

Venereal Squamous Papilloma in a Male Dog

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Abstract : A dog (Maltese, 4-year-old, intact male) was referred to the hospital because of the multiple cabbage-shaped nodular masses on penis, preputial fornix and inner layer of prepuce with the free-roaming history. Those appearance was similar with the characteristic of transmissible venereal tumor (TVT). As a result, it was tentatively diagnosed as TVT by the veterinarian of a local clinic and treated with vincristine sulfate. However, the lesion did not regress. Histologically, the mass was consisted of fibrovascular connective tissue stalks and keratinized stratified squamous epithelium, and koilocytosis and intranuclear inclusion body were not shown in the epithelial layer. In addition, inflammatory changes were minimal in the tissue of mass. Based on these findings, this case was diagnosed as venereal squamous papilloma. As the treatments of TVT and papilloma differs, practitioners must be cautious with the diagnosis.

Key words : dog, squamous papilloma, transmissible venereal tumor.

Introduction

Papilloma is characterized by numerous irregular fibrovascular stalks, covered with epithelial hyperplasia (1,5). Generally, papilloma is classified to two categories; viral and non-viral origins. Viral papilloma is distinguished from non-viral papilloma by the virus-induced cytopathic effects, which include koilocytosis and intranuclear inclusion body (2,5). Non-viral or traumatically induced papilloma has rarely been reported in dogs and it is regarded as squamous papilloma (2,5).

In male dog, most common tumor in reproductive tract is transmissible venereal tumor (TVT) and mainly occurs in the glans of penis and prepuce region (6).

Typical canine papilloma could be macroscopically distinguished with TVT. The lesions of TVT are friable and readily hemorrhagic, and have relatively larger size, while papilloma is soft to firm and not friable. In addition, the papilloma lesions generally have a diameter between 1 to 5 mm (4,6).

Macroscopically, the lesion of this case had similar characteristics of TVT, which was multiple cabbage shaped nodular mass. However, this mass was diagnosed as venereal squamous papilloma by histological examination.

Case

A four year-old intact male Maltese dog was referred to the Kyungpook National Veterinary Medical Teaching Hospital with the chief complaint of diffuse, nodular masses on the surface of penis.

The dog had a history of free-roaming, and the owner noticed newly formed, multiple and small papillary lesion on

the penis. Based on the history and physical examination, the local clinic veterinarian tentatively diagnosed the lesion as TVT. Although the patient was treated with vincristine sulfate weekly for 6 weeks, the size of the lesion did not reduce.

Macroscopically, the lesion presented as red tinned color and multiple cabbage shaped nodular mass located on penis, preputial fornix and inner layer of prepuce (Fig 1). There was no pain at palpation on the lesion. The values of complete blood cell count and serum chemistry were within normal range.

The partial biopsies of the penis, preputial fornix and inner layer of prepuce were performed. Biopsy samples were fixed in 10% neutral buffered formalin, then embedded in paraffin, sectioned (3~4 μ m) and stained with hematoxylin and eosin (H&E) for general histology. After the histological examination of each sample were performed under light microscope (Nikon, Japan) and photographed using automated image analysis (DMI-300 Image Processing; DMI, Korea).

Microscopically, the components of mass included fibrovascular connective tissue stalks and keratinized, stratified squamous epithelium. Koilocytosis (cytoplasmic vacuolization and nuclear pyknosis) and intranuclear inclusion body were not observed, and inflammatory changes were minimal. Epithelioid tumor cells were numerous observed in the lamina propria, but mitotic and polymorphic cells were rarely seen. Hypertrophic squamous layer did not have hyperkeratosis in superficial portion. These histopathologic signs could be considered as venereal papilloma (Fig 2).

