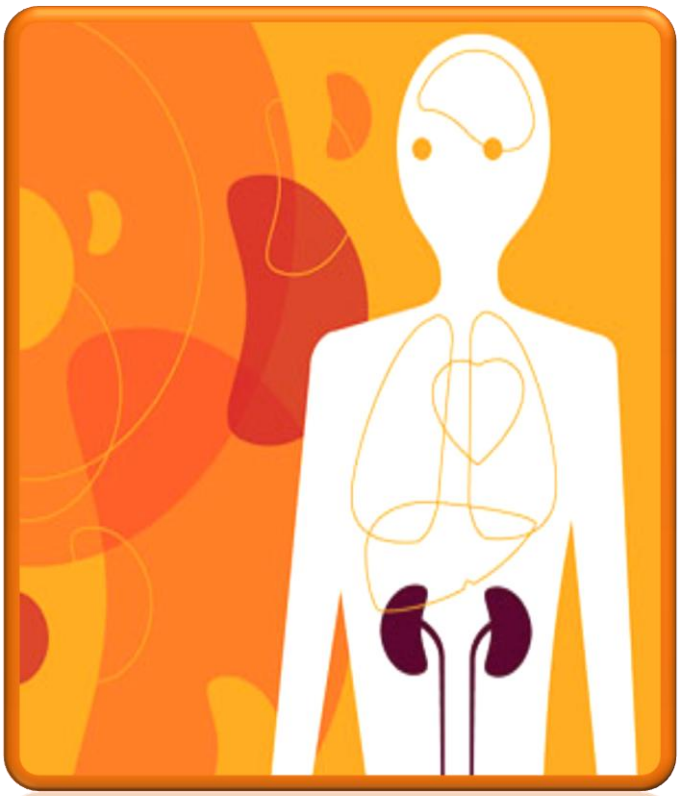


PATHOLOGY TEAM - 431

(Renal Block)

Bayan Al Nooh (LEADER)

Sadeem al dawas

Sara Almutairi

Afnan Alhargan

Wala'a Alshehri

Dalal Fatani

Sara Al anzi

Hadeel Helmi

Lama Al-Shwairkh

Hassah al-fozan

reema al anezi

Raghda Al-AmrI

Eman Al-Shahrani

Lama Mokhlis

HAZIM JOKHADAR (LEADER)

Mamdouh Al Enezi

Abdulelah Al Kapoor

Saad Kashogji

Majed Al Shammari

Bader Al Ghamdi

Khalid al Shibani

Abdullah Al Khowaiter

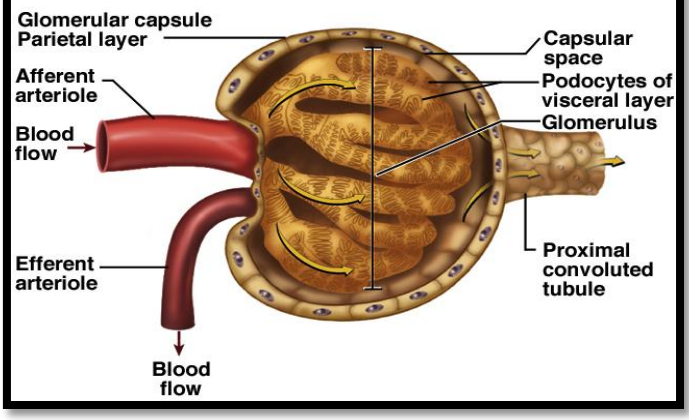
Blue box has Notes for cross section .

Green box has Notes for microscopy section .

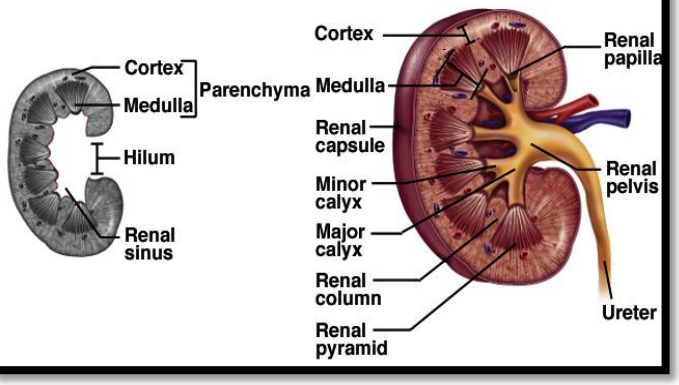
Red box has Notes related to the case .

Purple box has Extra information .

