Urologic Disorders

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Urologic Disorders

- Urinary tract infections
- Urolithiasis
- Benign Prostatic Hyperplasia and voiding dysfunction

Urinary tract infections

- Urethritis
- Epididymitis/orchitis
- Prostatitis
- cystitis
- Acute Pyelonephritis
- Chronic Pyelonephritis
- Renal Abscess

URETHRITIS

- S&S
  - urethral discharge
  - burning on urination
  - Asymptomatic
- **Gonococcal** vs. **Nongonococcal**

  DX:
  - incubation period(3-10 days vs. 1-5 wks)
  - Urethral swab
  - Serum: Chlamydia-specific ribosomal RNA

URETHRITIS

Table 17–1. CLASSIC URETHRITIS

	Gonorrhea	Chlamydia
Organism	*Neisseria gonorrheae*	*Chlamydia trachomatis*
Organism type	Gram-negative diplococci	Intracellular facultative anaerobe
Incubation period	3–10 days	1–5 wk
Urethral discharge	Usually profuse, purulent	Usually scant
Asymptomatic carriers	40%–60%	40%–60%
Diagnostic test	Ligand chain reaction	Polymerase/ligand chain reaction
Other tests	Gram stain Culture	Culture Immunoassay
Recommended treatment	Ceftriaxone 125 mg IM once *plus* Azithromycin 1 g PO *or* Doxycycline 100 mg PO bid × 7 days	Azithromycin 1g PO *or* Doxycycline 100 mg PO bid × 7 days
Alternative treatment	Cefixime 400 mg PO *or* Ciprofloxacin 500 mg PO *or* Ofloxacin 400 mg PO *plus* Azithromycin 1 g PO *or* Doxycycline 100 mg PO bid × 7 days	Erythromycin 500 mg PO qid 7 days *or* Erythromycin ethylsuccinate 800 mg PO qid × 7 days *or* Ofloxacin 300 mg PO bid × 7 days

Epididymitis

- Acute : pain, swelling, of the epididymis <6wk
- chronic :long-standing pain in the epididymis and testicle, usu. no swelling.
- DX
  - Epididymitis vs. Torsion
  - U/S
  - Testicular scan
  - Younger : *N. gonorrhoeae* or *C. trachomatis*
  - *Older* : *E. coli*

Epididymitis

Table 17–3. TREATMENT OF ACUTE EPIDIDYMO-ORCHITIS

Epididymo-Orchitis Secondary to Bacteriuria

1. Do urine culture and sensitivity studies
2. Promptly administer broad-spectrum antimicrobial agent (e.g., tobramycin, trimethoprim-sulfamethoxazole, quinolone antibiotic)
3. Prescribe bed rest and perform scrotal evaluation
4. Strongly consider hospitalization
5. Evaluate for underlying urinary tract disease

Epididymo-Orchitis Secondary to Sexually Transmitted Urethritis

1. Do Gram stain of urethral smear
2. Administer ceftriaxone, 250 mg IM once; then tetracycline, 500 mg PO qid for at least 10 days, or doxycycline, 100 mg PO bid for at least 10 days
3. Prescribe bed rest and perform scrotal evaluation
4. Examine and treat sexual partners

Adapted from Berger RE: Urethritis and epididymitis. Semin Urol 1983;1:143.

Prostatitis

- Syndrome that presents with inflammation± infection of the prostate gland including:
  - Dysuria, frequency
  - dysfunctional voiding
  - Perineal pain
  - Painful ejaculation

Prostatitis

Table 15–1. CLASSIFICATION SYSTEM FOR THE PROSTATITIS SYNDROMES

Traditional	National Institutes of Health	Description
Acute bacterial prostatitis	Category I	Acute infection of the prostate gland
Chronic bacterial prostatitis	Category II	Chronic infection of the prostate gland
N/A	Category III chronic pelvic pain syndrome (CPPS)	Chronic genitourinary pain in the absence of uropathogenic bacteria localized to the prostate gland with standard methodology
Nonbacterial prostatitis	Category IIIA (inflammatory CPPS)	Significant number of white blood cells in expressed prostatic secretions, postprostatic massage urine sediment (VB3), or semen
Prostatodynia	Category IIIB (noninflammatory CPPS)	Insignificant number of white blood cells in expressed prostatic secretions, postprostatic massage urine sediment (VB3), or semen
N/A	Category IV asymptomatic inflammatory prostatitis (AIP)	White blood cells (and/or bacteria) in expressed prostatic secretions, postprostatic massage urine sediment (VB3), semen, or histologic specimens of prostate gland

N/A, not applicable.

Prostatitis

- Acute Bacterial Prostatitis :
  - Rare
  - Acute pain
  - Storage and voiding urinary symptoms
  - Fever, chills, malaise, N/V
  - Perineal and suprapubic pain
  - Tender swollen hot prostate.
  - Rx : Abx and urinary drainage

Chronic Prostatitis/Chronic Pelvic Pain Syndrome

CATEGORY II
Chronic Bacterial Prostatitis

- Antimicrobials (4-12 weeks)
- Antimicrobials and Prostatic Massage
- Suppressive/Prophylactic Antimicrobials
- Surgery (last resort unless specific indication)

CATEGORY IIIA
Chronic Nonbacterial Prostatitis

- Antimicrobials (4 weeks)
- Prostatic Massage (+/- antimicrobials)
- Alpha blockers
- Anti-inflammatories
- Phytotherapy
- Finasteride or Pentosanpolysulfate
- Surgery (if indication)
- Microwave Heat Therapy (last resort)

CATEGORY IIIB
Prostatodynia

- Analgesics Anti-inflammatories and/or Muscle Relaxants -alpha blockers -diazepam/baclophen
- Physical Therapies -biofeedback -perineal/pelvic floor massage -trigger point release
- Surgery (if indication)
- Reassurance and Psychological Support

cystitis

- **S&S:**
  - **dysuria, frequency, urgency, voiding of small urine volumes,**
  - **Suprapubic /lower abdominal pain**
  - ± Hematuria
  - DX:
    - dip-stick
    - urinalysis
    - **Urine culture**

Table 14–10. TREATMENT REGIMENS FOR ACUTE CYSTITIS

Circumstances	Route	Drug	Dosage (mg)	Frequency per Dose	Duration (days)
Women					
Healthy	Oral	Ciprofloxacin	500	Every 12 hr	3
		Enoxacin	400	Every 12 hr	
		Levofloxacin	500	Every day	
		Lomefloxacin	400	Every day	
		TMP-SMX	160–800	Every 12 hr	
		TMP	100	Every 12 hr	
		Microcrystalline nitrofurantoin	100	Four times a day	
		Norfloxacin	400	Every 12 hr	
Symptoms for >7 days, recent urinary tract infection, age >65 yr, diabetes, diaphragm use		TMP–SMX	160–800	Every 12 hr	7
		or	As above	As above	
		Fluoroquinolone			
Pregnancy	Oral	Amoxicillin	250	Every 8 hr	7
		Cephalexin	500	Four times a day	
		Microcrystalline nitrofurantoin	100	Four times a day	
		TMP-SMX	160–800	Every 12 hr	
Men					
Healthy and <50 years old	Oral	TMP-SMX	160–800	Every 12 hr	7
		or			
		Fluoroquinolone	As above	As above	

TMP, trimethoprim; TMP-SMX, trimethoprim-sulfamethoxazole.

Modified from Stamm WE, Hooton TM: Management of urinary tract infections in adults. N Engl J Med 1993; 329: 1328–1334.