Discussion

To contrast typical papilloma, penile papilloma in this case was shown multiple, pedunculated or wide-based, cauliflower-shaped or irregular nodular masses protruding from the surface of the venereal tissues. Furthermore, the mass was

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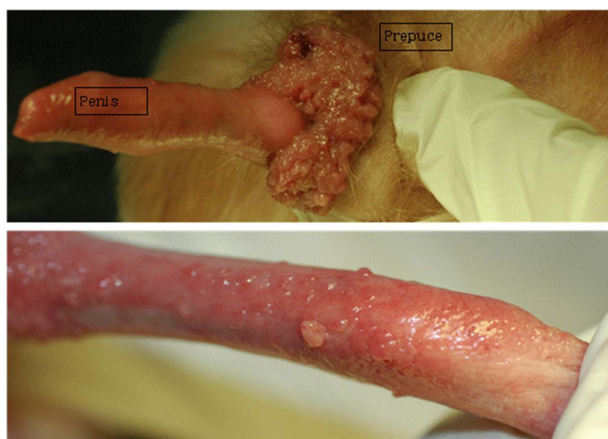


Fig 1. Macroscopic findings of mass. The lesion present as multiple cabbage shaped nodular mass located on penis, preputal fornix, and inner layer of prepuce.

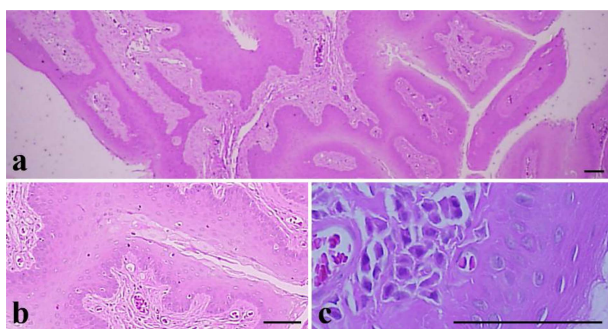


Fig 2. Histopathological findings of mass. The mass was consisted of keratinized stratified squamous epithelium and fibrovascular connective tissue stalks (a). Although epithelioid tumor cells were numerous observed in the lamina propria, mitotic, polymorphic and atypical cells were rarely seen (b, c). All H&E stain; Scale bars = 160 μ m.

delicate, and moderately hyperemic, and the size was variable. Macroscopic feature and palpation were similar with that of TVT.

Although most venereal papilloma is classified as viral papilloma (1), in this case, the papilloma was diagnosed as squamous papilloma, according to the histological features; koilocytosis and intranuclear inclusion body were not shown in the epithelial layer.

Squamous papilloma is delicate and fimbriated masses most commonly observed in the face, eyelids, conjunctiva and feet, and it commonly has 1 to 5 mm in diameter, smaller than viral induced papilloma (5). However, in this case, the lesion had much larger than general squamous papillomas, and the location was different from typical case (5). It has been reported that non-viral originated distinctive mucosal papilloma occurred from the penis of dogs. In that case, virus-induced cytopathic effects were not present, namely, hypertrophic squamous layer did not show hyperkeratosis, ballooning degeneration and intranuclear inclusion body, and the tumors were arising from mucosa of penis with various sizes ranging 2 to 8 cm in diameter and with minimal to mild inflammation. All these findings were similar with the features in this case. Further studies for classification of these papilloma

would be necessary. Venereal papilloma has rarely been reported in dogs. Because canine oral or cutaneous papilloma virus did not cause venereal papilloma, it was regarded that venereal papilloma might be occurred by other papilloma virus or unknown causes (10).

Papillomas spontaneously regress within several weeks, and generally do not require treatment. If persistent recurrence, functional disturbance, tendency of malignancy, or cosmetic matter, the dog may need active therapy such as autovaccination, cryotherapy and surgical excision (8).

The treatments of papilloma and TVT are different (7,9). The most effective treatment of TVT is known as chemotherapy or radiotherapy (4,9), and surgical excision or immunotherapy showed frequent recurrences (7). Thus, practitioners must be cautious of diagnosis between those two forms of tumors.

Conclusion

In this case, the lesion had a similar macroscopic morphology of TVT. However, the mass was definitively diagnosed as venereal squamous papilloma by histological examination. Here, we described the macroscopic and histological features of the lesion on the penis of a dog.

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