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Occurrence of vaginal hyperplasia among intact dogs*

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Abstract

Hyperplasia of vaginal mucous membrane is an unusual reproductive disorder observed in canines. It is the protrusion of oedematous vaginal tissue into and through the opening of the vulva occurring during proestrus and oestrus stages of the sexual cycle. This study was aimed to find out the overall occurrence of canine vaginal hyperplasia and its occurrence based on breeds, age, parity and stage of oestrous cycle. The occurrence of canine vaginal hyperplasia was 1.02 per cent. The highest occurrence of vaginal hyperplasia within a breed was observed in Labrador retrievers (48.94%), while the lowest occurrence was in German shepherd, Spitz, and Dachshund breeds (2.13%). The highest occurrence was recorded in dogs of one to two years old (43.62%) and the lowest occurrence in dogs of above 4 years of age (13.83%). Highest occurrence of vaginal hyperplasia was found in nulliparous (60.71%) and in intact dogs (100%).

Keywords: *Occurrence, Vaginal hyperplasia, Breed, Age*

Vaginal hyperplasia (vaginal prolapse, vaginal hypertrophy, oestrual hypertrophy, vaginal eversion, vaginal protrusion) is characterized by marked oedema of the sub-mucosa and stratified squamous epithelium lining the vaginal lumen, resulting in prolapse of a dome-shaped or doughnut shaped mass of tissue into the vaginal vault and through the vulvar cleft (Manothaiudom and Johnston, 1991). The condition is believed to depend on a number of factors and the exact cause is still unknown. Oestrogens are considered to play a major role in the pathogenesis of vaginal fold prolapse in the bitch because of the high incidence of the disorder during pro-oestrus,

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oestrus and late pregnancy, spontaneous regression of the condition in dioestrus and shrinkage and disappearance of the prolapsed mass after ovariectomy or ovariohysterectomy (Sontas *et al.,* 2010). Different treatments have been used, and some are novel approaches. Treatment depends on the extent of the vaginal fold prolapse, breeding and reproductive status. High incidence of recurrence of the condition follows medical management and hence, surgical excision of the mass is advised in breeding dogs. In dogs, not intended for breeding, prevention is accomplished if the bitch is ovariectomized.

Materials and methods

This retrospective study was undertaken to analyse the occurrence of vaginal hyperplasia in different breeds of dogs with its susceptible age, parity and stage of oestrous cycle. A review of clinical records of vaginal hyperplasia affected cases presented to the University Veterinary Hospital, Kokkalai and Mannuthy during the period of three years from June 2016 to May 2019 was utilised for this study. Occurrence of canine vaginal hyperplasia among the total number of canine gynaecological cases presented to the small animal gynaecology units of both hospitals were recorded. The cases were classified according to their breed, age, body size, and parity, stage of oestrous cycle and reproductive status of dogs.

Results and discussion

A total of 94 cases of canine vaginal hyperplasia were found among a total number of 9236 gynaecological cases presented over a period of three years, giving an overall occurrence of 1.02 per cent during the period of observation. Mcnamara *et al.* (1997) had also opined that occurrence of vaginal prolapse in female dogs is a very rare condition compared to other species such as cattle, goats and sheep.

In the present study, vaginal hyperplasia was recorded in 10 different breeds. Among different gynaecological problems, the highest occurrence of vaginal hyperplasia was observed in larger breeds like Bull Mastiff (3.60%) followed by Dobermann (2.41%) and Labrador retriever (1.84%). Among the 94 cases recorded, higher occurrence of vaginal hyperplasia was diagnosed in Labrador retriever breeds (48.94%) followed by Pug (24.47%) and Dobermann (5.32%) breeds (Table I). Similar findings were reported by Johnston (1989) and Chandrapuria and Somil (2013) who observed higher occurrence of vaginal hyperplasia in large-breed dogs like Labrador retriever, Dobermanns and among brachycephalic breeds, such as the Boxer, Bull Mastiff and Neapolitan mastiff. As against this, Kumar (2013) and Schutte (1967) reported lower occurrence of Type II and Type III vaginal hyperplasia among large breeds.

