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A Case of Perineal Hypospadias with Os Penis Deformity and Unilateral Cryptorchidism in a Boston Terrier

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Abstract : A six-month-old Boston terrier presented with an extruded penis caudally, incompletely formed preputial sheath, bifid scrotum, retained testicle and deformity of the os penis. On physical examination, the urethral orifice was located on the surface of the perineum and a fibrous band was observed running from the grans to the urethral orifice on the perineum. The dog also had urethritis that was infected by ascending bacteria entering through the contaminated urethral orifice. Corrective surgery was undertaken to excise the external genitalia and retained testicle. The prepuce, penis and retained testicles were successfully excised. After the urethral orifice was cleaned periodically and antibiotics were administrated, recurrent urethritis disappeared. Using this therapeutic regime it is not necessary to reconstruct the anomaly located urethral orifice, if the location of urethral orifice is not the cause of recurrent urethritis and urinary incontinence.

Key words **:** Boston Terrier, cryptorchidism, hypospadias, os penis deformity, urethritis.

Introduction

Hypospadias is a congenital anomaly of the external genitalia in which the penis urethra terminates ventrally and caudally to its normal opening (9). It occurs as a result of failure of the genital folds and genital swelling to fuse normally during fetal development. The urethra may open anywhere on the ventral surface of the penis between the normal location and the ischiatic arch, or on the surface of the perineum. Hypospadias is classified, based on the location of urethral orifice, as glandular, penis, scrotal, perineal, or anal (8).

The incidence of hypospadias in canines is 0.003% and is considered to be heritable trait in the Boston terrier (7). There are relatively few reports of hypospadias in the veterinary literature and its etiology is unclear, which may be due to inadequate fetal androgens or to inadequate numbers of androgen receptors on the urethral folds (7,16).

Deformity of the os penis has been rarely reported in dogs (12). The exposed part becomes dry and fissured, resulting in infection and necrosis (3). The present case report describes a Boston terrier that had hypospadias with incomplete development of the prepuce, urethral orifice on the perineal area, bifid scrotum, unilateral cryptorchid, and deformity of the os penis, which have not been described before.

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Case

A six-month-old, 4.5 kg Boston terrier was admitted to Seojeong veterinary clinic for evaluation of a urinary tract anomaly and an exposed penis. The dog had incomplete closure of the prepuce and incomplete development of the penis, with a urethral orifice on the perineal surface. The dry and pale penis was a completely extruded caudal deviation and the preputial sheath was absent from the bulbus glandis to the scrotum. The fibrous band of the urethra ran from the tip of penis to the urethral orifice on the perineal surface (Fig 1).

On physical examination, the scrotum was divided and the small cryptorchid in the right inguinal area was palpated. The mucosa of urethral orifice was hairless and narrow. Other findings from physical examination were not detected.

In laboratory findings, urethritis was present but any other abnormalities were not found. On retrograde cystourethrography using catheterization, the urethra was patent to the urinary bladder and deformity of the os penis was revealed on a plain radiograph (Fig 2).

Subtotal penis amputation surgery was undertaken. The dog was anaesthetized using propofol 1% 6 mg/kg (Pofol, Donguk pharm, Chungbuk, Korea) and intubated, and oxygen was supplied. The dog was placed in dorsal recumbency

Fig 1. Photograph showing that the dog presented with an anomalous urethral orifice on the perineum, with a failure in fusion of urethral fold from urethral orifice to the tip of the glans penis, and with bifid scrotum.

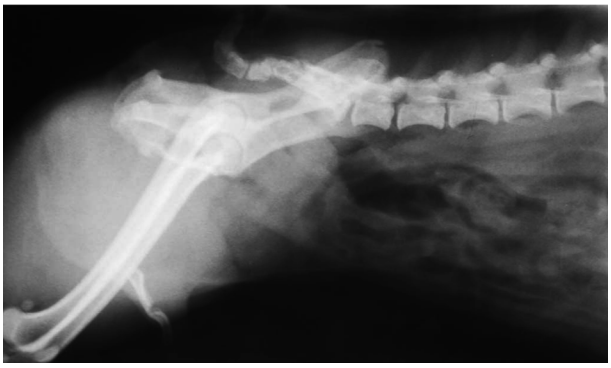

Fig 2. Lateral radiograph showing the deformity of the os penis. The os penis is located caudally and presented with a "S" shaped deformity and defect of osseous tissue.

and the hair over the caudal abdomen was clipped. The site was disinfected with povidone iodine and 70% isoprophyl alcohol alternately and was draped. An elliptical incision around the prepuce, penis and scrotum was made and the descended testicle and the testicle in the right inguinal area were removed by routine castration. The penis was dissected from the external abdominal wall to just caudal to the os penis, and the dorsal penis vessels were carefully ligated. The distal penis was amputated and the tunica albuginea over the cavernous tissue was apposed and sutured with simple interrupted 3-0 catgut. The subcutaneous tissue and skin were sutured with simple interrupted 3-0 nylon. For postoperative care and assessment, the dog was administered amoxicillin for 5 days and vitamin K to prevent hemorrhage from incision site for 3 days.

