



ISSN: 2456-2912

VET 2024; 9(3): 282-284

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www.veterinarypaper.com

Received: 11-02-2024

Accepted: 21-04-2024

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Surgical management of type iii vaginal hyperplasia in a pug

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Abstract

The exaggerated response of the vaginal mucosa to high levels of estrogen during proestrus and estrus phase of the estrous cycle that cause protrusion of the vaginal tissue through the vulvar lips is called Vaginal hyperplasia. A 6-year-old pug was presented with type III vaginal hyperplasia. After a failed attempt with conservative therapy including manual repositioning and managemental practices hoping for a spontaneous reduction of mass after the estrus phase, surgical correction was opted. Under general anaesthesia, surgical excision of prolapsed vaginal mass was performed. Post-operative care included daily care of surgical wound, antibiotics and haematinic syrups. Subsequently, no recurrence of the condition was observed and the dog recovered uneventfully.

Keywords: Vaginal hyperplasia, Pug, Estrus, Estrogen

Introduction

Vaginal hyperplasia is referred by many terminologies such a vaginal hypertrophy, oestral hypertrophy, vaginal eversion and vaginal protrusion [1], is defined as a protrusion of edematous vaginal tissue into the vaginal lumen and often through the vulvar lips of the bitch. The condition is commonly seen in young bitches [2, 3] and occurs due to an accentuated response to normal circulating estrogen concentrations, which regresses at the beginning of diestrus but returns at the subsequent estrus [4].

Vaginal hyperplasia and hypertrophy in dogs can be classified into three types.

Type I: Slight to moderate eversion of the vaginal floor, slightly towards the base of the vagina, without protrusion through the vulvar lips.

Type II: Protrusion of part of the vaginal walls or floor, through the vulvar lips, to form a tongue-shaped / pear shaped mass with a narrow base.

Type III: Complete eversion of the entire vaginal circumference, through the vulvar lips, to form a ring-shaped/ doughnut shaped mass [5, 6, 7].

A breed disposition exists for the condition in brachycephalic breeds of dog due to the hereditary weakness of the peri-vulvar tissue [8, 9] Other etiological factors like constipation, forced separation during coitus and incompatibility in size during breeding can also contribute to this condition [10].

In majority of the cases, vaginal hyperplasia regresses spontaneously during the diestrus, but it reoccurs in 66% to 100% of the cases during the subsequent estrus [3]. In many cases, conservative therapy using emollient creams and topical antimicrobial agents is sufficient. Ovariohysterectomy is recommended as a prophylactic treatment to avoid recurrence [11]. However, if the bitch is intended for future breeding, a submucosal resection may be performed during early estrus [4]. Occasionally vaginal hyperplasia and prolapse may occur prior to whelping, which generally requires no assistance and parturition is likely to be normal [12].

Materials and Methods

A 6-year old pluriparous female Pug was brought to small animal unit of Gynaecology and Obstetrics Ward of Veterinary Clinical Complex, RIVER with a complaint of a soft mass protruding through vulva for past two days and concurrent vaginal discharge or spotting was observed. History revealed that the dog had normal estrus and whelping in the previous pregnancy. Clinical examination revealed complete protrusion of the vaginal mucosa (doughnut shaped) confirming it as third-degree vaginal hyperplasia (Fig. 1). The mass appeared hyperemic, semisoft, painless and edematous. Vital parameters such as rectal temperature, heart rate and respiration rates were found to be normal. Hematological findings indicated a slight elevation in the WBC Count (19.5×10^3 ; reference: $6-17 \times 10^3$ /Cu. Mm). Other parameters such as RBC count (5.75×10^6 ; reference: $5.5- 8.5 \times 10^6$ /Cu. Mm.), Platelets (381×10^3 ; reference: $200- 500 \times 10^3$ /Cu. Mm.), Hemoglobin (12.1 g/dl, reference: 12-18 g/dl), Packed Cell Volume (PCV: 32%; reference: 35% - 54%) MCV:67.4%, MCH: 25.5%, MCHC: 37.8%, Differential WBC counts were lymphocyte (17%; reference: 12% - 30%), neutrophil (78%; reference: 58% - 85%), monocyte (2%; reference: 2% - 10%), eosinophil (3%; reference: 0% - 9%), and basophil (0%; reference: 0% - 1%) were found to be within the normal physiological limits.

Results

The protruded vaginal mass was cleaned and eased back to its normal position manually and was advised to manage daily with the use of diapers and Elizabethan collar while waiting to see if a spontaneous regression of mass would occur. Antibiotic therapy with Cefpodoxime 10mg/kg orally OD along with supportive therapy with Serratiopeptidase 10mg/kg orally OD for 5 days was started. However, the condition failed to regress by day 5 post-treatment. Mild ulceration and trauma was noticed at the base of the mass. With the consent from client it was decided to perform a radical surgery to excise the protruded mass.

