UOROLGY minor summary

Index:

- **Definitions and LUTS ……**
- **Uorolithiasis……**
- **UTIs ……**
- **Urinary tract obstruction……**
- **Scrotal pain ……**
- **BPH ……**
- **Prostate ca ……**
- **Bladder ca ……**
- **Renal trauma ……**
- **Instrumentation ……**
- **Questions ……**

- **These notes are based on doctors discussion, the RCC and testicular cancer you can see the surgical recall /urology section (no more notes added).**
- **I hope to this summary be a useful reference for you in the minor, Best of luck.**
- **<u>Done with love by : Tayma'a Nawasrah.</u>**

- **<u>When you are reading any topic take the most important hint from History, physical examination, the most beneficial lab test and the best imaging (for the dz and its complications), and the management accurately.</u>**

➢ DEFEINETIONS :

➢ **LUTS :** include the first 10 symptoms mentioned in the following table , these ss are classified into 2 groups (Storage and voiding symptoms). They are usually associated with bladder, prostate or urethral problems, e.g. lower urinary tract infection, tumors, urinary stones or obstruction from prostatic enlargement, or are a consequence of neurological disease.

Definition	**Related cause**
1. Frequency**: micturation more often with no increase in total urine output.**	Storage/ Irritative LUTS (will be discussed later).irritative
2. Nocturia: **waking more than twice at night to void.**	Irritative LUTS
3. Dysuria: **painful, burning sensation, discomfort when voiding .**	Irritative LUTS, UTIs
4. Urgency: **sudden strong need to pass urine.**	Irritative LUTS,
5. Incontinence : **involuntary pass of urine.**	Irritative LUTS, see the types on surgical recall
6. Hesitancy**: difficulty or delay in initiating urine flow .**	Voiding /Obstructive LUTS
7. Poor streaming : **problems with starting or keeping steady urine stream.**	Obstructive LUTS
8. Drippling: **urine passes in small amounts after voiding.**	Obstructive LUTS
9. Intermittency: **a urinary stream that is not continuous.**	Obstructive LUTS
10. Straining: **pushing out to begin or continue urination**	Obstructive LUTS
11. Incomplete emptying **: need to void again after minutes he voided.**	Obstructive LUTS
12. Anuria **: total absence of urine production**	UT obstruction
13. Oliguria**: reduction in urine volume to less than 800 ml.**	Low fluid intake or impaired renal function
14. Polyuria**: abnormally large volume of urine .**	Problems with urine concentration like DM
15. Protienuria **: excess protein in urine**	Renal disease like GNs

16. **Hematuria** : RBCs in urine (3 or more RBCs /HPF) ,can be gross(seen) or microscopic , arising from any part of urinary tract , it indicates a lot of diseases , see the table below.

Painful hematuria	**Painless hematuria**
Stones ,UTIs ,Trauma	- **Local** causes : Tumors (most important is bladder ca ,RCC, prostatic ca), GNs - Note : **Bladder cancer** patient come complaining mainly from **Painless Gross Intermittent Hematuria**
You have to be sure if it's a hematuria or changed urine color like a patient uses	- **Systemic** causes : SLE, Paget's disease, anticoagulants " Warfarin toxicity"

Rifampcin , so ask about
(drugs used) in HX

- **UORLITHIASIS** is the development of stones anywhere in the UT esp in kidney ,its very common (1 in every 10 has stone), stones developed by hypersaturation and crystal formation in urine .

Predisposing factors increase the stone formation is (will be mentioned correlated with the type of the stone) مهم

- Calcium oxalate RADIOOBAQUE: hypercalcuria (most of Ca comes from bowel ,and it accounts nearly 75% of renal stones).(note : its related to IBDs because of the very high absorbed Ca in bowel and low reabsorption by kidney).
- struviate RADIOOBAQUE :(Mg,NH4+,P) most of the nitrates which released from nitrate splitting bacteria(proteus, klebsiella, sarriata and enteropacter spp) so (its the stone associated with UTIs , and favors alkaline Ph). (Accounts 15% of renal stones).

