

Cases:

- 1- Polycystic kidney
- 2- Poststreptococcal glomerulonephritis
- 3- Hydronephrosis
- 4- Pyonephrosis
- 5- Chronic pyelonephritis
- 6- Renal cell carcinoma
- 7- Wilm's tumor
- 8- Carcinoma of the urinary bladder

Practical Pathology



432 Pathology Team

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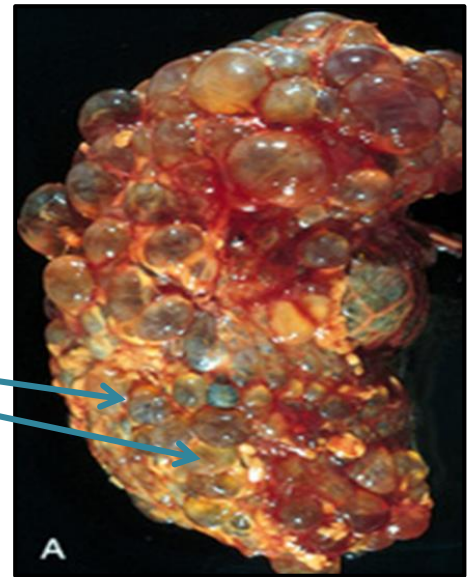
Renal Block



(1) Polycystic kidney

- Gross picture shows:

- markedly enlarged kidney
- Replacement of the renal parenchyma by numerous cysts



-the pattern of inheritance for adult form is autosomal dominant and for childhood form is autosomal recessive.

-The mutated gene is:

PKD-1 gene on chromosome 16

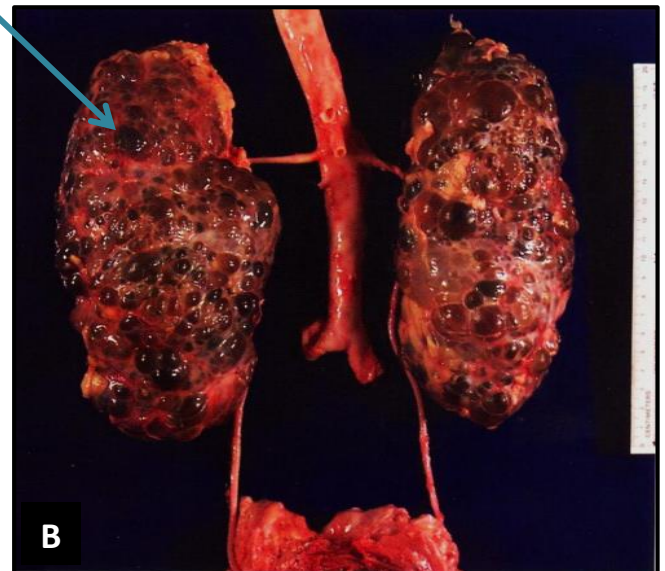
-Complications:

- Renal failure
- Hypertension
- Cysts in liver

-Management:

- Dialysis
- Transplantation

-Associated with: Congestive Heart Failure

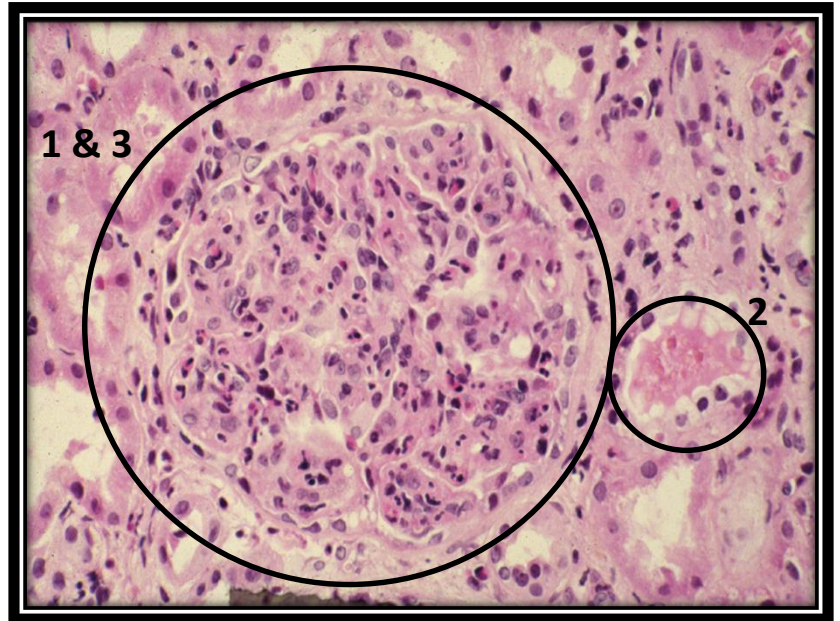


(2) Poststreptococcal glomerulonephritis

Histopathological features:

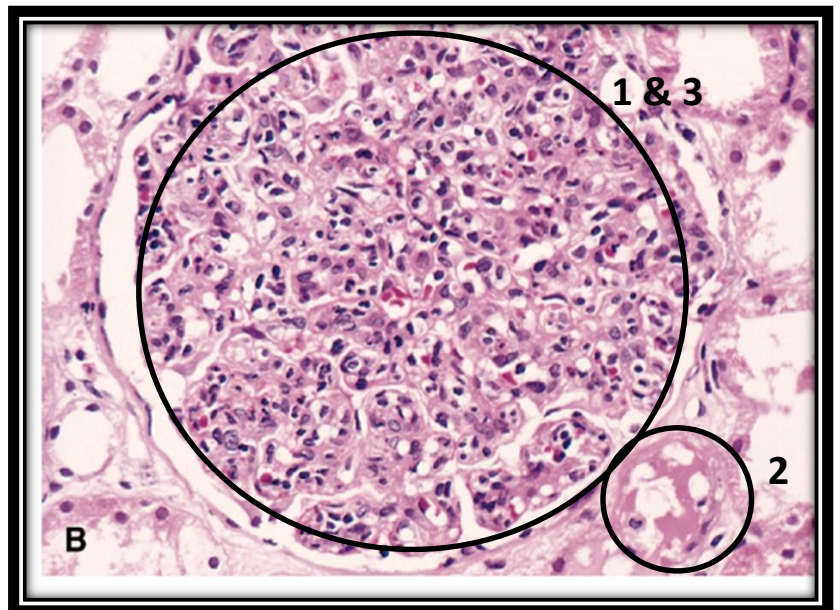
(1) Glomeruli:

- Enlarged with obliteration of capsular space
- Lobulated and hyper-cellularity of the glomeruli (↑ meningeal cells & Neutrophils and endothelial cells)



(2) Tubules:

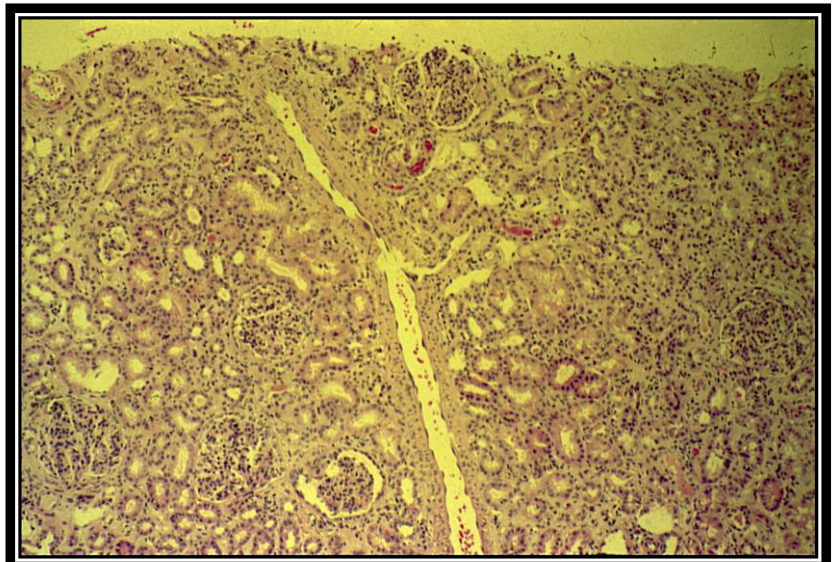
Degenerative changes (RBCs)



(3) Many capillaries appear obliterated in the glomeruli

(Because of endothelial proliferation)

