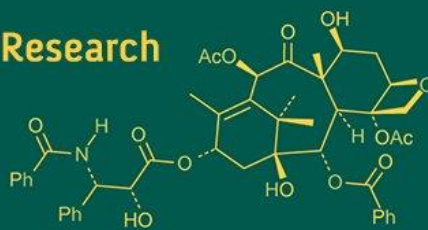


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Successful surgical correction of ectopic ureter with concurrent bilateral hydronephrosis and paramesonephric cyst in a juvenile Siberian husky

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Abstract

Ectopic ureter is a congenital anomaly of the urinary tract characterized by abnormal termination of one or both ureters distal to the urinary bladder trigone, leading to urinary incontinence and recurrent urinary tract abnormalities in dogs. A five-month-old intact male Siberian Husky weighing 20 kg was presented to the Small Animal Surgery outpatient unit Madras Veterinary College Teaching Hospital with a history of urinary incontinence for the past two months with afebrile clinical signs. Abdominal ultrasonography revealed bilateral hydronephrosis, hydroureter and bilateral intra luminal ectopic ureter opening into prostatic urethra. Preoperative hematobiochemical evaluation showed elevated alkaline phosphatase with normal hematobiochemical profiles. Contrast radiography and computed tomography confirmed bilateral hydronephrosis and hydroureter and identified a left-sided ectopic ureter terminating in the prostatic urethra. Exploratory laparotomy revealed the presence of a right paramesonephric cyst associated with severe renal and ureteral involvement. Right nephroureterectomy along with excision of the cyst was performed, whereas neo ureterostomy was carried out for correction of the left ectopic ureter. Histopathological examination of the excised kidney revealed chronic hydronephrotic changes with excessive loss of renal parenchyma, associated with paramesonephric (Mullerian duct remnant) cyst. Postoperative management included supportive therapy and periodic reviews. The animal recovered uneventfully with resolution of urinary incontinence with gradual improvement.

Keywords: Ectopic ureter, hydronephrosis, hydroureter, paramesonephric cyst, neo ureterostomy

Introduction

Ectopic ureter (EU) is a congenital anomaly of the urinary tract characterized by abnormal termination of one or both ureters distal to the urinary bladder trigone. The condition results from improper embryological development of the mesonephric duct and ureteral bud, leading to aberrant ureteral insertion into structures such as the urethra, vagina, uterus, or prostate. Ectopic ureters are classified as intramural or extramural based on the anatomical course. Clinical manifestations commonly include urinary incontinence, recurrent urinary tract infections, hydronephrosis, hydroureter, and varying degrees of renal dysfunction. Advanced diagnostic modalities including ultrasonography, contrast radiography, computed tomography and cystoscopy that would facilitate accurate identification of the anomaly with urinary tract abnormalities. Surgical correction remains the treatment of choice, with procedures such as neo ureterostomy, ureteroneocystostomy, or nephroureterectomy being selected according to the extent of renal and ureteral involvement.

Case History

A five-month-old intact male Siberian Husky weighing 20 kg was presented to the Small Animal Surgery Outpatient Unit, Madras Veterinary College Teaching Hospital, Chennai, with a history of continuous dribbling of urine for preceding two months. Owner reported that the pet was clinically normal with normal urine colour, appetite, water intake and activity levels despite persistent urinary leakage. Clinical examination revealed urinary incontinence without evidence of systemic illness. Abdominal ultrasonographic examination demonstrated bilateral hydronephrosis and hydroureter, along with an intramural ectopic

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ureter opening into the prostatic urethra. Preoperative hematobiochemical evaluation revealed elevated serum alkaline phosphatase activity. Contrast radiography and computed tomography confirmed bilateral hydronephrosis and hydroureter associated with left-sided ectopic ureter that terminates into the prostatic urethra.

Treatment and Discussion

The dog was premedicated with Butorphanol (0.2mg/kg) and Diazepam (0.25 mg/kg) intravenously. Anaesthesia was induced with propofol (2mg/kg) intravenously as a bolus. Following induction, intubation was performed with cuffed endotracheal tube (7 mm) and the animal was placed in dorsal recumbency, anaesthesia was maintained under isoflurane with oxygen in rebreathing circuit. The surgical site was prepared aseptically and the site was surgically draped. A ventral midline celiotomy was performed from umbilicus to pubis. Exploratory laparotomy revealed severe right-sided hydronephrosis and hydroureter associated with a paramesonephric cyst, a left intramural ectopic ureter terminates in to the prostatic urethra. A right nephroureterectomy was performed following double ligation and transection of the corresponding renal vessels. The ureter was dissected distally and nephrectomy was performed along with excision of paramesonephric cyst. A ventral cystotomy was performed and the left ectopic intramural ureter was identified. The ureteral tunnel was incised longitudinally and neo ureterostomy was performed at the normal trigonal position through suturing the ureteral mucosa to the bladder mucosa in a simple interrupted pattern with No. 4-0 polydioxanone suture. The distal ectopic segment communicating with the prostatic urethra was ligated. The cystotomy incision was closed with 3-0 PDS in double layer pattern (Simple continuous followed by Cushing). Laparotomy and skin incision were opposed as per standard operating procedure. Postoperative recovery was uneventful without any complications. Histopathological examination of the excised kidney revealed chronic hydronephrotic changes with excessive loss of renal parenchyma and the cyst was confirmed as a paramesonephric (Mullerian duct remnant) cyst. Postoperatively, the dog was medicated with fluids and antibiotics (Amoxycillin) for five days. The symptoms of urinary incontinence was progressively revived after five days following surgery.