- **STAGHORN stone(VERY IMPORTANT) :** It's a struviate stone which developed in the kidney and take the characteristic shape of the renal pelvis and calyces, composed of (Mg,NH4+,P) , resulted from UTIs caused by nitrate splitting bacteria (لازم تعددوهم الي فوق) (and treated ONLY by PCNL (whatever the size), to prevent the UTIs occurrence after usage other ttt methods like ESWL.
- Uric acid RADIOLUCENT: (GOUT and high cell turnover dz , ex:Leukemia) (U=U , uric= unseen on XR) (7%)
- Cystiene RADIOFAINT :(highly associated with genetic predisposition) (favors low Ph/ acidic urine)(1%) سؤال مكررررر جدا وهو

?What are the types of stones , so you have to classify according to the composition and the appearance on radiation .

the clinical pic of renal stone: **flank pain** (comes on paroxysm and waves when stone moves , pt can't sit still)/ not changed with position (rule out MSK problems)/ sudden onset / hematuria(after loin pain) with/wo LUTS and maybe has a past HX.

Investigation : دائما بنبلش ب اللاب تيست والاهم وبعدين الاشعه والسكوبي وبعدين البيوبسي ونصيحه اعرفو كل شي لشو بتطلبوه لانه احيانا بسألو ليه بدك تطلبله هاد الفحص و فخلو اجاباتكو محكمه مو بس تعبي فراغ .....

- (CBC - to rule out high WBCs (UTIs))
- KFTs (to see the pt baseline renal function (when giving a drug if nephrotoxic or not))
- (urinanalysis (UA) / urin culture (UC) to see bacteruia , microscopic hematuria)
- finally imaging **(the GOLD GOLD standard is CT without CONT** pleeez keep this in mind)

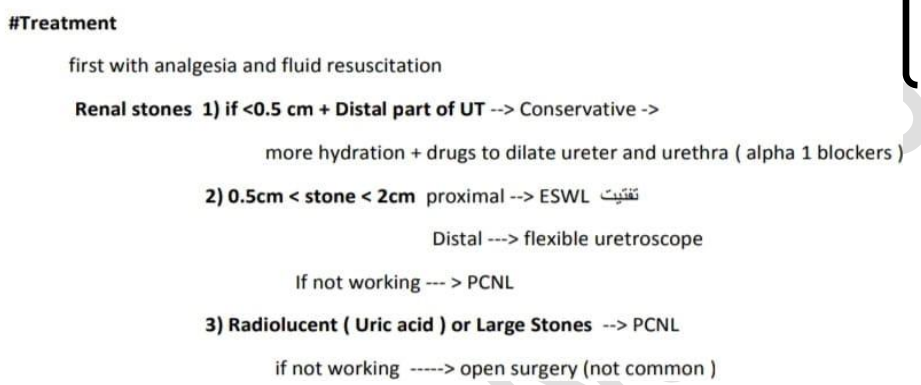
Why CT is the GOLD standard (because some of stones the radiolucent stones like uric acid stones are not seen on plain X-ray), and if CT with contrast هيك بتصير الحصوه والكونتراست نفس اللون وما ببين شي .

Maybe we start with KUB because the most common type is calcium oxalate, but the best is CT wo cont.

Management (Mx) as shown in the picture below:

In ER when patient comes firstly you will give him: (**painkiller**, IV morphine and parental NSAIDs, and **vigorous fluid hydration**). For all types of stones .

About the ttt methods you can read about on Google



- **If patient comes to ER with sever colicky pain ,fever 40 , uretric stone 1.5 cm , and he developed hydronephrosis** : it's an emergency case , the retention should be the 1st priority to be relieved not the stone removal, so firstly double J stent (to relieve the retention) , antipyretics alongside the painkillers and IV fluid , then ESWL for the stone .

- **A patient with a staghorn stone 1 cm and has very severe pain ??**

Now the most important in the topic, when to admit a pt has a stone??

1. Pain not controlled with drugs.
2. Anuria or abnormal KFTs (Obstruction and Retention).
3. Fever or chills or hematuria and pyuria on UA (stone with concomitant UTIs or PYLONEPHRITIS).
4. Large stone > 1 cm, to prevent complication developed more.

?But an important question usually drs ask about is the Contraindications of ESWL??