Pyelonephritis

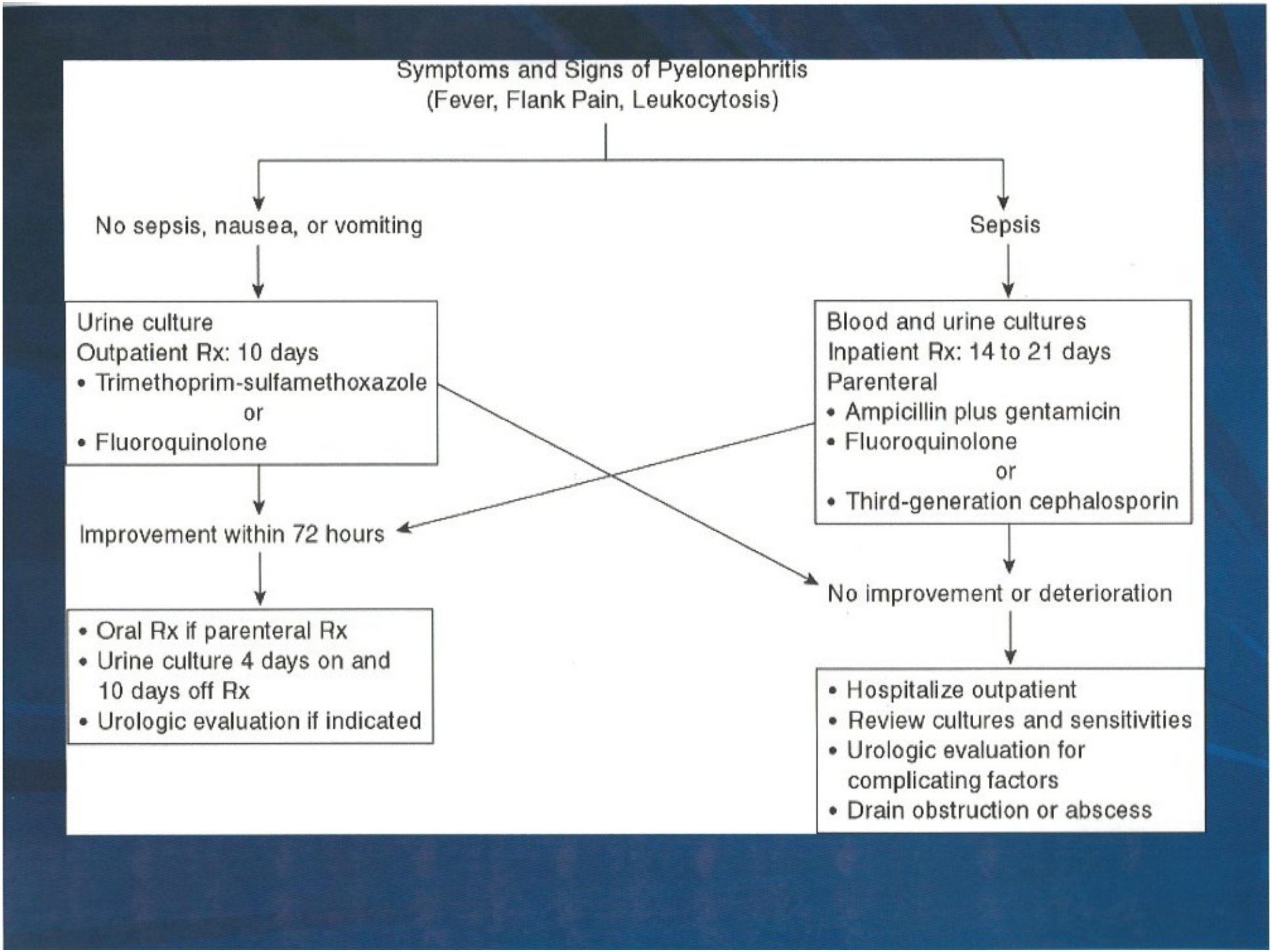
- Inflammation of the kidney and renal pelvis
- S&S :
  - Chills
  - Fever
  - Costovertebral angle tenderness (flank Pain)
  - GI:abdo pain, N/V, and diarrhea
  - Gr-ve sepsis
  - Dysuria, frequency

Pyelonephritis

- Investigation:
  - Urine C&S :+VE(80%)
    - ***Enterobacteriaceae* (*E. coli*), *Enterococcus***
  - Urinalysis:↑ WBCs, RBCs,Bacteria
  - (±) ↑serum Creatinine
  - CBC : Leukocytosis

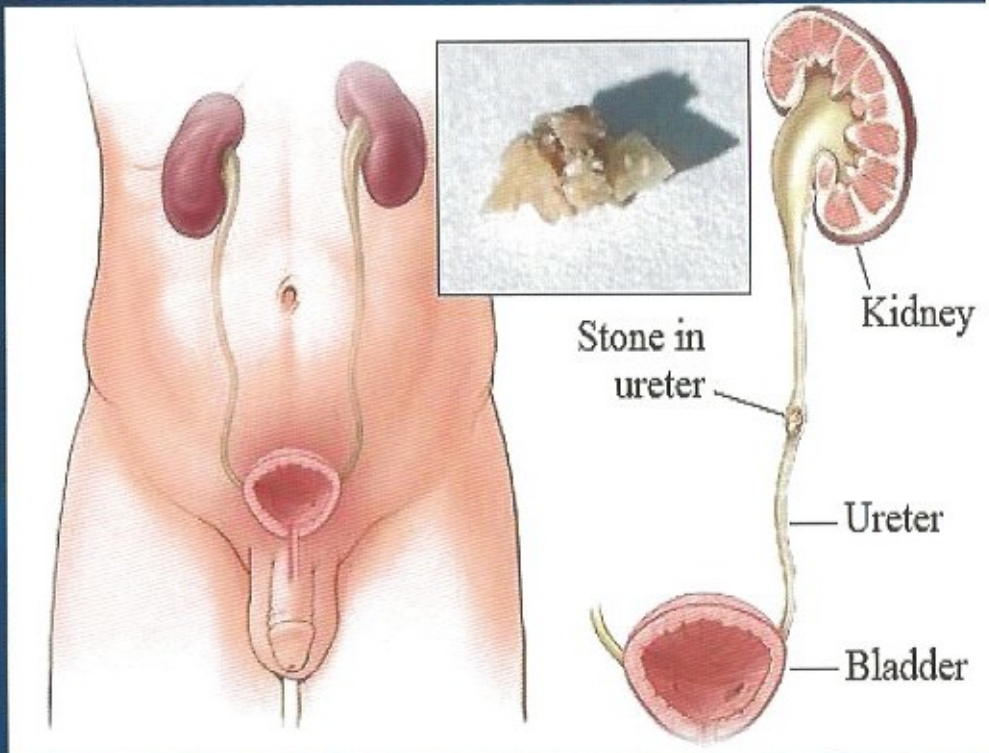
Pyelonephritis

- Imaging:
  - IVP
  - U/S
  - CT


Symptoms and Signs of Pyelonephritis
(Fever, Flank Pain, Leukocytosis)
No sepsis, nausea, or vomiting
Sepsis
Urine culture
Outpatient Rx: 10 days
• Trimethoprim-sulfamethoxazole
or
• Fluoroquinolone
Blood and urine cultures
Inpatient Rx: 14 to 21 days
Parenteral
• Ampicillin plus gentamicin
• Fluoroquinolone
or
• Third-generation cephalosporin
Improvement within 72 hours
No improvement or deterioration
• Oral Rx if parenteral Rx
• Urine culture 4 days on and 10 days off Rx
• Urologic evaluation if indicated
• Hospitalize outpatient
• Review cultures and sensitivities
• Urologic evaluation for complicating factors
• Drain obstruction or abscess

Urolithiasis

- Egyptian mummies 4800 BC
- Prevalence of 2% to 3%,
- Life time risk: Male : 20%, female 5-10%
- Recurrence rate 50% at 10 years



Urolithiasis

- Risk factors:
  - **Intrinsic Factors**
    - ***Genetics***
    - ***Age (20s-40s)***
    - ***Sex*** M>F

Urolithiasis

- **Extrinsic Factors**
  - *Geography* (mountainous, desert, tropics)
  - *Climate (July - October)*
  - *Water Intake*
  - *Diet* (purines , oxalates, Na)
  - *Occupation* (sedentary occupations)

Urolithiasis

- **How do stones form**
  - supersaturated→ Crystal Growth
  - Aggregation of crystals →stone

Urolithiasis

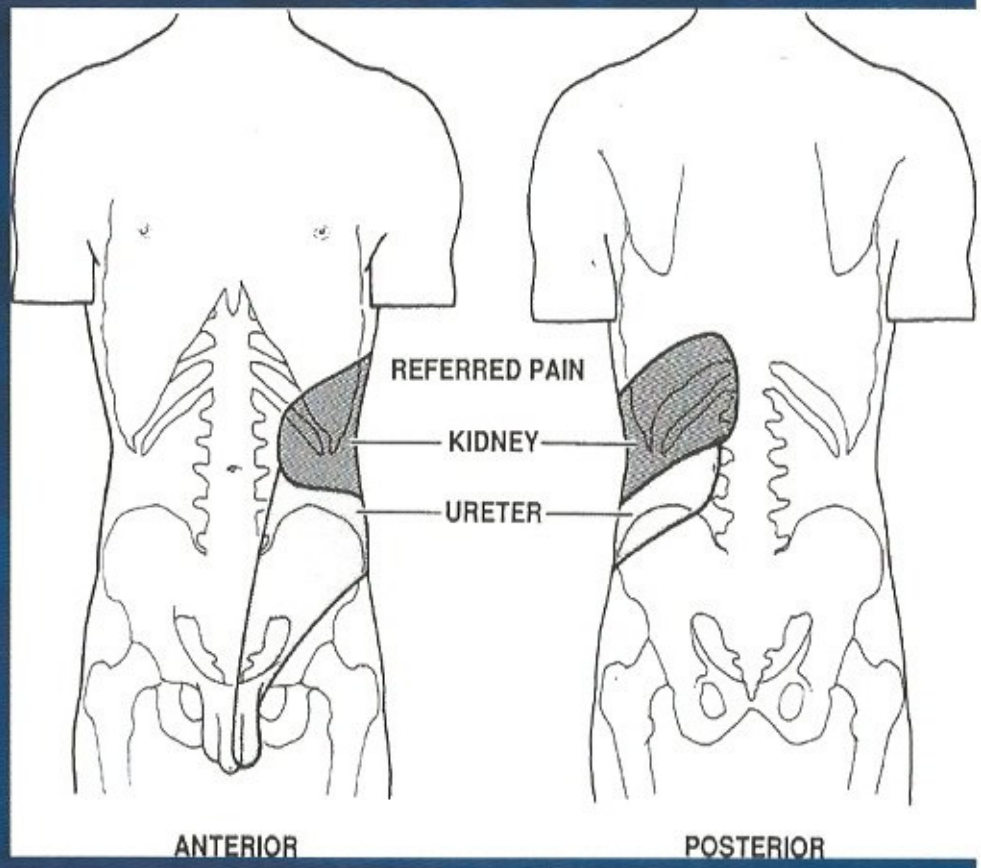
- **Most people have crystals in their urine, so why not everyone gets stones?**
  - Anatomic abnormalities
  - Modifiers of crystal formation: Inhibitors/promoters
    - Citrate
    - Mg,
    - urinary proteins(nephrocalcin)
    - oxalate

