



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2023; SP-12(7): 658-660  
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Received: 17-05-2023

Accepted: 28-06-2023

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## Surgical intervention for management of dystocia in a Persian cat due to partial primary uterine inertia

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### Abstract

Dystocia is a rare condition encountered in cats; it is the failure of the queen to expel the foetus at parturition through the birth canal without assistance. A two-year-old Persian cat was presented with a history of weakness, anorexia and eviction of a dead foetus 36 h ago. On clinical examination, the cat was severely dehydrated, weak and hypothermic. Radiographic examination revealed the presence of four foetuses, and sonographic examination confirmed the foetuses as nonviable. Since the per vaginal delivery was impossible, an emergency C-section was performed under general anaesthesia and the animal had an uneventful recovery, and sutures were removed on the 10<sup>th</sup> day. The present case report suggests that delayed cases of dystocia due to partial primary uterine inertia in cats can be successfully managed by caesarean section.

**Keywords:** Cat, dystocia, partial primary uterine inertia, caesarean section

### 1. Introduction

Dystocia is the inability of the dam to expel the foetus at parturition through the birth canal without assistance (Jackson, 1995) [3]. The occurrence of dystocia in cats is quite low (3.3 to 5.8% of all feline pregnancies), whereas in dogs, 5 per cent has been recorded (Gunn-Moore and Thrusfield, 1995) [2]. Dystocia can be classified as either maternal or foetal in origin, depending on whether it is caused by problems with the queen or kittens. The maternal cause results from obstruction of the birth canal or a functional deficiency of the uterine muscle (primary uterine inertia). However, foetal malpresentation and position, foetal oversize, congenital anomaly and narrow pelvis are the primary cause of secondary uterine inertia. Other factors that predispose to primary uterine inertia may be an inherited predisposition, nutritional imbalance, fatty infiltration of the myometrium, age-related changes, deficiency in neuroendocrine regulation, or systemic disease (Linde-Forsberg *et al.*, 2000) [7].

Uterine inertia in the dog has been described as primary and secondary (Jackson, 1995) [3] and partial or complete. Primary complete uterine inertia is the failure of the uterus to begin labor at full term. Primary partial uterine inertia occurs when there is enough uterine activity to initiate parturition but it is insufficient to complete a normal birth of all foetuses in the absence of an obstruction (Purohit and Gaur, 2004) [9].

### 2. Materials and Methods

#### 2.1 Case details

In this paper, we report a delayed case of dystocia due to partial primary uterine inertia. A two-year-old female Persian cat weighing 3.5 kg was presented at the Teaching Veterinary Clinical Complex (TVCC), Mannuthy, Thrissur with a history of difficulty in parturition. The queen was crossed 69 days back as reported by the owner. Queen had started straining 36 h prior to presentation and given birth to a stillborn kitten after 12 h of initial signs. The cat was off-feed, weak and unable to deliver the remaining foetuses. On observation, the cat appeared dull and depressed, dehydrated with an enlarged abdomen, hypothermic (95 °F) and showed no straining efforts. On abdominal palpation, foetal mass could be felt. Per vaginal examination revealed presentation of foetal hind limbs in the birth canal. On ultrasonography, foetal structures were observed with the absence of foetal fluid. Color and pulse wave Doppler ultrasonography indicated the absence of foetal heartbeat which confirmed the foetus as nonviable. Lateral abdominal radiography revealed the presence of four foetuses.

## 2.2 Treatment

The cat was stabilized in an incubator at 37 °C under oxygen therapy (figure 1). Administered intravenous fluid (Normal saline at 10 mL/kg body weight) to correct the dehydration. Medical treatment was based on dextrose, 10 per cent calcium gluconate (0.2 mL/kg body weight subcutaneously), and oxytocin (0.5 IU/Kg body weight intramuscularly) combination protocol. Oxytocin was administered to promote uterine contraction to effect cervical dilation. However, the animal was not responded to the medical treatment and an emergency caesarean section was performed to relieve the condition. The condition was diagnosed as dystocia due to partial primary uterine inertia.