Analysis of data revealed that age wise occurrence of this condition was more in one to two years (43.62%), followed by two to three years (23.40%), three to four years (19.15%) and above four years (13.83%). The occurrence of vaginal hyperplasia was more among the dogs below two years of age (43.62%), when compared to dogs of older age groups; results were in agreement with the observations of Kumar (2013), nearly two third of the cases (63.63%) were encountered in dogs of the age group of one to two years. Many authors had reported age as a predisposing factor in vaginal fold prolapse (Schutte, 1967; Trager, 1970 and Johnston, 1989). It was noticed that occurrence of vaginal hyperplasia is more in young age groups. According to many previous reports (Trager, 1970; Manothaiudom and Johnston, 1991; Ajadi *et al.,* 2016) of the total affected dogs, vaginal hyperplasia was mostly observed in younger dogs of mean age of 18 – 22 months. On the contrary, vaginal hyperplasia in older animals especially six to seven years were reported by Post *et al.* (1991); Kim *et al.* (2008) and Jayakumar *et al.* (2016). Also, Chandrapuria and Somil (2013) reported, 60 per cent of vaginal hyperplasia affected dogs were more than five years old.

In the present study, occurrence of vaginal hyperplasia was found to be higher among large sized breeds (52%) when compared to small sized breeds (33%); results were in agreement with the observations of Manothaiudom and

Johnston (1991) in which they reported 61 per cent of the cases of Type II or Type III vaginal prolapse were seen in the dogs weighing 50 pounds or more, and only 11 per cent of the cases in dogs weighing less than 20 pounds. In contradiction to the present study, nearly ¾th of all cases of Type II or Type III vaginal prolapse recorded were in medium sized breeds comprising of Boxer and Bulldog. These observations are in agreement with the findings of Schutte (1967) and Trager (1970) who reported that Type II or Type III vaginal prolapse was observed more frequently in Boxers and Boxer crosses which come under the category of medium sized breeds.

Out of the total 94 vaginal hyperplasia cases, 61.70 per cent were belonged to nulliparous group. Screening of literature revealed similar reports that half the number of animals presented with Type II or Type III vaginal prolapse were nulliparous (Shutte, 1967 and Trager, 1970). An occurrence of 42.44 per cent vaginal hyperplasia among primiparous dogs as against 51.51 per cent in nulliparous was reported by Kumar (2013). It was observed that occurrence of vaginal hyperplasia was more among nulliparous dogs.

Among the 94 female dogs diagnosed with vaginal hyperplasia, 35.11 per cent and 60.64 per cent dogs were in proestrus and oestrus stages of ovarian cycle at the time of presentation. Similar findings were reported by the Kumar (2013) who noticed higher occurrence of vaginal hyperplasia at oestrus stage (60.60%). Various authors mentioned similar reports regarding the occurrence of vaginal prolapse during follicular stage; 81 per cent (Schutte, 1967), 73 per cent (Trager, 1970) and 86 per cent (Johnston, 1989). In the present study, a lower occurrence (4.25%) of vaginal oedema was observed during diestrus stage but, Kumar (2013) reported an occurrence of 39.39 per cent during dioestrus stage. Gouletsou *et al.* (2009) reported rare occurrence of vaginal hyperplasia in pregnancy.

In the present investigation, vaginal hyperplasia was never observed in spayed dogs. Comparable observations were reported by Kumar (2013) but an unusual case of vaginal prolapse in an ovariohysterectomised bitch was reported by Nak *et al.* (2008).

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Table 1. Breed-wise occurrence of vaginal hyperplasia (n=94)

Breed	No. of dogs diagnosed with vaginal hyperplasia	Per cent occurrence
Labrador retriever	46	48.94
Pug	23	24.47
Rottweiler	4	4.25
German shepherd	2	2.13
Dachshund	2	2.13
Spitz	2	2.13
Doberman	5	5.32
N D	2	2.13
Great Dane	2	2.13
Bull Mastiff	4	4.25
Others	2	2.13

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