UROLITHIASIS

EVALUATION/PREVENTION

Risk Factors

LOW FLUID INTAKE**

Diet: Increased animal protein
Increased oxalate- tea, chocolate, leafy green vegetables, peanut butter
Increased sodium

Immobilization

Obstruction

Biochemical:

Hypercalcuria	Absorptive Resorptive (hyperparathyroidism) ***Renal leak ***
Hyperoxaluria	Primary (congenital-rare) Enteric (regional enteritis, colitis, short bowel etc.) ***Dietary**
Hyperuricosuria	With or without gout
Hypocitraturia	RTA Chronic diarrhea Thiazide Rx ***Idiopathic***

Metabolic Evaluation

URINE: 24 hour volume, pH
Calcium, phosphorous, uric acid
Oxalate and citrate

BLOOD: Ca, phos, uric acid
Electrolytes (RTA)

Medical Treatment :

1. INCREASED FLUID INTAKE
2. Diet: Restrict animal protein and sodium
   Do **not** restrict calcium (osteoporosis + increased oxalate excretion)

1 & 2 are universally applicable. In addition, specific metabolic abnormalities are treated:

3.	Hypercalcuria	Thiazides
4.	Hyperoxaluria	Restrict oxalates (see above) Consider calcium supplement
5.	Hypocitraturia	Potassium citrate (Urocit-K)
6.	Hyperuricosuria	Alkalinize urine (Urocit-K, Na Bicarbonate) Allopurinol

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STRUVITE STONES

1. Associated with infection with urea splitting bacteria: Proteus, Klebsiella, Pseudomanas,Enterococci, Staph. **Never** E.Coli
2. Stones tend to be bulky. Staghorns
3. Successful Rx requires eradication of both stone and infection.
4. Treatment Modalities:
   PCNL
   ESWL (with small stone burden)
   "Sandwich" PCNL>ESWL>PCNL
   Anatrophic Nephrolithotomy (open renal surgery)
   Nephrectomy

URIC ACID STONES

Non-opaque on X-ray Can be seen on CT scan or ultrasound
Only occur in acid urine. Can be dissolved by alkalinization