Case Report

# SINGLE PUPPY SYNDROME AND ITS SUCCESSFUL MANAGEMENT IN A SIBERIAN HUSKY BY EPISIOTOMY

**S. Rangasamy[1], S. Sathishkumar[2]*, J. Umamageswari[3], R. Sureshkumar[4] and D. Reena[5]**

*Department of Veterinary Gynaecology and Obstetrics*
*Madras Veterinary College*
*Tamil Nadu Veterinary and Animal Sciences University*
*Chennai – 600 007, Tamil Nadu*

## ABSTRACT

*A six-year-old Siberian husky bitch was presented to Small Animal Gynaecology and Obstetrics Unit, Madras Veterinary College Teaching Hospital, with a history of proestrus bleeding and prolonged breeding failure due to shyness. Based on progesterone value (8 ng/mL, artificial insemination was done. On day 45 post AI, ultrasonographic examination revealed the presence of a viable foetus and lateral abdominal radiography showed the presence of a single foetus. Based on the observations, the owner was made aware of chances of risk of dystocia due to single puppy syndrome and the case was kept under observation. However, the case was presented on day 65 of gestation with signs of inappetence and greenish-black vaginal discharge for the past 6 hrs. Based on the Ultrasound examination, Radiography and progesterone concentration, the case was diagnosed as dystocia due to single puppy syndrome. Under local anaesthesia, episiotomy was performed and a viable foetus (650 gm) was delivered. The episiotomy wound was closed in simple interrupted suture pattern using polyamide (1-0). After one week of postoperative care, the bitch had an uneventful recovery.*

**Keywords:** Artificial insemination, Episiotomy, Progesterone, Single puppy syndrome

Received : 20.07.2023 Revised : 12.10.2023 Accepted : 12.10.2023

## INTRODUCTION

"Single pup syndrome" refers to the observation of singleton pregnancy in bitches. It is a pregnancy with high risk (Jackson, 2004). Dogs are polytocous species, and their typical litter size is between three and seven puppies (Suresh, 2018). In single pup syndrome, the foetus may not emit enough

[1]Associate professor and Head, Department of Veterinary Gynaecology and Obstetrics, VCRI, Theni

[2*]Ph.D. Scholar, Corresponding author Email id: ssathishkumar511@gmail.com

[3]Assistant Professor, Department of Veterinary Gynaecology and Obstetrics

[4]Assistant Professor, Department of RVSS

[5]Associate Professor, Teaching Veterinary Clinical Complex, VCRI, Udumalapet

cortisol to trigger the endometrium's secretion of $PGF_2\alpha$ which triggers CL regression and whelping (Jayakumar *et al.,* 2017). Single puppy syndrome has a number of etiological causes, including breeding older animals, loss of embryos during early gestation, and the resorption of embryos before to mineralization (Domoslawska *et al.,* 2011). If there are fewer than four foetuses, Ultrasonography can be used to estimate the number of foetuses with a high degree of accuracy (Jackson, 2004). However, radiography is a helpful method for pregnancy diagnosis especially for confirmation of number of fetuses and single fetus may result in prolonged gestation (Noakes *et al.,* 2009).

## CASE HISTORY AND OBSERVATION

A six-year-old Siberian husky bitch was brought to the Small Animal Gynaecology and Obstetrical unit, Madras Veterinary College Hospital with a history of proestrus bleeding and extended breeding failure because of shyness. Vaginoscopy-guided Artificial insemination (Fig 2) was carried out based on progesterone levels (8 ng/mL) with good quality fresh semen collected by digital manipulation (Fig 1). However, the bitch was not reported for second insemination. On day 45 post AI, the bitch was presented for pregnancy diagnosis and revealed the presence of a viable foetus (Fig 4) and lateral abdominal radiography confirmed the presence of a single foetus. Based on the observations, the owner was made aware of the high risk of dystocia due to single puppy syndrome and the case was kept under observation. The case was presented on day 60 post AI and serum progesterone was estimated as 3.25 ng/mL (Vet chroma Progesterone - WELDON BIOTECH) and the owner was advised to observe the bitch for any signs of whelping within a week. However, the case was presented on day 65 of post-AI with signs of inappetence and greenish-black vaginal discharge.

## TREATMENT

Serum progesterone concentration at day 65 was 0.75 ng/mL (Vet chroma Progesterone – WELDON BIOTECH). Ultrasound examination showed the presence of a viable foetus with anterior longitudinal presentation and proportionately larger head, abdominal radiography revealed the presence of a single foetus lodged in the vagina (Fig 3). On clinical examination, the foetal sac was palpable per vaginum. The bitch made several unsuccessful attempts to deliver the foetus, which eventually become unproductive. Based on the above findings, the case was diagnosed as dystocia due to single puppy syndrome. A local anaesthetic Inj: Lignocaine Hydrochloride (Lox 2%) 6mL was infused in the dorsal commissure of the vulva and underlying tissues. The incision was then made from the dorsal commissure of the vulva along the midline toward the anus (Fig 5) and a viable foetus (650 gm) was delivered. The incision site was closed in simple interrupted suture pattern using polyamide (1-0). Antibiotics Inj: Ceftriaxzone 20mg/kg b.wt IM and anti-inflammatory Inj: Meloxicam 0.2mg/kg b.wt SC was given. After one week of postoperative care, the bitch had an uneventful recovery.