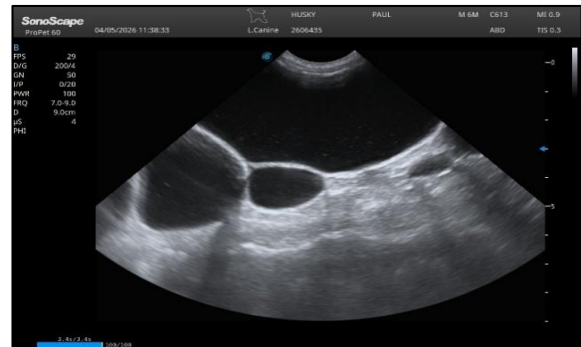


Fig 1: Abdominal ultra sonography showing hydroureter and intra luminal ectopic ureter of left kidney.



Fig 2: Abdominal ultra sonography showing hydronephrosis of left kidney.



Fig 3: (a)

Fig 3: (b)

Fig 3: Preoperative Intravenous pyelography (a) Abdomen lateral view and (b) Abdomen ventro-dorsal view Showing hydronephrosis, hydroureter and ectopic ureter of left kidney



Fig 4: (a)

Fig 4: (b)

Fig 4: Preoperative (a) Computed tomography image (segmented view), (b) Contrast computed tomography image showing bilateral hydronephrosis, hydroureter and ectopic ureter of left kidney opening into prostatic urethra.



Fig 5: (a) Intra operative image showing hydronephrosis with associated paramesonephric cyst of right kidney.

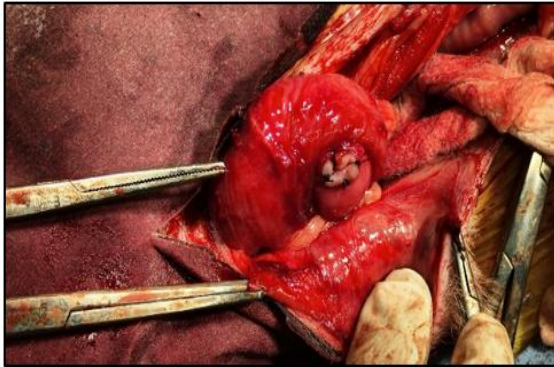


Fig 5: (b) Intra operative image following nephroureterectomy of right kidney.



Fig 6: Postoperative plain radiograph of Abdomen (lateral view) Showing reduction in hydronephrosis, hydroureter of left kidney.

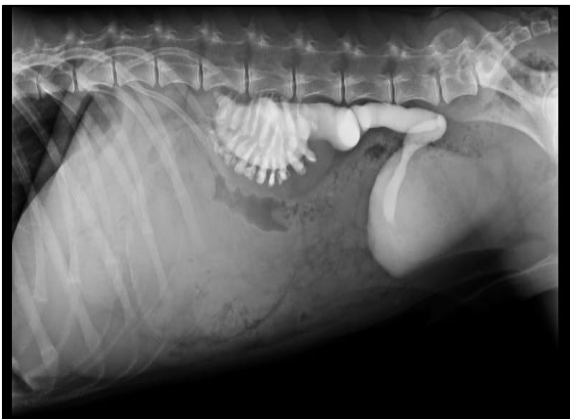


Fig 7: Postoperative contrast radiograph of Abdomen (lateral view) Showing normal opening of left ureter into the bladder.

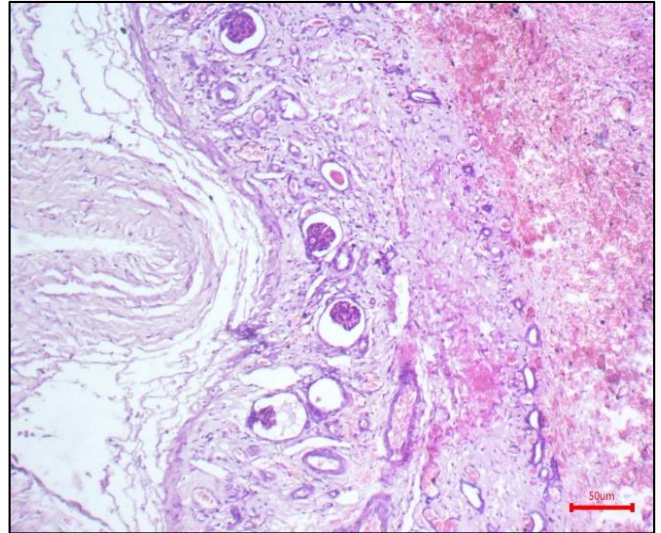


Fig 8: Post-operative Haematoxylin & Eosin-stained biopsy sample of right kidney showing atrophic glomeruli, tubular degeneration and cyst cavities containing eosinophilic proteinaceous material.