Urolithiasis

- Common stone types
  - Calcium stones 75%
    - (ca Ox)
  - Uric acid stones
  - Cystine stones
  - Struvite stones

Urolithiasis

- S&S
  - Renal or ureteric colic
  - Freq, dysuria
  - Hematuria
  - GI symptoms: N/V, ileus, or diarrhea
  - DDx :
    - Gastroenteritis
    - acute appendicitis
    - colitis
    - salpingitis

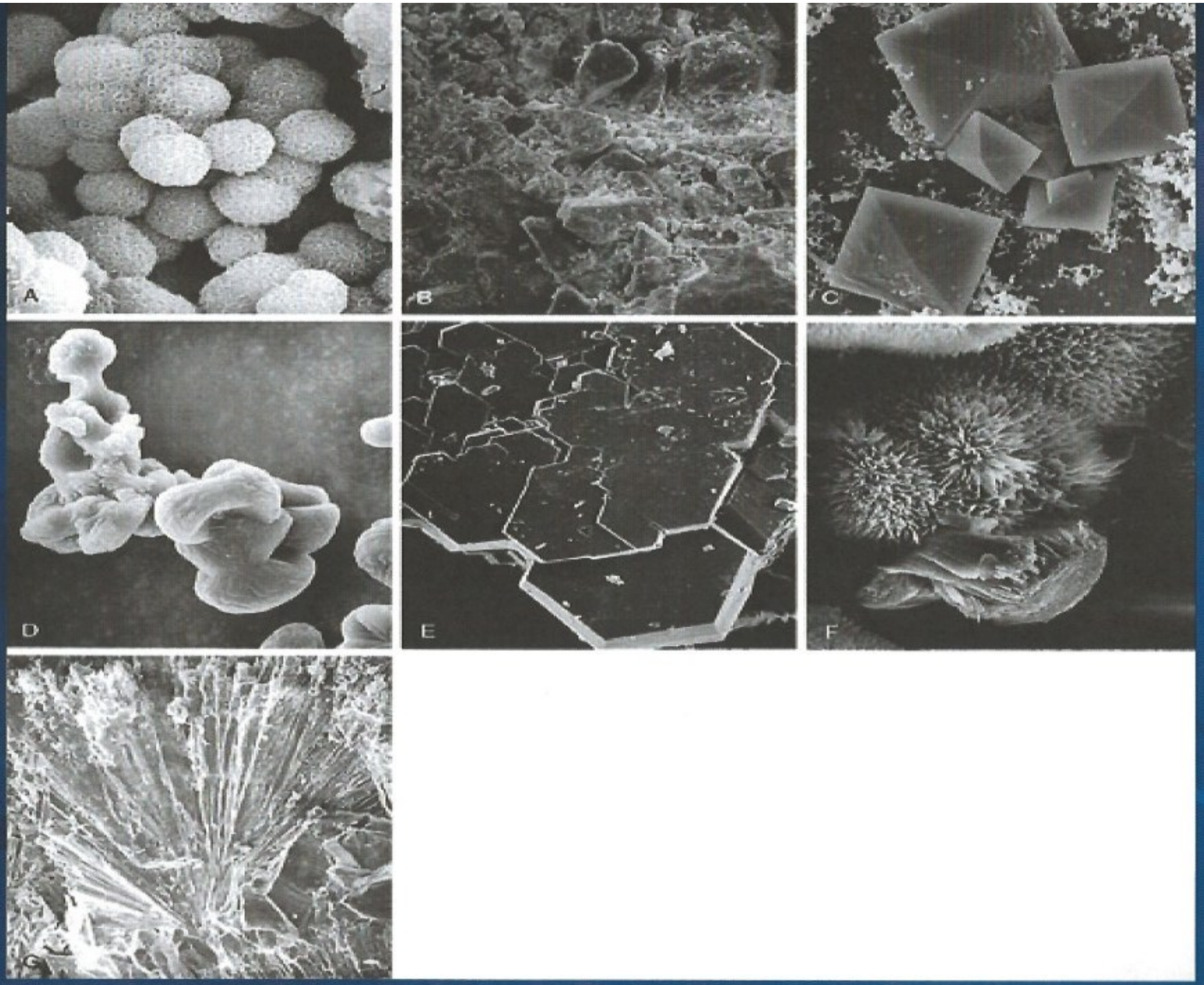


Urolithiasis

- Cont. S&S
  - Restless
    - ↑HR, ↑ BP
    - fever (If UTI)
    - Tender CVA

Urolithiasis Investigation

- ***Urinalysis*** :
  - RBC
  - WBC
  - Bacteria
  - Crystals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D
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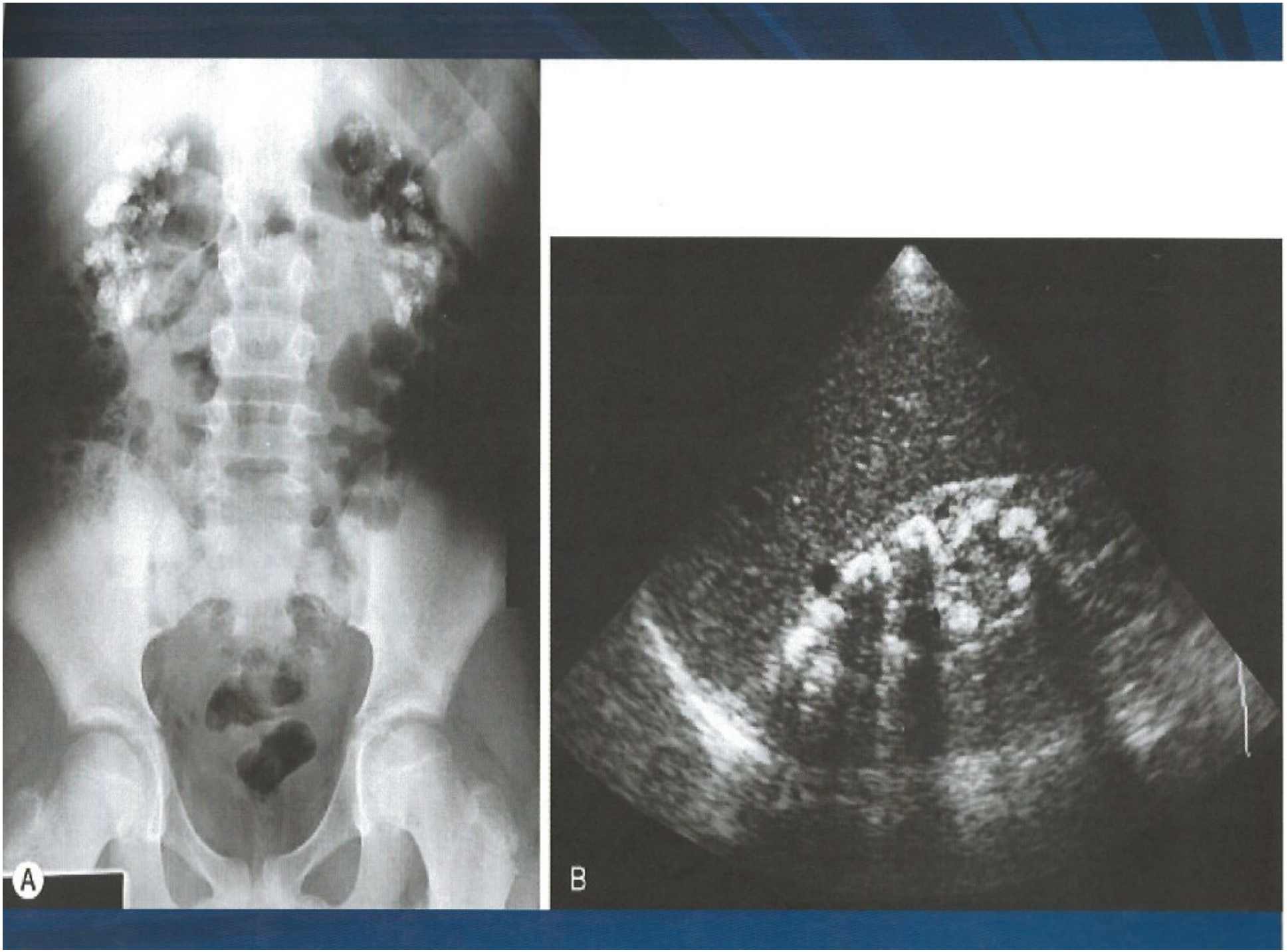
G