Pregnancy, untreated urinary tract infection/urosepsis, decompensated coagulopathy, uncontrolled arrhythmia, and abdominal aortic aneurysm >4.0 cm سؤال مكرررر جدا

➢ URINARY TRACT INFECTIONS :

Its a very common urinary tract problem , more common in females (the shorter urethra 5 cm) .

- The **etiology** explained by : Ascending infection, instrumentation, coitus in females.
- The **MOs** are (E. coli (90%),Proteus , Klebsiella)
- **Predisposing factors** : Stones, obstruction, reflux, diabetes mellitus, pregnancy, indwelling catheter/stent
- **Clinical pic :**
  - **Lower UTI-frequency, urgency, dysuria, nocturia.**
  - **Upper UTI**(pylonephritis) -**back/flank pain, fever, chills.**
- **Diagnosis** made by the **clinical pic and urinalysis** (>10 WBCS/HPF, >10° CFU).

Pylonephritis : Is usually a unilateral complain, suddenly inflammation of the kidney caused mainly by infections mostly by (**E. Coli, proteus, klebsiella**) these MOs are commonly seen in bowels, but there are other MOs like staph may be hematogenous spread from (septicemia or infective endocarditis). حيكنا مباشره عن MOs هدول الbس infections usually come on the common route which is the **ascending route** طيب هلا مين همه المرضا الي more susceptible for UTIs (sex, multi sex, diabetic, Foleys, UT obstruction and ,Vesicouretro reflex(The vesicouretro reflex is the back of urine into the upper UT because of the weak vesicouretro valve هاد سببه شغلتين و همه ال Primary Congenital defect and Bladder outlet obs--> increased pressure in bladder - - > no more strong valve, can't stop back flow of urine so urine backup and cuz pyelonephritis, additionally the urine stasis in Urine retention causes bacterial growth .

Clinical pic (loin pain, fever, chills, ممكن hematuria, N and V) هلا clinically you can diagnose ur pt. But further investigations can be done like CBC (see WBCs) UA, UC (Bacteria, proteins, blood). Complications are (renal abscess(with ss flank tenderness), recurrent infections, sepsis). Pyelonephritis is an emergency so you have to admit the pt and start ABx, hydration, and antipyretics.

The workup start when: After the first pyelonephritis in prepubescent female patients , after first tract infection in males unless Foleys is in place.

Lower: 1 to 4 days of oral antibiotics,,,,,, Upper: 3 to 7 days of IV antibiotics

Mostly used AB is **Ciprofloxacin**.

➢ URINARY TRACT OBSTRUCTION:

- Urine retention **caused** mainly by following:
  1. Obstruction of urine outflow by lower UT OBs (BPH , ca of bladder or prostate ,stricture in urethra ,inflammatory (prostatits, urethritis), neurogenic bladder
  2. Up UT OBs like stones, Ca.

all can cause Hydronephrosis (the dilation of UT esp the renal pelvis and calyces).

- **Clinical pic**: pt is having the obstructive ss like (**LUTs** بسبب ال lower tract obs) **+ supra pubic pain(full bladder**)+ if (stone causes renal colic/flank pain).
- 3 classes of Urine retention :

1. **Acute** (severe supra pubic pain +stressful pt)+ 1st episode (Full bladder capacity =400-600ml))
2. **Chronic UR**: (chronic episodes of incomplete emptying and oliguria followed by bladder distension so →increased bladder capacity to more than 600 ml .
3. **Acute over chronic** : the pt is having chronic UR but an acute episode he can't pass urine the last period but (the pt is not having the sever suprapubic pain and he is not stressed + the bladder capacity is also more than normal (>600ml) .

❖ In ER you have to **confirm the dx as a UR by PE**

A. Inspection: you can see the full distended bladder as a **suprabpubic mass** while pt is supine +flank mass if HN developed.
B. Palpation: **hard and firm palpable bladder**.
C. Percussion: **a dull suprapubic area**.

Investigations: US is the initial test identifies HN.

Management:

1.Treatment depends on duration, severity, location, and cause of the obstruction

2. Location of obstruction

a. Lower urinary tract obstruction :

*Urethral catheter-for acute obstruction .

*Dilatation or internal urethrotomy-if cause is urethral strictures .

