of faulty genetic expression resulting in a change in the normal fluid movement in fetal as well as placental circulation during pregnancy (Lumbers et al., 2001). Exposure to viral infections like Adenovirus or Parvovirus; Exposure to different drugs like Aspirin, Depomedrol and Triamcinolone or mechanical causes like myocarditis, malformation involved in the blood vessels and lymphatics may cause ascites in fetus (Robertson et al., 1979). Reportedly, breed predisposition of brachycephalic breeds, namely pugs, pekingese, boston terriers, bulldogs, french bulldogs, and english bulldogs (Cunto et al., 2015; & Sridevi et al., 2016). However, the present case study has not been established in such breeds. However, there may be a possibility that fetal anasarca is the formation

of recessive genetic aberrations in the offspring due to breeding amongst closely related family lineage (Monsef et al., 2020). Most of the time, a cesarian section is needed to deliver the fetus (Hussaini et al., 2022; Sridevi et al., 2016); seldomly, normal delivery is possible like our present study. A haematological and biochemical study shows a significantly low serum blood glucose and calcium level in the present case. similar findings are also reported by several authors like M.S. Bawaskar et al. (2022) and Linde Forsberg et al. (2000), suggesting that hypoglycemia and hypocalcemia cause uterine inertia, especially in canine dystocia. However low platelet count (thrombocytopenia) is not reported till now for uterine inertia in any species except the present case. Therefore, further investigation is needed regarding the relationship between thrombocytopenia and uterine inertia. It may act as a potential marker for the diagnosis of uterine inertia and may be related to fetal anasarca condition.

CONCLUSION

Secondary uterine inertia resulted as a consequence of fetal anasarca and lower levels of biochemical parameters of calcium, glucose, and platelet in blood serum. This suggests maintaining the levels of macro and micro minerals in the blood serum along with performing selective breeding through proper family pedigree history. This article further envisages different pathological causes leading to fetal anasarca for future reference.

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