Urolithiasis Investigation

- Imaging
  - Plain Abdominal Films (KUB)
  - Intravenous Urography (IVP)
  - Ultrasonography (U/S)
  - Computed Tomography (CT)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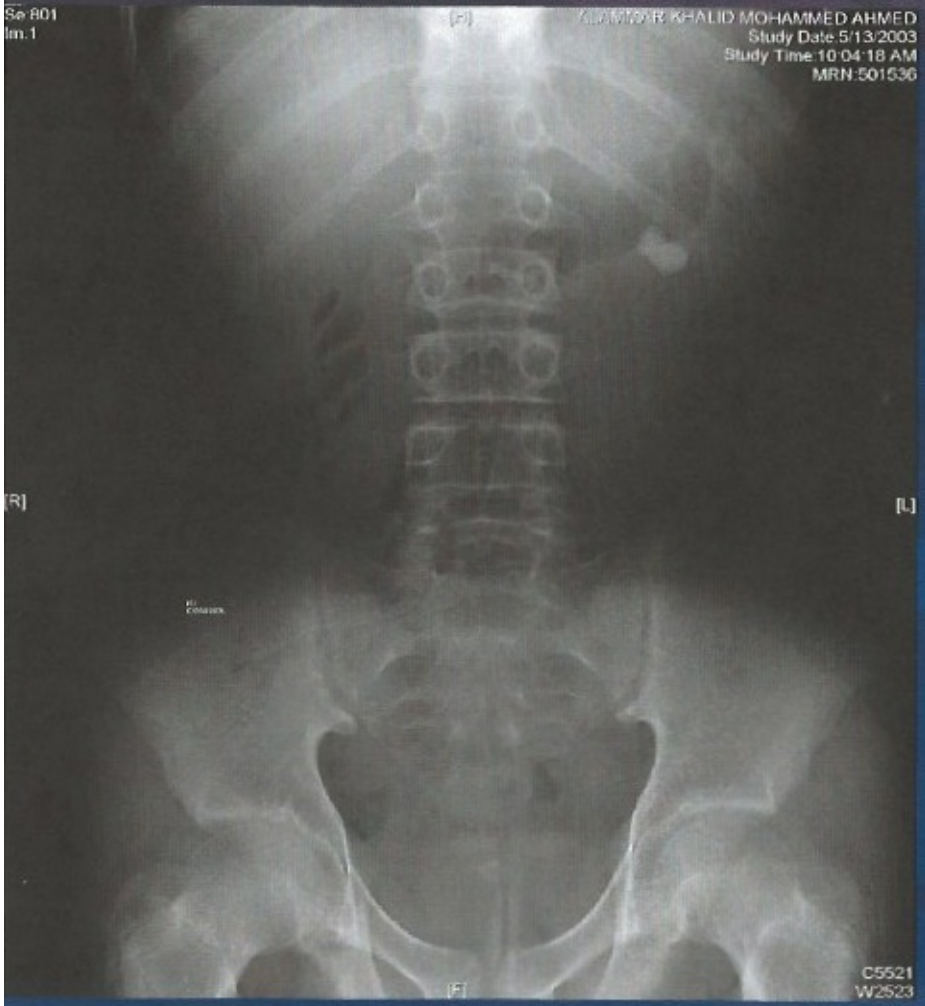
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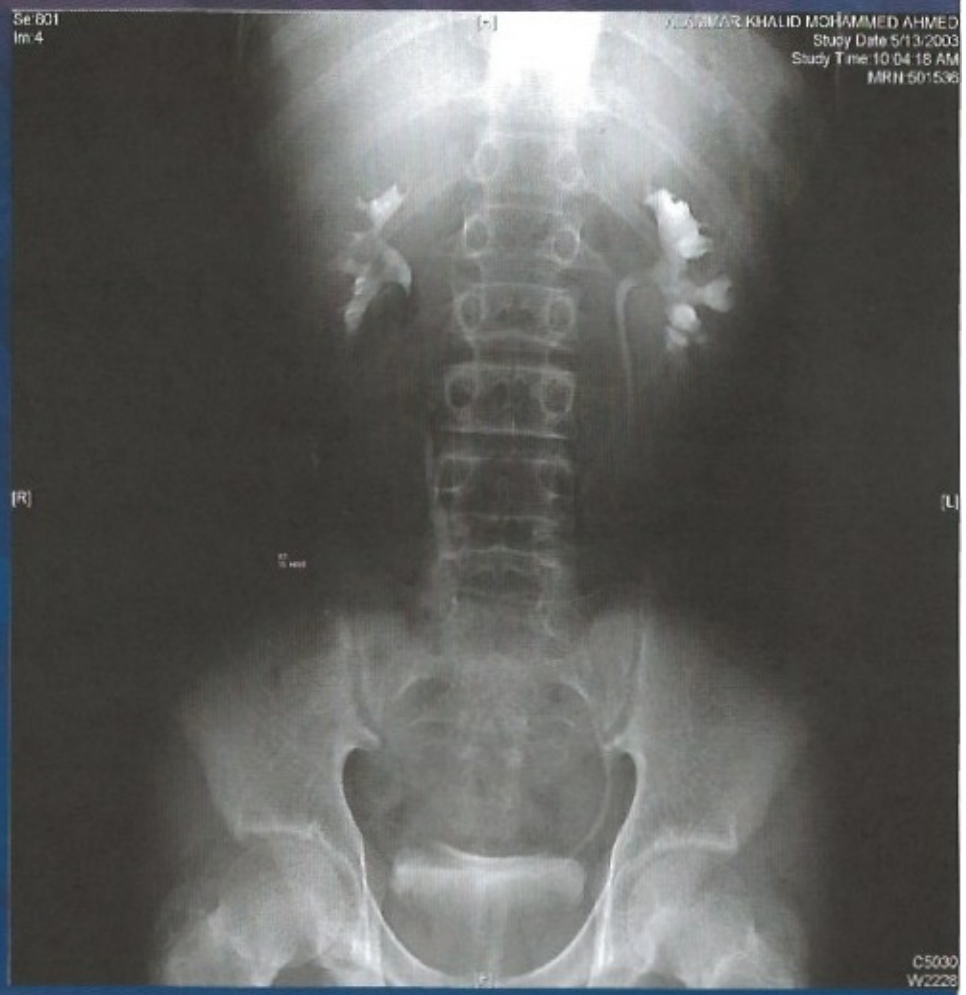
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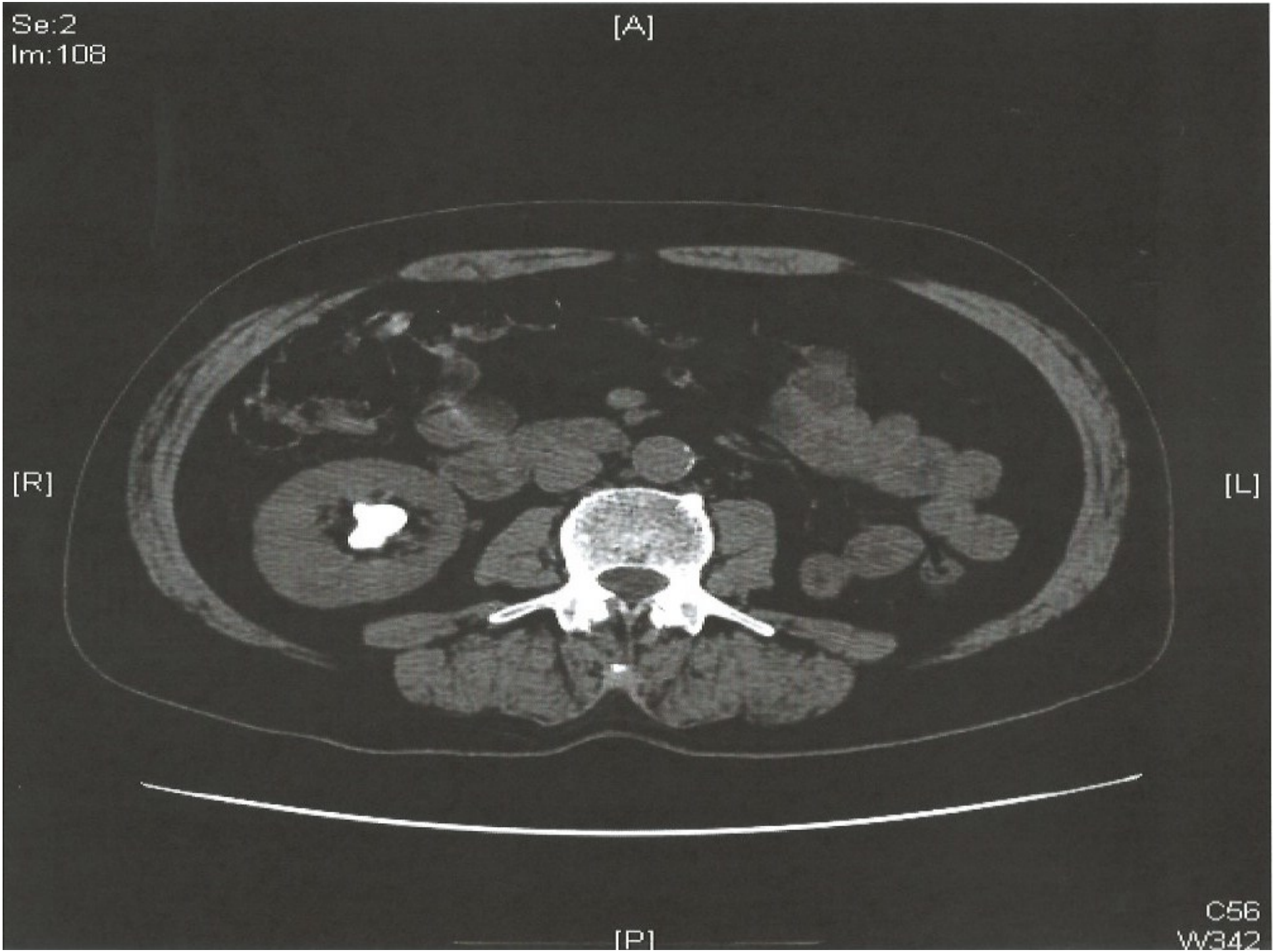
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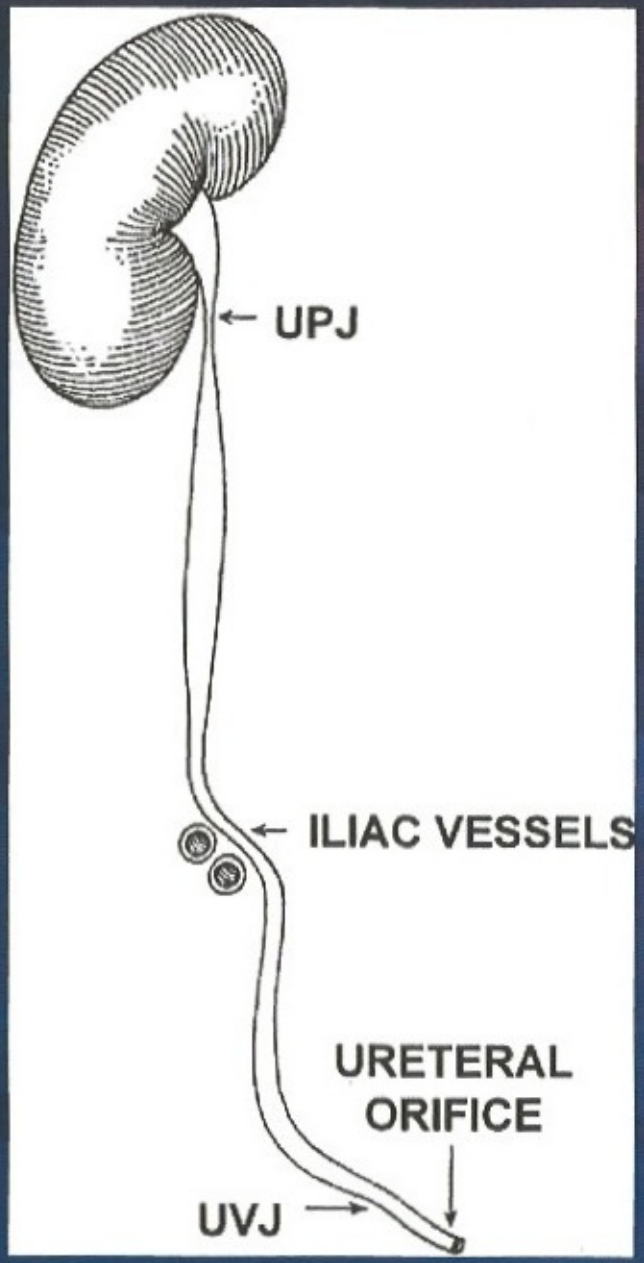

