MANAGEMENT OF PRIMARY UTERINE INERTIA IN FEMALE DOGS

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This communication represents management of primary uterine inertia in a two year old Pomerenian and one year old Pit bull bitches. They were with the complaint of difficulty in parturition at term. Both dogs were subjected to parenteral use of dextrose, oxytocin and calcium, however first case respondedto deliver two live and one stillbornpup while second one needed the cesarean section to remove three live puppies and both the bitches came to normal physiological health within one week.

Keywords: Cesarean section, Oxytocin, Primary uterine inertia.

Dystocia is an important emergency condition in animals and its negligence may lead to life threatening condition for both dam and fetuses. It occurs in 5 to 16% of all pregnancies in dogs (Bergstrom *et al.,* 2006b). The causes of dystocia may be of fetal or maternal origin. However, primary uterine inertia (PUI) is a common form of dystocia and occurs in approx 75% of casesin bitches (Darvelid and Linde- Forsberg, 1994) and is characterized by occurrence of weaker and less frequent or shorter than normal uterine contraction in the course of labor, thereby causing difficulty in parturition. Primary uterine inertia has been further classified as complete or partial. Complete or total primary uterine inertia signifies failure to initiate the second stage of labor and no puppies are delivered. However, primary partial or incomplete uterine inertia is defined as initiation of normal labour but uterine contractions stop before complete expulsion of the puppies (Johnston *et al.,* 2001).

PUI causes are associated with hypocalcimia, obesity, uterine infections or septicemia.It may also be associated with psychotic abnormality and nervous voluntary inhibition of parturition due to pain (Noakes *et al.,* 2001). PUI is common in dogs with three or fewer fetuses. Lack of exercise, debility and senility are all causes of weak uterine contractions at parturition. Excess number of fetuses in small dogs isconductive to PUI. In the present communication wo cases of PUI managed medically has been reported.

Case History and Observations

In first case, a two years old Pomerenian bitch (body weight 14.5 kg) was presented to the Department of Veterinary Clinical Complex, College of Veterinary Science, Proddatur, Andhra Pradesh, India, with the history of mating 65 days back, and was restless since last eight hours. The bitch was dull, depressed and anorectic. Details of clinical examination revealed that rectal temperature, heart rate and respiration rate were 101.5˚F, 90 beats per minute and 20 breaths per minute respectively. On pervaginal examination, the cervix was open, vagina relaxed; (Fig.1) however, the fetus was beyond reach of the obstetrician. Ultrasonography was performed to confirme the presence of a live fetus with full term age. Hence, based on history, physical examination, digital vaginal palpation and ultrasonography, the case was diagnosed as primary complete uterine inertia and it was decided to adminter parental medication and assist in delivery.

In second case, a one year old American pit bull female dog (Body weight 32 kg) was presented, with the history of

mating 60 days back and showing signs of anorexia, panting, nesting behavior and vomiting since past 24 hours without expelling fetuses. Gynaeco clinical examination revealed normal physiological parameters and presence of greenish discharge with relaxed vagina without palpable fetal parts. USG performed to confirm the presence of live fetuses with FHR >200bpm. Hence based upon history vaginal observations and USG the case was diagnosed as PUI (Fig.2).

