

Diagnosis and Management of Vaginal Fold Hyperplasia - Prolapse Syndrome in Bitches

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Abstract

Five female dogs with vaginal fold hyperplasia-prolapse syndrome were reported for diagnosis and management, wherein, three bitches dwelled in proestrus and two in diestrus with wide clinical diversity of prolapsed mass. An obvious resemblance of prolapsed mass with vulval/vaginal tumors warrants an impression smear cytology for confirmatory diagnosis and management in view to relate clinical observations and discerning the stage of estrus cycle.

Keywords: Bitch; estrus; prolapse; vaginal hyperplasia

Introduction

Normally the vulvo-vaginal mucosa becomes edematous with variable degree during follicular phase of estrus cycle, however an increased estrogenic response may result in protrusion of excessively folded mucosa of vagina through vulva known as vaginal hyperplasia-prolapse. The prolapse in bitch differs from other species by just having hyperplasia of vaginal mucosa and vaginal prolapse.

Schutte (1967) suggested three stage classification of vaginal hyperplasia-prolapse in dogs. Bitches with type I have slight-to-moderate eversion of vaginal mucosa originating from vaginal floor cranial to urethral opening, eventhough it does not exit the vulva itself; type II indicates protrusion of vaginal mucosa through vulvar labia, with base also originating from vaginal floor; bitches with type III have complete protrusion of entire circumference of vaginal mucosa appearing donut shaped mass, often accompanied by exteriorisation of urethral orifice. Exposed tissue rapidly becomes inflamed, edematous, necrotic, ulcerated and easily traumatized (Post *et al.*, 1991).

Vaginal hyperplasia is one of the important clinical condition commonly seen in bitches and most of times this would be confused with neoplasia or transmissible venereal tumor (Sureshkumar *et al.*, 2011). Therefore, bitches reported and suffering from vaginal hyperplasia-prolapse are discussed.

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History and Clinical Observations

The referred cases of five bitches misdiagnosed as either vaginal or transmissible venereal tumors and treated without improvements were thoroughly investigated. There was no history of recent breeding in all bitches. For cytology, the impression smears were made on glass slide and allowed to air dry followed by fixation and stained with eosin methylene blue stain. The detailed history and clinical observations were as follow.

Case 1

A marble sized protrusion from vulva (Fig. 1a) in a ten years old Pomeranian bitch along with occasional bleeding since last seven days was presented without any complaint of urination and feeding. The mass was pedunculated from vaginal floor anterior to urethra *via* neck and protruded through oedematous vulva (Type II prolapse). Further, mass had smooth surface without any bleeding but with visible slight cyanotic and vascular congestions. Cytology showed parabasal and intermediate cells with RBCs corresponding to proestrus (Fig. 1b). This was her first incidence regarding hyperplasia-prolapse.

Case 2

Vaginal bleeding (Fig. 2a) since forty five days in German Shepherd bitch aged nine years. Bloody discharge was evident on lower commissure of oedematous vulva. Marble sized smooth surfaced growth was palpated in anterior vagina attached to left vaginal wall not protruded through mild oedematous vulva (Type I prolapse).

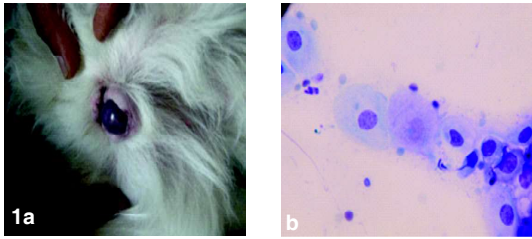


Fig. 1: Marble sized mass protrusion from vulva (1a) during proestrus (1b) (Case-1)

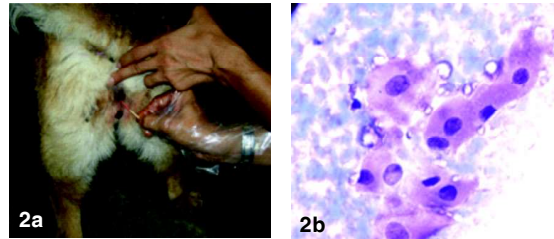


Fig. 2: Vaginal bleeding (2a) during late proestrus (2b) (Case-2)

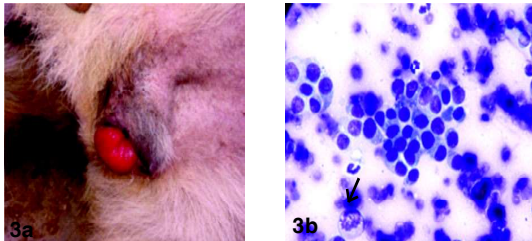


Fig. 3 : Lemon sized bright red mass (3a) protruded from vulva during proestrus (3b) (Case-3) Mitotic figure (arrow)

