Urologic Disorders

Tuesday , 5 Nov , 2007

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Urologic Disorders

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

Urinary tract infections:

- ***Most common among females, including :***
  - Urethritis .
  - Epididymitis/orchitis .
  - Prostatitis .
  - Cystitis .
  - Acute Pyelonephritis .
  - Chronic Pyelonephritis .
  - Renal Abscess .

URETHRITIS

- ***Affecting mostly young males***
  - Sings &Symptoms:
    - Urethral discharge .
    - Burning on urination .
    - Asymptomatic especially on females .
  - Causative agents :
    - Gnococcal .
    - Nongnococcal ex: Chlamydia .

Gonococcal vs. Nongonococcal

Gonococcal	*Non Specific Urethritis*
In males urethral discharge .	**In males (- discharge & burning sensation) .**
Females cervical & vaginal discharge .	**Females asymptomatic .**
Treated with one injection of quinolol .	**Treated with one tablet of zethromax (1 gm) .**
Incubation period 3 – 10 days .	**Incubation period 1 – 5 weeks .**

- DX:
  - History & examination .
  - incubation period .
  - Urethral swab .
  - Serum: Chlamydia-specific ribosomal RNA .

Chlamydia culture is very painful!! .

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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

- ***Inflammation of epididymis occur mostly in children , usually acute .***
  - **Types :**
    - Acute : pain, swelling, of the epididymis <6wk
      This may associated with distal UTI (dysurea , burning & frequency)
    - chronic :long-standing pain in the epididymis and testicle, usu. no swelling.
  - DX
    - Clinical scenario (Epididymitis or Torsion)
    - History (ex. Sex contact or unprotected sex)
    - U/S
    - Testicular scan
    - Younger: *N. gonorrhoeae* or *C. trachomatis*
    - *Older* : *E. coli*

- **If we didn't treat the acute epididymitis, it will keep on coming & going .**
- **Chronic epididymitis less common than the acute.**

Epididymitis vs. Torsion

Epididymitis	*Torsion*
Pain which associated with hotness , swelling & redness .	**Suddenly in onset .**
Can't differentiate the site of the pain (testes or epididymis) .	**Decreased by lying down & increased with testes elevation .**
Cremastric reflex is present .	**Absence of the cremastric reflex .**
We can't feel the testes or the epididymis cause of the pain .	**We can feel them .**

To differentiate between epididymitis & torsion look for the blood flow in testes using US or testicular scan.

In Torsion: Loss of the spermatogenesis occur after 3 hours wail loss of the blood supply occur after 8 hours.

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 , <u>including:</u>**
  - Dysuria, frequency .
  - Dysfunctional voiding .
  - Perineal pain .
  - Painful ejaculation .
  - Un comfortable
  - Prostatits can be sub acute , acute or chronic , bacterial or non bacterial .
  - Sub acute is the most common .

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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.

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

- **Patient with prostatits may develop uroabsess & may die from septic shock so that catheter is recommended in this condition .**

- ***most patients have chronic prostatitis***
- ***To treat prostatitis you should give the patient antibiotics for 1 – 2 months, some time with muscle relaxant or α blocker to open the bladder neck so easy empty.***

