

Urethrolithiasis in Equids: a Retrospective Study of 7 cases (2013-2022)

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URETHROLITHIASIS IN EQUIDS

- **Poorly documented** in equids
- Primarily a problem of **male horses** (few mares)
- **Low reported survival rate** (33% in 9 cases reported)^{2,3,4}
- Poor reported outcome associated with bladder rupture and peritonitis, upper urinary tract lithiasis, or pyelonephritis
- **Urolithiasis: multiple locations** reported; percutaneous and transrectal renal ultrasonography recommended
- Impact of urethrolithiasis on renal function not well documented

RETROSPECTIVE STUDY

- **n = 7** equids presented for urethrolithiasis
- **Objectives:** 1. Describe clinical findings
2. Identify changes in renal function
3. Evaluate the short-term survival rate of equine urethrolithiasis

MATERIALS AND METHODS

- **General information:** patient data, reason for admission, clinical exam findings, and blood workup data
- **Urinary tract procedures performed:** urology, abdominal/renal ultrasonography, cystoscopy, urine bacteriology, transrectal examination
- **Treatment and post-operative period** specifics
- **Follow-up:** phone call (potential complications, recurrence, urinary signs, return to normal activity, and survival)

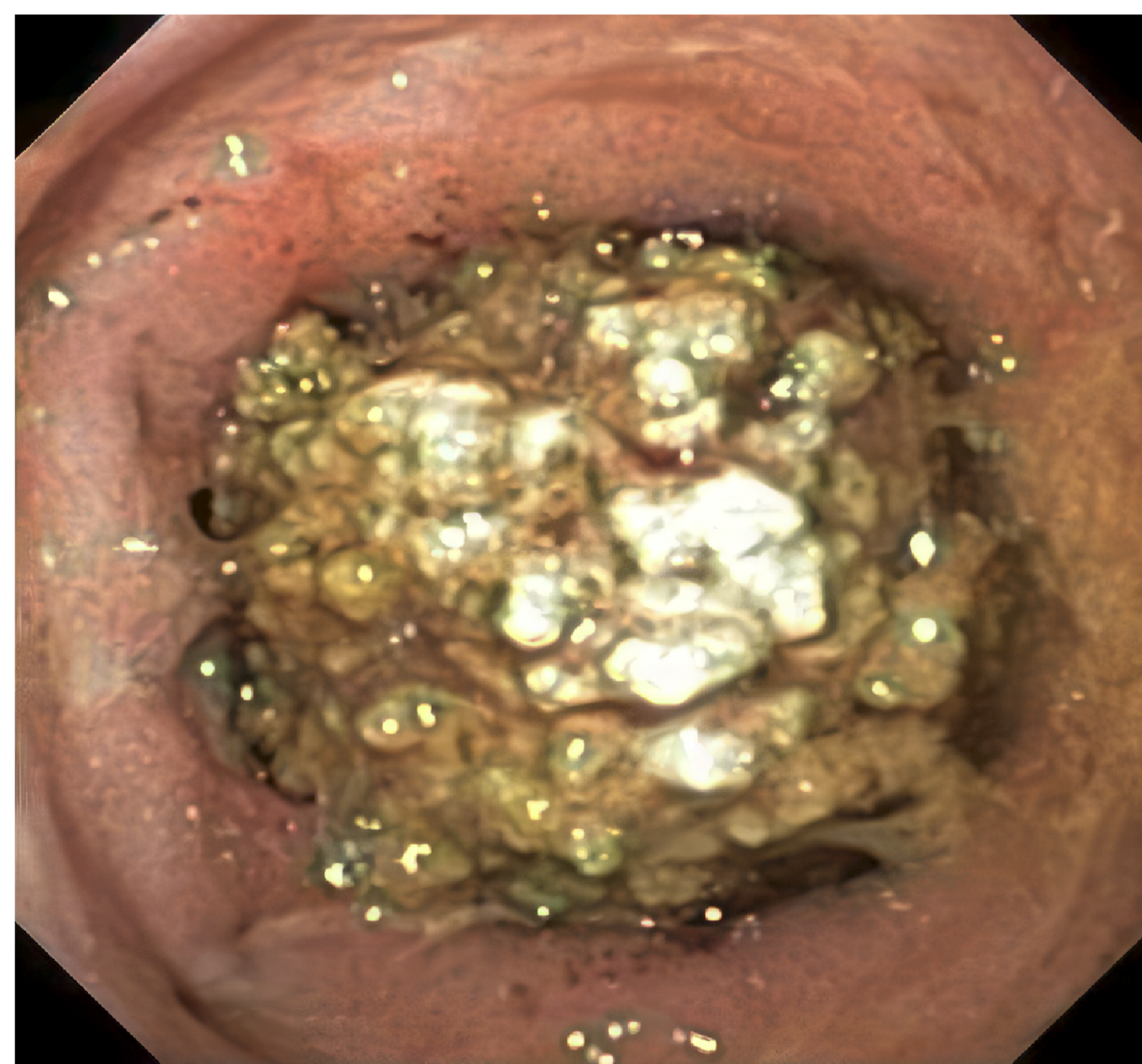


Figure 1: Urethrolith

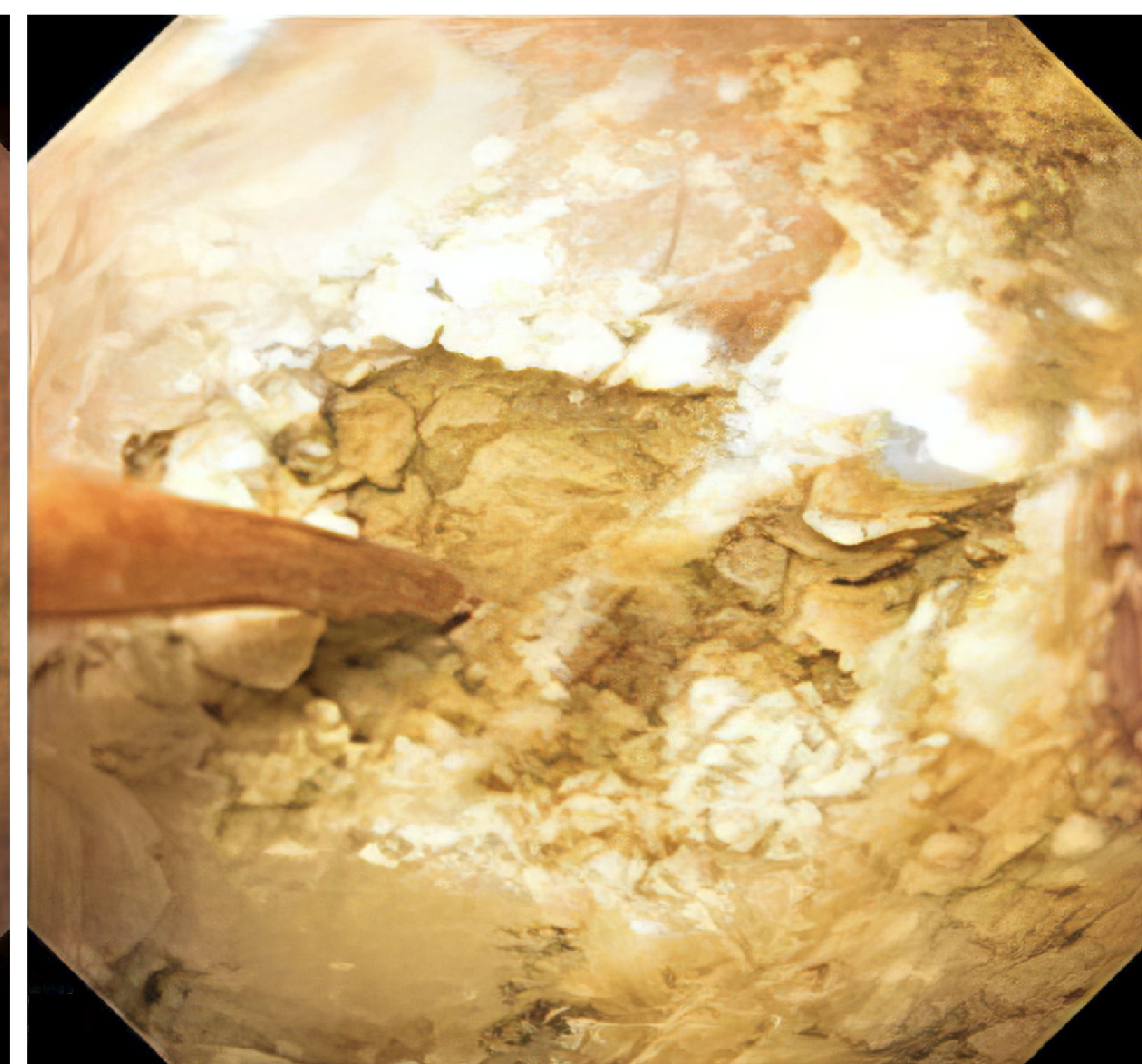


Figure 2: Transendoscopic intracorporeal lithotripsy

RESULTS

	Patients (n = 7)	Literature
Species	Horses (n=6) / Donkey (n=1)	
Breed	Mix	No breed predisposition ¹
Age	11-36y 6 patients between 10 et 20y	10y ¹
Sex	6 geldings, 1 mare	70-100% males ^{1,2}
Reason for consultation	Emergency (n=4) / chronic dysuria (n=3)	
Hospitalization	3-42 days 3-10 days (n=4) 11-20 days (n=2) > 20 days (n=1)	
Survival (short-term)	100%	33% (n=9) ^{2,3,4}

Patient	Admission creatinine (µmol/L)	Max creatinine (µmol/L)	Discharge creatinine (µmol/L)	Admission urea (µmol/L)	Admission USG	Day USG	Calculi location
1	202	202	139	11.78	1.009	1	U / K
2	211	211	133	12.5	1,005	2	U
3	134	134	109	7.03	1.009	11	U / B/ K
4	924	924	111	26.02	1,011	2	U
5	212	344	283	13.21			U / K
6	155	155	155	11.78	1,018	0	U / B/ K
7	106	106	94		1,022	1	U / B/ K
Total	5/7 Hypercreatinemia	5/7 Hypercreatinemia	3/7 Hypercreatinemia	5/6 Uremia	4/6 Isosthenuria		5/7 mixed location

B: bladder / K: kidney / U: urethral

Surgical Procedures

- **Urethral calculi removal:** digitally via the urethral orifice (n = 4), surgically via urethrotomy (n = 2), unsuccessful with an urethrotomy approach (n = 1)
