Short communication

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Surgical correction and histopathological characterisation of vaginal hyperplasia in a Labrador Retriever dog

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ABSTRACT

A nulliparous intact female Labrador Retriever, aged two years, was presented to the University Veterinary Hospital, Kokkalai with the complaint of a mass protruding from the vulva for the past two weeks. Histopathology of the protruded vaginal mass revealed keratinised and hyperplastic vaginal epithelium with focal areas of mild spongiosis. Subsequently, the condition was diagnosed as vaginal hyperplasia Type III and the condition was managed with surgical circumferential excision under general anaesthesia. No recurrence was observed on the succeeding oestrous cycle.

Key words: Ford interlocking suture pattern, Surgical excision, Vaginal hyperplasia

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INTRODUCTION

Vaginal hyperplasia or vaginal prolapse is a pathological condition of bitches, in which mucosa of the floor of the vagina gets oedematous and protrudes out through the vulva (Babu *et al*., 2020). Other than vaginal hyperplasia, vaginal tumours account for around 3 per cent of neoplasms in canines (Verma *et al*., 2023). Vaginal hyperplasia is considered as a major clinical condition generally seen in young, intact bitches. Jayakumar *et al*. (2016) reported a case of true vaginal prolapse in an advanced pregnant bitch. The condition should be differentially diagnosed with neoplasia or transmissible venereal tumour (Kim *et al.,* 2008). There are different suggestions regarding the definite aetiology of vaginal hyperplasia in bitches, although the exact cause is not clearly understood. Many researchers have suggested that increased oestrogen stimulation leads to hyperaemia, oedema and excessive folding of vaginal mucosa which manifests as vaginal hyperplasia (Schaeffers-Okkens, 2001). Spontaneous regression of the condition might be noticed towards the later stages of oestrus or during the dioestrual phase of the oestrous cycle.

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In some cases, initial medical therapy with GnRH or hCG may be beneficial. Once the condition does not resolve or if recurrence is observed, surgical excision of the mass will be resorted to (Babu *et al*., 2020).

CASE HISTORY AND OBSERVATIONS

A nulliparous intact Labrador Retriever bitch, aged two years, was presented to the University Veterinary Hospital, Kokkalai with the complaint of a mass protruding from the vulva for the past two weeks (Fig.1). As per the history narrated by the owner, the animal had a normal oestrous cycle with the proestrus bleeding observed three weeks before. History on both previous oestrous cycles suggested the presence of a similar mass which was regressed later on during dioestrus. Bitch was also reported to have straining on micturition. The animal appeared healthy on clinical examination with good body condition and normal physiological parameters. On further investigation, a doughnut-shaped mass could be observed protruding from the vulva which was attached to the floor of the vagina with a stalk. Exfoliative vaginal cytology depicted that the animal was in the dioestrus phase of the oestrous cycle. After exploration of the mass, the condition was diagnosed as Type III vaginal hyperplasia.

TREATMENT AND DISCUSSION

Surgery was performed under general anaesthesia with glycopyrrolate (0.01 mg/kg i/m) and butorphanol tartrate (0.2 mg/kg i/v) as premedicants, propofol (4.5 mg/kg i/v) for induction and gaseous anaesthetic isoflurane (2-3 %) used for maintenance of anaesthesia. The urinary bladder was catheterised to prevent any damage to the urethral orifice. Initially, two artery forceps were obliquely clamped from opposite directions at the stalk. Afterwards, an incision was made between the forceps, which was then extended 0.5 cm towards the right from the primary incision at a 90^{0} angle. Simultaneous excision and continuous suturing with Ford interlocking suture pattern were done (Fig. 2), 1 cm away from the urethral orifice, in small portions with Vicryl No. 0 and continued throughout the whole circumference of the mass. Wound dressing was performed using Tincture benzoin on the day of operation (Fig. 3). Mupirocin antibiotic ointment was suggested for local application. Post-operative supportive care was provided and the animal had an uneventful recovery.

Histopathology of the protruded vaginal mass revealed keratinised and hyperplastic vaginal epithelium with focal areas of mild spongiosis (Fig.4). Lamina propria had proliferation of loose and oedematous connective tissue, haphazardly distributed collagen fibres, sprouting blood vessels, infiltration of inflammatory cells and areas of haemorrhage and hyperaemia (Fig. 5 and Fig. 6). For the differentiation of connective tissue, Masson's Trichrome staining was performed which showed abundant collagen and muscle tissues in submucosa (Fig. 7).

Gross morphology

Vaginal hyperplasia is seen mostly during the follicular phase of the oestrous cycle. The condition has a hereditary and breed predisposition, hence breeding of the animal may be avoided (Johnston, 2001). Type-I hyperplasia mass may regress after the oestrus but Type-III hyperplasia may persist even after the oestrus phase and require medical intervention (Feldman and Nelson, 2004). Due to an increased success rate, surgical excision of the mass with

