TUMORS

OF THE KIDNEY AND URINARY BLADDER

"If we win here we will win everywhere. The world is a fine place and worth the fighting for."

-Ernest Hemingway

Objectives

-Recognize the benign tumors of the kidney.

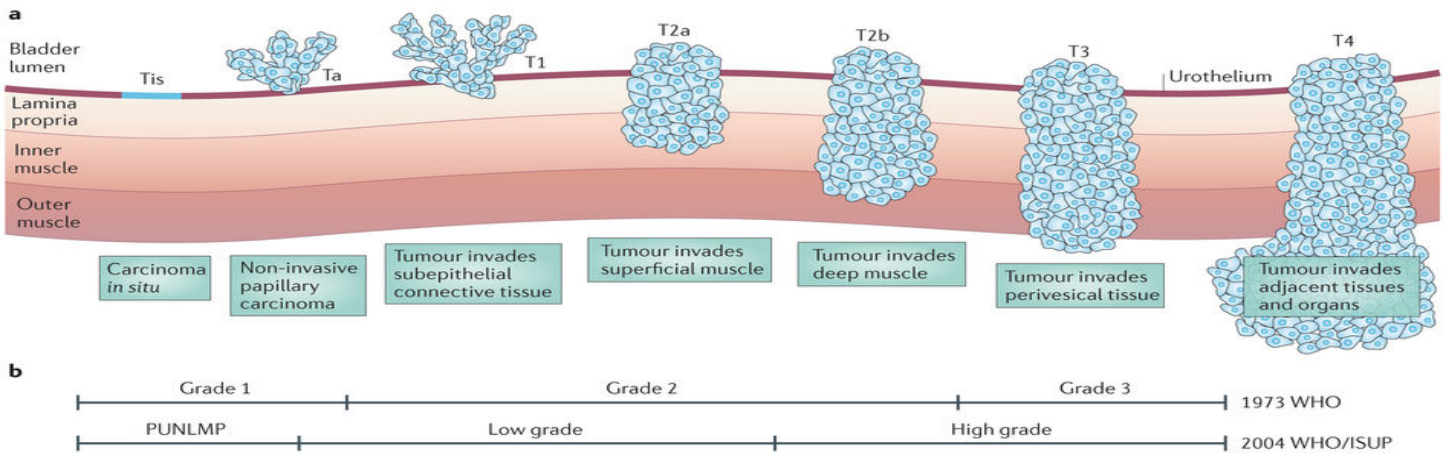
-Describe renal cell carcinoma and Wilm's tumor.

-Recognize transitional cell and squamous carcinoma of the urinary bladder.

*Important *Doctor notes

Overview*

Tumors			
Benign			
Tumor	**Info**		
Adenoma	○ This tumor is most often small and asymptomatic. It is derived from renal tubules. ○ It may be a precursor lesion to renal carcinoma.		
Angiomyolipoma	It is often associated with the tuberous sclerosis syndrome.		
Malignant			
Tumor	Definition	Characteristics	Info
Renal cell carcinoma	More common in men, cigarette smoking.	**Gene deletions in chromosome 3;** it can also be associated with **von Hippel-Lindau disease**	The three most common forms are: ▪ Clear cell carcinoma ▪ Papillary renal cell carcinoma ▪ Chromophobe renal carcinoma.
Clear cell carcinoma	Solitary, large and spherical masses, which may arise anywhere in the cortex.	The cut is **yellow to orange to gray-white, with prominent areas of cystic softening or of hemorrhage.**	**The tumor cells may appear almost vacuolated or may be solid.** At the other extreme are granular cells, which have small, round, regular nuclei and granular pink cytoplasm
Papillary renal cell	▪ Exhibit papilla formation with **fibrovascular** cores. ▪ They tend to be **bilateral and multiple.** ▪ They also show **necrosis,** hemorrhage, and cystic degeneration. ▪ The cells may have clear or, more commonly, **pink cytoplasm**		
Chromophobe Renal Carcinomas	▪ The least common, They arise from intercalated cells of collecting ducts. ▪ Tumor cells stain more darkly, so they are less clear than cells in clear cell carcinomas. ▪ Shows extreme **hypodiploidy**, by losing entire chromosomes, including chromosomes 1, 2, 6, 10, 13, 17, and 21. ▪ **Grossly, they tend to be** tan-brown. ▪ The cells usually have clear, flocculent cytoplasm with very prominent, distinct cell membranes, In general, they have a good prognosis		
Wilms tumor	Most common renal malignancy of early childhood Histology shows hypercellular areas comprising undifferentiated Blastema, loose stroma with undifferentiated glomeruloid body.	Associated with deletions of the **short arm of chromosome 11**.	**Can be part of the AGR (or WAGR) complex:** Associated with deletion of the **WT-1** **Associated with Beckwith-Wiedemann syndrome:** Associated with deletion of the **WT-2 gene.**
Transitional cell carcinoma	This cancer is the most common tumor of the urinary collecting system and can occur in renal calyces, pelvis, ureter, or bladder. It's often multifocal in origin.	○ In the renal pelvis its associated with **phenacetin abuse.** ○ This carcinoma is likely to recur after removal. ○ Most often, the presenting feature is hematuria.	
Bladder carcinoma	By far the common malignant tumor of the bladder in adults is the urthelial-delieverd transitional cell carcinoma (TCC). Not familial.	Two distinct precursor lesions to invasive urothelial carcinoma are recognized: The most common is a noninvasive papillary tumor, other is carcinoma in situ (CIS) Most commonly present with ***painless hematuria***	



*From 435

Benign tumors of the kidney[1]

Adenoma[2]:

- This tumor is most often **small** and **asymptomatic**. It is derived from **renal tubules**.
- It may be a precursor lesion to renal carcinoma.
- As a general rule they are small, averaging 1 to 2 cm in diameter.
- It is usually **accidentally** found.
- Sometimes they don't see it.