UPJ
ILIAC VESSELS
URETERAL
ORIFICE
UVJ

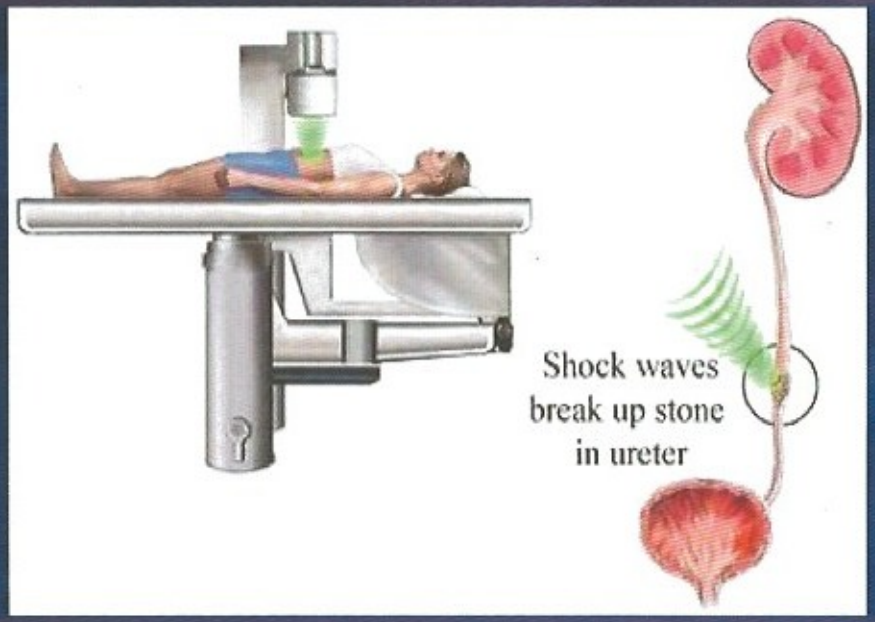
Urolithiasis Management

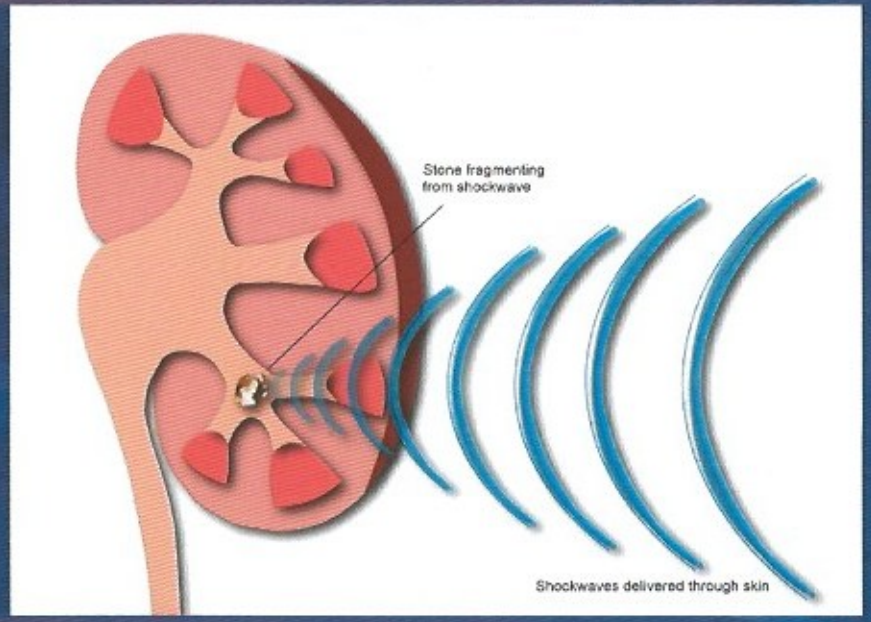
- Conservative
  - Hydration
  - Analgesia
  - Antiemetic
  - Stones (<5mm) >90% spontaneous Passage
- Indication for admission
  - Renal impairment
  - Refractory pain
  - Pyelonephritis
  - intractable N/V

Urolithiasis Management

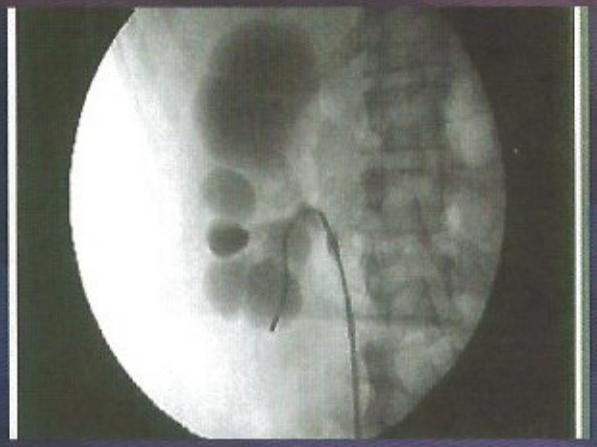
- Extracorporeal Shock Wave lithotripsy (SWL)
- Ureteroscopy
- Percutaneous Nephrolithotripsy (PNL)
- Open Sx

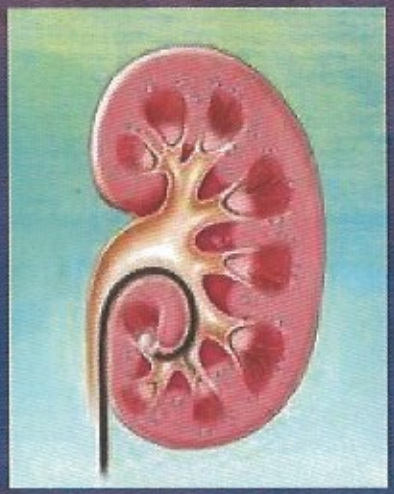
Extracorporeal Shock Wave lithotripsy (SWL)