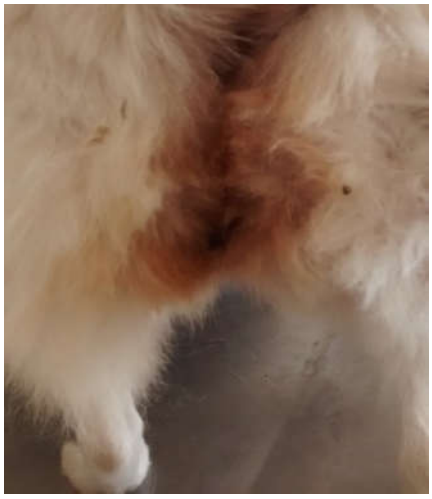

Fig. 1. Pomeranean dog with greenish black discharges without expulsion of fetus

Fig. 2: American pit bull dog with live fetus in ultrasonography

Treatment

In both casesthe bitches were treated with 25% dextrose @ 100ml I/V, Calcium gluconate injection @ 0.2 ml/kg B. wt. half dose I/V and half dose S/C followed by oxytocin @ 2.5 IU or 0.5ml I/V. After one hour of treatment, in first case, the fetus was palpated per vaginally, using whelping forceps, one live puppy was delivered. After 10 minutes one more live fetus whelped by dogwithout assistance. The oxytocin injection repeated, after confirming presence of viable fetus by USG. However after one hour of treatment one stillborn fetus was expelled. On USG confirmed the presence of no fetuses before discharging the bitch. The live pups were wiped with a clean dry towel and then umbilical cord was cut and tied. Then tincture iodine was applied to prevent infection. The bitch started eating from the same day eveningand came to normal physiological health withinone week.

However in second case dog failed to initiate the uterine muscle contractions sufficient enough to expel puppies even after infusion of calcium and incremental dosing of oxytocin. It was decided to intervene surgically and caesarean was performed following standard operative procedure to deliver three live puppies. The uterus, abdominal wall, the subcutaneous tissues and the skin were closed according to standard procedures. The dog was treated postoperatively for five days and sutures removed after nine days.

Results and Discussion

In the first case, Pomerania bitch started delivering puppies after oxytocin administration. The low oxytocin concentration might be the cause of uterine inertia as also mentioned by Bergeston *et al.*, 2006a and its supplementation mobilization intracellular stores of calcium and causes influx of extra cellular calcium as also reported by Rezapour *et al.*, 1996 and inhibition of calcium extension pump. This shows the important interaction between oxytocin and calcium during parturition and could explain delivery of puppies when oxytocin was given after the calcium solution.

In the second case, the pit bull dog did not respond to medical management may be due to down regulation or defect in oxytocin receptors in uterine myometrium (Bergstrom *et al.,* 2006a). During dystocia, uterus has been under the influence of oxytocin and continuous exposure to oxytocin desensitizes oxytocin receptors and reduces oxytocin binding sites which may prevent medical treatment to induce uterine contractions (Tamminen *et al.*, 2019)
Cesarean section was performed in the second dog to deliver the fetuses.

Conclusions

In conclusion, primary uterine inertia has multifactorial etiology in bitchesand could be treated by the strategic application ofcalcium and oxytocin along with manual use of whelping forceps, where diagnostic imaging aids play a vital role to overcome the situation however in unresponsive cases caesarean section is recommended.

References

Bergström, A., Fransson, B., Lagerstedt, A.S. and Olsson, K. (2006a). Primary uterine inertia in 27 bitches: aetiology and treatment. *J. Small Animal Pract.*, **47**(8): 456-460.

Bergström, A., Nødtvedt, A.N.E., Lagerstedt, A.S. and Egenvall, A. (2006b). Incidence and breed predilection for dystocia and risk factors for cesarean section in a Swedish population of insured dogs. *Veterinary Surgery*, **35**(8): 786-791.

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

Johnston, S.D., Root Kustritz, M.V. and Olson, P.N.S. (2001). Canine and Feline Theriogenology 1st edn., W.B Saunders Company, Philadelphia, U.S.A. **Pp.** 105-128.

Noakes, D.E., Parkinson, T.J. and England, G.C.W. (2009). Veterinary Reproduction and obstetrics, 9th edn. W.B Saunders Company, Philadelphia, U.S.A. **Pp.** 243-246

Rezapour, M., Hongpaisan, J., Fu, X., Bäckström, T., Roomans, G.M. and Ulmsten, U. (1996). Effects of progesterone and oxytocin on intracellular elemental composition of term human myometrium in vitro. *Europ.J. Obst. & Gyne. Reprod. Biol.*, **68**: 191-197.

Tamminen, T., Sahlin, L., Masironi-Malm, B., Dahlbom, M., Katila, T., Taponen, J. and Laitinen-Vapaavuori, O. (2019). Expression of uterine oxytocin receptors and blood progesterone, 13, 14-dihydro-15-Keto-Prostaglandin F2α, and ionized calcium levels in dystocic bitches. *Theriogenology*, **135**: 38-45.