Predisposing Factor:
Sore throat streptococcal

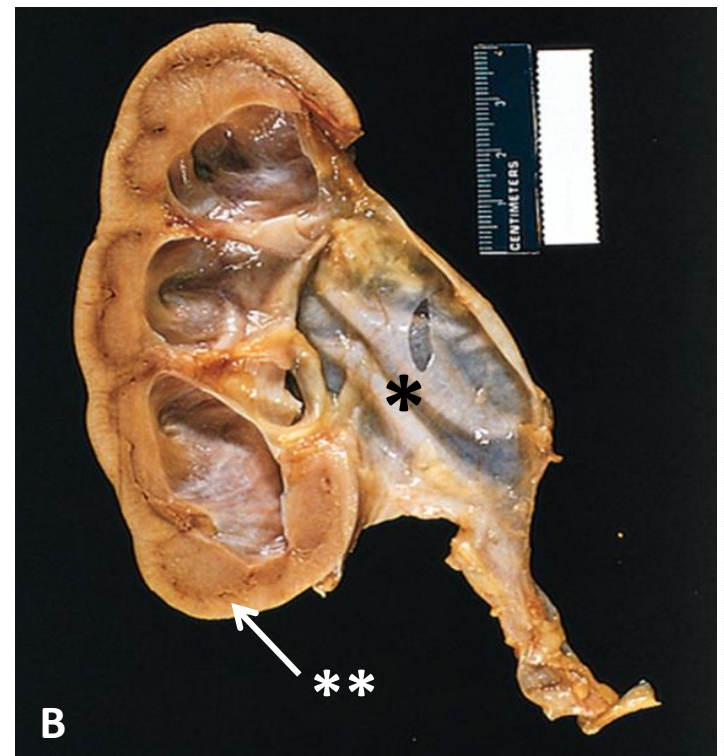
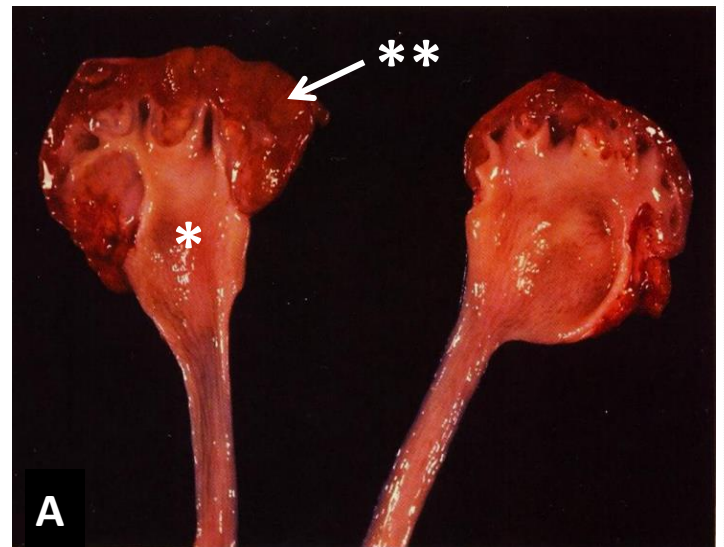


(3) Hydronephrosis

- Gross description:

(A), (B):

- 1- Dilated renal pelvis* and calyces
- 2- Atrophic and thin renal cortex**
- 3- Obstruction of urine outflow



Common Causes:

Obstructions due to:

- 1- Benign prostatic hypertrophy
- 2- Pregnancy
- 3- Stones
- 4- Tumors
- 5- Atresia of urethra

Complications:

Renal failure

(4) Pyonephrosis

- Gross description:

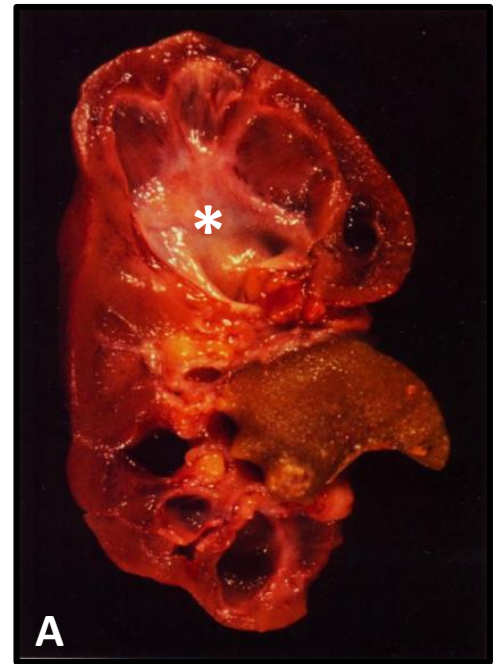
(A) Focal hydronephrosis* and pyonephrosis

(B) Pyonephrosis with small cortical abscesses*

(C) Renal cortical pyonephrosis with renal stone*

impacted within a calyx

- Small cortical abscesses**



-Common Cause:
Infections, complete obstruction

-Associated with:
Hydronephrosis

(5) Chronic pyelonephritis

- Gross description:

The picture shows slightly atrophic and deformed kidneys with cortical scars involved of the calyces and pelvic



- Histopathological features:

(1) Glomerulus:

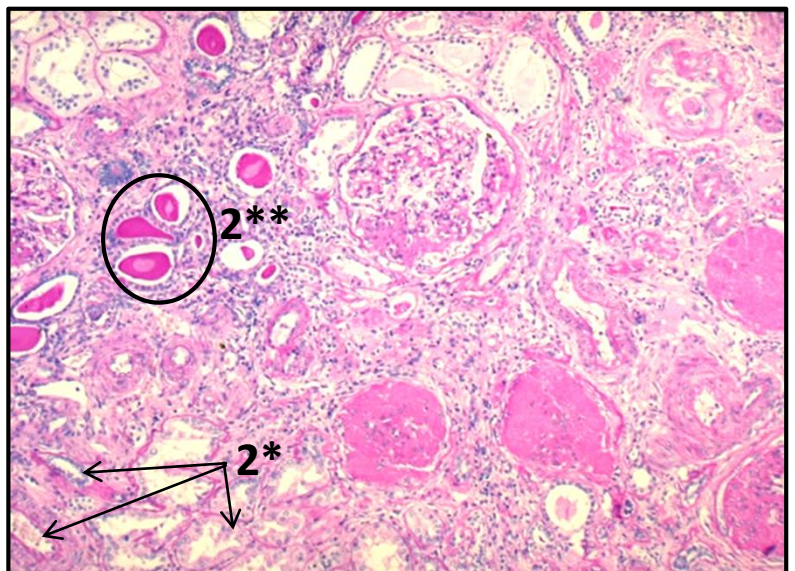
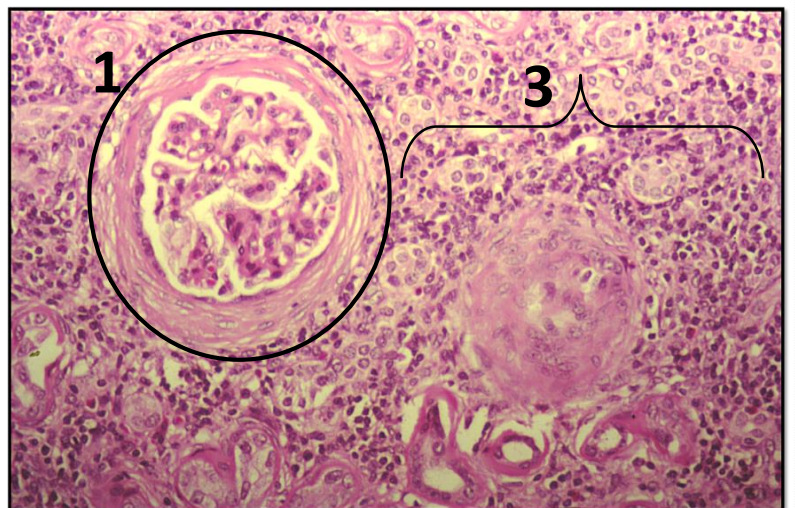
- varying degrees of sclerosis and peri-glomerular fibrosis

(2) Tubules:

- Atrophy*
- Thyroidization in *dilated ones***

(3) Interstitial:

- Interstitial tissue shows chronic inflammatory cells infiltrate and fibrosis

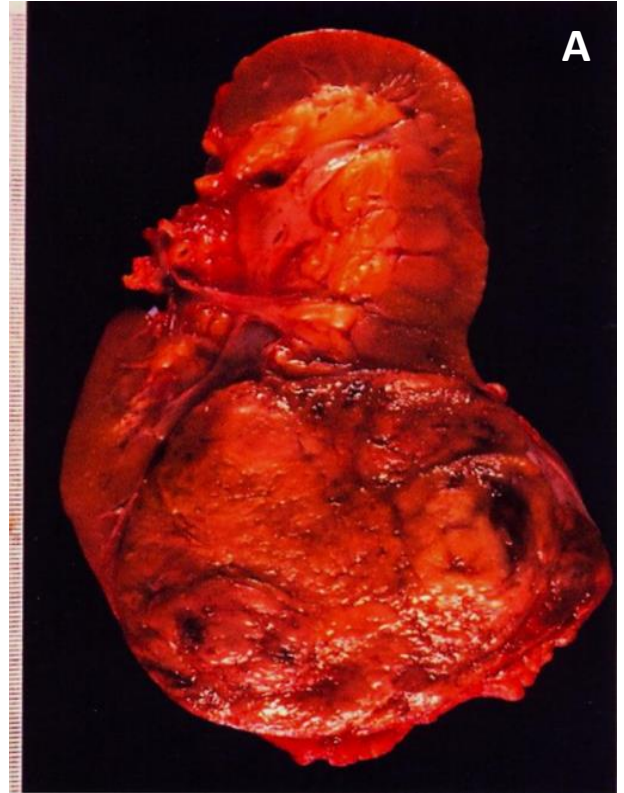


Common Causes:
Ascending infections

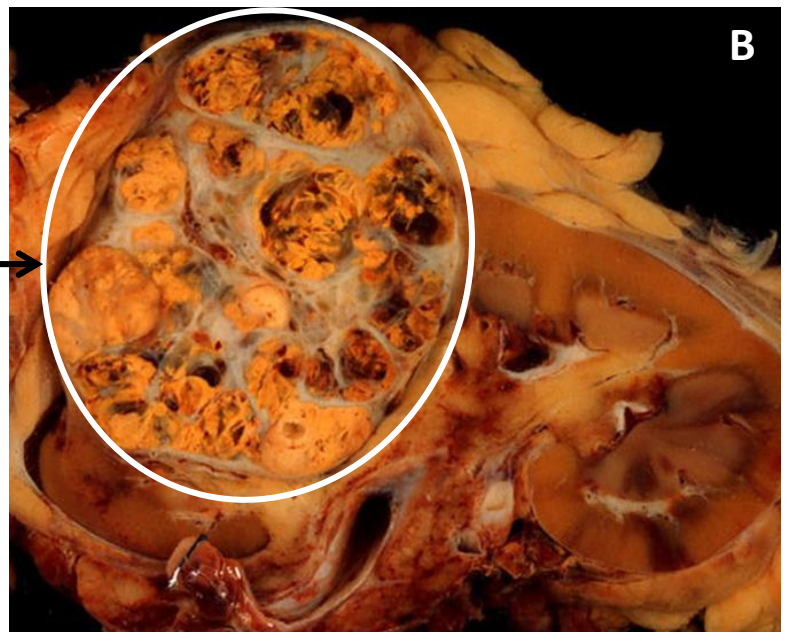
(6) Renal Cell Carcinoma

- Gross description:

(A) Renal cell carcinoma occupying the lower renal pole



(B) Well circumscribed renal cortical mass which is partly yellow and partly hemorrhagic with lobulated cut surface



Histopathological features:

(A,B,*) Tumor cells:

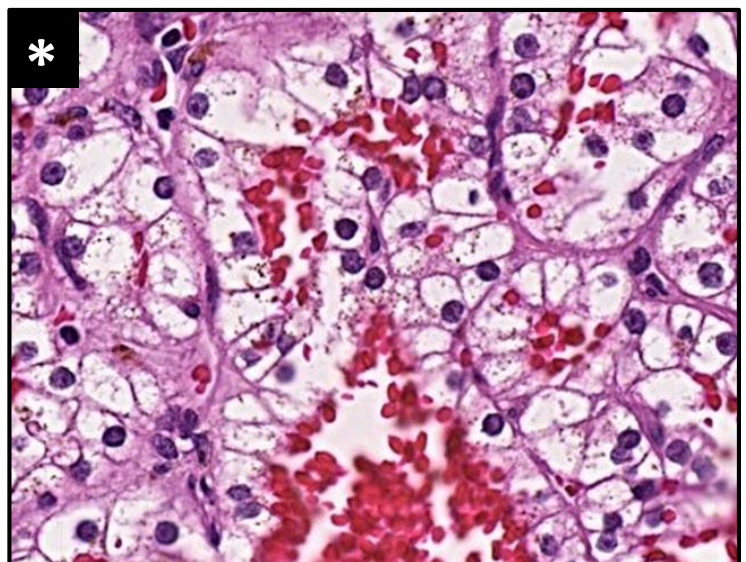
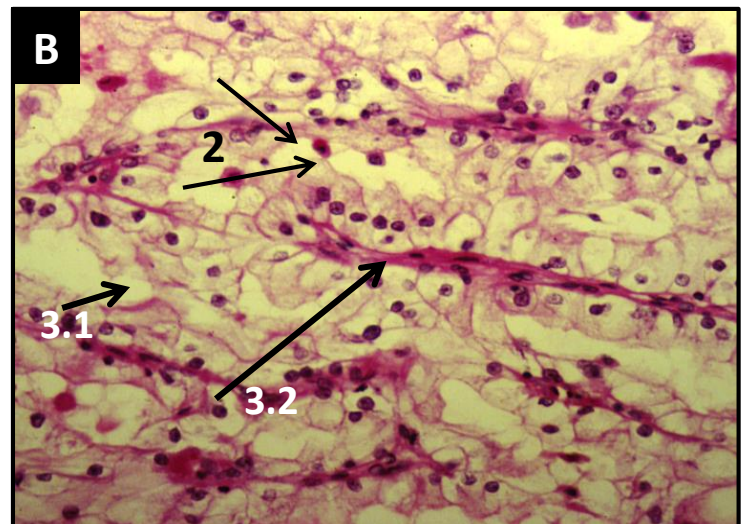
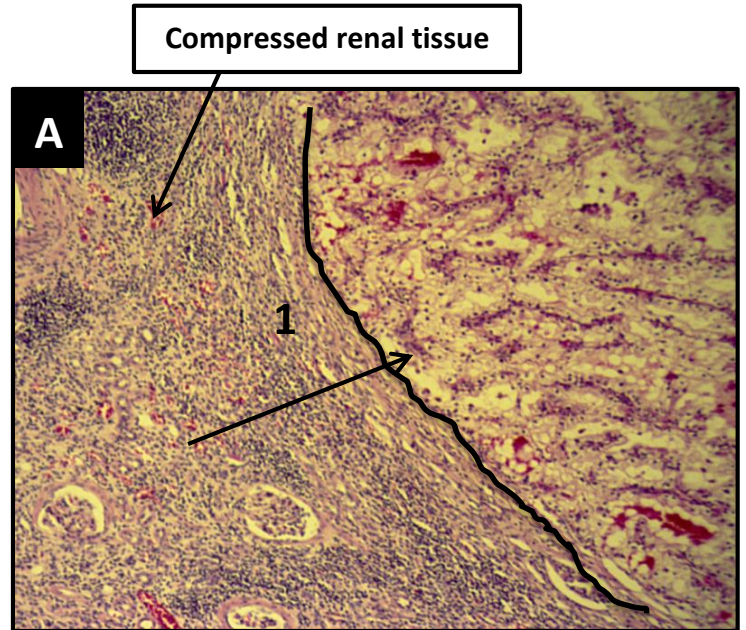
(1) Well defined with “chicken wire” appearance.

(2) have hyperchromatic (piknotic) nuclei with clear cytoplasm

(3) Cells are arranged as papillary formations

- (3.1) separated by thin fibro-vascular septae.
- (3.2) show pleomorphism and mitosis.