The perineal area was shaved and surgical site was aseptically prepared. The animal was premedicated with Atropine sulphate @ 0.04 mg/kg BW S/C, Inj. Tremadol @ 4 mg/kg BW S/C, Diazepam @ 0.5 mg/kg I/V which was followed by Xylazine hydrochloride @ 1 mg/kg BW I/V and subsequently Ketamine hydrochloride was administered @ 5 mg/kg BW I/V to induce general anaesthesia. Urinary catheter size 8 was inserted to secure the urethra and the urine was evacuated. Allis tissue forceps was applied to both the vulval lips to evert them. After applying artery forceps on the vaginal mucosa, a circumferential incision was made and the protruding mass was dissected (Fig. 2 and 3). Bleeding was arrested using mosquito artery forceps whenever required. The left-over stump was sutured using Catgut size 1 in simple continuous suture pattern while placing an artery forceps to ensure the patency of the lumen. The stump was cleaned and carefully examined for blood clots if any. The urinary catheter was removed and a sterile gauze soaked in haemocoagulase solution was kept as a vaginal tampon to prevent further bleeding. Post-operative antibiotic therapy with Cefotaxime 50mg/kg BW intravenously was administered for 5 days. Tab Deep TBR orally for 10 days, Serratiopeptidase 10mg/kg orally OD for 5 days along with liquid diet for next 3 days was advised. Further, the owner was advised to give Syrup Heamobest 2.5ml PO OD. The dog had an uneventful recovery after 5 days of treatment (Fig. 4). The urination was normal on the next day of surgery.



Fig 1: Type III vaginal hyperplasia Doughnut shaped mass

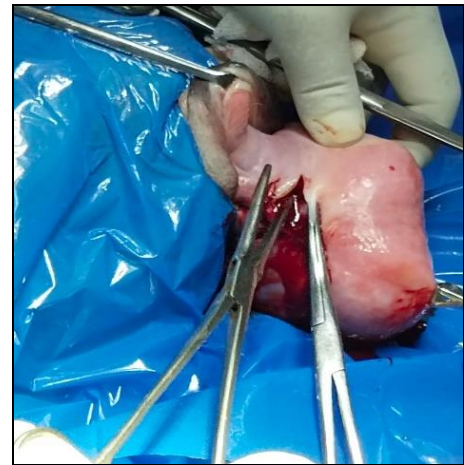


Fig 2: Resection of the protruded vaginal mucous membrane

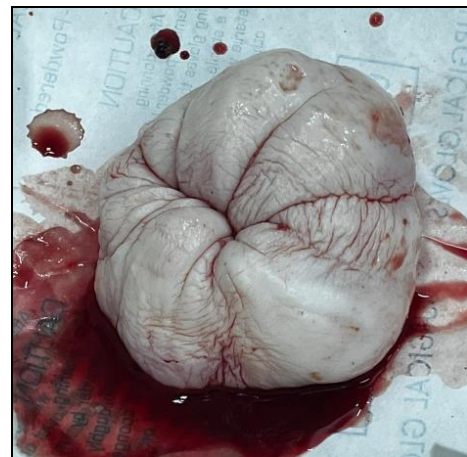


Fig 3: Surgically removed dough nut shaped vaginal mass



Fig 4: Animal on day 5 post-surgery

Discussion

Vaginal hyperplasia commonly occurs in young bitches during follicular phase and spontaneously regress in the luteal phase^[13]. Manothaiudom and Johnston^[14] reported that dogs belonging to age group ranging from 7 months to 11 years are more susceptible. Grade III vaginal hyperplasia occurs as an exaggerated reaction of vaginal mucosa to ovarian estrogen. Megestrol acetate which is a synthetic progesterone can be administered in the early proestrus to prevent vaginal hyperplasia^[7]. Medical treatment comprises GnRH administration resulting in the release of LH and a subsequent rise in the serum progesterone concentration and reduction in the size of the mass. However, these methods are not preferred due to the chances of recurrence of the condition. Ovariohysterectomy is preferred in bitches when further breeding is not required^[6]. In this case, since the condition did not subside even after initial treatment, considering the request of the owner for future breeding of the dog, surgical resection of the vaginal mucosa was performed. If left untreated, the prolapsed tissue is more vulnerable to self-mutilation and tissue damage that can lead to hemorrhage, infection and necrosis, creating a negative impact on the prognosis.

Conclusion

Vaginal hyperplasia, particularly grade III, poses significant health concerns in female dogs, often requiring prompt intervention. While spontaneous regression is common, certain cases necessitate medical or surgical management. In this instance, despite initial treatment attempts, surgical excision was deemed necessary due to the persistence of the condition and the owner's desire for future breeding. Surgical intervention, as performed, offers a definitive solution and mitigates risks associated with untreated prolapsed tissue, including self-mutilation, infection, and necrosis. Considering the potential complications, timely and appropriate management is crucial to ensuring a positive prognosis and preserving the dog's reproductive health.

Acknowledgment

The authors thank the Dean, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry for providing the necessary facilities and support to document the report for publication.

Conflict of interest

The authors declare no conflict of interest

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How to Cite This Article

Sarang S, Kantharaj S, Murugavel K, Hemalatha H, Patil MS, Kumar MP, *et al*. Surgical management of type iii vaginal hyperplasia in a pug. *International Journal of Veterinary Sciences and Animal Husbandry*. 2024;9(3):282-284.

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