*Prostatectomy-if BPH is the cause.

b. Upper urinary tract obstruction :

* Nephrostomy tube drainage-for acute obstruction

* Ureteral stent (through cystoscope)-if ureteral obstruction

3. Duration and severity of obstruction

a. Acute complete obstruction-pain or renal failure may be present. This requires immediate therapy

b. Acute partial obstruction-usually due to stones (see the Treatment section of Nephrolithiasis)

c. Chronic partial obstruction-this requires immediate therapy only when infection, severe symptoms, renal failure, or urinary retention is present.

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Instrumentations

Some notes about foleys catheter :its 47 cm length , the cath/tube,ballon, urine bag , normal saline) هون المفروض تحضرو كل العدة قبل لتبلشووو

- Using French scale (3 French = 1 mm) you determine the suitable catheter caliber for the pt (suitable with external penile meatus)
- Start insertion from the meatus, then after you insert it you have to flush 10mm NORMAL SALINE to fix the catheter on urethra.
  (ليه نورمال سلاين لانه لازم تحط سائل مش غاز وما تطفو الكاث فوق باعلى البلادر)

- If failed Foleys catheter insertion Or CIs of Foley's (Blood at the meatus, Insertion of the catheter can worsen an underlying injury, Gross hematuria, Evidence of urethral infection, Urethral pain or discomfort.)
  - The second choice is : it's a **cystostomy ,** surgically created connection between the urinary bladder and the skin used to drain urine (its more aggressive can cause rectal or colon injury) Dr mentioned its CIs (infection,TCC (both can cause mets for MO or CA respectively) not completely full bladder(can be avoided by giving patient fluid and wait to become full bladder)).
  - If failed Foleys catheter /cystostomy we will do Uretrocystoscope under GA (this device explore the bladder, urethra and the ureters placement or opening into the bladder(بس برضه الدكتور حكا انه (يعني بالاحرى بشيك اكتر من انه احل المكشله diagnostic and therapeutic device) .

See instruments pics on Google

➢ SCROTAL PAIN:

The ddx of socrtal swelling :

1. The most important emergent case is the testicular torsion : I will mention torsion and orchitis simultaneously because you have to differentiate between them :

Testicular torsion and Epididmo-orchitis:

Testicular torsion Very important emergent case, you have to deal quickly and successfully.

Testicular torsion :

- **Definition** :is the spermatic cord twisting so arterial occlusion and venous obstruction and subsequent testicular infarction.
- **Cause :** mostly unknown cause but , some cases comes with bell clapper deformity: bilateral nonattachment of testicle to scrotal walls, can rotate freely on spermatic cord within tunica vaginalis .
- **Age : between 10-20 , when the case on ER this is a very important clue to confirm dx (can be seen in younger and older than 10-20).**
- Diagnosis : age of 10-20 //acute sudden pain and swelling on socrtum, presented with/wo nausea and vomiting , no fever, and these important differences.

Testicular torsion	Epididmo-orchitis
Acute Sudden diffuse pain on socrtum or suprapubic	Gradually started pain ,same site
N.V presented	Fever / dysuria/ N.V are milder if present
On physical exam: tender testicle/ abscent cremastric reflex /-ve prehn's sign /nonillumination	On physical exam: tender testicle/ present cremastric reflex /+ve prehn's sign /
Age 10-20	Old age
Bell clapper /undescended testis	Bacterial infection of epididmys and testicle commonly are in elderly ' STDs ' the causative MOs are (E.coli, chalmydia,gonorrhea) in old , in youngs viral more (mumps).
Doppler US " abscent "	Doppler US " present", here we do US to rule out test torsion

Normal UA/ -ve Urin analysis	+ve Urin analysis(high WBCs /bacteria)
In First 6 hours , you have to save testis viability , immediate intervention	Less emergent /elective
Mx : firstly : surgical exploration Then : confirmed dx by exploration , immediate detorsion and bilateral orchidopexy	Mx : ABx, painkellers, scrotal support

- **The extra note about is when you confirm the dx of testicular torsion you have to keep your patient in NPO until he enters the surgery).**

Ddx of scrotal swelling : testicular torsion ,epidimoorchitis, testicular appendages torsion, testicular tumor, hydro and varicocele(last three are painless).