- **Urethrotomies** → second intention healing
- 1/7 bladder rupture → cystorrhaphy under general anesthesia
- **3/4 positive urine cultures** (*Citrobacter koseri*, *E. coli*, *Enterococcus casseliflavus* and *Aerococcus*)

Renal Ultrasonography

Nephromegaly	Renal Pelvis Dilatation	Abnormal corticomedullary junction	Renal calculi
4/7	5/7	3/7	5/7 (2/5 bilateral)

Cystoscopy

Bladder/urethra inflammation	Bladder wall necrosis	Abnormal ureteral openings	Sabulous Bladder
7/7	2/7 (one bladder rupture)	5/7	3/7

Follow-up

- **n = 5** [1-5 years post hospitalization]
- **3/5 had complications:** urethral stenosis (n = 1), partial phallectomy (n = 1), cystitis (n = 1), severe hindlimbs dermatitis (n = 1), laparotomy SSI (n = 1)
- **No known recurrence**, and **4/5 returned to their intended use**
- **2/5** showed signs of **chronic renal disease** in the following years (one euthanized 5 years after discharge for impaired quality of life)

CONCLUSION

- ❖ **100% survival rate**
- ❖ Rapid intervention is crucial
- ❖ Hypercreatinemia resolved in 3/5 patients
- ❖ **Multiple urolithiasis** locations in **71%** of cases
- ❖ Complete urinary tract evaluation is paramount

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