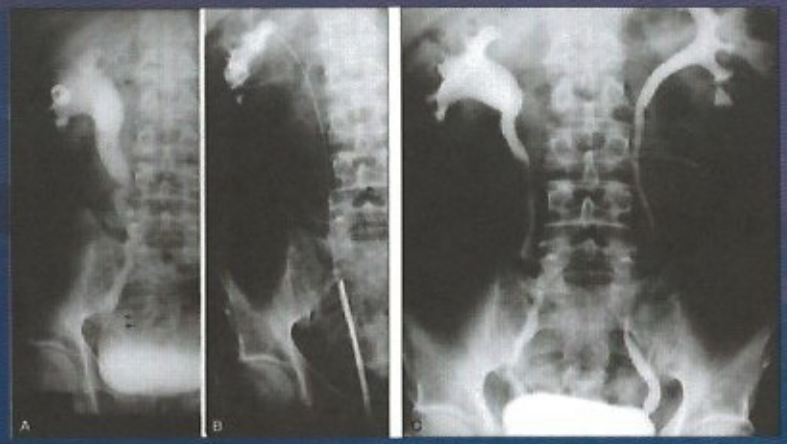


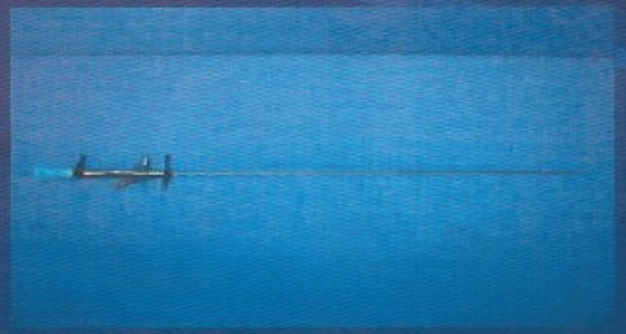


Ureteroscopy

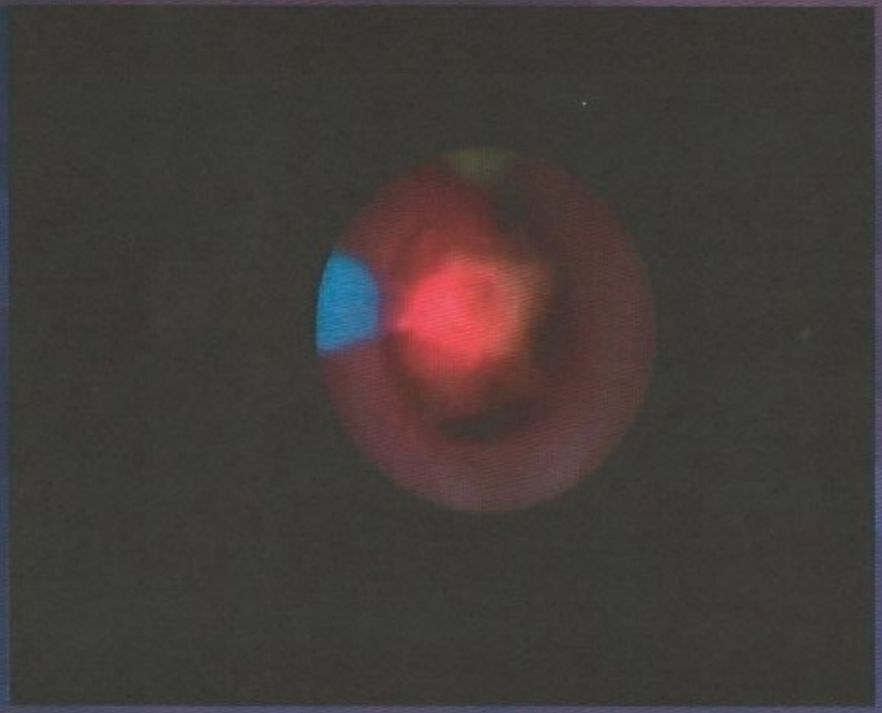


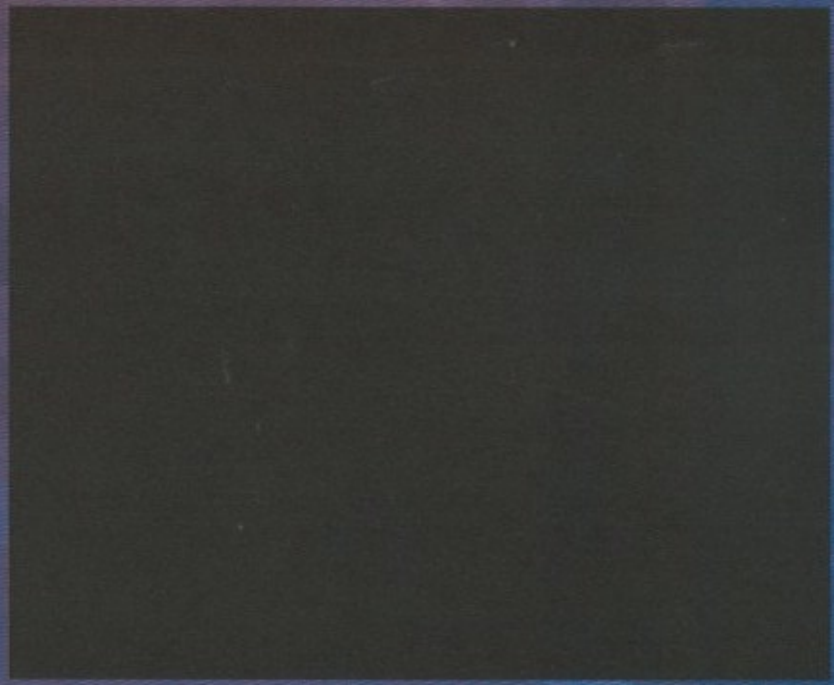




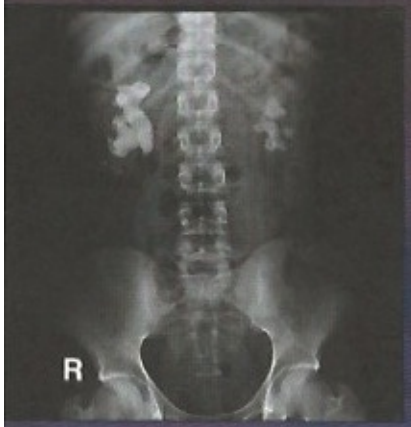


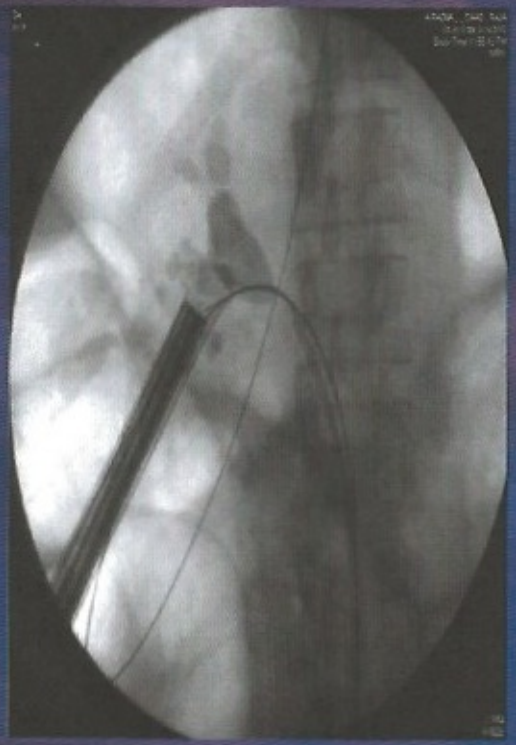
Ureteroscopy: Laser

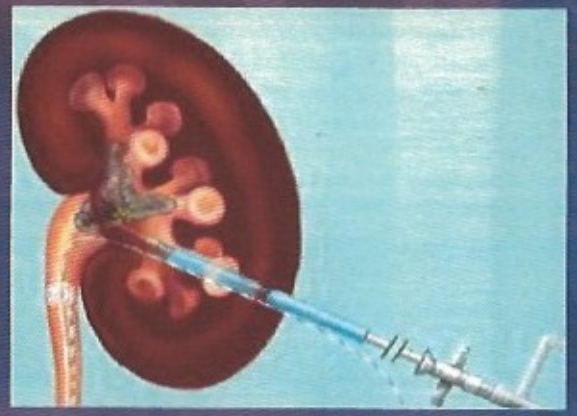


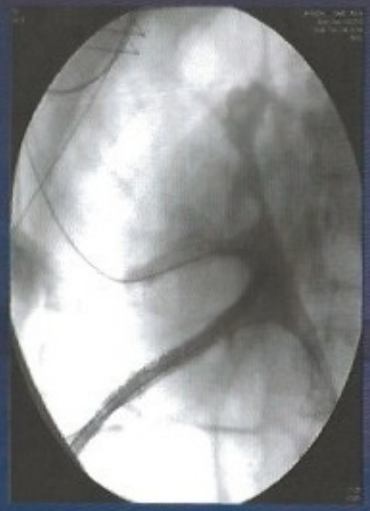


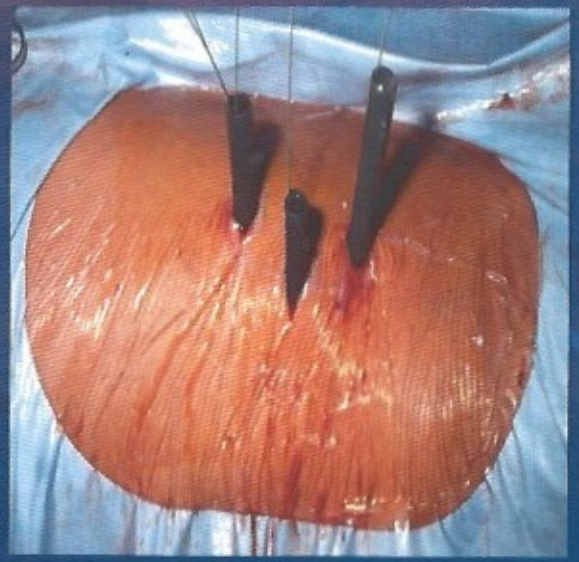
Percutaneous Nephrolithotripsy (PNL)