2. **Testicular appendages torsion**: is the torsion of the remnants of wolffen and mullerian ducts (epididmo, test appendages respectively), younger age than testicular torsion presented as scrotal pain mainly on upper pole of testis not diffuse ,pain gradually starts , usually no systemic ss ,on PE you have blue dots ,the treatment is conservative (pain killers, ice and scrotal support).

3. **Hydrocele** :is the accumulation of fluid in the processus vaginalis membrane
   Types of H : isolated H and communicating H,

- How to differentiate between them?
  - ✓ **Answer** : put ur pt in supine position and a gentle pressure on the area, after minutes if the fluid disappear this is mean a communicating H يعني مع البطن مفتوح الsocrtum If fluid appears again that's mean it's closed and isolated in the socrtum.

This started gradually and commonly not associated with systemic ss, on **transllumination test it pass the light in a dark room**.

- One scenario can be seen is pt had a varicocelectomy and then he developed hydrocele.
- In young boys it's can be associated with inguinal hernia (the pt has costipation and if strangulated has vomiting/ remeber the Mx is laparotomy).
- Some pts or doctors says that the pt has a bilteral hydrocele but this uncommon, if said this you have to ensure if the patient has ansarca which causes a fluid bet every two adjecent layers.

The Mx is hydrocelectomy, no Medical therapy used in hydro/varicocele.

4. **Varicocele:** abnormal dilatation of the pampiniform Plexus

Types:

- **painful (compliant is pain)**
- **Painless (compliant is infertility).**

Cases occur more in left side, you have to ask about gradual onset, duration, associated ss, pain decreases when socrtal support.

Physical Examination : Valsva maneuver ask ptto stand and cough, this make more pressure on socrtum and then the veins are easily felt. **Stage 4 of varicocele is felt as a bag or worms**

Lab : seminal fluid to assess fertility.

Management : is surgical beyond medical → Varicocelectomy .

- **stages**:

1. Stage 1 scrotal support.
2. **Stage 2, 3 (depend on the job)**

حلاق/حد دايما واقف - - > Setting and support .

حد دايما قاعد/ سائق تاكسي - - > varicocelectomy.

3. **Stage 4 (bag of worms): high ligation surgery palomo technique.**
   - **Varicocelectomy is useful in the infertile pts** because it reduces the temperature and pressure around testis so it reduces the risk of sperms atrophy, we give also a hormonal therapy improves fertility.
   - **Note : new onset varicocele with hematuria indicates Left RCC.**

➢ BENIGN PROSTATIC HYPERPLASIA :

- **Benign** Enlargement of prostate gland **periurethrally (central zone)** عكس **prostat ca in the peripheral zone**
- Disease of **elderly** (around 60-65 yrs).
- When enlarges enough can **cause LUTS-obstructive SS** , this is the classic **clinical picture** of the BPH pt (Hesitancy ,weak stream, intermittency,…etc)
- Normal gland size : 20-25 gm
- Diagnosis:
  - Clinical Hx of obstructive SS.
  - IPSS score : it assess the severity of voiding phase SS in men > 40 yrs old ,used to diagnose and follow up. مهم حفظه

IPSS score see Macleod ,page 199.

- Enlarged prostate on DRE.
- Elevated Post Void Residual.

- May be elevated PSA
- Biopsy shows benign hyperplasia.

- **Investigation: UA ,PSA ,KFTs.**

- **Flow rate test:** result in weak flow rate , this indicates BPH .

- **Imaging : US** to see the enlarged gland, pre and post void to assess the bladder functionality , and if obstruction causes a hydronephrosis .

- **DDx** : prostate **Ca** (on DRE hard irregular nodular enlargement) ,acute **prostatitis** (fever, on DRE hot and tender prostate) , **neurogenic** bladder (the pt almost has a history of neurological dz) , urethral **stricture** (we do RUG to confirm) ,stone, UTIs**.**

- **Treatment :**
  1) **Reassurance to decrease fluid intake and relax ,when ss are very mild**

  2) **Pharmacological ttt:**
     1) **Alfa blockers** :relax the prostatic smooth ms or relax the sphincter, terazosin ,tamsulin.
     2) **5-a-reductase inhibitor** : Finastride/proscar , prevent conversion from testosterone into dehydrotestesterone, if taken for more than 5 months as ttt ,the gland will lose its half size and so on produced PSA to the half , (pt has 3 PSA /on proscar for 6 moths → real PSA is 6) .
     3) **Indications of surgery = complication of BPH:**
        a. Severe obstructive symptoms.
        b. Urine retention or Hydronephrosis.
        c. UTIs.
        d. Hematuria.
        e. Stones.