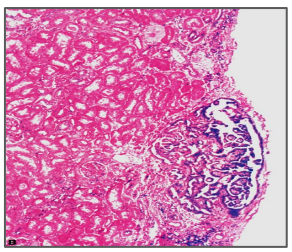
Angiomyolipoma[3]:

- It is often associated with the tuberous sclerosis syndrome
- Hamartoma[4] comprised of blood vessels, smooth muscle, and adipose tissue .

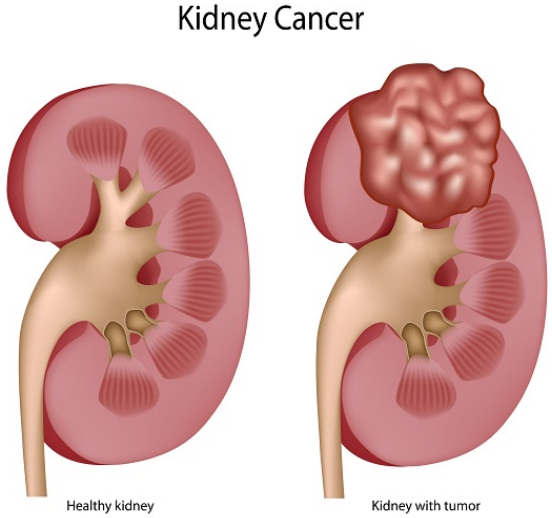
Oncocytoma:

- It is a benign tumor that arises from intercalated cells of collecting ducts (oncocyte).
- These tumors are associated with genetic changes - loss of chromosomes 1, 14, and Y.

Histology of a subcapsular adenoma shows tubules arranged in a papillary fashion.remember whenever there is papillary the chromosome is 7



Kidney with ischemic atrophy also bears very small subcapsular adenomas near each pole.



1.What makes the difference between Benign and malignant tumor is the behavior of the tumor
2.Aden: gland / oma: benign tumor
3.Angio: blood vessel / myo: smooth muscle / lipo: lipid / oma: benign tumor
4-present in the affected part, but with disorganization and often with one element predominating.

Malignant renal neoplasms

Neoplasms of the Renal Parenchyma:
A. Renal cell carcinoma (renal adenocarcinoma; hypernephroma)
B. Nephroblastoma (Wilms tumor)
C. Urothelial tumors

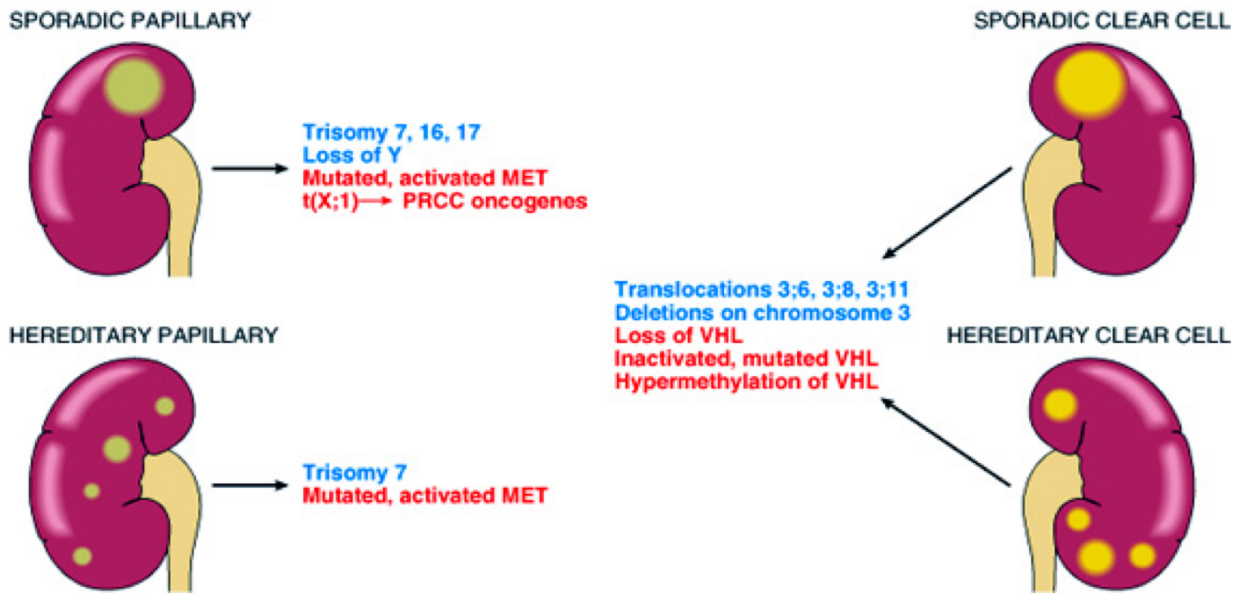
Tumors of the lower urinary tract are about twice as common as renal cell carcinomas.
The most common malignant tumor of the kidney is renal cell carcinoma, followed in frequency by nephroblastoma (Wilms tumor) and by primary tumors of the calyces and pelvis.

- The usual presentation of tumors is hematuria.
- In Tumors We don't take biopsy. Why? Because it's dangerous and may cause metastasis of the Tumor and this will worsen the presentation.
- So the usual treatment is:

Benign Tumor ⟶ Partial nephrectomy
Malignant Tumor ⟶ Hole/Radical nephrectomy

- The difference between sporadic and hereditary Tumor is :

1-Location
2-Multiplicity



Renal cell carcinoma

Etiology:

It is more common in men, occurs most often from 50-70 years of age -Adult-and has higher incidence in cigarette smokers, hypertensive or obese patients, and those who have had occupational exposure to cadmium.

