SURGICAL MANAGEMENT OF VAGINAL EDEMA AND PROLAPSE IN A PUG

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A female pug, two and a half years old, was presented to the Referral Veterinary Polyclinic, Indian Veterinary Research Institute, Izatnagar with the complaint of prolapsed vaginal mass. There was a history of prolapse during previous estrus period also. Clinical examination revealed fibrosed doughnut shaped mass protruding out of vulva to depict prolapsed circumferential vaginal mucosa. A haemogram and a renal and liver function examination revealed no abnormalities. The prolapse was ascribed to higher serum estrogen concentration recorded in the case. Surgical resection of the prolapsed mass was done to manage the condition. Animal had a normal conception in the post-operative period. This clinical article reports successful management of the vaginal prolapse without any complication related to the breeding performance of the animal.
Key words: Pug; Surgical management; Vaginal edema; Prolapse

Introduction

There are two types of vaginal prolapse that occur in animals. Among large animals, the true vaginal prolapse involving the entire vaginal wall and sometimes even the bladder do commonly occur. However, in small animals this condition is rare and if occurs it involves the bladder and sometimes colon as well (McNamara, 1997). In bitches, another type of prolapse, wherein an edematous swelling of the vaginal mucosa immediately cranial to the urethral orifice and expanding caudally over the urethral orifice, is commonly seen. This may become large enough to protrude outside the vulvar lips. This condition is commonly seen in brachycephalic breeds during the estrus period and occurs due to increased estrogen concentration (Alexander and Lennox, 1961; Schutte, 1967; Trager, 1970). Little is known about hereditary aspects relating to vaginal prolapse. The present report puts on record a case of vaginal oedema and prolapse and its surgical management in a female pug.

History and clinical signs

A pug bitch, aged 2 and half years, was presented to the Referral Veterinary Polyclinic, Indian Veterinary Research Institute, Izatnagar with clinical signs of vaginal edema and subsequent prolapse. There was no history of dysuria and owner also reported that bitch had prolapse in the previous estrus period but was reduced by the attending veterinarian and retained by putting purse string sutures. Now again prolapse occurred in estrus period and the mass could not be retained by purse string sutures as there was tearing of sutures. Clinical findings revealed protrusion of a doughnut shaped fibrosed mass which could not be retracted back (Fig. 1). A haemogram and a renal and liver function examination were conducted, and no abnormalities were detected. Serum estrogen estimation revealed higher estrogen concentration (14.6 pg/ml). It was decided to amputate the prolapsed mass as owner was not willing for the ovariohysterectomy.

Surgical managment

Animal was premedicated with atropine sulphate (0.04 mg/kg b.wt.), xylazine (1 mg/kg b wt.). The anaesthetic induction and mantainence was done with diazepam and ketamine (1:1 combination). Antibiotics were also given pre-operatively (Ceftriaxone @ 20 mg/kg B wt.). Since the entire circumference of the vaginal mucosa was involved, the prolapsed mass had a doughnut shape. The prolapsed mass was washed with 0.9 % saline solution. Urethral catheterisation was done to keep the urethral opening patent and also to prevent the potential damage to it. The edematous vaginal tissue was tied off in portions by bringing a needle with two strands of suture material from the centre to the outside of the doughnut. Then, one of the loose ends of the suture strands in the centre was inserted in a needle along with a new strand and again brought to the outside. This procedure was then repeated until the entire circumference was covered. Each set of two sutures that were brought to the outside were securely tied. This procedure is necessary to ensure that all of the prolapsed tissue is tied to prevent haemorrhage. An elastic band was then placed in the groove created by the sutures and tightened. The elastic band was anchored with suture material to prevent slippage. It is

necessary to perform this whole procedure carefully so as to avoid postoperative haemorrhage. After putting ligatures, the prolapsed mass was amputated (Fig. 2) and the remnant stump was replaced in the vagina (Fig. 3). This procedure results in a closed vagina until the sutures, elastic band and the stump are expelled. It was, therefore, necessary to perform a vaginal digital exam about one week after the amputation to ensure vaginal patency. Post-operative analgesics (Meloxicam @ 0.5 mg/kg B wt. PO for 3 days) and antibiotic Ceftriaxone @ 20 m/kg B wt. IM for 5 days) were given. Animal had a normal breeding life and conceived normally in the post-surgical period.

Fig. 1: Doughnut shaped Prolapsed Mass

Fig. 2: Vaginal remnant with urethral catheterisation and ligatures applied post amputation

Fig. 3: Vaginal opening after replacement of mucosal remnant

Discussion

In bitches true vaginal prolapse is a very rare condition and more frequently, an edematous swelling of the vaginal mucosa is seen (McNamara, 1997). This condition has been traditionally referred to as vaginal hyperplasia and vaginal prolapse. However, because it is in fact not a true organ prolapse and hyperplasia and since the involved tissue is extremely edematous, it is better to use the terms vaginal edema and vaginal fold prolapse (Purswell, 2000). A vaginal fold prolapse is a condition which may occur in the young bitches during the first or second follicular phase under estrogen influence (Alexander and Lennox, 1961; Schutte, 1967; Trager, 1970) and may recur at subsequent estrus, if the bitch is not properly treated. Its occurrence has also been reported to be higher in brachycephalic breeds as was in the present case (Schaefers-Okkens, 2001).

Treatment depends on a number of factors *viz.*, extent of the fold prolapse, whether one is dealing with a breeding or non-breeding bitch and whether the prolapse is present during estrus or at the end of pregnancy. If in exceptional cases a fold prolapse develops just prior to whelping, there is in general no need for treatment and parturition can take place without problems (Jones and Joshua, 1982). In pro-estrus or estrus bitches, if a fold prolapse is barely outside the vulva or protrudes intermittently and the owner wants to spay the dog, the edema will generally recede during the luteal phase and the bitch may be ovariectomized, preferably during anestrus. Ovariectomy during estrus enhances the risk for hemorrhages during surgery and if performed during the luteal phase pseudopregnancy symptoms, although transient, may develop. Medical treatment is generally not advised as the fold prolapse recurs frequently, if not treated surgically. Further, treatments with GnRH or hCG to induce premature ovulation have been used with limited success (Rushmer, 1980). If premature ovulation takes place, it will provide an advantage of only a couple of days of earlier exposure to the progesterone influence of the luteal phase. Progestagens can have side effects, such as cystic endometrial hyperplasia or endometritis leading to pyometra, especially when administered during an estrogen-dominated phase (Schaefers-Okkens, 1996).

The recurrence of vaginal prolapse in bitches at their subsequent oestrous cycles has been reported in 60 to 100 per cent of cases (Johnston *et al.* 2001). In bitches with a vaginal fold prolapse, which extends outside the vulvar lips, amputation is the treatment of choice (Post *et al.* 1991).

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