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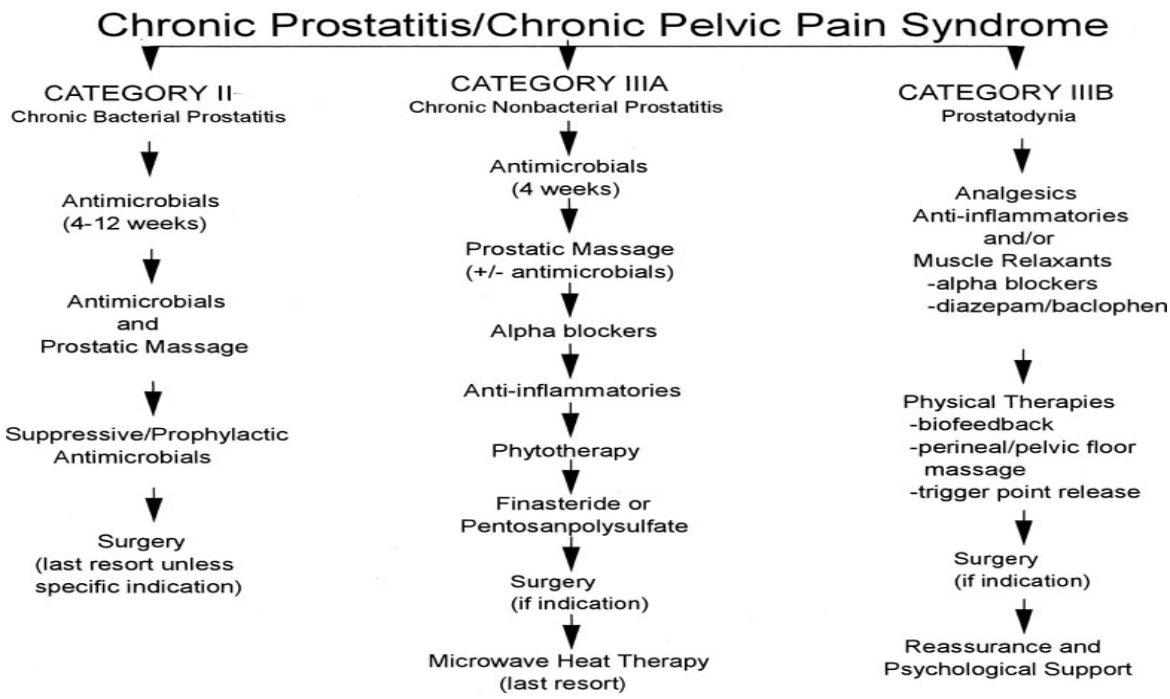


Cystitis

- Sings &Symptoms:
  - Dysuria, frequency, urgency, voiding of small urine volumes .
  - Suprapubic /lower abdominal pain .
  - ± Hematuria .
- DX:
  - History .
  - Dip-stick .
  - Urinalysis .
  - Urine culture it take 2 – 3 days .

> ***Dip – stick:* is a biochemical smart stick detect blood cells, hematuria [WBC, exudates pus cells ...]& nitrates .**

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. Copyright 1993 Massachusetts Medical Society. All rights reserved.

- ***E.coli is the most common organism in KSU .***
- ***UTI most common among females in ascending part .***
- ***Females have short urethra, so they get the infections more than males.***
- ***Patients with cystitis no need for long duration Rx with antibiotics 2-3 days .***

- ***Patients especially Females can get dysuria & freq. for a week then fever. Chills & hypotension will appear cause the infected urine with pus cells will return to kidneys .***

Pyelonephritis

- Clinical syndrome .
  - Inflammation of the kidney and renal pelvis .
- Sings &Symptoms:
  - Chills .
  - Fever .
  - Costovertebral angle tenderness (flank Pain) .
  - Can by associated with GI symptoms: abdo pain, Nausea/Vomiting, and diarrhea .
  - Gr-ve sepsis-mild flank pain (high mortality rate up to 20 % specially in elderly).
  - Dysuria, frequency .