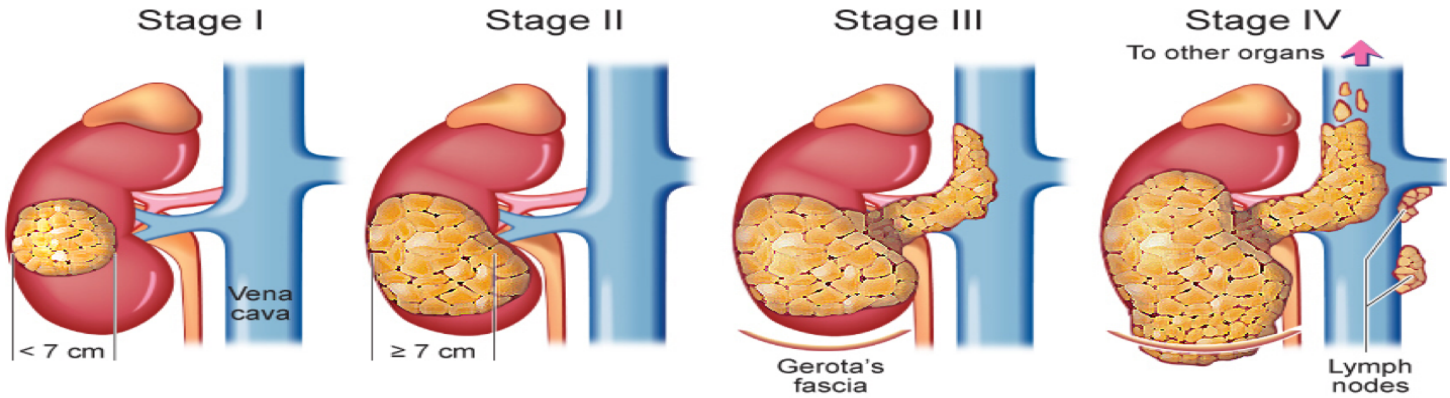
Pathogenesis:

- In some instances, it is associated with gene deletions in chromosome 3; it can also be associated with von Hippel-Lindau disease2, which is caused by alterations in a gene localized in chromosomes 3 this is if it (clear cell carcinoma) but if you have chromosome 7 means papillary renal cell
- The carcinoma originates in renal tubules (because it's derived from the renal tubular epithelium and hence they are located predominantly in the **cortex**.) Most often, it arises in one of the renal poles, frequently the upper pole. (This is why it was called hypernephroma)
- Frequently the tumor invades renal veins or the vena cava and can extend up the vena cava. Early hematogenous dissemination may occur.

Morphology:

- Histologic characteristics include polygonal clear cells, sometimes with vestigial (primitive) tubule formation. Also the tumors close to the capsule and Ischemic.
- The three most common forms are:
  1-Clear cell carcinoma (the most common 65%)
  2-Papillary renal cell carcinoma (the second most common 15%)
  3-Chromophobe renal carcinoma.(Less common 5%)

- Case from Dr.Hala
- Male his age more than 50 - smoker - flank pain- hematuria - fever
- Grossly: yellow/ necrosis/ hemorrhage. Answer = Renal cell carcinoma



Clear cell cancers

- Usually are solitary, large and spherical masses, which may arise anywhere in the cortex. It's also called "hypernephroma, Grawitz tumor"
- The cut is yellow to orange to gray-white, with prominent areas of cystic softeningor of hemorrhage.
- The margins of the tumor are well defined.
- As the tumor enlarges, it may fungate through thewalls of the collecting system.
- Occasionally, direct invasion into the perinephric fat and adrenal gland may be seen.

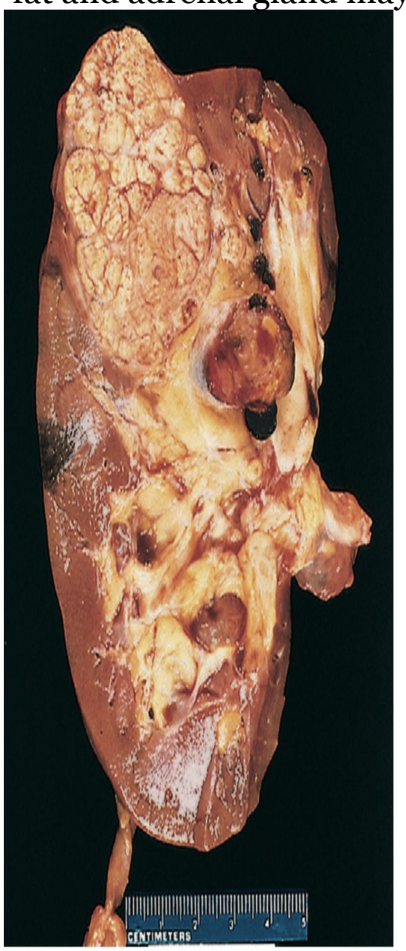


Figure 13–23 Renal cell carcinoma: Representative cross-section showing yellowish, spherical neoplasm in one pole of the kidney. Note the tumor in the dilated, thrombosed renal vein.

- Depending on the amounts of lipid and glycogen present, the tumor cells may appear almost vacuolated or may be solid.

→ The vacuolated (lipid-laden) are demarcated only by their cell membranes and the nuclei are usually small and round.