Fifteen days later, the skin sutures were removed. The surgical wound had healed and the appearance was adequate (Fig 3). After cleaning around the urethral orifice was indicated twice every week, recurrent urethritis was decreased.

Fig 3. Photograph obtained 2 months after surgery to correct hypospadias. The preputial sheath and penis are absolutely excised and the wound is healed.

Discussion

This case report describes a severe hypospadias in a Boston terrier with an urethral orifice on the perineal surface, retained testicle and deformity of the os penis. The cause of hypospadias is thought to be a failure in fusion of the urogenital folds in response to inadequate testosterone production or inadequate conversion of testosterone in target tissues resulting in the immature degeneration of the interstitial cells of the developing testes (10,15,16). In the dog, severe hypospadias, where the urethral orifice is located at the penoscrotal junction, scrotum or the perineum, has been reported and can manifest as severe defects that include cryptorchidism (13), divided scrotum (5) and persistent mullerian ducts (11). The most common hypospadias is an urethral orifice located in the midscrotal or ventral ischial area, and the comparatively uncommon hypospadias is a urethral orifice located in the perineum and anal area (14). In the hypospadias with crytorchidism, castration is recommended because of unsuitable reproductive ability. In this case, castration was employed in concert with the other surgical correction.

Deformity of the os penis was presently seen in the dog with hypospadias; it is thought that the penis deviates caudally during the development period of the os penis. Treatment depends on the condition of the penis. Straightening of the os penis by fracture may be possible, but in the present case was not necessity for the correction of the os penis because of excision of the entire external genitalia (4).

Surgical correction is usually not recommended, unless severe defects manifest as medical problems such as recurrent ascending urethritis, urinary incontinence, constant penis irritation and pain associated with penis and preputial disorder (9,11), and unless these defects are a cause of irritation (14). The method of surgical collection is dependent on the type of hypospadias and coexisting anomalies. Surgical procedures are intended to improve cosmesis with the reduction of clinical signs of hypospadias and other coexistent anomalies (6).

If severe hypospadias with concurrent defects of penis and preputial development present, excision of the entire external genitalia is the approach of choice (4,8,9). Presently, the dog displayed severe hypospadias with urethral orifice located in the perineal surface, cryptorchidism and anormaly prepuce and penis, necessitating excision of the entire external genitalia via castration. It was not necessary to modify the urethral orifice on the perineal surface, because the original orifice was enough to allow urination without irritation or inflammation of the skin.

It has been reported that urinary incontinence is not commonly associated with hypospadias in dogs (14) but the veterinary medical literature describes the common association of urinary incontinence with hypospadias in dogs (1,8,9). Presently, In urinary incontinence was not seen. Urinary incontinence may depend on the length of urethra and the location of the urethra orifice.

Urethritis in hypospadias occurs because of an ascending urinary tract bacterial infection. If the urethral orifice is located near the surface of the earth or anus, the incidence of recurrent urethritis is increased. Presently, because the urethral orifice was located the surface of perineum 2 cm from the anus, the incidence of recurrent urethritis was decreased following antibiotic treatment and cleaning with water around the orifice twice every week. Therefore, reconstruction of a new urethral orifice was not necessary.

In conclusion, this case report indicates that perineal hypospadias concurrent with cryptorchidism should be treated by surgically correcting the anomalous parts and, if the location of the urethral orifice is not determined to be the cause of recurrent urethritis and urinary incontinence, reconstruction of the new urinary orifice is not recommended.

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보스턴 테리어에서 발생한 음경골 이형성과 편측 잠복고환증을 가진 회음부 요도하열

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요 약 : 6개월령의 보스톤 테리어가 미측 음경 돌출과 불완전 형성된 포피, 이분화된 음낭, 잠복고환과 음경골 이형성을 나타내었다. 신체검사상, 요도구멍은 회음부 표면에 위치하였고 섬유성 띠는 귀두로부터 회음부에 있는 요도구멍까지 연결되어 있었다. 또한, 잘못 위치한 요도구멍을 통한 상행성 감염에 의하여 요도염을 나타내었다. 교정수술은 외부생식기 전체와 잠복고환을 절제하기 위하여 시행되었다. 포피, 음경 그리고 잠복고환은 성공적으로 절제되었다. 수술 후 요도구멍을 주기적으로 세척하고 항생제를 투여한 이후, 재발성 요도염은 사라졌다. 만약, 요도구멍의 위치가 재발성 요도염의 원인과 요실금의 주요 원인이 아니라면, 요도구멍을 재형성할 필요가 없는 이 치료법을 이용할 것을 제안한다.

주요어 : 보스턴 테리어, 잠복고환, 음경밑열림증, 음경골 이형성, 요도염.