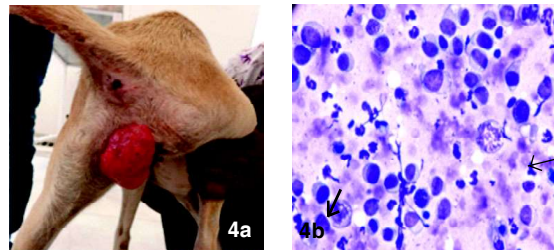


Fig. 4 : Oval, hard, pinkish irregular and ulcerated mass (4a) with evidence of mitotic figures (4b) (Case-4) Mitotic figure (arrow)

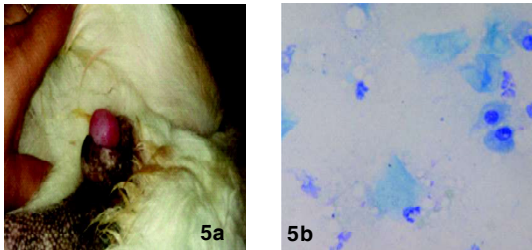


Fig. 5: The protrusion of mucosa (5a) from vagina during estrus (5b) (Case-5)

The vaginal cytology revealed intermediate cells with abundant RBCs indicating bitch in late proestrus (Fig. 2b).

Case 3

A four year old German Shepherd bitch was showing gradual enlargement of mass at vulvar region over a period of 10-12 days. Bitch was frequently licking mass at vulva. On clinical examination mass was lemon sized bright red in color (Fig. 3a) and attached to vaginal floor with neck protruded from mild oedematous vulva suggesting vaginal hyperplasia-prolapse (Type II). The impression smear of prolapsed mass revealed aggregated parabasal cells with mitotic figures along with red blood cells and neutrophils. Cytology corresponds to proestrus stage (Fig. 3b).

Case 4

A non-descript stray bitch ageing approximately 2-3 years was presented with growth at vulvar region since 15-20 days. Clinically, there was absence of vulval oedema, the growth was oval shaped, hard to touch, pinkish irregular with ulcerated surface, bleeding occasionally (Fig. 4a), which was attached to left vaginal wall by neck. Rest of vaginal passage and urinary meatus were free of any affection. Impression smear showed parabasal cells with mitotic figures, red blood cells and neutrophils (Fig. 4b). Based on cytology and clinical findings bitch was suffering from vaginal hyperplasia-prolapse type II.

Case 5

A 17 year old nulliparous Labrador cross female showed protrusion of mucosa (Fig. 5a) from vagina about one month ago and treated prior then referred for further investigations as this was first incidence so far in her lifetime. The vaginal examination revealed nodular vaginal mucosa and cytology showed keratinized anuclear cells with neutrophils (Fig. 5b). The bitch suffered with vaginal prolapse type I during estrus phase.

Diagnosis

The bitches of case number one, two and three were in proestrus stage and had type II, type I and type II prolapse, respectively, whereas, case number fourth

and fifth were in diestrus and estrus stage with type II & I prolapse, respectively.

Management and Results

Looking to duration of illness, vaginal cytology and appearance/nature of protruded mass, the medicinal approach was opted in all cases. Smearing of prolapsed mass with antiseptic ointment (Pendistrin SH^a) and cold pack application was advised for four to five days. The bitches were medicated with Tab. Enrocin^b (2.5 mg/kg, i/m), Tab. Meloxicam (0.5 mg/kg, i/m), Tab. Ethamsylate (2 ml, i/m) and Syp. Multivitamin (5 ml, bid, orally, Multistar^b) for seven days. The bitches of case number one, two, three and five completely recovered within 15 days of clinical presentation as per telephonic follow up, while case four didn't show recovery and never turned back as well.

Discussion

Usually vaginal hyperplasia is seen in young bitches during proestrus or estrus of first to third estrous cycle. In several studies, mean age at diagnosis was less than four years (Schutte, 1967; Galal *et al.*, 2018; Kurt *et al.*, 2019). Also reported in 7 year old nulliparous bitch during diestrus (Post *et al.*, 1991). The affected breeds of bitches in present study were German Shepherd (02), Pomeranian (01), non-descript (01) and Labrador cross (01) with age ranged between 2 and 17 years. The breed and age factors play a crucial role in almost 80 percent of the occurrence of vaginal hyperplasia in bitches (Gokula *et al.*, 2014). Vaginal hyperplasia usually occurs during proestrus and estrus due to increased vascularity and estrogen (De Brito *et al.*, 2006) followed by spontaneous remission during diestrus in most cases (Schaeferes-Okkens, 2005) with 66 to 100 percent chances or reoccurrence in subsequent estrus (Alan *et al.*, 2007).

The impression smear cytology stained with eosin-methylene blue could determine the cellular changes in transmissible venereal tumors of bitches (Sutaria *et al.*, 2018). Galal *et al.* (2018) have performed cytology to know the reproductive stages of suffered bitches. However, hyperplasia-prolapse has also been observed during pregnancy (Kurt *et al.*, 2019). The impression smear of case 3 and 4 revealed increased nuclear/cytoplasmic ratio,

a - Brand of Zenex Animal Health, Ahmedabad

b - Brand of Vet Mankind, Noida

granular nucleus with variable degree of mitotic figures and highly infiltrated with RBCs and neutrophils which may be due to continuous environmental exposure of prolapsed mass leading to irritation, inflammation, ulceration and bleeding in present clinical work, which is in agreement with Galal *et al.* (2018) who found similar histomorphological changes in Cocker Spanial bitch suffering from vaginal hyperplasia.

