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VI Edition of the Clinical Cases Contest on

non-surgical clinical management of Kidney Stones

Official template

Title: Targeted Urine Alkalinization with Lit-Control® pH Up Achieves Uric-Acid Stone Dissolution and 12-Month Recurrence-Free Survival: A Metabolic, Patient-Centered Case

Author/s: Silva P.

Affiliation 1st author: Urology Department, Central Lisbon University Hospital Centre (CHULC), Lisbon, Portugal

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Uric acid nephrolithiasis; urine pH; potassium citrate; Lit-Control® pH Up; non-surgical dissolution; recurrence prevention.

1. Abstract

Objective: To demonstrate guideline-concordant, non-surgical dissolution and recurrence prevention of uric-acid stones through home urine alkalinization using Lit-Control® pH Up (Devicare).
Method: A 57-year-old man with recurrent uric-acid stones (CT low-attenuation, 24-hour urine: pH 5.2, uricosuria 0.9 g/day, low citrate) underwent a structured program: fluid targets (≥2.5 L/day), nutrition (low purine/DASH), allopurinol titration (100→300 mg/day), and **Lit-Control® pH Up titrated to maintain pH 6.2–6.8** with home pH monitoring. **Results:** At 8 weeks, ultrasound showed disappearance of the 7-mm distal ureteral calculus; CT confirmed complete dissolution. 24-hour urine normalized (pH 6.4; uricosuria 0.7 g/day; citrate ↑), with 75% of days in target pH. No colic/ER visits. At 12 months, imaging showed **no recurrence** and the patient remained symptom-free. No alkalinization adverse events. **Conclusions:** A simple, titratable regimen using **Lit-Control® pH Up** enabled rapid dissolution and sustained prevention of uric-acid stones, highlighting a scalable, patient-centric alternative to surgery.

2. Introduction

Uric-acid nephrolithiasis is driven by persistently acidic urine (typically pH ≤5.5), high uric-acid load, low urine volume, and low citrate. Dissolution and prevention hinge on urine alkalinization (target pH ~6.2–6.8), hydration, dietary optimization, and purine control. We report a real-world case in which home titration of urine pH using Lit-Control® pH Up (Devicare) achieved complete stone dissolution and 12-month recurrence-free survival without surgery.

3. Clinical Case description

a. Patient information / Medical records

- Male, 57 years; BMI 31 kg/m²; type-2 diabetes; hypertension; gout.
- Recurrent nephrolithiasis (three episodes in 5 years); last colic 3 weeks prior.
- Medications: metformin, losartan, colchicine PRN; no alkali therapy at baseline.

b. Diagnostic support studies and results

- Non-contrast CT (baseline): 7-mm distal ureteral calculus; low attenuation consistent with uric acid; multiple non-obstructive calyceal microliths.
- Ultrasound: mild hydronephrosis, preserved parenchyma.
- 24-hour urine: volume 1.2 L; pH 5.2; uric acid 0.9 g/day; citrate low; sodium high.
- Serum: eGFR 68 mL/min/1.73 m²; uric acid 7.9 mg/dL; K+ 4.4 mmol/L; bicarbonate 23 mmol/L.

c. Diagnosis

Recurrent uric-acid nephrolithiasis with metabolic syndrome phenotype and persistently acidic urine.

d. Treatment

- Hydration & diet: ≥2.5 L/day fluids; low-purine, DASH-style diet; sodium restriction; weight-loss counseling.
- Urate control: allopurinol 100→300 mg/day over 4 weeks.
- Urine alkalinization: Lit-Control® pH Up (Devicare), initiated at 1 dose morning + 1 dose evening; titrated to maintain urine pH 6.2–6.8, monitored at home twice daily (first-void and evening).
- Safety: fortnightly electrolytes and creatinine for 1 month, then every 3 months; sick-day rule education (pause alkali with vomiting/diarrhea).

e. Evolution and progress

- Week 2–4: pH median 6.3 (IQR 6.1–6.6); colic resolved; no ER use.
- Week 8: ultrasound negative for the ureteric calculus; CT confirmed complete dissolution; hydronephrosis resolved.
- Month 6: 24-hour urine: volume 2.8 L; pH 6.4; uricosuria 0.7 g/day; citrate improved; adherence ≥80%.
- Month 12: no recurrence on ultrasound; asymptomatic; eGFR stable; no alkalinization adverse events.

f. Clinical results

- Stone status: complete dissolution by 8 weeks.
- Utilization: 0 ER visits; 0 unplanned consultations.
- Metabolic control: sustained target pH (≈75% of days); improved 24-hour urine parameters.
- Safety: no hyperkalemia, no metabolic alkalosis, no GI intolerance requiring cessation.

4. Discussion

This case demonstrates that patient-titrated urine alkalinization using Lit-Control® pH Up (plus standard hydration, diet, and xanthine oxidase inhibition) can replace surgery for uric-acid stones and drive durable prevention. Three levers underpinned success:

- Precision pH targeting (6.2–6.8)—maximizes urate solubility for dissolution while minimizing calcium-phosphate risk.
- Home monitoring + simple dose titration—translates metabolic goals into daily actions, improving adherence.
- Metabolic bundle—fluid, diet, and urate lowering reduce lithogenic load.

This aligns with contemporary urolithiasis guidance advocating alkalinization as first-line for uric-acid stones and as a core pillar of recurrence prevention. In our patient, dissolutive therapy avoided anesthesia, radiation, and cost associated with ureteroscopy/shockwave, while maintaining safety with light-touch labs.

Limitations: Single-patient report; adherence supported by high motivation; longer follow-up desirable.

Generalizability: The protocol is replicable in outpatient practice and primary care, especially where surgical queues are long or anesthesia risk is non-trivial.

5. Conclusions and recommendations

- Lit-Control® pH Up–guided alkalinization enabled complete uric-acid stone dissolution within 8 weeks and 12-month recurrence-free follow-up—without surgery.
- Recommend a standardized “metabolic bundle”: fluids ≥2.5 L/day, low-purine/DASH diet, allopurinol when indicated, and titrated alkalinization to pH 6.2–6.8 with home monitoring.
- Implement brief safety labs and patient education; schedule 24-hour urine at 3–6 months to confirm durably corrected risk.
- This approach is scalable, cost-effective, and patient-centric, suitable for routine clinics and telehealth follow-up.

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