- At theother extreme are granular cells, which have small, round, regular nuclei and granular pink cytoplasm.
- Grading is based on the prominence of nucleoli.
- They occur in familial and sporadic form
- mutation in the von Hippel–Lindau tumor suppressor gene on chromosome 3p25,wether sporadic or inherited

Clear cell cancers

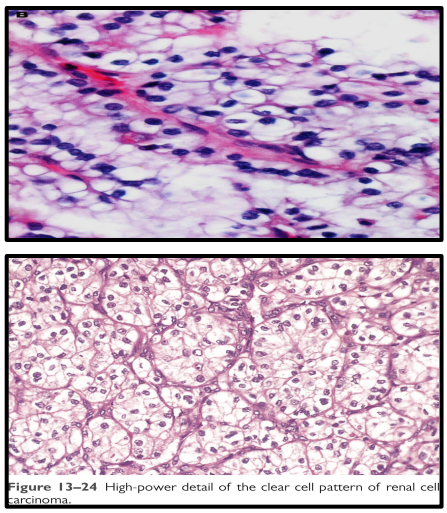
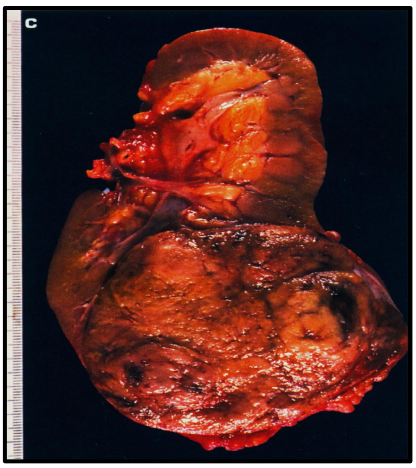


Figure 13–24 High-power detail of the clear cell pattern of renal cell carcinoma.

Small clear cell renal cell carcinoma (hypernephroma, Grawitz tumor) is spreading into perirenal adipose tissue.It called check and wire appearance
sit in rich capillaries



Typical lobulated, whorled, tan- colored cut surface of renal cell carcinoma

Invasion of the renal vein and inferior vena cava(arrow) by renal cell carcinoma.

Papillary renal cell carcinomas

- Exhibit papilla formation with fibrovascular cores.
- They tend to be bilateral and multiple.
- They also show necrosis, hemorrhage, and cystic degeneration.
- The cells may have clear or, more commonly, pink cytoplasm.
- they occur in familial and sporadic forms
- papillary renal cancers are **not** associated with abnormalities of chromosome 3
- It's associated with **chromosome 7 abnormality**
- Notice here is one layer of papillary where the urothelial carcinoma of bladder have many layers (we will study it in slide 12)

Chromophobe Renal Carcinomas

- The least common, representing 5% of all renal cell carcinomas
- They arise from intercalated cells of collecting ducts.
- Tumor cells stain more darkly, so they are less clear than cells in clear cell carcinomas.
- Shows extreme hypodiploidy, by losing entire chromosomes, including chromosomes 1, 2, 6, 10, 13, 17, and 21.
- **Grossly, they tend to be tan-brown.**
- The cells usually have clear, flocculent cytoplasm with very prominent, distinct cell membranes,
- In general, chromophobe renal cancers have a good prognosis.
- which is characterized by eosinophilic granular cells with
- prominent cell borders. It may closely mimic oncocytoma.

Presenting features:

May include the triad of flank pain, palpable mass and hematuria. Hematuria is the most frequent presenting abnormality.

1. Fever
2. Secondary polycythemia (results from erythropoietin production by cancer cells)The risk of developing renal cell cancer is increased 30-fold in persons who acquire polycystic disease as a complication of chronic dialysis.
3. Ectopic production of various hormones or hormone like substances. (eg., ACTH, prolactin,gonadotropins, and renin) paraneoplastic parathyroid-like hormone can also cause hypercalcemia.

4.Other paraneoplastic syndromes include:
hypertension, Cushing syndrome, feminization or masculinization

5. Nowadays, even smaller tumors are detected.

6.In many patients, the primary tumor remains silent and is discovered only after its metastases have produced symptoms. The prevalent locations for metastases are the lungs and the bones.

Short arm of chromosome 11 have two genes :
WT1 (located on 11p13) and WT2 (located in 11p15.5)

-The WT1 gene is critical to normal renal and gonadal development

Deletion of **WT1** causes

WAGR complex or syndrome[4] which consist of :

- Wilms tumor
- Aniridia[5]
- Genitourinary malformations
- Mental-motor retardation.

Dominant negative inactivating mutation in a critical region of **WT1** causes **Denys-Drash syndrome** - characterized by gonadal dysgenesis and renal abnormalities.

Beckwith-Wiedemann syndrome

The gene involved in this syndrome is **WT2**
-loss of imprinting (i.e., reexpression of IGF2 by the maternal allele) leads to overexpression of the IGF2 protein, which result in both **Organ enlargement and Tumorigenesis.**

Wilms tumor (nephroblastoma)

Etiology:

-This cancer is the most common renal malignancy of early childhood.

-Incidence peaks in children 2-4 years of age. Inherited as an autosomal dominant trait

Pathogenesis:

-Originates from primitive **metanephric tissue** (derived from the mesoderm).

- The three syndromes discussed above are associated with Wilms Tumor.

Case from Dr.Hala
2 years . male . With abdominal distention.
Morphology : blastema
(small, round blue cells) and epithelial and stromal elements.

4.anomalies associated with deletion of the WT-1 tumor suppressor and other nearby genes.