(*) Section shows clear tumour cells with pleomorphic nuclei and areas of hemorrhage.



Paraneoplastic Syndromes (Extra renal effects):-

-Polycythemia, fever, hypercalcemia and Cushing's syndrome
-Renal clear cell carcinoma may secrete erythropoietin hormone.

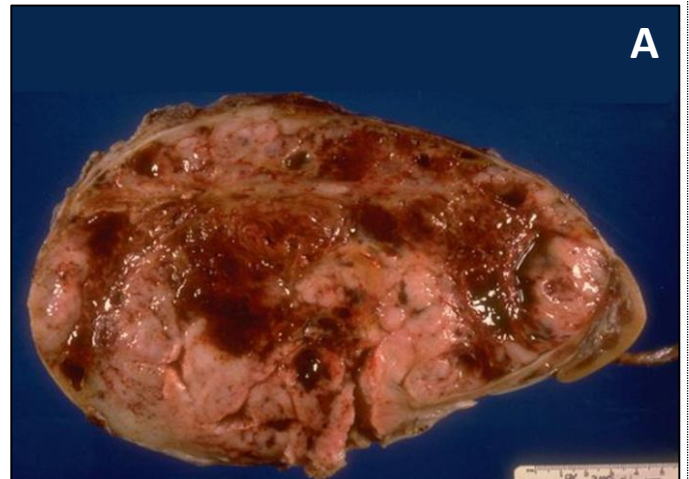
-Types of Renal cell carcinoma:

- Clear cell
- Papillary
- Chromophobe

(7) Wilm's Tumor

- Gross description:

(A) Pale and hemorrhagic solid tumor replacing the renal parenchyma.

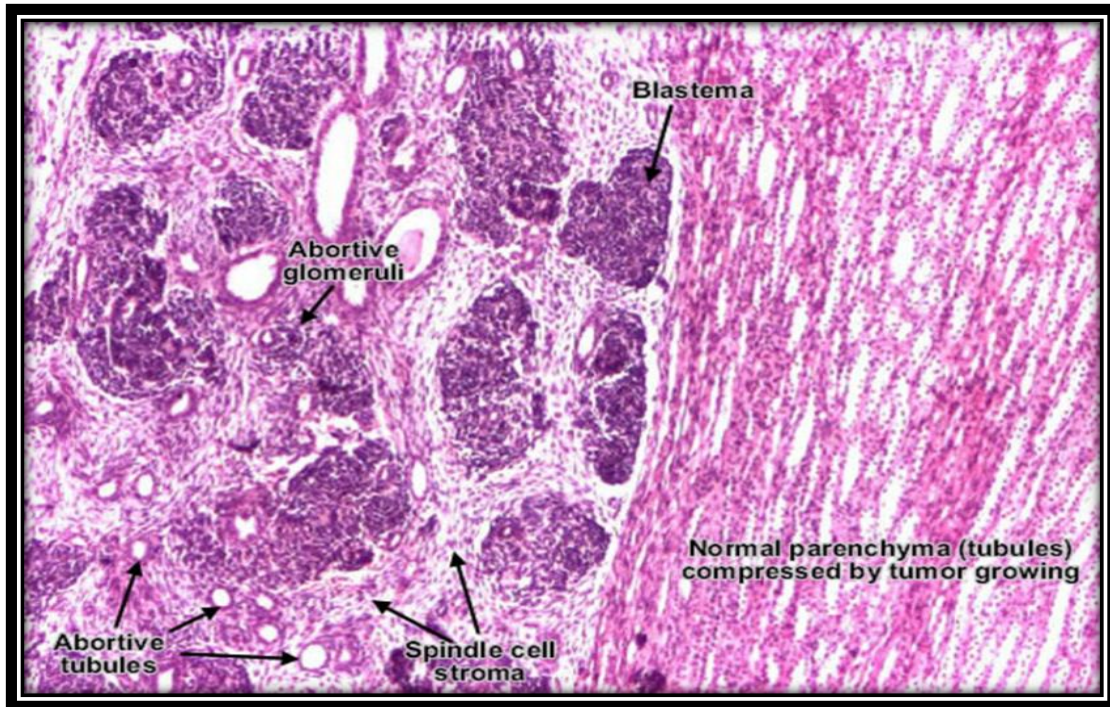


(B) Well-defined tumor with lobulation.



