

VENOUS INTRAVASATION OF CONTRAST MEDIUM DURING RETROGRADE URETHROGRAPHY IN A DOG WITH URETHRAL STRICTURE AND URETHRITIS

Introduction

Retrograde urethrography is a commonly used imaging modality to investigate urethral diseases. Complications are uncommon and include iatrogenic urinary tract rupture and infection^{1,7}. Extravasation of contrast medium has been described into the peritoneal space, cavernous tissues of the penis or soft tissues adjacent to the urethra in case of urethral rupture^{1,3,7}.

Methods

A 12-year-old castrated pug was referred for a suspicion of urethral stricture. The dog was presented with a history of hyporexia, vomiting, dysuria and stranguria for 3 weeks, having required multiple urethral catheterisations. The patient underwent an abdominal ultrasound, caudal abdominal radiographs (Figure 1), retrograde urethrography (Figures 2 & 3) followed by an urethroscopy.

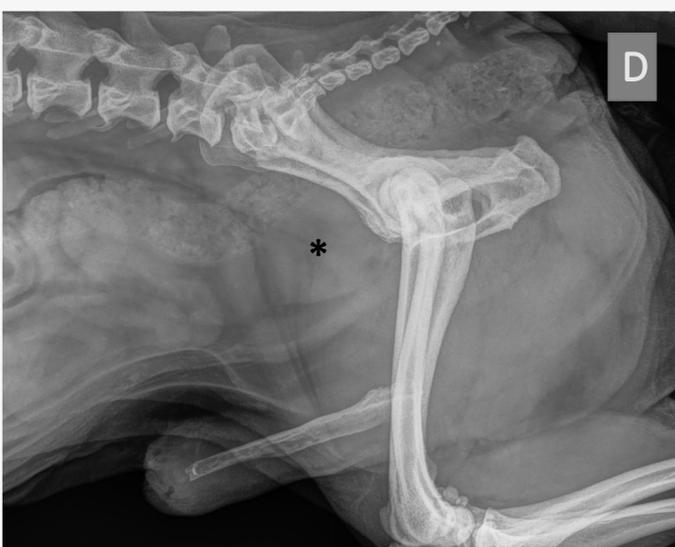


Figure 1 : Lateral radiograph of the caudal abdomen showing prostatomegaly with dorsal displacement of the distal colon (*).

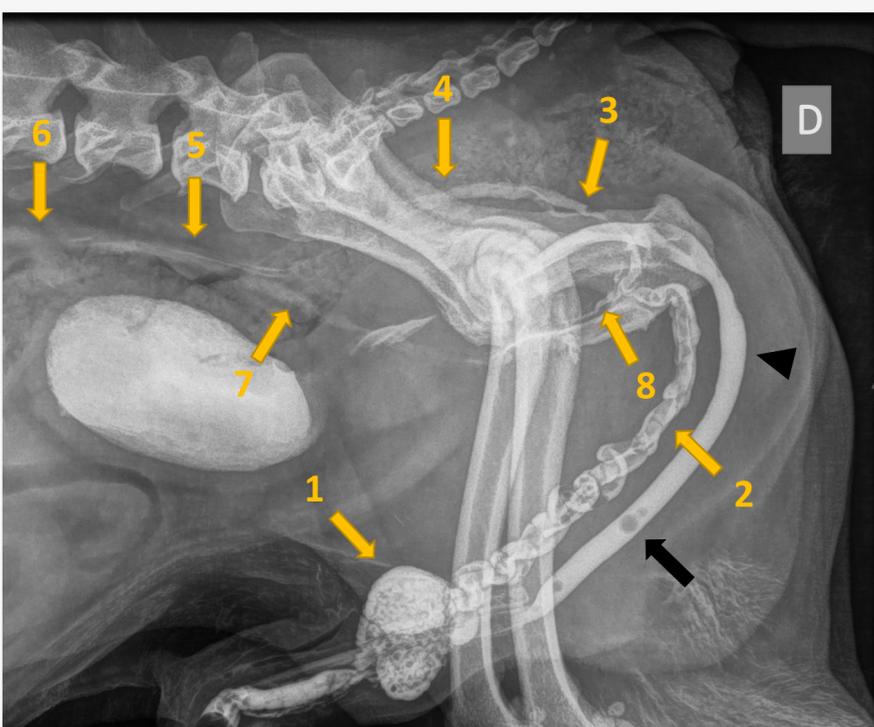


Figure 3 : Retrograde urethrography (later stage) with marked urethro-venous intravasation of the contrast medium (yellow arrows), view legend in table 1. Air bubbles (black arrow) can be seen within the contrast medium marking the urethra (black arrowhead).