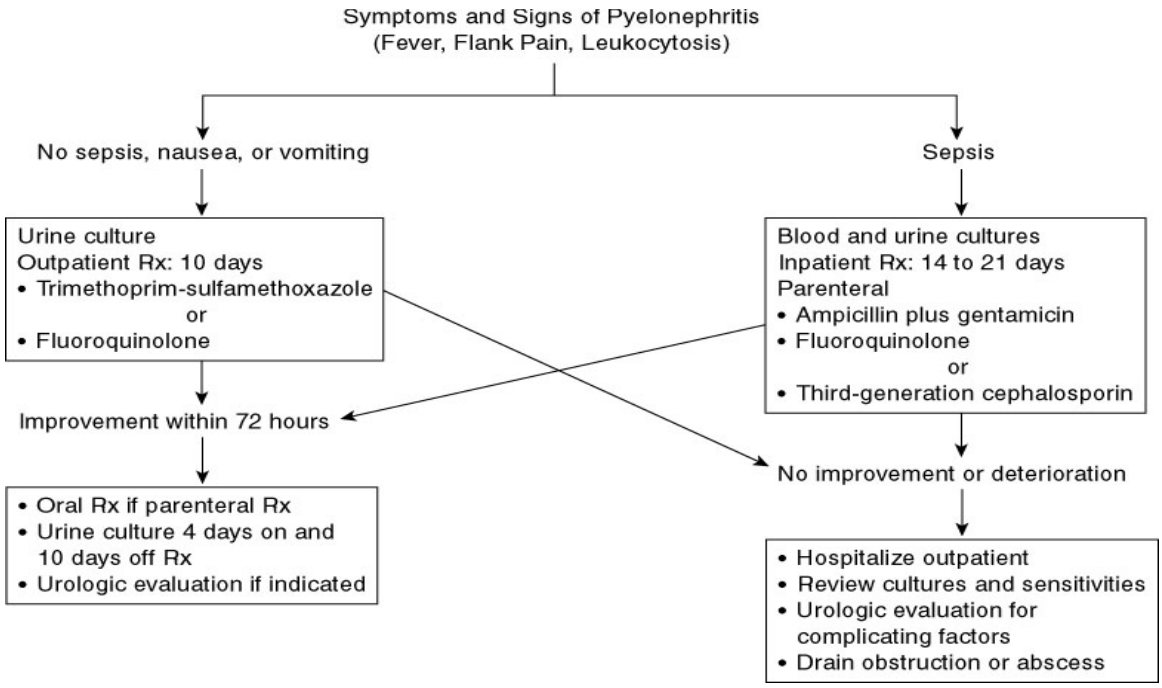
- Investigation:
  - Urine C&S: +VE (80%) .
  - *Enterobacteriaceae* (*E. coli), Enterococcus* .
  - Urinalysis: ↑ WBCs, RBCs, Bacteria .
  - (±) ↑serum Creatinine .
  - CBC: Leukocytosis .
  - Imaging: -- hydronephrosis
    - IVP
    - U/S
    - CT

Keep this note in your mind please:

- ***In investigation usually start with urine , blood , imaging than others .***

- ***Shouldn't admit the patients with pyelo unless they have GI symptoms (nausea & vomiting).***
- ***All pylo caused by obstruction, also UTI can cause it (UTI – Kidney – inflammation).***

- ***Pyelonephritis may associated with ureter obstruction by renal papilla , stone or stricture especially in DM leading to renal failure & consequently creatinine level will increased so catheter is recommended & relive the obstruction as soon as you can .***



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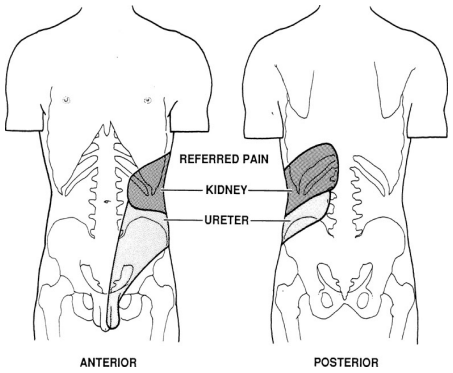
Urolithiasis

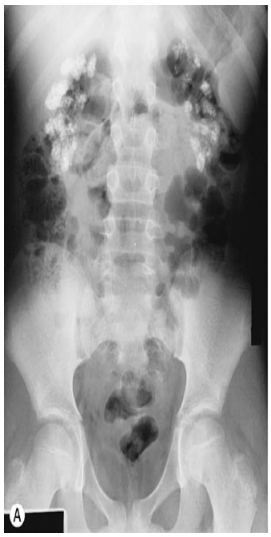
- Egyptian mummies 4800 BC .
- Prevalence of 2% to 3% .
- Life time risk: Male: 20%, female 5-10% .
- Recurrence rate 50% at 10 years .
- Risk factors:
  - Intrinsic Factors :
    - ✓ *Genetics* .
    - ✓ *Age (2Os-4Os).*
    - ✓ *Sex* M>F .
  - Extrinsic Factors :
    - ✓ *Geography* (mountainous, desert, tropics)
    - ✓ *Climate (July - October).*
    - ✓ *Water Intake* .
    - ✓ *Diet* (purines, oxalates, Na .
    - ✓ *Occupation* (sedentary occupations).
- How do stones form ?
  - Supersaturated→ Crystal Growth .
  - Aggregation of crystals →stone .
- Most people have crystals in their urine, so why not everyone gets stones?
  - ✓ Anatomic abnormalities (obstruction, urethral stricture , reflex ..) .
  - ✓ Modifiers of crystal formation: Inhibitors/promoters:
    - Citrate .
    - Mg .
    - Urinary proteins (nephrocalcin) .
    - Oxalate .
- Common stone types :
  - Calcium stones 75% .
  - (ca Ox) .
  - Uric acid stones .
  - Cystine stones .
  - Struvite stones (infection stones by urea splitting organism ex. Proteus or MgNH4 stones) .
- Sings &Symptoms:
  - Renal or ureteric colic (flank pain radiated to the LRQ) .
  - Freq, dysuria .
  - Hematuria .
  - GI symptoms: N/V, ileus, or diarrhea .
- Dx:
  - Gastroenteritis .
  - Acute appendicitis .
  - Colitis .
  - Salpingitis .