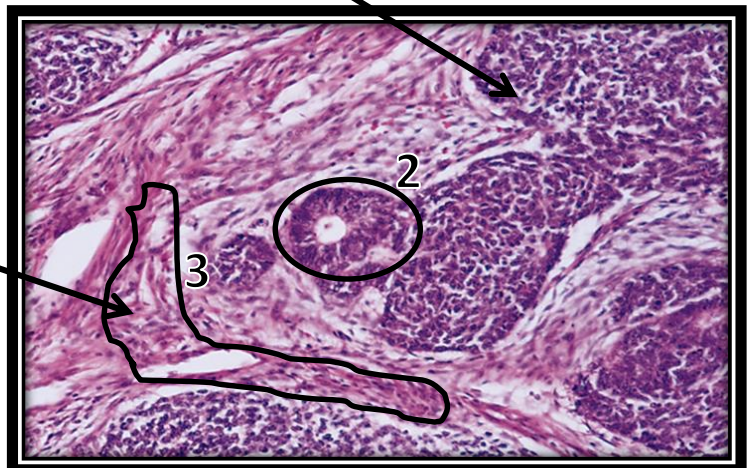
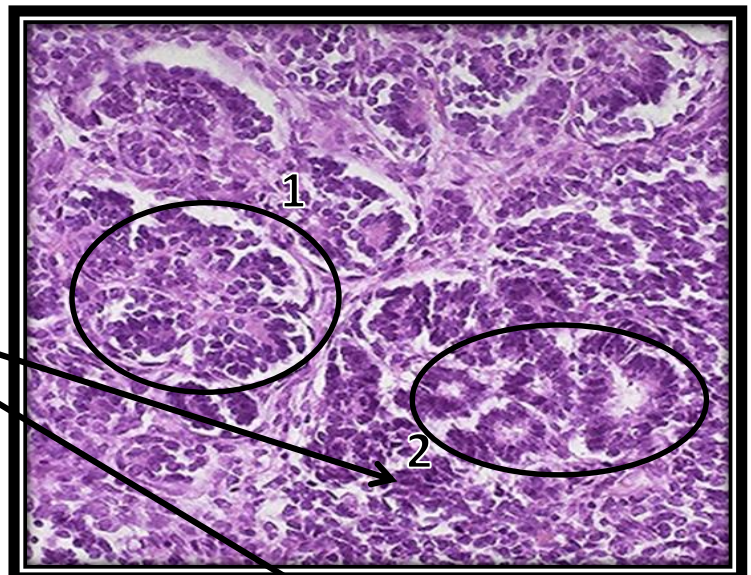
(C) Wilm's tumor in the lower pole of the kidney with the characteristic tan to grey color and well-defined margins.





- Histopathological features:

- Undifferentiated blastema with round, blue cells
- epithelial tissue with primitive glomerulus (1) and tubules (2)
- Mesenchymal → spindle cell stroma (3)



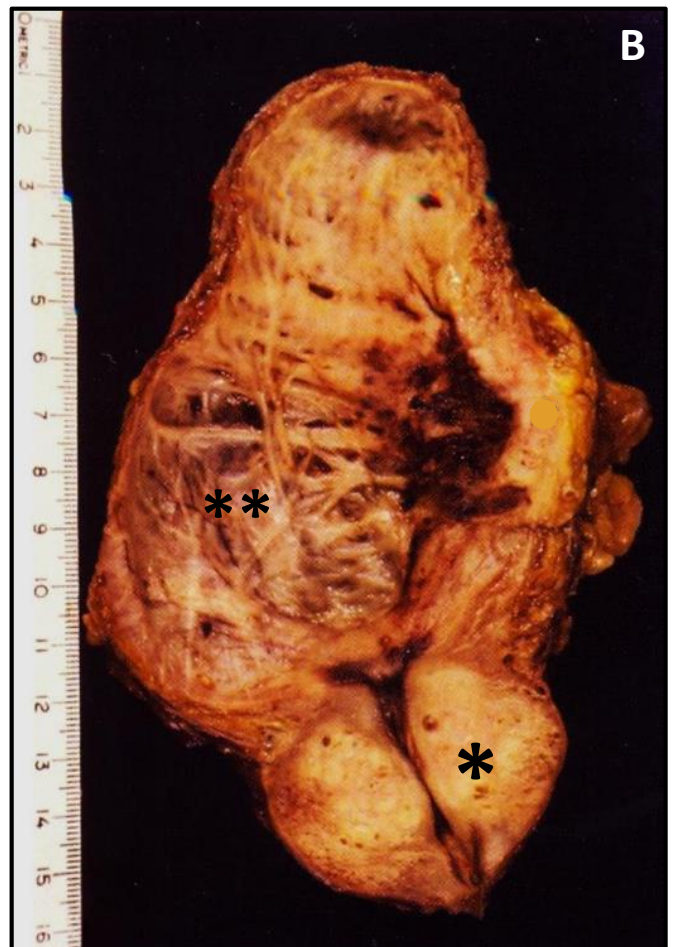
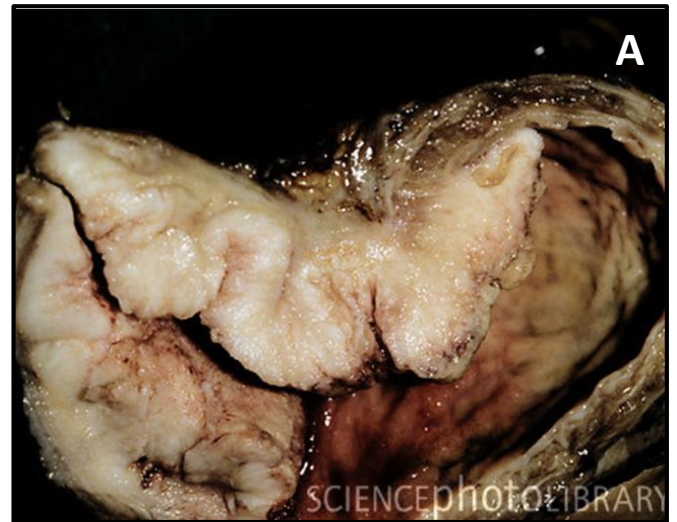
(8) Carcinoma of the urinary bladder