- **What is the surgery ?**

  It's the TURP: trans-urethral –resection-of-prostate via a scope.

  Or TUIP: trans-urethral –incision -of-prostate via a scope.

- **The most common SE of surgery: incontinence ,UTIs ,bleeding ,fail to void , erectile dysfunction.**

PSA, drs notes

I will talk briefly about PSA and you can see the extra notes below :

PSA is an enzyme ,specifically produced by the prostate gland and increase when : prostatitis, CA, BPH, ejaculation ,massage , on DRE, instrumentation.

The normal level isles or equal 4 ng/ml, but there is no a cut off point for PSA so you have to do other measurements to consider an understandable conclusion,

a. **PSA ratio = free/total , the normal is 18% and more , lower so more risk of CA.**
b. **PSA density = free/ size of gland , the normal is less than 15 %, higher so more risk of CA .**
c. **PSA velocity: usually in follow up , if the value increases to more than 0.75 of the last value per year this can indicate a malignancy development, increased rapidly → biopsy.**

PSA : Prostate-specific antigen, or PSA, is a protein produced by normal, as well as malignant, cells of the prostate gland. The PSA test measures the level of PSA in a man's blood, PSA can be elevated either in prostate CA or benign conditions like BPH or prostatitis so its organ specific but not disease specific.

- There is no specific normal or abnormal level of PSA in the blood.
- **The understanding of its value more advanced but I will mention some notes you have to know them.**
- **Free versus total PSA.** The "free" amount of PSA in the blood that is (not bound to other proteins) divided by the total amount of PSA (free plus bound) is denoted as the proportion of free PSA. Some evidence suggests that a lower proportion of free PSA may be associated with more aggressive cancer.
- **PSA density.** The blood level of PSA divided by the volume of prostate. Some evidence suggests that this measure may be more accurate at detecting prostate cancer than the standard PSA test.
- **Age-specific PSA reference ranges.** Because a man's PSA level tends to increase with age, it has been suggested that the use of age-specific PSA reference ranges may increase the accuracy of PSA tests. However, age-specific reference ranges have not been generally favored because their use may delay the detection of prostate cancer in many men.
- **PSA velocity and PSA doubling time.** PSA velocity is the rate of change in a man's PSA level over time. PSA doubling time is the period of time over which a man's PSA level doubles. Some evidence suggests that the rate of increase in a man's PSA level may be helpful in predicting whether he has prostate cancer and useful in follow up..
- **If you need more you read about in Google.**

➢ PROSTATE CANCER:

- **Most common GU CA,** more in elderly, in histology it's **adenocarcinoma**, and related to +ve Fam Hx.
- Usually pts come in **late** stages of CA, because of **the CA growth is in the peripheral zone** and dosn't cause LUTS→late stages complaining from a nodular mass on DRE or metastasis signs: (**bone lesions**: back pain and vertebral bodies involvement alongside **Wt.loss**).
- Investigations : after **DRE**(hard irregular nodular enlargement) , **TRUS** (trans rectal US),**TR biopsy** , PSA and **CT** scan for METS , abdominal MRI for mets also

Indications for biopsy :

a. +ve DRE and older than 45→ biopsy.
b. -ve DRE and very high PSA i.e >10 + abnormal TRUS → biopsy.
c. PSA velocity >0.75 on follow up → biopsy.

The biopsy will be classified via **GLESON score** : pathology study , they found that malignant prostatic ca grow in many cell shapes so on the score give 5 cell shapes ,and then take the two most predominant cell shape and score it .

Example : we see the most predominant cell classes are 3 and then 4 so we say its 3+4 Its less malignant than 4+3, because 4 is more aggressive than 3 .

