

Successful Surgical Management of Vaginal Hyperplasia and Prolapse in a Pug

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Abstract

A two-year-old female pug was presented with dysuria and a protruding vulvar mass during estrus. Clinical, ultrasonographic, cytological, and histopathological examinations confirmed vaginal hyperplasia associated with ovarian follicular cysts. Surgical excision of the mass was performed under general anaesthesia, and the animal recovered uneventfully following post-operative treatment.

Key words: Surgical management, vaginal hyperplasia, prolapse

Introduction

Vaginal hyperplasia is a clinical condition observed in young intact female dogs, which leads to protrusion of oedematous vagina from the vulvar lips during the proestrus or estrus phase of the estrus cycle (Nak *et al.*, 2008). This condition is caused by sharp rise in the estrogen hormone which leads to hyperaemia, oedema and increased folding of the vaginal mucosa cranial to the urethral papilla (Ajadi *et al.*, 2016). The clinical signs and treatment of vaginal hyperplasia depends upon the severity of prolapsed mass which is classified into three categories. Type I vaginal prolapse has slight to moderate eversion of the floor of vaginal mucosa but without any prolapse; Type II prolapse characterizes by prolapsed of vaginal floor mucosa through the vulvar lips; and Type III prolapse features a complete circumferential

protrusion of the vaginal mucosa, typically along with the exteriorization of the urethral orifice (Ajadi *et al.*, 2016). Diagnosis of vaginal hyperplasia is established based on clinical presentation of vaginal mass prolapse, hormonal assay, vaginal cytology, and ultrasonographic examination. Hyperoestrogenism and cystic ovaries are the conditions which are present during this disorder (Johnston *et al.*, 2001). If the condition remains untreated the swelled mass become doughnut or dome shaped and prolapses from the vulvar lips which make it more prone to injury, ulceration and laceration (Kumar *et al.*, 2014). In these situations, immediate veterinary intervention should be required (Post *et al.*, 1991). Surgical excision is the preferred choice for treatment of a complete vaginal prolapse (Krishnan *et al.*, 2014).

History and Diagnosis

A two-year-old female pug was brought to the Teaching Veterinary Clinical Complex, ICAR-IVRI, Izatnagar, with a history of dysuria and the protrusion of a large mass through the vulva for the last week after the onset of the estrous. On clinical examination a large, painless, oedematous, doughnut-shaped ulcerated mass measuring about 6 cm in diameter was protruding from the vulvar lips (Fig. 1). All the physiological parameters, heart rate, respiration rates, pulse rate and rectal temperature of the patient found to be normal. Haematological and biochemical parameters were also within normal reference range. Vaginal cytological examination indicated predominance of enucleate superficial (cornified) epithelial cells suggesting estrus phase of the cycle (Fig. 3).

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Trans-cutaneous abdominal ultrasonography revealed presence of multiple follicular cysts in the both ovaries measuring about 2 cm in diameter (Fig. 4). Following the diagnostic evaluation, the mass was tentatively diagnosed as vaginal hyperplasia.

Surgical Treatment

Surgery was decided to remove the prolapsed mass. The animal was pre medicated with Atropine sulphate at a dose of 0.04 mg/kg body weight subcutaneously followed by intravenous administration of Inj.Butorphanol (0.2 mg/kg body weight) and Inj.Diazepam (0.5 mg/kg body weight) and induction was done with Inj.Ketamine hydrochloride at 5 mg/kg body weight, intravenously and general anaesthesia was maintained under inhalant isoflurane anaesthesia. The urethra was catheterized using 8 no. infant feeding tube to avoid suturing of the urethral opening and the surgical site was prepared aseptically. A series of mattress sutures were applied in a circumscribed manner over the whole prolapsed part using 2-0 polyglactin 910 (Vicryl) and the prolapsed part was then carefully amputated using scalpel (Fig. 2). Post-operative care including antibiotic ceftriaxone at 20 mg/kg body weight, non-steroidal anti-inflammatory drug meloxicam at 0.2 mg/kg body weight and B-complex 1ml intramuscularly, once daily was given for five days. The surgically excised mass was sent for histopathology and which was confirmed as vaginal hyperplasia. Antiseptic dressing of the suture site was done with Betadine solution daily for 10 days. The animal recovered uneventfully.