- Gross description:

(A,B) Tumor mass arise from bladder wall with finger like projections

(B) - Benign prostatic hyperplasia* and bladder carcinoma

- Trabeculation of the bladder wall **

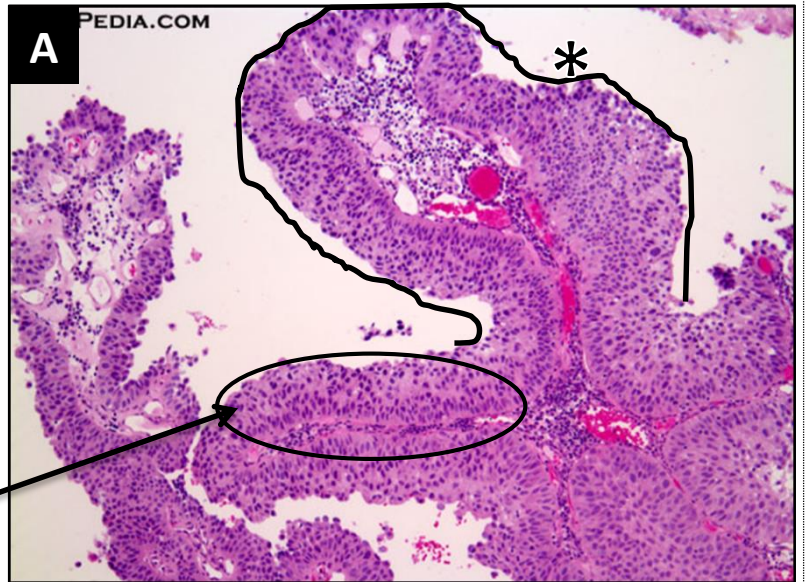


- Histopathological features:

-(A,B) papillary tumor shows multiple finger-like projections * lined by multiple thick layers of urothelium (transitional epithelium)

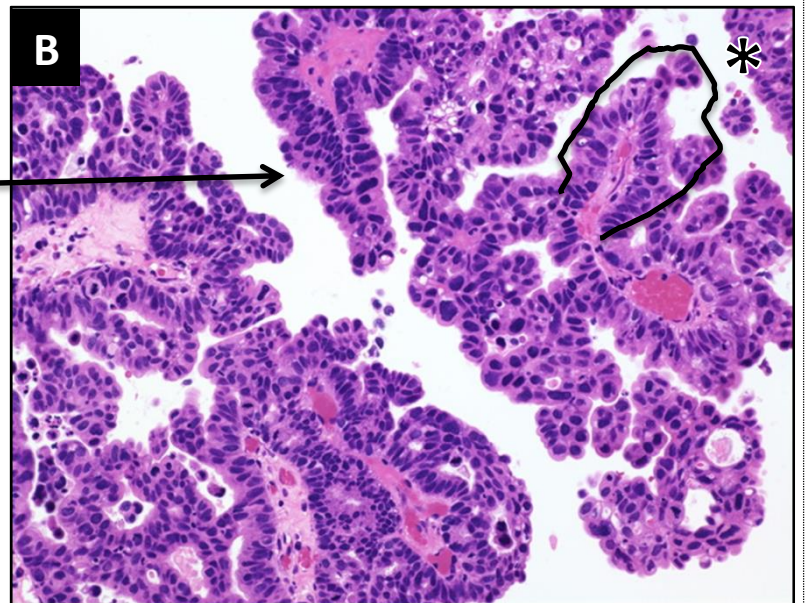
(A) Low Grade Urothelial Carcinoma:

- Mild atypia*
- Preserved polarity



(B) High Grade Urothelial Carcinoma:

- Severe atypia
- Lack of polarity



***Atypia:-**

- Hyperchromatism
- Mitosis
- Pleomorphism

Predisposing factors:

Cigarette smoking, Aniline dyes, long term use of analgesics, chronic cystitis, heavy long term exposure to cyclophosphamide.

The genes can be mutated: P16, P53 and FGFR3 on chromosome 9.



OUR SINCERE APPRECIATION TO BOTH
ABDULAZIZ AL-ANAZI AND KHALID AL-
JUAYDI FOR THEIR EFFORT..

اللهم إني استودعتك ما قرأت و ما حفظت و ما تعلمت فرده عليّ عند حاجتي اليه انك على كل شيء قدير



432 Pathology Team

Good Luck ^_^



Good Luck v_v