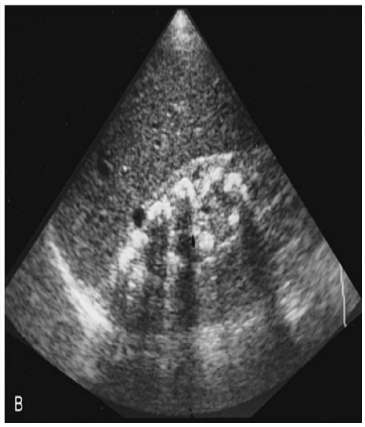
> ***We may confuse b\t this pain & cycal pain (ovulation) or appendicitis .***
> ***Vomiting usually one or two times & not bad as appendicitis.***

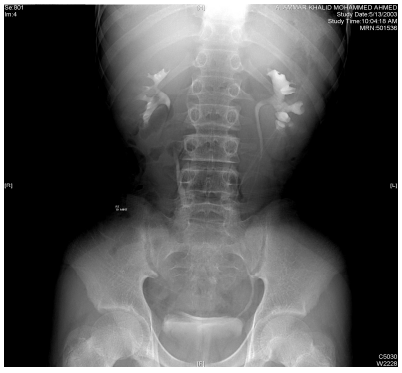
- Restless
  - ↑HR, ↑ BP .
  - fever (If UTI) .
  - Tender CVA .
- Investigation :
  - *Urinalysis*:
    - ✓ RBC .
    - ✓ WBC .
    - ✓ Bacteria .
    - ✓ Crystals .
  - Imaging
    - ✓ Plain Abdominal Films (KUB) .
    - ✓ Intravenous Urogram (IVP) .
    - ✓ Ultrasonography (U/S) .
    - ✓ Computed Tomography (CT) .

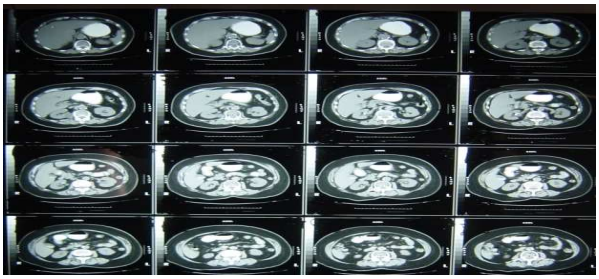


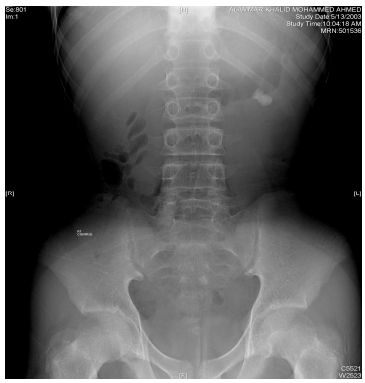
- ***In KUB:***
  - ***Radiolucent stones appear whit ex. Uric acid stone .***
  - ***Radio opaque – can be small & on bony prominence***
  - ***So , Nothing will appear in 75%***











