

# Rapid vascular uptake of contrast media during retrograde urethrocytography in a dog



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## ABSTRACT

A 6-year old, male, neutered German Shepherd was presented for further investigation of recurrent clinical signs of dysuria following two years of an excellent medical control of suspected detrusor urethral dyssynergia. During retrograde contrast urethrocytography, contrast media was seen to be visible in the prostatic vessels and caudal vena cava, suggesting rapid vascular absorption of contrast media. Post-mortem histopathological evaluation of the prostate was consistent with pyogranulomatous prostatitis.

## INTRODUCTION

Radiocontrast agents are commonly used during diagnostic procedures such as positive contrast radiography, fluoroscopy, or computer tomography angiography. Retrograde contrast urethrocytography has been shown to be a useful imaging tool in the evaluation of a urethral and urinary bladder integrity after trauma as well as part of investigations into the cause dysuria, stranguria, pollakiuria, or haematuria. In the presence of a normal prostate, urethroprostatic reflux is often observed as the presence of positive contrast within the prostatic parenchyma in the vicinity of the urethra. Conversely, the accumulation of the significant amount of the contrast medium within the prostate is more commonly associated with prostatic disease. Complications associated with positive contrast cystourethrography include haemorrhage, urethral trauma, urinary tract infection, and bladder rupture among others.

## SIGNALMENT AND HISTORY

**Signalment:** 6-year old, male, neutered, German Shepherd.

**Problem list**

- dysuria
- pollakiuria
- haematuria



### Previous diagnosis and relevant medical history

- suspected detrusor-urethral dyssynergia 18 months prior to the presentation
- chemical following by surgical castration performed by the primary care practice

## DIAGNOSTIC INVESTIGATION

- unremarkable
- bladder painful on palpation
- impalpable rectally prostate

### Clinical examination

- moderately dilated urinary bladder
- consistent with cystitis
- prostate subjectively enlarged
- prostatic urethra moderately distended with the thickened urethral wall

### Ultrasound

### Blood test

CBC, biochemistry, electrolytes, coagulation and fibrinogen - within normal reference ranges

### Urinalysis

*Proteus* sp

Amoxicillin	sensitive
Amoxiclav	sensitive
Cephalosin	sensitive
Sulpha/Trim	sensitive
Tetracycline	resistant
Enrofloxacin	sensitive
Marbofloxacin	sensitive
Clindamycin	resistant

## CONTRAST RETROGRADE URETHROCYSTOGRAM

Plain right lateral abdominal radiographs showed a significantly distended bladder and lumbosacral spondylosis deformans.



A positive contrast retrograde urethrocytogram was performed under sedation using 25mls of iohexhol (Ominaque 300; GE Healthcare) diluted 1:1 with 0.9% NaCl. The radiograph acquired during positive pressure retrograde urethrogram revealed a minimal amount of the contrast within the bladder with no evidence of an obstruction, however the urethra was significantly dilated.



The second radiograph revealed contrast extravasated to prostatic veins and also vessels associated with in Caudal Vena Cava.

- A – Caudal Vena Cava,
- B – caudal vesical vein,
- C – internal iliac vein,
- D – urethroprostatic reflux,
- E – prostatic vein,
- F – internal pudental vein.

## DIAGNOSIS

Owing to a perceived quality of life the clients requested euthanasia but gave permission for post-mortem examination of the prostate. Gross examination of the prostate was performed by a Diplomat of the European College of Veterinary Surgeons and was found to be subjectively mildly enlarged for a neutered dog with an irregular capsule. Histopathological analysis of the bladder, prostate, and urethra was performed by a Diplomat of the European College of Veterinary pathologists in Veterinary Pathology Diagnostic Service of the University of Liverpool severe diffuse chronic pyogranulomatous prostatitis with ulcerative pyogranulomatous urethritis/cystitis and intra-lesional bacteria.

## DISCUSSION

The almost immediate absorption into the systemic circulation was likely secondary to the chronic inflammation evidenced on histopathological examination. Although increased prostatic reflux can be seen with chronic inflammation, movement of a substantial amount of contrast into the systems circulation has only been reported once previously in a cat in 2015.

Hypervascularisation with increased blood flow secondary to the inflammation of the prostate and prostatic urethra are most likely to be the cause of the contrast medium extravasation. The primary cause of the inflammation was unknown. Although the presence of granulomatous inflammation suggests a chronic process and 'acute on chronic' process, either the result of a secondary prostatitis/cystitis or iatrogenic damage cannot be ruled out as the cause of the intravascular movement of contrast media.

Previously identified causes of pyogranulomatous prostatitis in dogs include *Leishmania spp* and *Brucella canis*. As the dog had not been used as a stud-dog and in absence of travel outside of the UK, *Brucella canis* was considered less likely, although PCR/RSAT would have been required to investigate this further.

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