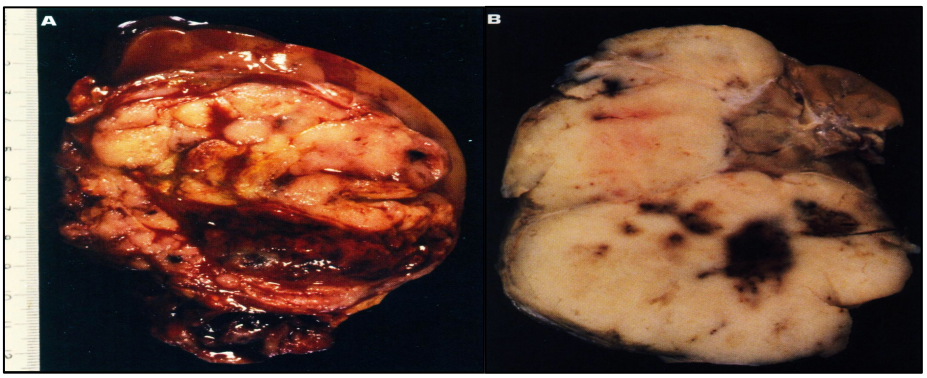
5.an absence of the colored part of the eye (the iris).

Morphology:

- Characteristics are varied with immature stoma, primitive tubules and glomeruli, and mesenchymal elements such as fibrous connective tissue and cartilage bone, rarely, striated muscle.
- In most lesions, **triphasic combination** which is formed of :
  1-blastemal 2-stromal 3-epithelial cell types.
- The tumor is large, solitary, and well-circumscribed mass.
- On cut section, the tumor is soft, homogenous, and tan to gray, with occasional foci of hemorrhage, cystic degeneration, and necrosis.
- Nephrogenic rests3 are precursor lesions of Wilms tumors.

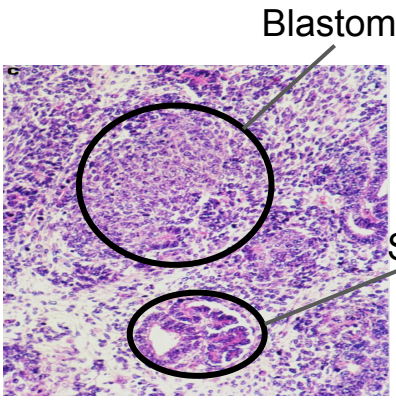
Presenting Features:

- Most often, the presenting feature is palpable flank mass, which may extend across the midline and down to the pelvis (often huge).
- Less often, the patient will present with fever, abdominal pain, hematuria, or intestinal obstruction as a result of pressure from tumor.



Solid, bulging, fleshy tan-white, partially necrotic tumor has replaced much of the kidney and is encompassed by a thin rim of renal tissue..

This Wilms' tumor appears whiter due to formalin fixation and has extended beyond the confines of the kidney.



Histology shows hypercellular areas comprising undifferentiated blastema, loose stroma withun differentiated glomeruloid body,Hyperchromasia,Mitosis , polymorphism , necrosis. Here you have to know that anaplastic features is important for this type of tumors to expect the prognosis

3 : Nephrogenic rests have a spectrum of histologic appearances, from expansile masses that resemble Wilms tumors (hyperplastic rests) to sclerotic rests consisting predominantly of fibrous tissue with occasional admixed immature tubules or glomeruli. It is important to document the presence of nephrogenic rests in the resected specimen.

Malignant Tumor Of The Bladder

More common in male.

- Transitional cell carcinoma in situ 90%
  - ~Present with :
    - -Hematuria
    - -Symptoms of UTI
- Squamous cell carcinoma 3-7%
  - ~can occur in the Origen bladder .
    - -Sometimes associated with parasitic infection
    - - Especially in endemic area / or farming area
    - -Present with Hematuria

Pathogenesis:

- First pathway:
  The tumor is initiated by **deletions** of tumor-suppressor genes on **9p and 9q** → formation of **superficial papillary tumors** → may then acquire TP53 mutations → invasion to muscle .
- Second pathway:
  Initiated by **TP53 mutations** → carcinoma **in situ** → **loss of chromosome 9** → invasion.

Morphology:

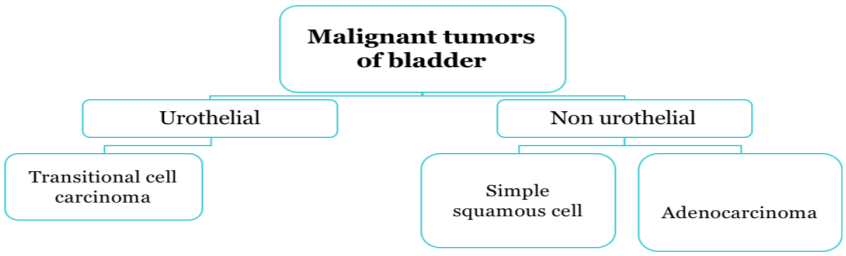
- Undifferentiated tumor.
- Could be invasive or noninvasive.

Clinical Features:

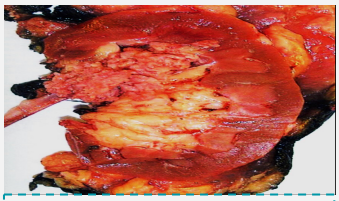
- All bladder tumors present with gross **painless hematuria**.
- Patients with urothelial tumors, have a tendency to develop new tumors after excision, and recurrences may exhibit a higher grade.

Treatment:

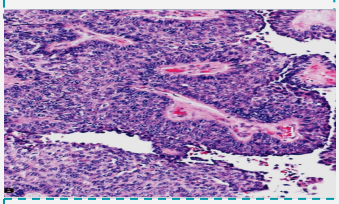
- Depends on tumor grade and stage and on whether the lesion is flat or papillary.