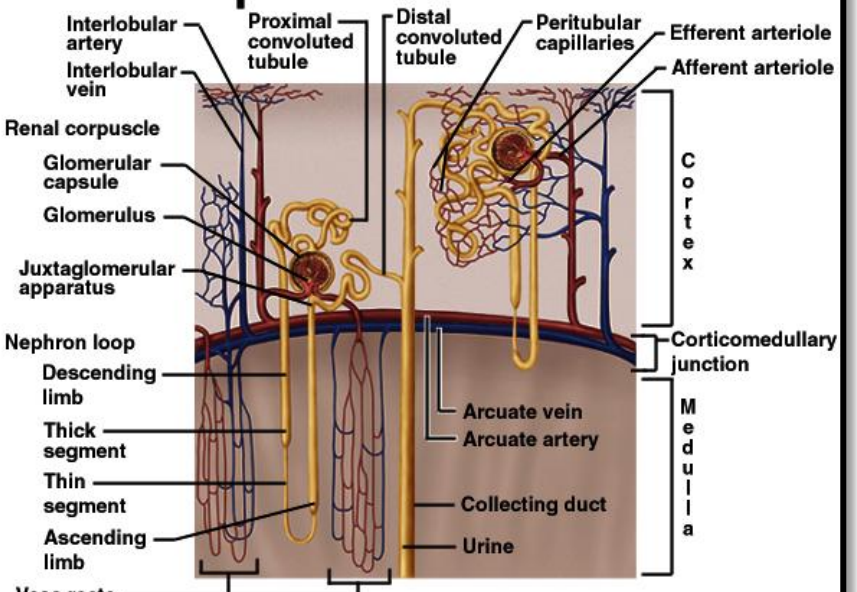
Renal Corpuscle

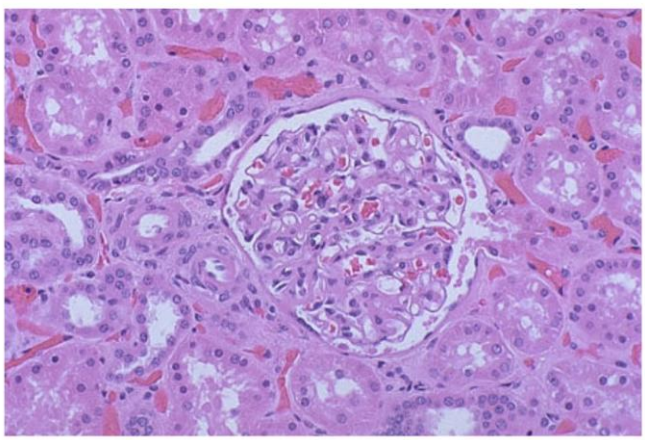


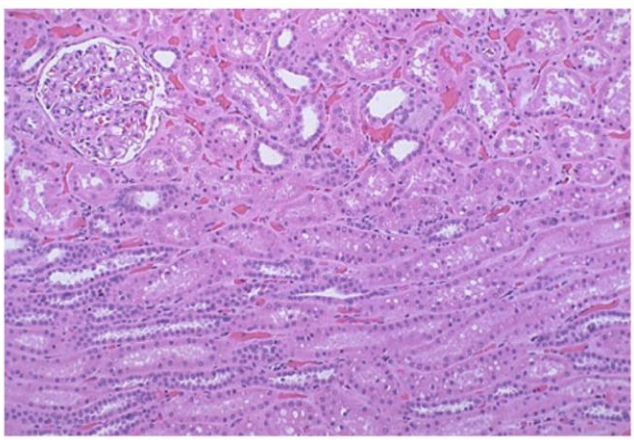
Anatomy of Kidney



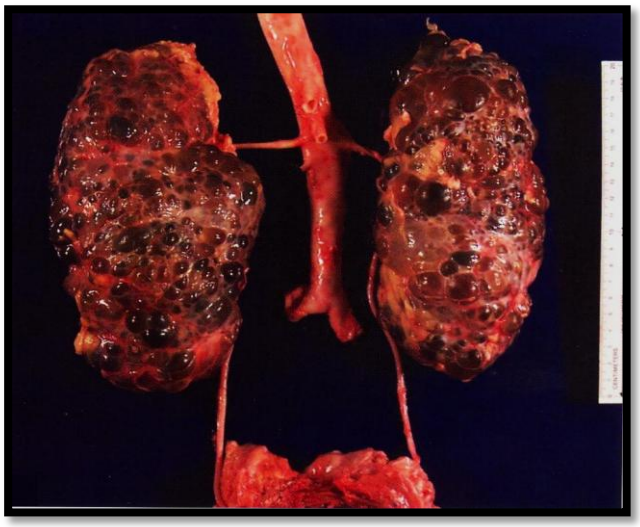
Nephron Structure







1-Polycystic kidney



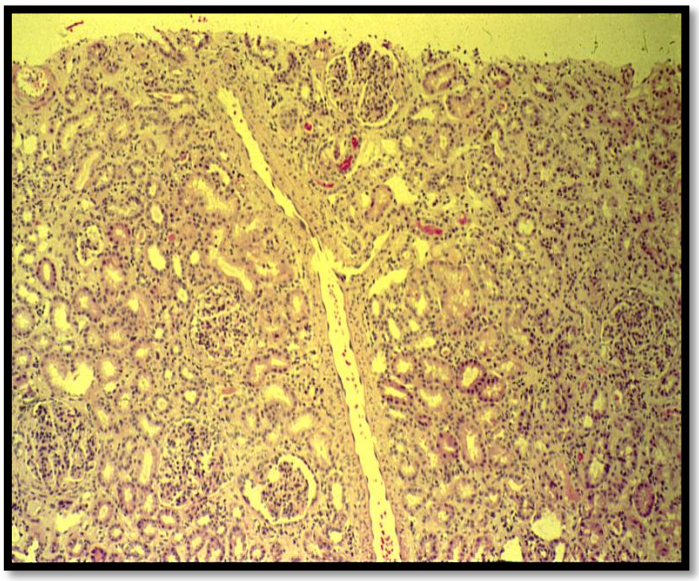
Adult polycystic kidney disease :

The gross picture shows :

- Markedly enlarged kidney and
- Replacement of the renal parenchyma by numerous cysts of variable sizes .

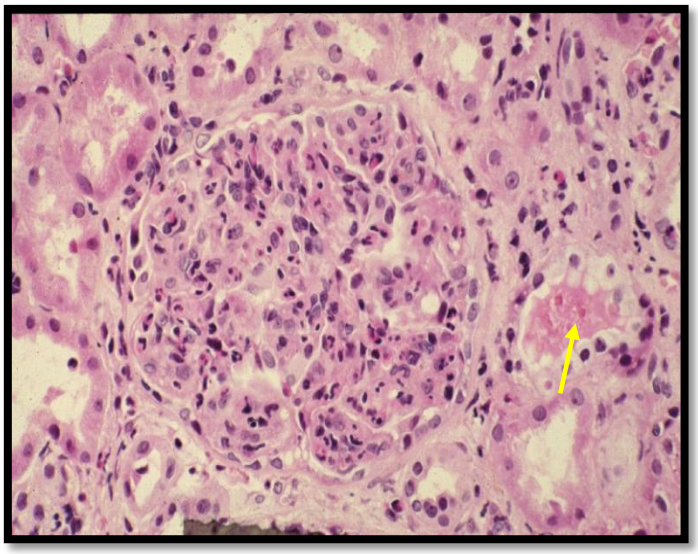
the pattern of inheritance for **adult** form is **autosomal dominant** and for **child** form is **autosomal recessive** .

2-Postsreptococcal glomerulonephritis



Section of kidney shows:

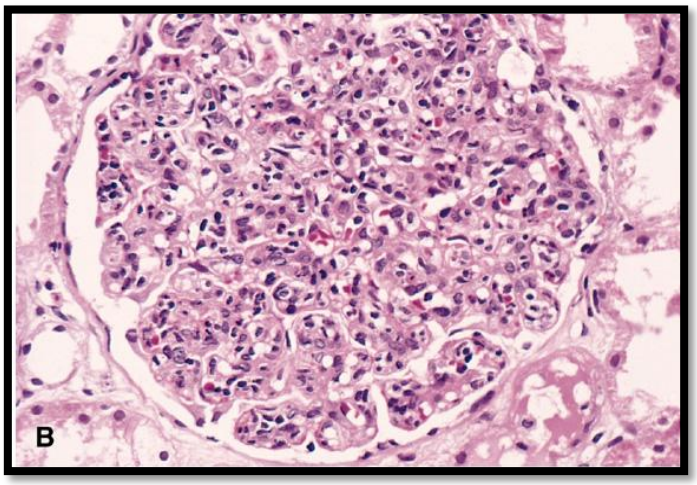
- The glomeruli are enlarged, lobulated and hypercellular with obliteration of capsular space.
- Cellularity is due to proliferation of endothelial and mesangial cells with some neutrophils.
- Many capillaries appear obliterated.
- Tubules show degenerative changes.



Diffuse proliferative glomerulonephritis:

High power LM of:

- hypercellular glomerulus
- numerous capillaries contain inflammatory cells, mostly neutrophils.
- Notice the red blood cells in a distal tubule, to the left of the glomerulus (arrow).



3- Hydronephrosis

Bisected kidney

markedly **dilated renal pelvis and calyces** with **atrophic and thin renal cortex /parenchyma**

Hydronephrosis: is the term used to describe dilation of the renal pelvis and calyces associated with progressive atrophy of the kidney due to obstruction to the outflow of urine.

