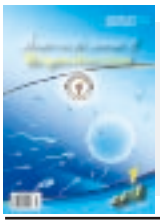

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Non-ischemic priapism in dog: Case report

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ABSTRACT

Bulldog with unilateral cryptorchidism was admitted to our clinic suffering from a persistent erection for 2 d. The animal was left for the first time for breeding without observation. Penis was hyperaemic, oedematous with area of mucous membrane necrosis and swollen bulbus glandis. Doppler ultrasound was optimized to allow adequate recognition of blood flow sensitive for slow flow on the head, shaft of the penis and bulbus glandis. Penis showed unsymmetrical blood flow that started in the left side of the bulbus glandis, and continue to the shaft until the gland penis; whereas, the other half of the penis showed no blood flow. Using Doppler ultrasonography was useful for diagnosis of the blood flow pattern that was beneficial to give the appropriate treatment.

1. Introduction

The penis is ideally suited to ultrasound image because of its superficial location. Penile structure can be clearly visualized with ultrasound. A number of diseases can be diagnosed and evaluated by ultrasonography such as tumour. Assessment of priapism can be made using Doppler ultrasonography.

Priapism is a persistent penile erection lasting longer than 4 h without sexual stimulation which mainly classified into two categories that are ischemic and non-ischemic[1].

Non-ischemic priapism is usually due to post-traumatic tear in the cavernously artery with regulation blood flow into the cavernously lacunar sacs known as an arterial lacunar fistula, neurological condition and vasoactive drugs associated with history of sexual excitation, in which the arterial blood flow increased through the cavernous tissue. Ischemic priapism caused by venous congestion of penis and enhanced blood viscosity, neoplasia, and also neurological condition such as spinal cord injury and anaesthesia[2].

2. Case history

A bulldog with unilateral cryptorchidism (located in the inguinal canal) aged one year and two months who had suffered from a persistent erection for 2 d, was admitted to our clinic (Assiut Veterinary Teaching Hospital).

History of the dog showed that he had been left with female for first time for breeding without observation. On the next morning, the dog's penis was erected and hyperaemic with no signs of pain. The owner tried to use antibiotic ointment, anti-inflammatory cream and a bag of cold water to treat the condition but failed for 2 d.

Clinically, the dog had rigid penile shaft with swollen bulbus glandis. The penis was hyperaemic, oedematous with area of mucous membrane necrosis. On the ventral part of the shaft, a sharp cut just at the base of the gland penis can be recognized, which may indicate that the dog suffer from certain kind of trauma during the mating process. Pus was found in the preputial sheath and just locked by the bulbus glandis.

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3. Diagnosis

The study was approved by the Veterinary Teaching Hospital's Animal Care Committee.

Besides the clinical signs, penis sonogram was performed using high frequency linear transducer (7 MHz). Doppler setting was optimized to allow adequate visualization of blood flow sensitive for slow flow. Doppler ultrasonography was performed on the head, shaft of the penis and bulbus glandis to recognize the characteristics of the blood vessels inside the penis. The dog was maintained in lateral recumbence while the hind limb extended in frog leg position for examination. The ultrasound procedures were made without hair clipping using sufficient amount of get. Ultrasound was obtained at both bulbus glandis and shaft of the penis. Penis assessment started at the level of glands and proceeded caudally to the scrotal position. The transducer was placed on the ventrolateral aspect of the penis. All examinations were recorded on flash memory card to further assessment. The diagnosis of high flow priapism was based on characterizes of the Doppler ultrasonography features. The penis showed unsymmetrical blood flow, which started from the left side of the bulbus glandis, and continued to the shaft until the gland penis. While the other half of the penis showed no blood flow.

4. Discussion

The pathogenesis of priapism is complex, but the condition is generally associated with penile vascular damage or obstruction, excessive release of erectile neurotransmitter, or prolonged smooth muscle relaxation, all of which can increase arterial blood flow or decrease venous out flow causing erection in the absence of sexual stimulation[3]. In human, the most cases of priapism are associated with traumatic injury to the pelvic, penile or perineal region[1]. Idiopathic priapism has been described[4].

Several veterinary medical literatures proposed that spinal injury led to stimulation of erection of pelvic nerve[5,6], and thrombotic accidents involving the penile vasculature as the most common causes of feline and canine priapism[7,8]. In dog, priapism secondary to perineal abscess[2], lumber stenosis[9], pineal metastasis[10], multifocal distemper encephalomyelitis[11] and idiopathic[5] had been reported.

Pathogenesis of priapism was different according to the causes. In one case, the metastasis of carcinoma from the urinary bladder or prostate to the penile vasculature was the main cause of the condition[10].

The pattern of blood flow to the penis that occurs during normal erection is altered in priapism[12]. The associated vascular stasis in the penile corpus cavernosum results in sickling of erythrocytes that occludes the venous out flow and brings about trabecular oedema[2]. If it extended to long, it will be irreversible thrombosis of cavernous spaces[13].

The diagnosis of different parts of penis using B-mode ultrasonography was made in dog[14], while the diagnosis of high flow priapism based on characteristics and sonography features was performed in human[15].

High flow priapism is less an emergency and can manage either conservatively or actively, depending on patient preference[15]. In that case, using Doppler ultrasonography was useful for diagnosis of the blood flow pattern so that we can give the appropriate treatments. The aim of the therapy is to restore the normal circulation in the corpus cavernosum[16]. Therefore, the diagnosis of the case is crucial for using suitable therapy[12], to protect the penis form necrosis, ischemia, and urethral obstruction[8].

Conflict of interest statement

We declare that there is no conflict of interest.

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