Transitional Cell Carcinoma



Papillary urothelial (transitional cell) carcinoma of renal pelvis. Note the exophytic, multifronded nature of the tumor.- fronded means papillary



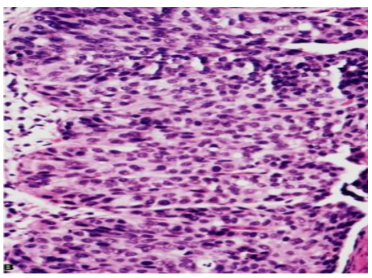
Notice here many layers of papillary

This cancer is the most common tumor of the urinary collecting system and can occur in **renal calyces, pelvis, ureter, or bladder (All lined by transitional epithelium)**. It's often multifocal in origin.

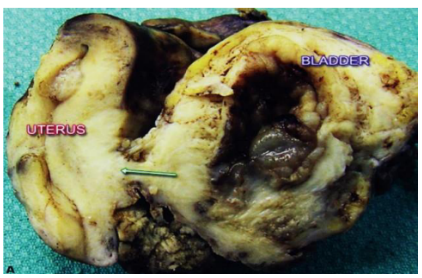
- This carcinoma is likely to recur after removal.
- Most often, the presenting feature is **hematuria symptoms of UTI**
- Most common bladder cancer in adult males, rare and non-familial.
- There is tendency to spend by local extension to surrounding tissues
- Urothelial (transitional cell) carcinoma in situ of the urinary bladder if untreated, up to 75% of cases go on to invasive cancer.
- Poorly differentiated urothelial carcinoma.
- Associated toxic exposures may sometimes be involved, including the following:
  - Industrial exposure to **Benzidine or Beta Naphthylamine**, which is an aniline dye.
  - Cigarette **Smoking**.
  - Long term treatment with **Cyclophosphamide** (Drug used to suppress the immune system).
  - **Phenacetin** abuse (pain-relieving and fever-reducing drug)

Squamous Cell Carcinoma:

- constitutes a minority of urinary tract malignancies.They typically show extensive keratinization.
- This cancer may result from **chronic inflammatory** processes, such as chronic bacterial infection or **Schistosoma** haematobium infection.Associated with chronic bladder irritation.
- It can also be associated with renal calculi.



Histology of carcinoma in situ (surface is to the right).



The invasion of the tumor up to the uterus.

Invasive urothelial carcinoma of the bladder is invading the muscle coat on the right side of the picture.

Box I. confirmed or suspected risk factors for transitional cell carcinoma	
Smoking	Increases risk up to five times
Analgesics	Mainly associated with renal pelvis transitional cell carcinoma, but also bladder tumors
Occupation	Workers in aniline dye, rubber and chemical industries due to exposure to β-naphthylanine (which in the liver is converted to carcinogen that must be activated in the bladder). These workers need regular bladder checks.
Cyclophosphamide	Can cause bladder cancer in the long term (although used for cancer treatment)
Schistosomiasis	Causes chronic inflammation and metaplasia (squamous) of the bladder mucosa (leading to squamous cell carcinoma)
Chronic infections/inflammation	Some authorities believe that any chronic inflammatory may predispose to cancer

Box II. Grading and staging of bladder transitional cell carcinoma (TNM)

Grade	Definition
G1	Well differentiated
G2	Moderately differentiated
G3	Poorly differentiated/undifferentiated
Stage	**Definition**
Tis	In situ carcinoma
Ta	Non-invasive, papillary tumor
T1	Tumor invades subepithelial connective tissue
T2	Tumor invades muscularis propia
T3	Tumor invades beyond muscularis propia
T4	Tumor invades prostate, uterus, vagina or pelvic wall/abdominal wall
N1	Single lymph node metastases (≤2cm)
N2	Single metastasis (>2cm) or multiple metastases (≤5cm)
N3	Multiple metastases (>5cm)

The prognosis of TCC of the bladder depends largely on the grade and the stage of tumor but most patients with metastases bladder TCC die within five years of diagnosis.

Thanks to team 435

Summary

SUMMARY

Renal Cell Carcinoma

Renal cell carcinomas account for 2% to 3% of all cancers in adults and are classified into three types:

- *Clear cell carcinomas* are the most common and are associated with homozygous loss of the VHL tumor suppressor protein; tumors frequently invade the renal vein.
- *Papillary renal cell carcinomas* frequently are associated with increased expression and activating mutations of the *MET* oncogene; they tend to be bilateral and multiple and show variable papilla formation.
- *Chromophobe renal cell carcinomas* are less common; tumor cells are not as clear as in the other renal cell carcinomas.

SUMMARY

WILMS TUMOR

- Wilms tumor is the most common renal neoplasm of childhood.
- Patients with three syndromes are at increased risk for Wilms tumors: Denys-Drash, Beckwith-Wiedemann, and Wilms tumor, aniridia, genital abnormalities, and mental retardation (WGAR) syndrome.
- WAGR syndrome and DDS are associated with WT1 inactivation, whereas Beckwith-Wiedemann arises through imprinting abnormalities at the WT2 locus, principally involving the *IGF2* gene.
- The morphologic components of Wilms tumor include blastema (small, round blue cells) and epithelial and stromal elements.
- Nephrogenic rests are precursor lesions of Wilms tumors.