Discussion

Vaginal hyperplasia is most often observed in young female dogs during the follicular stage of their first to third estrous cycles (Kumar *et al.*, 2014). During the proestrous and estrous phases, vaginal size and vascularization increase as serum estrogen levels rise which

causes significant mucosal folding on the vaginal floor and may protrude through the vulvar lips. (De Brito *et al.*, 2006). Brachycephalic breeds are more prone for this disorder. (Jones and Joshua, 1982). Vaginal cytology serves as a tool to confirm the follicular phase of the estrous cycle through the identification of cornified cells and red blood cells. (Turmalaj *et al.*, 2011). Follicular cystic ovary is one of the common conditions that may be found during an ultrasonographic examination. Gonadotropin-releasing hormone (GnRH) has been utilized in treating vaginal hyperplasia in female dogs. Its action leads to the release of LH, subsequently elevating the serum concentration of progesterone (Wykes, 1986). However, the exposed hyperplastic tissue is susceptible to trauma and can also interfere with coitus. Therefore, immediate veterinary intervention and surgical resection has been considered as the most effective solution in breeding animals (Mostachio *et al.*, 2007).

Conclusion

The vaginal hyperplasia is a condition encountered in young female bitches and in the present study, after proper diagnosis and successful surgical management with good post-operative care led to uneventful recovery.

References

- Ajadi, T.A., Ajayi, O.L., Adeniyi, A.A. and Ajadi, R.A. (2016). Vaginal wall hyperplasia with fold prolapse in an eight-month-old Cane Corso dog. *Bulgarian Journal of Veterinary Medicine*, **3**: 252–258
- De Brito, C.P., de Oliveira, C.M., Soares, F.A., Faustino, M. and de Oliveira, C.A. (2006). Immunohistochemical determination of estrogen receptor- α in vaginal and tumor tissues of healthy and TVT-affected bitches and their relation to serum concentrations of estradiol-17 β and progesterone. *Theriogenology*, **66**: 1587-1592.

Johnston, S.D., Kustritz, M.V. and Olson, P.S. (2001). Disorders of canine ovary. *Canine and Feline Theriogenology*, 193–205.

Krishnan, M.G., Nagarajan, I. and Arunaman, C.S. (2014). Surgical management of vaginal hyperplasia and prolapse in a pug bitch. *Indo-American Journal of Agricultural and Veterinary Sciences*, 2: 3-7.

Kumar, S., Pandey, A.K., Singh, G., Arora, N., Potliya, S., Kumar, K., Ahmad, S.Q. and Kumar, S. (2014). Management of vaginal hyperplasia in a bitch. *The Haryana Veterinarian*, 53(1): 76-77.

Mostachio, G.Q., Vicente, W.R.R., Cardilli, D.J., Pires, E.A. and Toniollo, G.H. (2007). Anovular cleft and vaginal prolapse-

hyperplasia in a bitch. *Journal of Small Animal Practice*, 48(12): 713-715.

Nak, D., Nak, Y. and Yilmazbas, G. (2008). First report of vaginal prolapse in an ovariectomized bitch. *Bulletin of the Veterinary Institute in Pulawy*, 52: 397-398.

Turmalaj, L., Duro, S., Lika, E. and Ceroni, V. (2011). The hormonal control of estrous in bitches. *Animal and Veterinary Journal*, 10: 2447-2449.

Wykes, P.M. (1986). Diseases of the Vagina and Vulva in the Bitch. In: *Current Therapy in Theriogenology*. Marrow, D.A. 1st edn., WB Saunders Company Philadelphia. 2: 476-481.



Fig.1. Photograph showing a well-defined, doughnut-shaped hyperplastic vaginal mass protruding from the vulva.



Fig.2. Photograph after excising the hyperplastic mass and circumscripted suturing with mattress sutures using Vicryl.

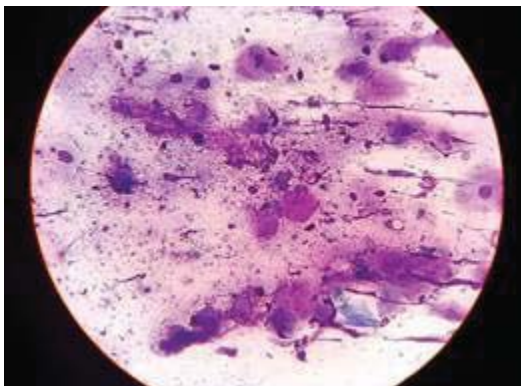


Fig. 3. Vaginal cytology smear shows predominantly intermediate and cornified epithelial cells, indicative of the follicular phase of estrous cycle (Giemsa stain, x 400).



Fig. 4. Abdominal ultrasonographic image (B-mode) shows an ovarian cyst (measuring around 12 mm in diameter) caudal to the left kidney.