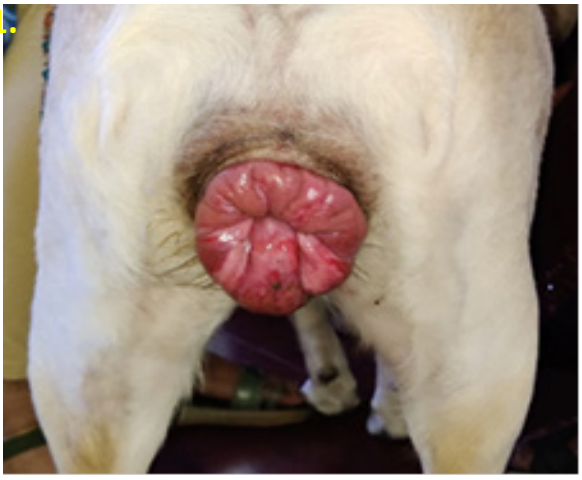

Fig.1: Prolapsed vaginal mass

Fig.2: Ford interlocking suturing

Fig. 3: Post-operative application of tincture benzoin dipped tampon

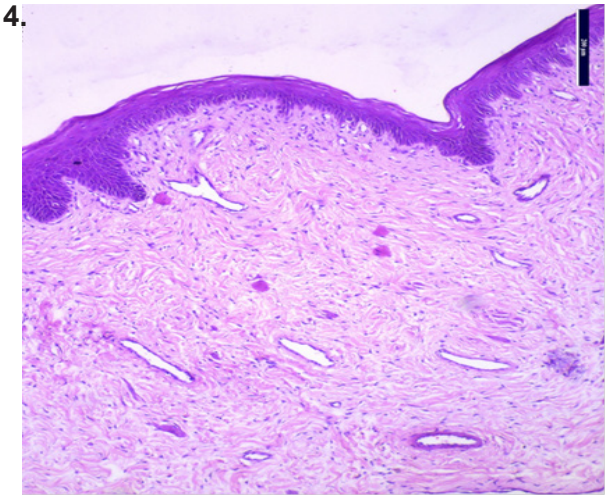

Fig. 4: Lamina propria showing proliferation of loose and oedematous connective tissue and sprouting blood vessels (H&E 100X)

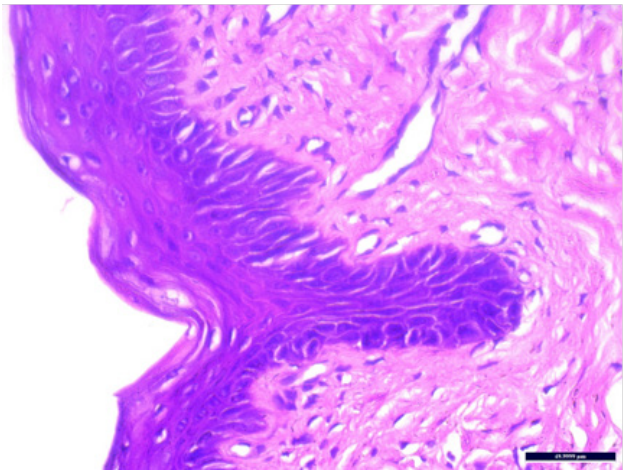

Fig. 5: Keratinisation and hyperplasia of stratified squamous vaginal epithelium with mild spongiosis (H&E 400X)

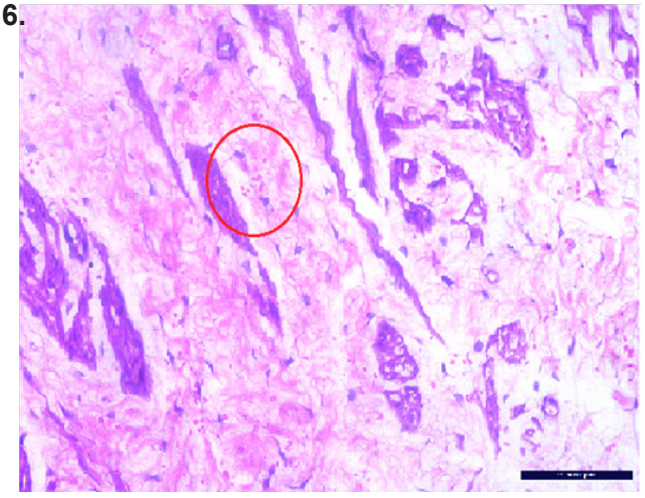

Fig. 6: Collagen fibres and scattered RBCs in lamina propria (H&E 400X)

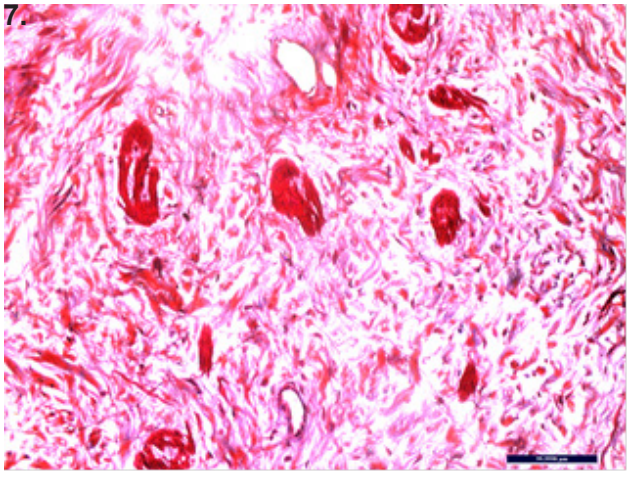

Fig. 7: Submucosa showing collagen (blue) and muscle tissue (red) in the prolapsed vagina (Masson's trichrome staining, 400X)

ovariohysterectomy is preferred over medical management (Mostachio *et al*., 2007).

CONCLUSION

A Labrador Retriever dog was presented with Type- III vaginal hyperplasia. The condition was successfully managed with surgical circumferential excision. Histopathological examination confirmed vaginal hyperplasia. The current case showed no recurrence during the succeeding cycle.

CONFLICT OF INTEREST

None

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