Summery-Pathoma

1. ANGIOMYOLIPOMA :

- **Hamartoma** comprised of **blood vessels, smooth muscle, and adipose tissue .**
- Increased frequency in **tuberous sclerosis.**

2. RENAL CELL CARCINOMA ;

- malignant epithelial tumor arising from **kidney tubules .**
- Presents with classic triad of hematuria, palpable mass, and flank pain .
- Fever, weight loss, or paraneoplastic syndrome (e.g., EPO, renin, PTHrP, or ACTH) may also be present.
- Gross exam reveals a yellow mass; microscopically, **the most common variant exhibits clear cytoplasm.**
- Pathogenesis involves loss of VHL-von Hippel–Lindau-{3p)tumor suppressor gene, which leads to increased IGF-1 {promotes growth) and increased HIF transcription factor (increases VEGF and PDGF)
- **Sporadic tumors** classically arise in **adult males** (average age is 60 years) as a single tumor in the upper pole of the kidney; major risk factor for sporadic tumors is **cigarette smoke.**
- **Hereditary tumors** arise in **younger adults** and are often bilateral. Von Hippei-Lindau disease is an autosomal dominant disorder associated with inactivation of the VHL gene leading to increased risk for **hemangioblastoma** of the cerebellum and renal cell carcinoma.
- T - based on size and involvement of the renal vein (occurs commonly and increases risk of hematogenous spread to the lungs and bone) .
- N- spread to retroperitoneal lymph nodes.

3. WILMS TUMOR:

- Malignant kidney tumor comprised of **blastema** (immature kidney mesenchyme), primitive glomeruli and tubules, and stromal cells .
- Most common malignant renal tumor in **children**; average age is 3 years.
- Presents as a large, **unilateral** flank mass with hematuria and hypertension (due to renin secretion) .
- Most cases (90%) are sporadic; syndromic tumors may be seen with.

A-WAGR syndrome-Wilms tumor, Aniridia, Genital abnormalities, and mental and motor Retardation; associated with deletion of WTl tumor suppressor gene (located at llp13) .

B-Denys-Drash syndrome-Wilms tumor, progressive renal (glomerular) disease, and male pseudohermaphroditism; associated with mutations of WTJ .

C-Beckwith-Wiedemann syndrome-Wilms tumor, neonatal hypoglycemia, muscular hemihypertrophy, and organomegaly (including tongue); associated with mutations in WT2 gene cluster (imprinted genes at llplS.S), particularly IGF-2 .

4. UROTHELIAL (TRANSITIONAL CELL) CARCINOMA ;

- Malignant tumor arising from the urotheliallining of the renal pelvis, ureter, bladder, or urethra.
- Most common type of lower urinary tract cancer; usually arises in the bladder.
- Major risk factor is cigarette smoke; additional risk factors are naphthylamine, azo dyes, and long-term cyclophosphamide or phenacetin use. .
- Generally seen in older adults; classically presents with painless hematuria .
- Arises via two **distinct pathways;**

A- Flat-develops as a high-grade flat tumor and then invades; associated with early p53 mutations.

B-Papillary-develops as a low-grade papillary tumor that progresses to a highgrade papillary tumor and then invades; not associated with early p53 mutations.

- Tumors are often multifocal and recur ("field defect").

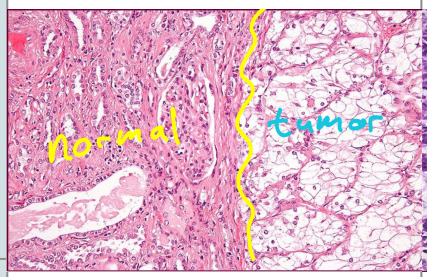
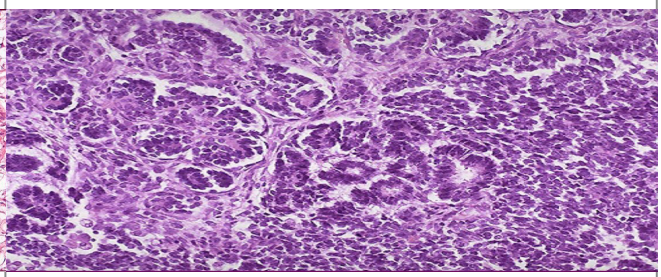
5. SQUAMOUS CELL CARCINOMA ;

- Malignant proliferation of squamous cells, usually involving the bladder .
- **Arises in a background of squamous metaplasia** (normal bladder surface is not lined by squamous epithelium) .
- Risk factors include **chronic cystitis (older woman), Schistosoma hematobium infection (Egyptian male), and long-standing nephrolithiasis.**

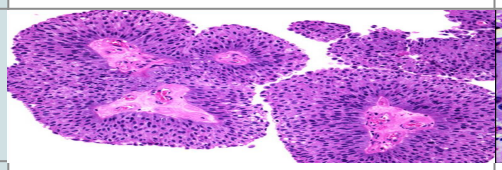
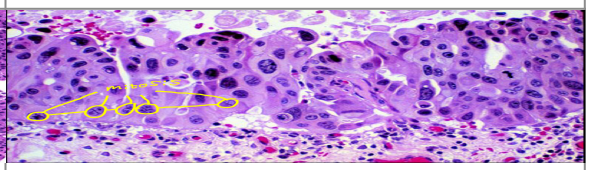
6. ADENOCARCINOMA ;

- Malignant proliferation of glands, usually involving bladder .
- Arises from a urachal remnant (tumor develops at the dome of the bladder), cystitis glandular is, or exstrophy (congenital failure to form the caudal portion of the anterior abdominal and bladder walls)

Histopathology Of Renal Tumors

Disease	Renal Clear Cell Carcinoma	WILM'S TUMOR
Picture		
Prominent Features	-clear cytoplasm -piknotic nuclei -Cells show pleomorphism and mitosis.	- Undifferentiated blastema cells - epithelial tissue which shows attempts to form primitive glomerular & tubular structures - mesenchymal (stromal) tissue
Notes/ Comparisons	-The most common type of renal cell carcinoma.	Wilm's tumor resembles the fetal nephrogenic zone of the kidney.