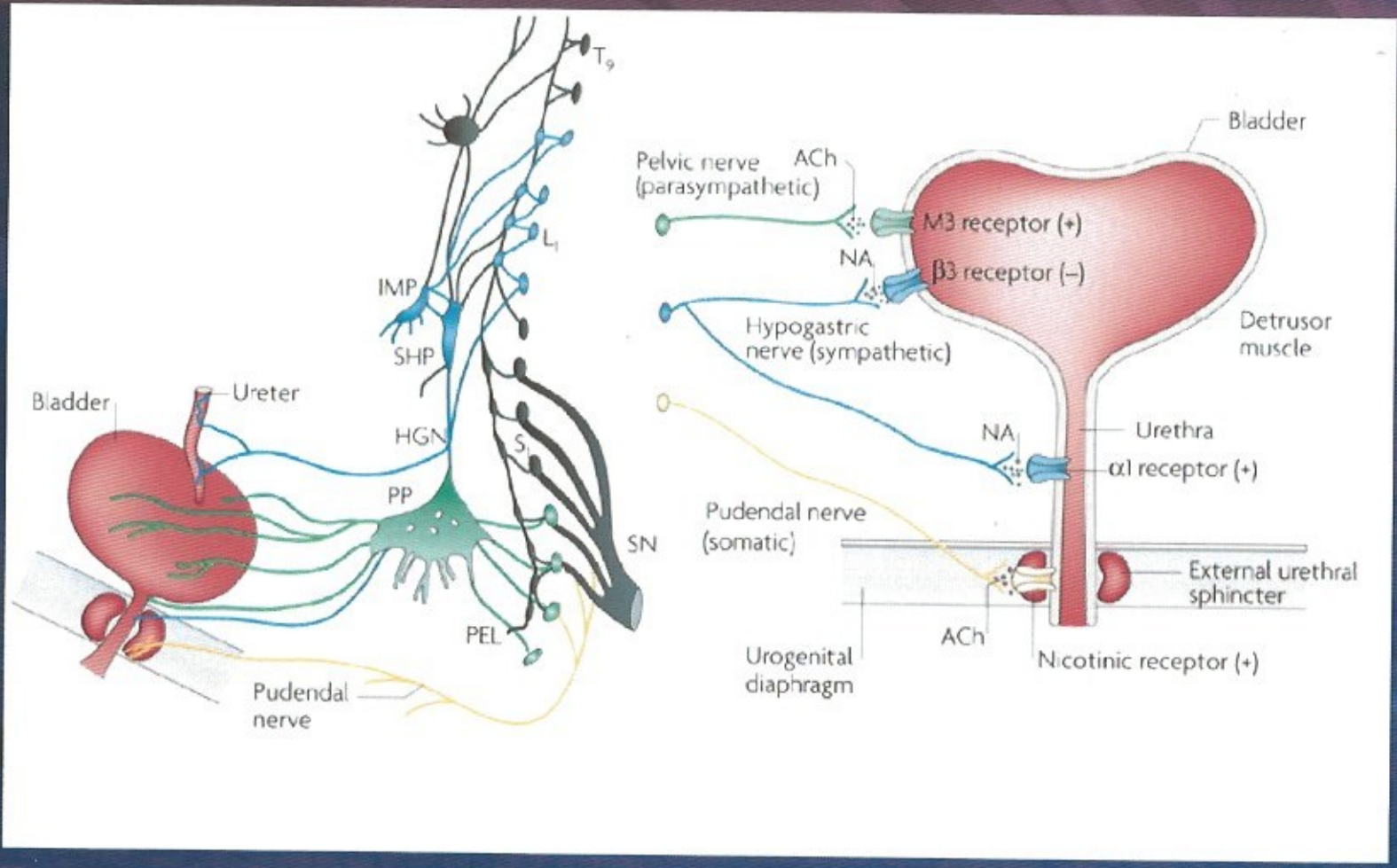








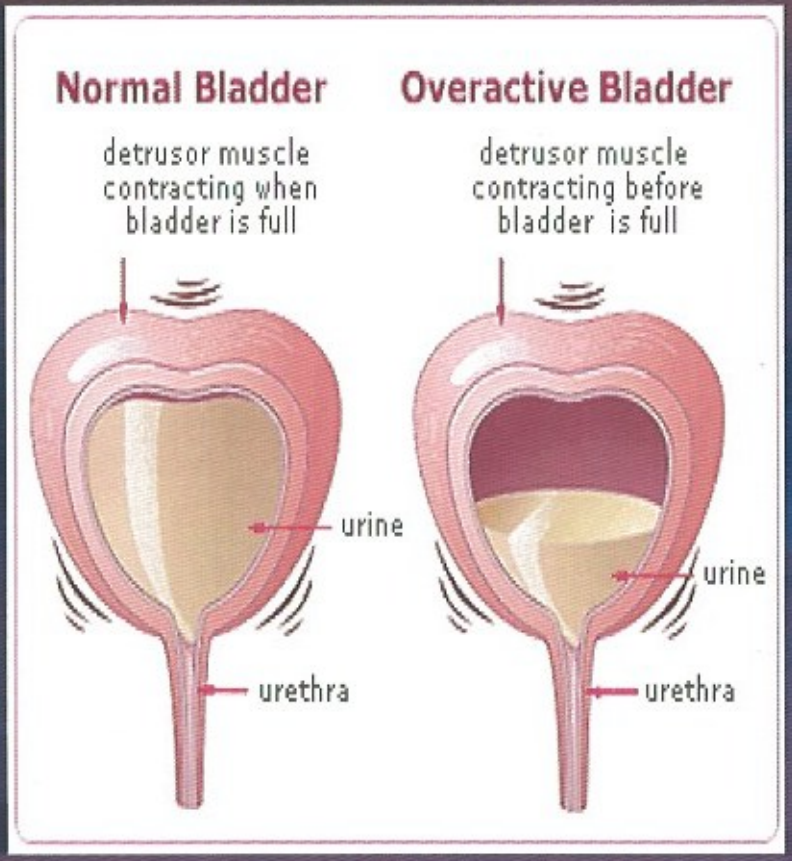
Voiding Dysfunction

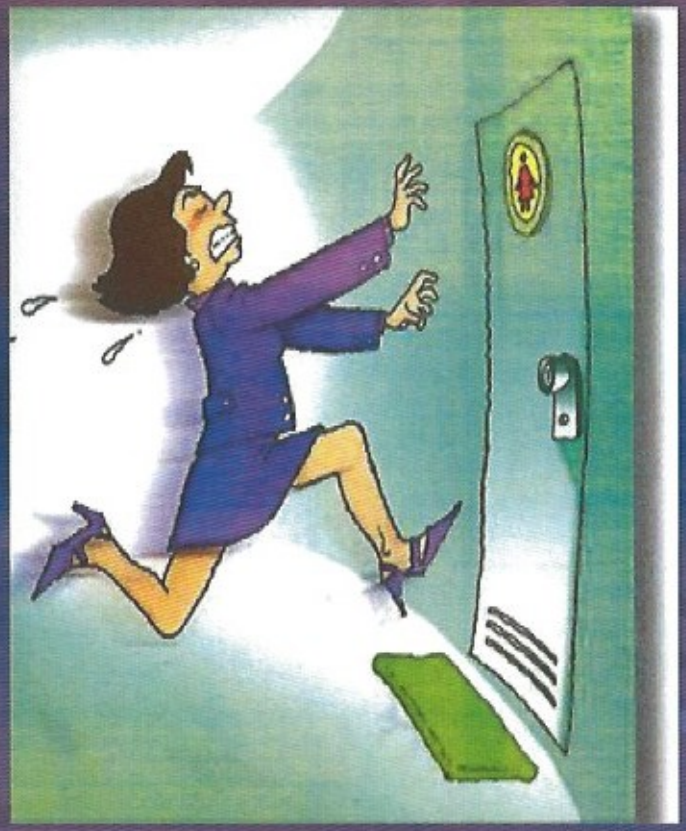


Voiding Dysfunction

- Failure to store
  - Bladder problems
    - overactivity
    - Hypersensitivity
  - Outlet problem
    - Stress incontinence
    - Sphincter deficiency
  - combination
- Failure to Empty
  - Bladder problems
    - Neurologic
    - Myogenic
    - idiopathic
  - Outlet problem
    - BPH
    - Urethral stricture
    - Sphincter dyssynergia
  - combination