**Fig. 1. Semen Collection by digital manipulation**

**Fig. 2. Vaginoscopy guided AI in bitch**

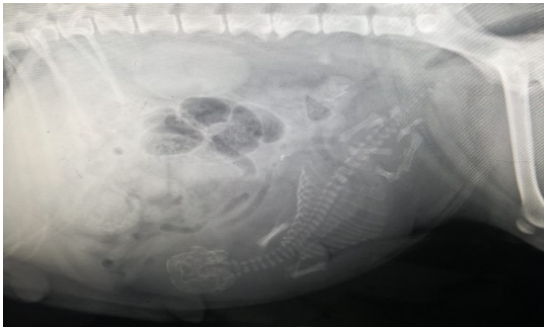

**Fig. 3. Radiograph at Day – 65**

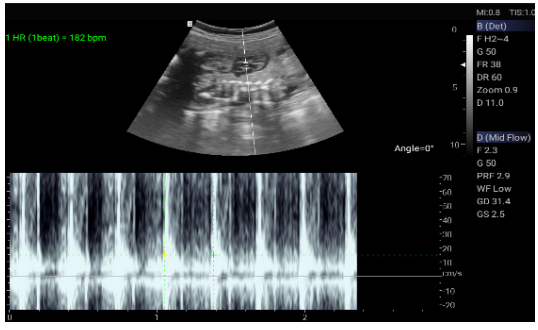


**Fig. 4. Ultrasound examination showed presence of viable foetus**

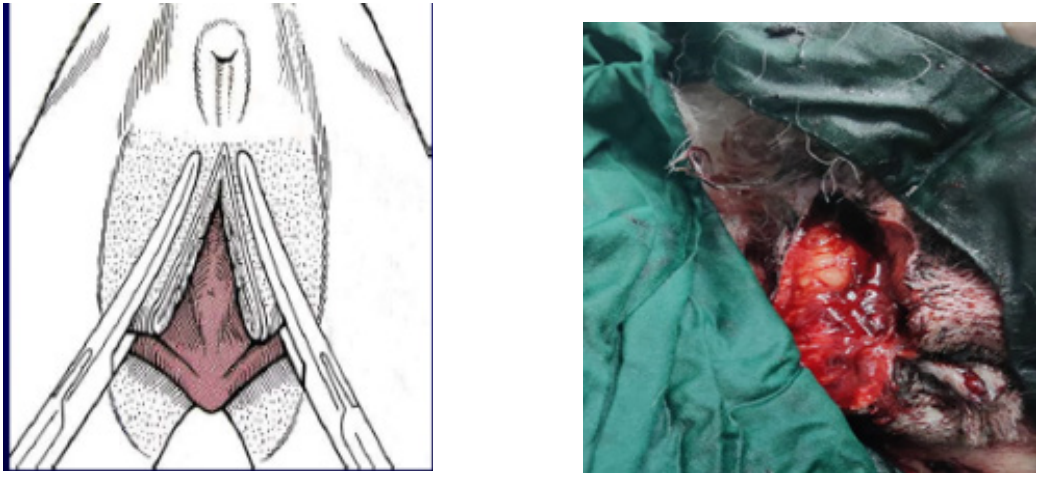

**Fig 5. Episiotomy**

**Episiotomy**

## DISCUSSION

Because there is only one foetus to stimulate the parturition cascade in singleton pregnancies, the pregnancy lasts longer and there is a chance of dystocia due to relative oversizing and primary uterine inertia (Smith, 2007). Treatments for dystocia include foetal repositioning, episiotomy, and foetotomy, as well as further oxytocin administration to increase or augment uterine contraction (Njoku *et al.,* 2023). Episiotomy, however, may be helpful if a puppy or kitten has become stuck at the vulva's opening (Traas, 2008). Maintaining lactation, maximising pup survival, and optimising maternal, foetal, and perinatal health are the objectives of managing high-risk pregnancies from single pups. (Jayakumar *et al.,* 2017). In the above case, the animal was diagnosed as pregnant with a single puppy by radiography on day 45 and advised the owner to observe the parturition signs.

## CONCLUSION

On day 65, the animal had blackish-green vaginal discharge, progesterone concentration 0.75ng/mL with foetal sac palpable in the vagina. Based on the above findings we planned to do episiotomy as timeless procedure to save the fetus.

## REFERENCES

Domoslawska, A., Jurczak, A. and Janowski, T. (2011). A one-foetus pregnancy monitored by ultrasonography and progesterone blood levels in a German Shepherd bitch: a case report. *Veterinary Medicine*, **56**: 55 - 57.

Jackson, P.G.G. (2004). Dystocia in the dog *In: Hand book of Veterinary Obstetrics (ed), Saunders and Imprint of Elsevier Ltd. Edinbourgh*, **2**: 141 - 166.

Jayakumar, C., Chinnu, P.V., Amritha, A. and Unnikrishnan, M.P. (2017).

Challenges in management of canine high risk pregnancies with single pup syndrome. *Indian Journal of Canine Practice*, **9**(1): 22 – 26.

Njoku, N.U., Ukweni, C.P., Odirichukwu, E.O. and Jeremiah, K.T. (2023). A case of foetal anasarca in a primiparous Lhasa apso bitch. *Journal of Sustainable Veterinary and Allied Sciences*, **4**(1): 62 – 65.

Noakes, D.E., Parkinson, T.J. and England, G.C.W. (2009). Veterinary Reproduction and Obstetrics. 9th edn. *W.B.Saunders Company, Philadelphia*. Pp. 69 - 118.

Smith, F.O. (2007). Challenges in small animal parturition—Timing elective and emergency cesarian sections. *Theriogenology*, **68**(3): 348 - 353.

Suresh, A. (2018). Did you know about single puppy syndrome. *Dogs and Pups Magazine*, 14.

Traas, A.M. (2008). Surgical management of canine and feline dystocia. *Theriogenology*, **70**(3): 337 - 342.