Schutte (1967) classified hyperplasia and prolapse of vaginal mucosa in three types and found type I and II are most commonly occurring. The vaginal hyperplasia-prolapse has been documented with variety of clinical appearance such as painless, cold, semi hard and pedunculated growth (Sureshkumar *et al.*, 2011) in the form of a small bulge to a tongue/pear-shaped mass (Antonov *et al.*, 2009; Galal *et al.*, 2018). Similarly, the bitches under report also had variable degree of vaginal hyperplasia and propalse. Occasionally whole vaginal mucosa is also involved in hyperplasia-prolapse (Galal *et al.*, 2018). Ventral part of the vaginal mucosa is involved in the majority of vaginal prolapses according to Schaeferes-Okkens (2005) but two cases had prolapse attachment to lateral vaginal wall and two had ventral vaginal involvement in the present study. Post *et al.* (1991) observed that anterior vaginal wall became hyperemic and hardened with scanty reddish discharge before the bitch suffered with vaginal hyperplasia. Vaginal edema and vaginal fold prolapse can be confused with a tumor, such as a steeled fibroma or leiomyoma (Schaeferes-Okkens, 2005), therefore it needs to be clinically evaluated by manual examination and cytology for differentiation in view to reproductive stages of bitch.

The vaginal epithelial fold becomes excessively oedematous and hyperplastic during estrus cycle protrude out through vulval lips and dwindle as the bitch crossed estrous stage. It may sometime require hormonal therapy using megestrol acetate/hCG/GnRH (Antonov *et al.*, 2009) but if retains for longer period surgical resection is required (Sureshkumar *et al.*, 2011; Galal *et al.*, 2018). Although, Sureshkumar *et al.* (2011) used to treat by surgery and found none of the animals showed recurrence in next estrus.

Conclusion

As the appearance of vaginal hyperplasia-prolapse

has resemblance to tumors of vulva and vagina *viz.* transmissible venereal tumor, such cases require thorough clinical examination and differential diagnosis. Therefore, it is wise to go for impression smear cytology along with precise clinical examination and breeding history for confirmatory diagnosis and proper management.

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References

- Alan, M., Cetin, Y., Sendag, S. and Eski, F. (2007). True vaginal prolapse in a bitch. *Anim. Reprod. Sci.* **100**: 411-14.
- Antonov, A.L., Atanassov, A.S. and Georgiev, P.I. (2009). A modified technique for prolapsed fold excision in a bitch with vaginal hyperplasia. *Bulgarian J. Vet. Med.* **12**: 260-64.
- De Brito, C.P., De Oliveira, M.C., Soares, F.A., Faustino, M. and De Oliveira, C.A., (2006). Immuno-histochemical determination of estrogen receptor - A in vaginal and tumor tissues of healthy and TVT-affected bitches and their relation to serum concentrations of estradiol-17b and progesterone. *Theriogenology* **66**: 1587-92.
- Galal, S.M., Fathi, M., Ismail, S.T., ElBeley, M.S. and Mohamed, F.F. (2018). Clinical diagnosis and surgical

approaches of vaginal hyperplasia in bitches. *Asian Pac. J. Reprod.* **7**: 220-24.

Gokula, K.M., Nagarajan, I. and Arunaman, C.S. (2014). Surgical management of vaginal hyperplasia and prolapse in a pug bitch. *Indo-Am. J. Agric. Vet. Sci.* **2**: 3-7.

Kurt, S., Salar, S. and Bastan, A. (2019). Effect of vaginal fold prolapse occurrence in a pregnant bitch on parturition process. *J. Turkish Vet. Med. Soc.* **90**: 50-54.

Post, K., Basvan, H. and Auke, C.O. (1991). An unusual case of canine vaginal hyperplasia. *Can. Vet. J.* **32**: 38-39.

Schaeferes-Okkens, A.C. (2005). Estrous cycle and breeding management of the healthy bitch. In: Ettinger S.J., Feldman EC, editors. *Textbook of Veterinary Internal Medicine*. London, UK: W. B. Saunders Co. p. 1641.

Schutte, A.P. (1967). Vaginal prolapse in the bitch. *J. S. Afr. Vet. Assoc.* **38**: 197-203.

Sureshkumar, R.V., Veena, P., Sankar, P., Dhana Lakshmi, N., Ch. Sreelatha and Kokila (2011). Vaginal hyperplasia in a dog- a case report. *Tamil Nadu J. Vet. Anim. Sci.* **7**: 174-75.

Sutaria, T.V., Sutaria, P.T., Nakhashi, H.C., Suthar, B.N., Chauhan, P.M. and Sharma, V.K. (2018). Therapeutic assessment in canine transmissible venereal tumor by cytology and hematology. In *34th Annual Convention of ISSAR and International Symposium* organised at Veterinary College, Anand Agricultural University (AAU), Anand, p. 342.

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