Depends on the stages we will treat the patient (see below)

roup*	Grade Group	Gleason Score
ry Low	Grade Group 1	Gleason Score ≤ 6
diate ble/Unfavorable)	Grade Group 2	Gleason Score 7 (3 + 4)
	Grade Group 3	Gleason Score 7 (4 + 3)
ry High	Grade Group 4	Gleason Score 8
	Grade Group 5	Gleason Score 9-10

- **Treatment :**

The low grade CA: treated without prostatectomy ليش طيب ؟

For example we have 100 pts, all of them have a low grade CA(grade 6) based on Gleeson, how will I treat them?

We will not do prostatectomy for all, because of the percentage of getting more aggressive CA development for prostate CA is very low, so I will not remove 100 prostate to protect only 5-10 pts from higher grade CA , thus they developed sth called **Active Surveillance**

Active Surveillance : means that we make an cautious follow up for all low grade CA pts , by measuring **PSA and taking biopsies** for a certain period of time and then decide for each pt what we will do . .

If still low grade CA → continue **Active Surveillance**

If becomes **higher grades** → **radical radiotherapy or radical prostatectomy**

If high grade CA + Mets → Androgen Ablation Therapy only(bilateral orchiectomy , LHRH).

Scenario: pt has prostate CA (high grade ,high PSA), no mets on CT

Management : watchful waiting: follow up until mets signs appear ,when mets start then start Androgen Ablation Therapy, why we wait until mets appears? To avoid therapy resistance on long term and less SE.

no ttt until mets signs appear (bony lesions and Wt loss).

BLADDER CANCER:

- It's the **second most common Ca in UG, with a ratio 3:1** male to female.
- The risk factors : **Smoking, carcinogens, schistosomiasis, petroleum drivers**.
- The histology of B. Ca are : **TCC, SCCa, Adenocarcioma.**
- The most **common globally is TCC**(risk factor is smoking because of the conc and perciptation of tobacco carinogens in the bladder).
- The **most common in Egypt is SCCa** (risk factor is schistosomiasis then chronic irritation like chronic foleys and bladder stones).
- 20% of spinal cord patients have SCCa of bladder caused by chronic irritation via Foleys.
- TCC is lower (bladder), and upper (kidney and ureter).

Clinical pic : **painless gross, inttermetant haematuria.** مهم تذكرو كل الكلمات.

- **If with Dysuria and suprapubic pain thus patient is having UTIs or stones respectively.**
  Investigations : KFTs, UA, UC. **The gold standard imaging / test is the Cystoscope** and then biopsy.

Stages of B. Ca

a. **T1 : isolated tumor(mucosa submucosa).**
b. **T2 : invade detrusor muscle.**
c. **T3 : to serosa.**
d. **T4 : adjacent tissue.**

T1 is superficial Ca.

T 2, 3,4 are deep Ca.

Mostly pts come with T1 stage, because of the obvious gross haematuria.

Treatment :

- ✓ **T1 - - > TURB, if young man give intravesicle chemotherapy also.**
- ✓ **T2 and 3 - - > radical cystectomy+ L. N dissection+ with/out chemo.**
- ✓ **T4 systemic chemotherapy + with/out cystectomy.**

- **With invasive Ca** give Pre op chemo**(neo Adjuvant)** chemotherapy to kill the small mets cells (don't appead on scan).
- **BCG is given when aggressive tumor and older pts**.
- **After cystectomy illuostomy or neoBladder** done instead of the removed bladder.

➢ TRAUMA

- 3 types : will be mentioned as what the renal part is mostly affected

1. **(Blunt: is the trauma with no apparent wound , mostly occur for kidney then bladder falling down accident).**
2. **(Penetrating: the wound is present occurs on kidney and other organs like spleen ,liver, colon , also bladder).**
3. **(Iatrogenic: done by a medical person mistake mostly happen for urethra by foleys catheters).**

- **the kidney trauma is screened and calssified into Grades by CT with CONT** :

- **G1 capsular hematoma**
- **G2 perinephric H and expanded tear on renal parenchyma < 1 cm.**
- **G3 tear < 1cm + no extravasation of urine.**
- **G4 tear extending to the collecting sys + urine extravasation.**
- **G5 shattered kidney.**

- **the management is explained as in picture below.(discussed but no need to memorize just read them you. ☺**

