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 Pomeranian 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 responded to deliver two live and one stillborn pup 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 cases in 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 is condictive to PUI. In the present communication two cases of PUI managed medically has been reported.

Case History and Observations

In first case, a two years old Pomeranian 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\degree 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 confirm 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 administer 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. Pomeranian dog with greenish black discharges without expulsion of fetus](image1.jpg)

![Fig. 2: American pit bull dog with live fetus in ultrasonography](image2.jpg)

**Treatment**

In both cases the 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 dog without 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 evening and came to normal physiological health within one 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 Bergston *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 bitches and could be treated by the strategic application of calcium 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**