The queen was anaesthetized with Midazolam (Midazolam, Neon Laboratories Ltd.) at 0.2 mg/kg body weight and Ketamine at 22mg/kg body weight intramuscularly and maintained with 2 per cent Isoflurane inhalant anaesthesia. The surgical site was prepared aseptically and a linear incision was made on the midventral abdomen caudal to umbilicus. After exteriorization, four dead fetuses were removed through the incision on the dorsal aspect of the uterine body. The uterine blood vessels were congested and

the uterine body was discolored. One of the foetuses was abnormally enlarged, one was putrified and others had emphysematous changes (figure 2). The uterine incision was closed with catgut 2-0 using the Utrecht suture pattern. Lavaged the abdomen with warm normal saline. The peritoneum and muscles were closed with polyglactin 910 using a simple interrupted suture pattern. The skin was apposed with nylon using horizontal mattress suture pattern.

The queen was treated with intravenous administration of broad-spectrum antibiotic Ceftriaxone (Intacef 0.25 g @ 25 mg/kg body weight), Metronidazole (Metrogyl 500 mg/100 mL @ 20 mg /kg body weight) and supportive fluid therapy with 50 mL RL intravenously. Advised to continue oral antibiotic therapy for four more days.

The queen cat was subjected to an emergency caesarean section as the animal was not responding to the medical management for dystocia. Primary partial uterine inertia ensued due to the presence of an emphysematous foetus that prevented normal pervaginal delivery. Following surgery, the cat recovered uneventfully and the sutures were removed on 10<sup>th</sup> postoperative day.



**Fig 1:** Stabilization of queen cat done keeping it in incubator supported with oxygen



**Fig 2:** Four dead and emphysematous foetuses were removed by emergency caesarean section

### 3. Discussions

Dystocia in cats is defined as difficulty in expelling the foetus or delivery of the kitten through the birth canal at the time (6-12 h) of labor (Dar *et al.*, 2015) <sup>[1]</sup>. The causes of dystocia are classified into maternal, foetal and a combination of them (Stedile *et al.*, 2011) <sup>[10]</sup> which can occur during any stage of labour. The incidence of dystocia is fortunately very low in the queen cat (3.3 to 5.8% in dogs). Overall, 67.1 per cent of instances have been linked to maternal factors, while 29.7 per cent have been linked to foetal factors (Jyothi and Rajesh, 2018) <sup>[5]</sup>. A major maternal cause of dystocia is uterine inertia, the first one is called 'primary' which is characterized by a failure of the body to initiate synchronous uterine contractions and 'secondary' uterine inertia by a cessation of the uterine contractions due to fatigue during labor from tenacious straining besides an obstruction within the birth canal (Talukder *et al.*, 2021; Li *et al.*, 2021) <sup>[11, 6]</sup>. The other dam-related causes are partial or incomplete dilation of the cervix and narrow pelvis (Jackson, 2004) <sup>[4]</sup>.

The foetal origin of dystocia may be related to the size of the foetal head, which may be too large to pass through the birth canal. Sometimes an abnormal presentation, position, and posture of the foetus end up in dystocia (Pretzer, 2008) <sup>[8]</sup>. Releasing of dystocia by medical management may include the administration of oxytocin and calcium along with physical manipulation of the vagina to assist the delivery (Pretzer, 2008) <sup>[8]</sup>. The definition of a successful Caesarean section includes all producers dealing with the operation, including anesthesia, fluid therapy, time from the beginning of clinical labor signs, animal body condition, personal experience, and post-operative care; all these factors determine success or reduce prognosis expectation of a Caesarean section (Trass, 2008) <sup>[12]</sup>. Results of the present study concluded that in long-standing cases of primary partial uterine inertia emergency C- section should opt for better survival of the dam.

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