Histopathology Of Carcinoma of Renal Pelvis and Ureter

Disease	Papillary Urothelial carcinoma of the renal pelvis	Urothelial (Transitional) carcinoma of urinary bladder
Picture		
Prominent Features	- minimal cytologic - architectural atypia.	- Bladder carcinoma might be squamous cell in nature.
Notes/ Comparisons	Adjacent papillary fronds may fuse, as seen in this image.	- Almost all cases of Bladder carcinomas are originating from the transitional epithelium.

Questions

1-What are the chromosomes that may be absent in case of oncocytoma?
A. 11,12,y
B. 4,6,x
C. 5,9,y
D. 1,14,y

2-the chromophobe renal carcinomas arise from ..... ?
A. Intercalated cells of collecting ducts.
B. Principal cells of distal convoluted tubules.
C. Cells of proximal convoluted
D. Cells of loop of henle.

3-which of the following syndromes is not associated with wilms tumer ?
A. Denys-drash syndrome
B. Tuberous sclerosis syndrome
C. WAGR syndrome
D. Beckwith-wiedemann syndrome

4-which of the following is associated with Schistosoma haematobium infections ?
A. transitional cell carcinoma.
B. Chromophobe renal carcinomas
C. Squamous cell carcinomas
D. Clear cell carcinomas

5-nephrogenicrests are precursor lesions of which of the following ?
A. Renal cell carcinomas
B. nephroblastoma
C. Transitional cell carcinoma
D. Oncocytoma

Answers:
1-A
2-B
3-B
4-B
5-B

Cases

1-A 4-year-old girl has complained of abdominal pain for the past month. On physical examination, she is febrile, and palpation of the abdomen shows a tender mass on the right. Bowel sounds are present. Laboratory studies show hematuria without proteinuria. Abdominal CT scan shows a 12-cm, circumscribed, solid mass in the right kidney. A right nephrectomy is done; the gross appearance of the mass is shown in the figure. What is the most likely diagnosis?

□ (A) Angiomyolipoma
□ (B) Interstitial cell tumor
□ (C) Renal cell carcinoma
□ (D) Transitional cell carcinoma
□ (E) Wilms tumor

2-A 65-year-old man recently retired after many years in a job that involved exposure to aniline dyes, including ßnaphthylamine. One month ago, he had an episode of hematuria that was not accompanied by abdominal pain. On physical examination, there are no abnormal findings. Urinalysis shows 4+ hematuria, and no ketones, glucose, or protein. Microscopic examination of the urine shows RBCs that are too numerous to count, 5 to 10 WBCs per high-power field, and no crystals or casts. The result of a urine culture is negative. What is the most likely diagnosis?

□ (A) Renal cell carcinoma
□ (B) Hemorrhagic cystitis
□ (C) Tubercular cystitis
□ (D) Urothelial carcinoma
□ (E) Squamous cell carcinoma of the urethra

3-A 62-year-old man has had several episodes of hematuria over the past week. He has not experienced increased urinary frequency or dysuria. On physical examination, there are no remarkable findings. Urinalysis shows 4+ hematuria. The urine culture is negative. A cystoscopy is performed, and a 2-cm sessile, friable mass is seen on the right bladder wall. A biopsy specimen is obtained; the microscopic appearance is shown in the figure. Which of the following risk factors is most important in the pathogenesis of this bladder lesion?

□ (A) Smoking cigarettes
□ (B) Schistosomiasis
□ (C) Diabetes mellitus
□ (D) Chronic bacterial cystitis
□ (E) Nodular prostatic hyperplasia

4-A patient who was 72 years old, came to the hospital because of flank pain and fever, a urine sample showed presence of RBC's (hematuria), also a palpable mass was present just below the ribs, The surgeon took the patient to the operating room and a mass was removed from the cortex of the kidney, the following characteristics were present in this mass: the kidney was in variegated appearance with a yellowish surface ,hemorrhagic and necrotic areas, present of soft cysts were seen also and the mass was dialated. What is the most likely tumor is present in this case?

A. Adenoma
B. Renal cell carcinoma
C. Oncocytoma
D. Squamous cell carcinoma

Answers:
1-E
2-D
3-A
4-B

If you find the answers tell us on Twitter the Explanation !
@pathology437
We dare that you won't find it ;p

» قُلْ هَلْ يَسْتَوِي ٱلَّذِينَ يَعْلَمُونَ وَٱلَّذِينَ لاَ يَعْلَمُونَ سورة الزمر الآية ٩

القادة

فاطمة بالشرف

عبدالله العمر

الأعضاء

ريناد الغريبي
منيرة المسعد
شوق القحطاني
رزان الزهراني
بتول الرحيمي
فاطمة الديحان
الجوهرة الشنيفي
نورة القاضي
غادة الحيدري
بلقيس الراجحي
غرام جليدان
آلاء الصويغ
ال فهدة السليم
شيرين حمادي
رناد الفرم
نورة الحربي
ميعاد النفيعي
مجد البراك

منصور العبرة
محمد الأصقه
عبدالجبار اليماني
عبدالله المعيذر
معن شكر
سيف المشاري
عبدالعزيز الجهني
محمد العمر
خالد المطيري
عبدالعزيز العبدالكريم
ماجد الجهني
أنس السيف
راكان الغنيم
فايز الدرسوني
خالد العقيلي
بندر الجماز
طارق العلوان
سلطان بن عبيد
تركي الشمري
سعد الفوزان
أحمد الصبي