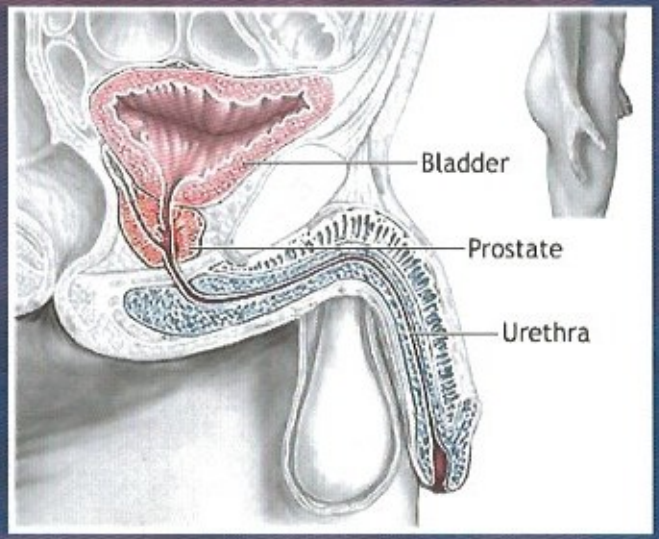
Over Active Bladder

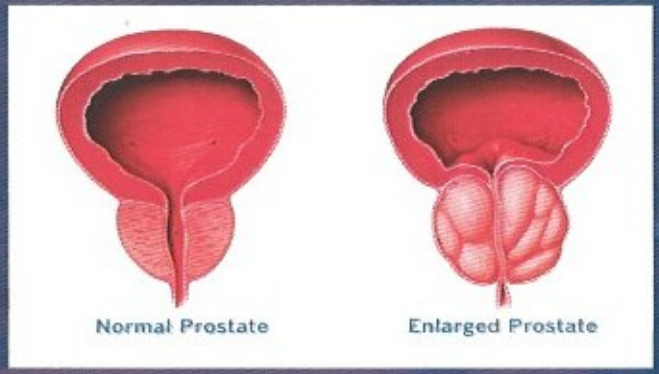




Benign Prostatic Hyperplasia BPH

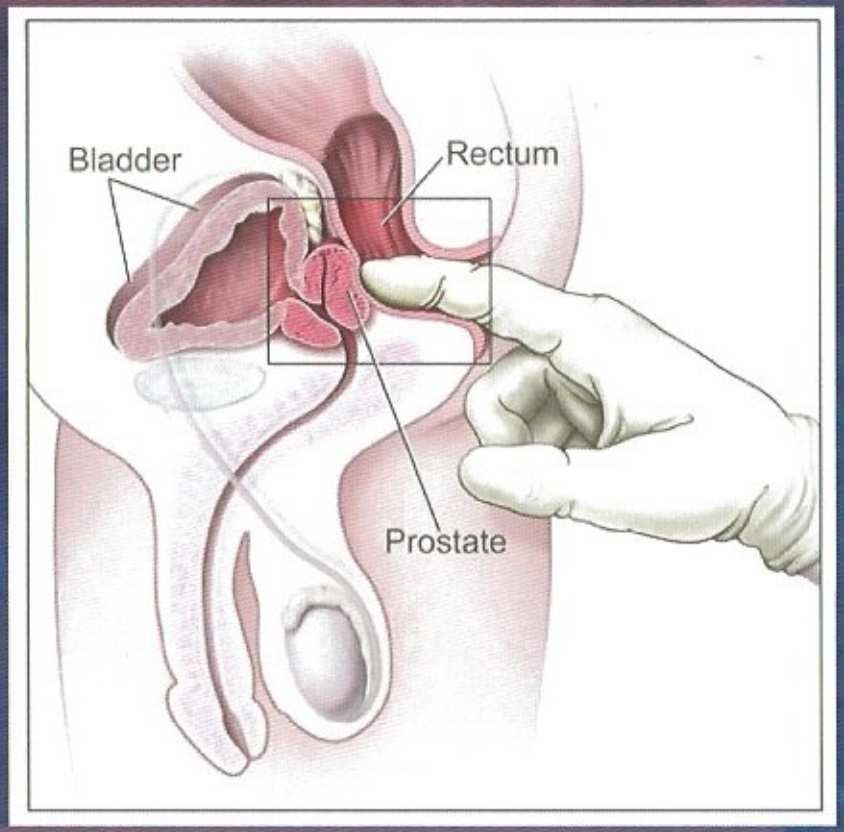
- Clinically:
  - LUTS
  - poor bladder emptying
  - urinary retention
  - urinary tract infection
  - Hematuria
  - Renal insufficiency





Benign Prostatic Hyperplasia

- Physical Examination
  - 1-DRE 2- Focused neurologic exam
    - Prostate Ca
    - rectal Ca
    - anal tone
    - neurologic problems
  - Abdomen: distended bladder



Benign Prostatic Hyperplasia

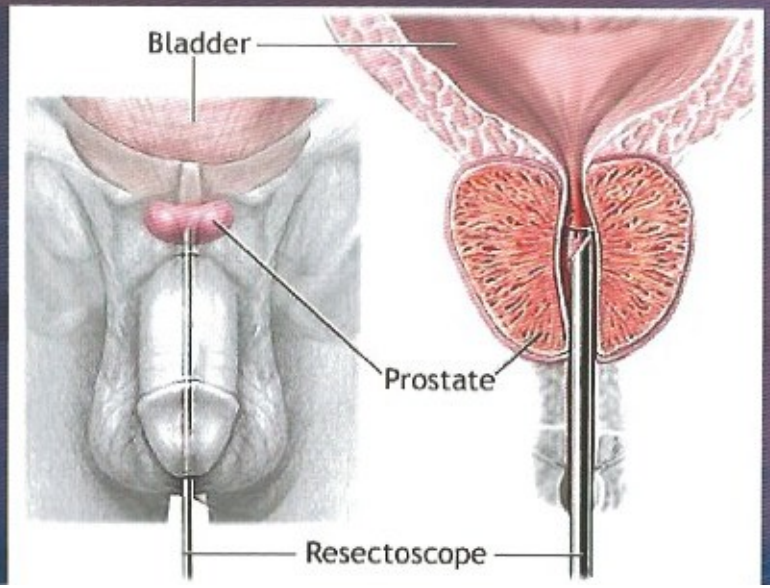
- Urinalysis , culture
  - UTI
  - Hematuria
- Serum Creatinine
- Serum Prostate-Specific Antigen
- Flow rate
- Ultrasound (Kidney, Bladder And Prostate)

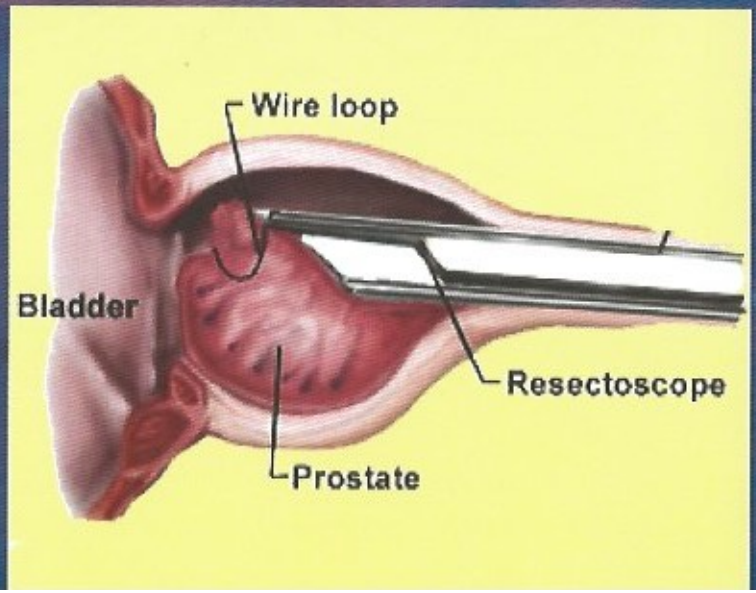
Benign Prostatic Hyperplasia

- Treatment options
  - medical therapy
    - α-Adrenergic Blockers
      - Tamsulocin
      - Alfuzocin
      - Terazocin
    - Androgen Suppression
      - Finasteride

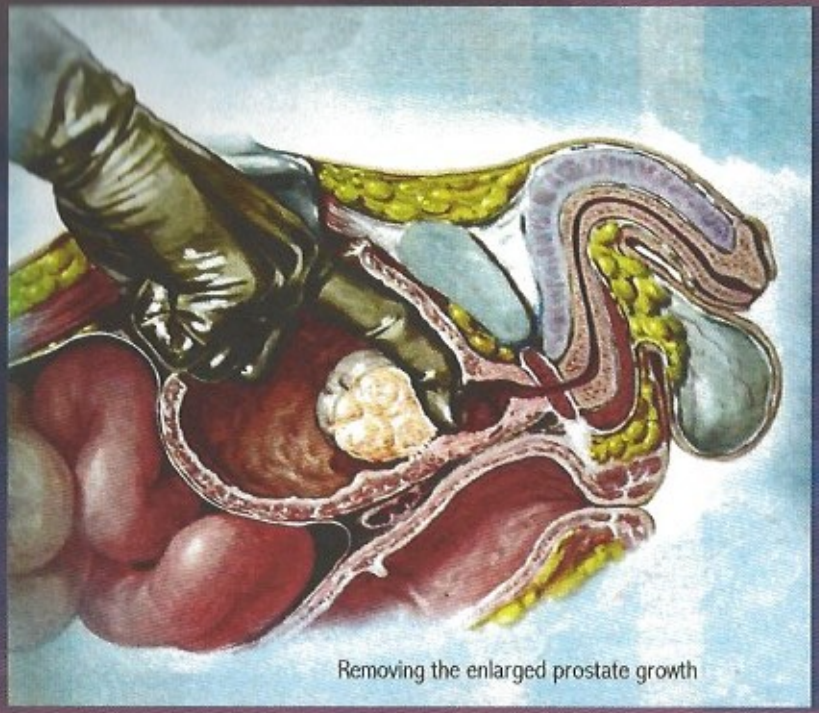
Benign Prostatic Hyperplasia

- Surgical Rx
  - Endoscopic
  - Transurethral Resection of the Prostate TURP
  - Laser ablation
  - prostatic stents





Open Prostatectomy



Removing the enlarged prostate growth