SHORT COMMUNICATION

Hormonal Management of Persistent Estrus in Bitches: A Report of Seven Cases

Devasee N. Borakhatariya [1]*, Urvashi B. Ramoliya[2], Nirbhay R. Nandaniya[2], Karshan B.Vala[2]

Abstract

Seven bitches of various breeds presented at the VCC, Junagadh with the anamnesis of persistent vaginal bleeding since 30 to 45 days were included in this syudy. They were all subjected to a vaginal cytology, which showed that there were a lot of superficial cells (>80%). Given the vaginal cytological cellular profile, the presumptive diagnosis was made for the prolonged estrus, may be due to either follicular cysts or persistent anovulatory follicles. To induce ovulation or luteinization, the animals were treated with human chorionic gonadotrophin twice at 24-h intervals at a dose of 22 IU/kg body weight. After receiving an hCG injection, the vaginal bleeding in six of the treated animals decreased every day and almost ceased in five days, but in one instance, the bleeding continued. The recommendation for this bitch was an ovario-hysterectomy.

Key words: Bitch, Cysts of follicles, hCG, Luteinizing hormone, Prolonged heat, Vaginal exfoliative cytology.

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Introduction

Bitches are unique in that they only have one or two seasonal reproductive cycles per year. Additionally, the pro-estrus and estrus stages in dogs last for a long time, typically nine to ten days. The cycle starts with the proestrus phase, or the first onset of vaginal bleeding, which ends in estrus with a pale yellow straw colour vaginal discharge. Bitches' infertility is attributed to several reproductive ovarian dysfunctions, including luteal insufficiency, split heat, prolonged proestrus and estrus, cysts of follicles, anovulation, *etc* (Lopate and Foster, 2010; Kumar *et al.,* 2019; Singh *et al.,* 2019). Due to endogenous unusually high oestrogen production associated with ovarian dysfunctions, animals do, however, occasionally develop prolonged vaginal bleeding, usually lasting more than 3-4 weeks (Ciftcier and Uysal, 2014; Knauf *et al.,* 2014; Kaya and Varis, 2022). In such instances, a veterinarian's intervention is a must for its management.

Active or functional ovarian tumors, anovulation of a Graafian follicle, follicular cysts (endocrinologically active form), inadequate oestrogen stimulation from the ovary which culminate in failure of LH surge, lack of LH (luteinizing hormone) receptor in ovarian follicles, insufficient secretion of LH from the pituitary gland and follicular non-response to normal LH surge are likely causes of the extended proestrus and estrus (Sridevi, 2015; Risvanli *et al.,* 2016). Besides that, prolonged vaginal bleeding can also result from the existence of vaginal haematomas or vaginal tumors. Persistent vaginal bleeding is the bitches' most prevalent clinical sign in such circumstances. The present report highlights the hormonal management of the prolonged estrus in bitches.

[1]Polytechnic in Animal Husbandry, College of Veterinary Science & Animal Husbandry, Kamdhenu University, Junagadh-362001, Gujarat, India

[2]Department of Veterinary Gynaecology and Obstetrics, College of Veterinary Science and Animal Husbandry, Kamdhenu University, Junagadh-362 001, Gujarat, India

Corresponding Author: Dr. Devasee N. Borakhatariya, Assistant Professor, Polytechnic in Animal Husbandry, College of Veterinary Science & Animal Husbandry, Kamdhenu University, Junagadh-362001, India. e-mail: dnb@kamdhenuuni.edu.in

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Materials and Methods

Seven bitches of different breeds (German Shepard, Pomerania, Spitz, Labrador Retriever, and a non-descriptive), between the age of three and six years, who had been experiencing vaginal bleeding (Fig. 1A) since 30-45 days were brought to the Veterinary Clinical Complex (VCC), Veterinary College, Kamdhenu University, Junagadh, Gujarat, for therapeutic management. Systemic examination revealed every animal in good health. Additionally, none of the bitches had previously received any kind of exogenous hormone treatment. For each bitch, the vital parameters were within physiological normal ranges. To rule out the possibility of any tumor growth or haematomas, a digital vaginal examination

was performed. Not a single bitch that was presented had haematoma or vaginal tumor. The digital vaginal examination also showed that the vaginal wall was smeared with fresh blood.