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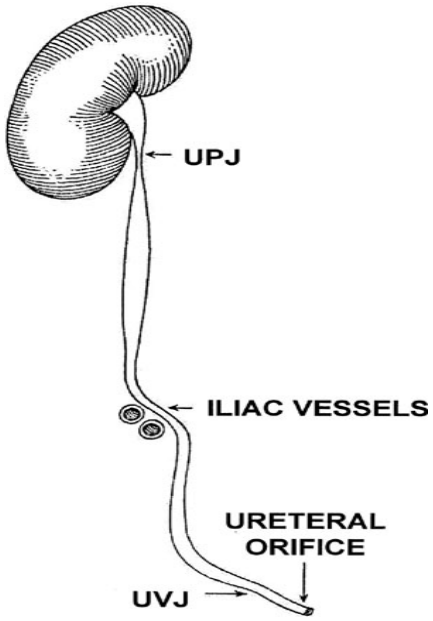
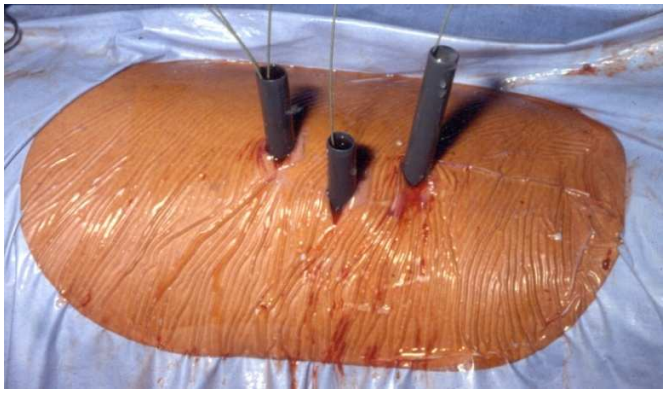
- ***CT in acute renal colic is superior to US & IVP .***
- ***<u>NOT</u> all stones cause obstruction .***



- Management :
  - Conservative :
    - ✓ Hydration .
    - ✓ Analgesia .
    - ✓ Antiemetic .
    - ✓ Stones (<5mm) >90% spontaneous Passage.
  - Indication for admission .
    - Renal impairment .
    - Refractory pain .
    - Pyelonephritis .
    - Intractable N/V .
    - Fever .
- Rx options:
  - Shock Wave lithotripsy (SWL) [send electro – magnetic energy] .
    - ✓ Non invasive .
    - ✓ Energy – decrease renal function .
  - Ureteroscopy
    - Break stones by laser .
  - Percutaneous Nephrolithotripsy (PNL) .
  - Open Sx .



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Voiding Dysfunction

- ***Failure to store***
  - **Bladder problems :**
    - **Over activity .**
    - **Hypersensitivity .**
  - **Outlet problem :**
    - **Stress incontinence .**
    - **Sphincter deficiency .**
  - **Combination .**

- ***Failure to Empty***
  - **Bladder problems :**
    - **Neurologic .**
    - **Myogenic .**
    - **Idiopathic .**
  - **Outlet problem :**
    - **BPH .**
    - **Urethral stricture .**
    - **Sphincter dyssynergia .**
  - **Combination .**

Benign Prostatic Hyperplasia

- Clinically:
  - LUTS (Irritative/Obstructive) .
  - Poor bladder emptying .
  - Urinary retention .
  - Urinary tract infection .
  - Hematuria .
  - Renal insufficiency .
- Physical Examination :
  - 1-DRE .
  - 2- Focused neurologic exam :
    - ✓ Prostate Ca .
    - ✓ Rectal Ca .
    - ✓ Anal tone .
    - ✓ Neurologic problems .
  - Abdomen: distended bladder .
- Urinalysis, culture :
  - UTI .
  - Hematuria .
- Serum Creatinine .
- Serum Prostate-Specific Antigen .
- Flow rate .
- U/s .

- Treatment options :
  - Medical therapy :
    - ✓ α-Adrenergic Blockers :
      - Tamsulocin .
      - Alfuzocin .
      - *Terazocin .*
    - ✓ Androgen Suppression
      - *Finasteride .*
  - Surgical Rx :
    - ✓ Endoscopic (e.g. TURP, laser ablation) .
    - ✓ Open SX .

- ***When Patient came with flank pain, hypotension & fever we should be shore that he breath well & we must connect him into IV line, then start the investigations (urine, blood, renal functions ...) .***
- ***Don't give contrast to patient with renal failure .***
- ***CT can show us the high grade obstructions .***
- ***US can show us hydronephrosis .***
- ***CT can show the entire length of ureter while US show us kidneys & can't show where obstruction takes place.***
- ***It is useful to use IVP alone rather than use it with contrast.***