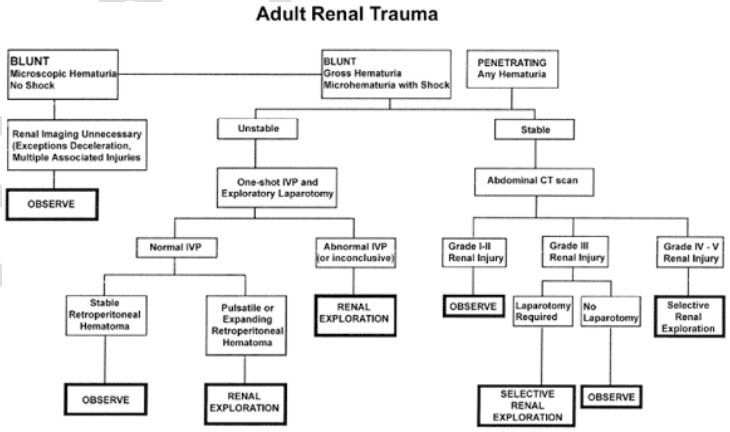

Figure 1 *- Algorithm for treating patients with renal trauma. (Reprinted with permission from: Meng MV, Brandes SB, McAninch JW. Renal trauma: indications and techniques for surgical exploration. World J Urol. 1999; 17: 71-7).*

➢ INSTRUMENTS ON UROLOGY:

1. **Cystoscope**: a rigid scope reach only the urethra and bladder (mostly the french scale for caliber 24). used to see the bladder structure and if there is any abnormality on it (either genetic or aqciuered)
    - **Diagnostic Indication** (diagnose stones, masses,biopsy, tear/ruoture,diverticulum,genetic abnormality, unknown bleeding, cystitis).
    - **Therapeutic Indication** : هون اي استخدام بدي الاداه الي بتعمله مثلا بدي افتت الحصى بستخدم اداه بركبها ع بداية السكوب لتفتت وهذا (we use alot of instruments to help us in resection, by using the tool of resection thus named resctocystoscope used in TURB and TURP).

2. **Uretroscope** :this is a SemiRigid scope can't reach the upper ureter and kidney (ureter caliber is 8-9 French).
    - BUT there is one else called the **flexible reno-uretroscope** : used instead and can reach anywhere ,reach the three calyces, pelvis and upper part of ureter , used in flexible RIRS in ttt of stones).
    - **Diagnostic (**detect masses, stones, genetic abnormalities, unknown bleeding),we can't use it in resection because the risk to make a tear in ureter is high (not like the large bladder).

3. **Renoscope:**
    - **Diagnostic indication**: its limited but mostly used in detection the source of unknown bleeding (hematuria), and taking biopsy.
    - **Therapeutic indication**: lithotripsy and management of the bleeding source if found.

➢ QUESTIONS OF PAST PAPERS(HARMONY AND C4/44) :

1- define stress and urge incontinence.

- Stress incontinence: loss of urine associated with increase intra abdominal pressure.
- Urge incontinence: loss of urine secondary to detrusor instability.

2 - what is the best imaging for incontinence….. the MRI .

3 - Mention 5 contraindications for ESWL

4- Types of bladder cancer / what is the cause of SCC

5- Medical treatment for BPH

6- What is IPSS SCORE, tell me what questions you would ask to your patient

7- Types of stones / tell me one theory of stone formation

8- Most common cause of epididymitis?

9- 19 years old male come to ER with acute sudden scrotal pain 3h before without fever or vomiting –ve prehn's sign ,normal cremasteric reflex we don't have Doppler US then what you will do ?! **If confused open and see (surgical exploration)**

10 -Risk factors of bladder cancer(written above)

11 -Risk factors of prostate cancer.(Age ,African American race, and +ve fam Hx)

12-Risk factors of testicular cancer (Chriyptorchidism)

13-Talk about Gleeson score

14-How to treat advanced prostate cancer

15-What are the side effects of Tamsulosin, Other than nocturia and postural hypotension.

(Difficulty falling asleep or staying asleep. weakness. back pain. diarrhea. runny or stuffy nose. pain or pressure in the face.)

Some drs do like an OSCE exam so you have to see the uorolgy Hx summary.

❖ **If you find any new important note send it for me, to make a full summary for next students.**