In order to explore the potential for prolonged proestrus or estrus, and to assess the exact abnormality of the cycle, vaginal exfoliative cytology (VEC) samples were collected. The swab was then rolled from end to end on a cleaned, grease-free slide with minimal pressure. Duplicate slides were made from every swabbed sample. Following standard protocol, slides were stained with Giemsa stain and observed under a microscope. To determine whether ovarian abnormalities were present, trans-abdominal ultrasonographic (USG) scanning (Fig. 1B) was then carried out using a line array transducer (Exago, 5 MHz, IMV Technologies). These cases were presumptively diagnosed as persistent/prolonged estrus with bloody discharge based on the observed cellular picture. Human chorionic gonadotrophin (hCG; Inj. Chorulon; MSD Animal Health) was given to each animal twice at 24-h interval at a rate of 22 IU/kg body weight to induce ovulation or luteinization.

Results and Discussion

The vaginal exfoliative cytology revealed presence of abundant (>80%) superficial cells (Fig. 1C). USG scanning was unable to identify the ovarian structures, however by revealing its normal texture, uterine USG scanning eliminated the possibility of uterine infections, notably cystic endometrial hyperplasia (CEH) and pyometra. In six of the treated animals, the vaginal bleeding decreased daily and nearly stopped within five days of hCG injection, but in one case, the bleeding persisted. Ovario-hysterectomy was recommended for this bitch because the case did not respond to hormonal therapy.

In the current investigation, the presumptive diagnosis was based on the vaginal cytological cellular picture, and affected bitches showed prolonged vaginal bleeding which suggested both either persistent anovulatory follicles or may be follicular cysts, hence the hormone human chorionic gonadotrophin (hCG) was used to treat the animals in order to ovulate or luteinized them. The hormonal intervention was initially selected since the bitches were younger and the owners expressed a desire to breed them in the future. Six of seven animals among the bitches treated with hCG responded, indicating that hormonal therapy can be used to treat them effectively without the need for unnecessary surgery. Kaya and Varis (2022), Gupta *et al.* (2023), and Sharma *et al.* (2023), also documented the effective management of the anovulatory cyst using hormonal treatment. Protracted estrus caused by persistent follicles is usually regressed of its own, and breeding can be resumed from the subsequent cycle. However, if vaginal bleeding persists for longer than three to four weeks, veterinary care is necessary to avoid potentially fatal pyometra. Several clinicians (Jayakumar *et al.,* 2014; Devi *et al.,* 2021; Sharma *et al.,* 2023) reported ultrasonographic diagnosis of the presence of anovulatory follicles, however, under the present report, ultrasonographic examination was unable to detect ovarian mass in treated bitches which might be due to lower ultrasonography transducer frequency, the smaller size of persisted follicles or embedded ovaries in the bursal fat. But, the animal's response to the hormonal treatment was suggestive of the presence of the anovulatory follicles.

Thus this particular clinical report illustrates the clinical cum diagnostic findings and successful hormonal management of persistent heat in bitches.

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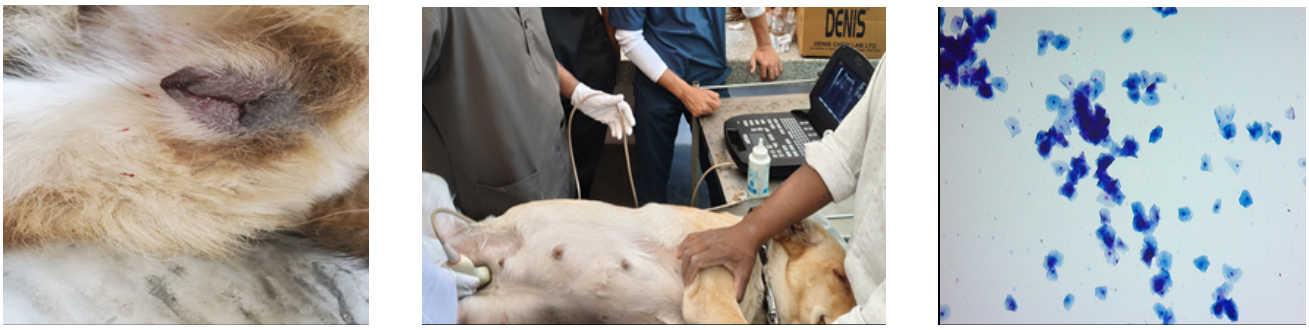

Fig. 1: (A) Vaginal bleeding smeared around vulva, (B) USG scanning of an affected bitch, (C) Superficial cells in vaginal cytology (10x)

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