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Uterine Inertia in the Bitch: A Clinical Approach

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Introduction

Uterine inertia is defined as incapability of normal physiological uterine musculature to contract during labour or after whelping due to exhaustion or fatigue uterine muscles is termed as uterine inertia. The most common cause of maternal dystocia in bitch is due to uterine inertia, it contributes greater than 70 to 75% of all dystocia attributed to the dam. The uterine inertia may be classified in to primary or secondary. The incidence of primary uterine is high in bitches where secondary uterine inertia is commonly observed in bovine. Primary uterine inertia predisposed to secondary uterine inertia.

Primary inertia is defined as failure of sufficient uterine myometrial contractions to expel the puppies when the bitch has a normal birth canal and normal sized puppies (small pup enough to pass through the birth passage). Primary uterine inertia classified in to complete or partial. Complete primary uterine inertia which occurs in 50% of dystocia cases in bitches. In this type of inertia, the bitch fails to initiate the 2nd stage of labour so no puppies are delivered. Partial primary uterine inertia noticed in 23% of dystocia cases in bitches. In this type of inertia, there is an initiation of normal labour followed by start delivering of her puppies but fail to deliver all the puppies, since this labour ends prematurely. Secondary uterine inertia is caused by exhaustion or fatigue uterine muscles due to the obstruction of birth passage.

Classification of Uterine Inertia (UI)

- **Primary Uterine Inertia (PUI):** Failure of effective myometrial contractility.
  - **Primary Partial Uterine Inertia (PPUI):** Occurs in 23% of dystocia cases.
  - **Primary Complete Uterine Inertia (PCUI):** Occurs in 50% of dystocia cases.
- **Secondary Uterine Inertia (SUI):** Fatigue of uterine muscles.

Predisposing factors:

- Deficiency of Oxytocin (OT)
- PGFM concentrations
- Hypoglycemia
- Ca, Mg & P deficiency
- Age, parity, obesity & numbers of puppies (Failure of adequate luteolysis with very small litter size)

Diagnosis

Following methods are used to diagnose the condition of uterine inertia in bitches such as vaginal examination, abdominal palpation, radiographic examination, ultrasonographic examination and tocodyanamometry method.

- **Per-vaginal examination:** Per vaginal examination must be performed to find out whether the fetus is lodged in the vaginal cavity or not.
- **Abdominal palpation:** The abdominal palpation should be done to find out the presence of fetus.
- **Radiographic examination:** Radiographic examination must be done to find out presence of any retained fetuses and if it is present, find out the fetal numbers and position of remaining fetuses and their size relative to the birth canal.
- **Ultrasonographic examination:** Ultrasonographic examination helps to assess the viability of the fetus. Each pup's heart beats must be counted for one minute. Heart beats of <140 beats/minute indicate fetal distress. Therefore, it needs immediate caesarean section.
- **Tocodynamometry method:** Primary uterine inertia can be diagnosed by documenting an absence of organized, progressive and regular myometrial contractions at or beyond 62–65 days gestation as determined by periodic (q 4–12 hr based on status of labor) uterine monitoring using tocodynamometry. Tocodynamometry helps to detect the changes in intrauterine and intra-amniotic pressures. Tocodynamometry will be routinely performed in all pregnant bitches before eighth week of gestation onwards.

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Maternal health status can be evaluated through laboratory methods including serum calcium and glucose concentrations

Treatment

Manual therapy: If the fetus is present in the birth canal, it should be relieved by applying gentle traction with the help fingers after application of proper lubricants.

Medical therapy:

- In most of the cases, often exogenous oxytocin (OT) is helpful in stimulating the uterine contraction. It should be administered 1 IU/kg body weight intra muscular route at an interval of 20 to 30 minutes and it can be increased to a maximum of 2 IU/kg body weight (total dose can be given 5 to 20 IU/bitch but should not exceed 20 IU/bitch).
- If there is no response after 20 to 30 minutes go for second dose of oxytocin along with IV infusion of calcium gluconate at the dose rate of 0.2 ml/kg slowly over 3 to 5 minutes.
- Infusion of dextrose therapy helps to correct the hypoglycemia in bitches during the time of uterine inertia. Around 150 to 200 ml of 5% or 20% dextrose slow IV can be administered.
    - Care must be taken before administration of oxytocin particularly if the litter size is small because fetal size may be large and may result in obstructive dystocia.
    - If the litter size is large, it often requires multiple doses of oxytocin that results in prolonged labour.
    - Avoid rapid administration of oxytocin through IV route with high dose, because it may cause prolonged tetanic uterine contraction rather than coordinated expulsive contractions. Therefore, slow IV infusion is recommended, preferably with an infusion rate of 1 drop of oxytocin in 8 drops of normal saline.
    - Oxytocin administration will may cause premature separation of placenta and worsen any fetal hypoxia, so may it be contraindicated if fetuses are bradycardic.
    - Oxytocin therapy should be avoided if the bitches are having cardiac arrhythmia.

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- Uterine contraction and expulsion of puppies are the positive signs of treatment response similarly; remaining puppies can be delivered by administration of oxytocin alone once in every 20 to 30 minutes.
- If no response is observed with oxytocin alone then go for combination therapies includes oxytocin, calcium gluconate and dextrose and it should be administered for a maximum of 3 inductions at ½ hour intervals.
- Failure to respond to the above therapy should be advised to go for cesarean section (CS).

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