Results

A lateral radiograph showed prostatomegaly with dorsal displacement of the distal colon (Figure 1). A retrograde urethrography showed a focal luminal narrowing with an irregular mucosal margin of the penile urethra, indicative of stenosis, urethritis and/or scarring. Contrast medium was observed within the adjacent penile tissue, venous sinuses of the bulbus glandis, ascending venous pathway (dorsal veins of the penis, internal pudendal, internal iliac and common iliac veins, and caudal vena cava) as well as in the external iliac and urethral veins (Figures 2 & 3)^{2,4}. Urethroscopy confirmed a marked urethral stricture associated with signs of severe urethritis in the region of the bulbus glandis. Cytology samples taken by cytobrush showed mixed inflammatory cells associated with bacterial infection. Scrotal urethrostomy was performed along with a medical treatment for concurrent prostatitis diagnosed by ultrasound and confirmed by prostatic wash. At the 1-month post-operative check-up, the dog showed a clear clinical improvement.

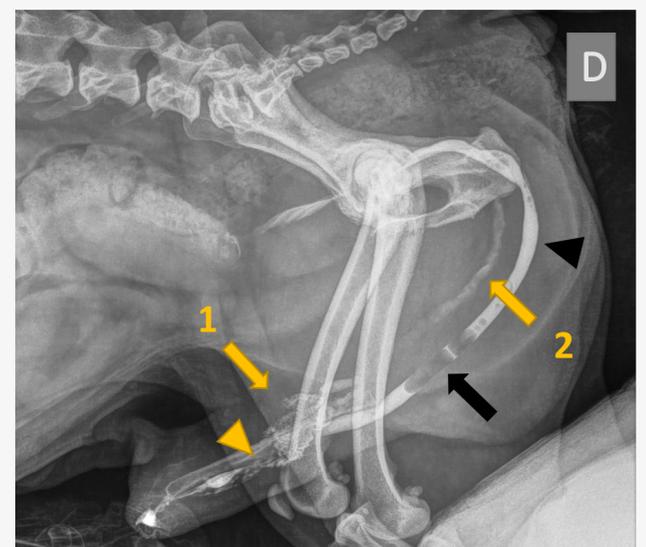


Figure 2 : Retrograde urethrography showing a focal luminal narrowing and irregular margins of the penile urethra (yellow arrowhead) as well as urethro-venous intravasation of the contrast medium (yellow arrows), view legend in Table 1. Air bubbles (black arrow) can be seen within the contrast medium marking the urethra (black arrowhead).

1. Venous sinuses of the bulbus glandis
2. Dorsal veins of the penis
3. Internal pudendal veins
4. Internal iliac veins
5. Common iliac veins
6. Caudal vena cava
7. External iliac veins
8. Urethral vein

Table 1 : Structures marked by the urethro-venous intravasation of the contrast medium in figures 2 and 3 (yellow arrows).

Discussion & conclusion

Urethral stricture can be the sequela of infectious/non-infectious urethritis, previous urethral instrumentation and/or trauma. Urethro-venous contrast medium intravasation, also known as urethro-vascular or urethro-cavernous reflux³, is a rare complication of retrograde urethrography in human medicine and has been reported only once in a dog, more proximally in the urethra^{1,3,5,6}. Intravasation is due to the alteration of the integrity and permeability of the urethral wall with contrast medium entering the surrounding penile tissue and venous plexus followed by passage within the ascending venous pathway^{1,3,5}. It can therefore be observed concomitantly with stenosis and/or urethritis. It is important to recognise such complication as it can lead to bacteremia, sepsis, anaphylaxis, nephropathy and even death^{3,5,6}.

References:

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