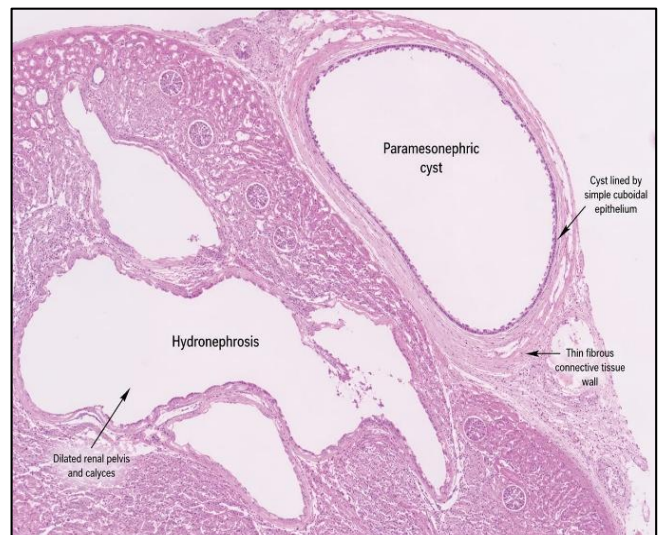


Fig 9: Post-operative Haematoxylin & Eosin-stained biopsy sample showing severe dilation of renal pelvis, calyces and a large cystic structure lined by a single layer of cuboidal epithelium supported by fibrocartilaginous wall indicating remnants of mullerian duct.

Ectopic ureter is one of the most commonly reported congenital anomalies of canine urinary tract and is characterized by abnormal ureteral termination distal to the urinary bladder trigone, resulting in varying degrees of urinary incontinence (McLoughlin & Chew, 2000) [5]. Although the condition is more frequently reported in bitches, male dogs are also affected and often exhibit less severe clinical signs owing to the longer urethral length and greater urethral sphincter resistance (Holt & Moore, 1995) [3]. In the present case, the juvenile male Siberian Husky exhibited afebrile urinary incontinence, which was consistent with the clinical signs. (Lamb *et al.*, 1998) [4]. Ultrasonography revealed bilateral hydronephrosis with hydroureter associated with an intramural ectopic ureter. Similar ultrasonographic findings have been documented by Lamb *et al.* (1998) [4] and Samii *et al.* (2004) [6], where hydronephrosis and hydroureter frequently accompanied chronic urinary obstruction and reflux secondary to ectopic

ureteral insertion. In the present case, computed tomography and contrast radiography were instrumental in defining the ureteral anatomy and for identification of ectopic termination within the prostatic urethra. Computed tomography provide superior anatomical details in comparison with conventional radiography and ultrasonography is one of the most accurate diagnostic modalities for ectopic ureters in dogs (Samii *et al.*, 2004; Berent *et al.*, 2012) ^[6, 1].

The severely hydronephrotic right kidney exhibited extensive loss of functional renal parenchyma, hence necessities nephroureterectomy. Similar surgical management has been recommended when irreversible renal damage and severe hydroureter were present and preservation of renal function is unlikely (McLoughlin & Chew, 2000) ^[5]. Nephroureterectomy eliminates the source of recurrent infection and prevents continued complications associated with a non-functional urinary unit. Previous studies demonstrated favourable outcomes following nephroureterectomy in dogs with unilateral severe hydronephrosis and non-functional kidneys (Fossum, 2019) ^[2].

Neo ureterostomy was performed. A new ureteral opening was created at the normal trigonal position following which the ureteral and bladder mucosa was apposed. This correction procedure is widely recognised as treatment for intramural ectopic ureters and aims to restore physiologic urine flow into the urinary bladder (Holt & Moore, 1995) ^[3].

References

1. Berent AC, Weisse C, Todd K, Bagley DH. Endoscopic-guided laser ablation of intramural ectopic ureters in dogs: 16 cases (2006-2009). *Journal of the American Veterinary Medical Association*. 2012;240(6):716-725.
2. Fossum TW. *Small animal surgery*. 5th ed. Elsevier; 2019.
3. Holt PE, Moore AH. Canine ectopic ureter: a review of 175 cases and comparison of surgical treatments. *Veterinary Record*. 1995;136(14):345-349.
4. Lamb CR, Gregory SP, Pearson GR. Ultrasonographic diagnosis of ectopic ureters in dogs. *Veterinary Radiology & Ultrasound*. 1998;39(3):218-223.
5. McLoughlin MA, Chew DJ. Diagnosis and surgical management of ectopic ureters. *Clinical Techniques in Small Animal Practice*. 2000;15(1):17-24.
6. Samii VF, McLoughlin MA, Mattoon JS, Eisele G, Chew DJ. Digital fluoroscopic excretory urography and computed tomography for diagnosis of ectopic ureters in dogs and cats. *Veterinary Radiology & Ultrasound*. 2004;45(5):423-427.