The most common causes for hydronephrosis :

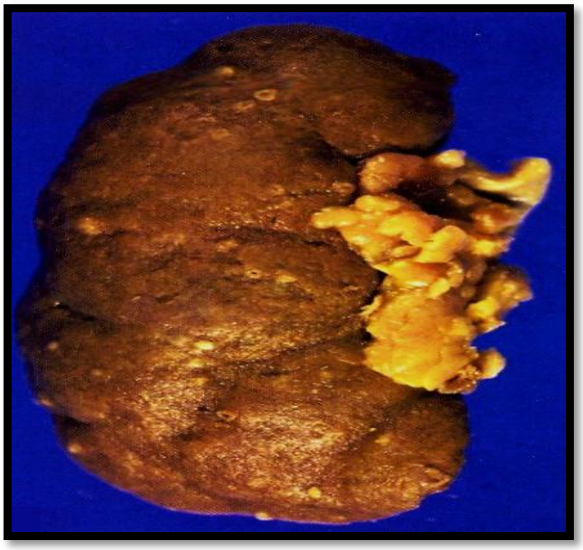
- foreign bodies like calculi with obstruction
- atresia of the urethra
- Benign prostatic hyperplasia
- carcinoma of the prostate and bladder tumours
- spinal cord damage with paralysis of the bladder

4- PYONEPHROSIS

- **Pyonephrosis** is seen when there is total or almost complete obstruction, particularly when it is high in the urinary tract.
- The suppurative exudate is unable to drain and thus fills the renal pelvis, calyces, and ureter with pus.

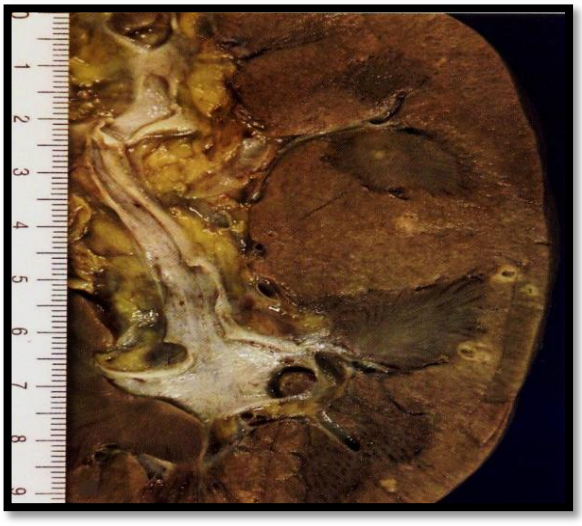
Gross section shows :

Focal **hydronephrosis** and **pyonephrosis**



Gross section shows :

Pyonephrosis with **small cortical abscesses**



Gross section shows :

Renal cortical pyonephrosis with **renal stone impacted within a calyx**

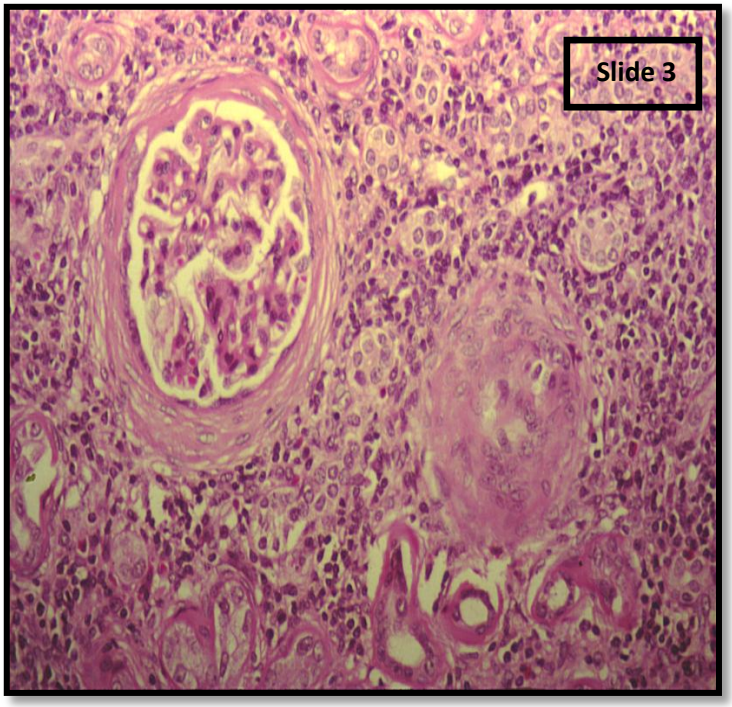
5- Chronic pyelonephritis

Gross Section

The picture shows slightly atrophic and deformed kidneys with cortical coarse scars .

**Extensive fibrosis scarring irregular shape of kidney that can be seen clearly.

Chronic pyelonephritis is a disorder in which *chronic tubulointerstitial inflammation and renal scarring are associated with pathologic involvement of the calyces and pelvis*

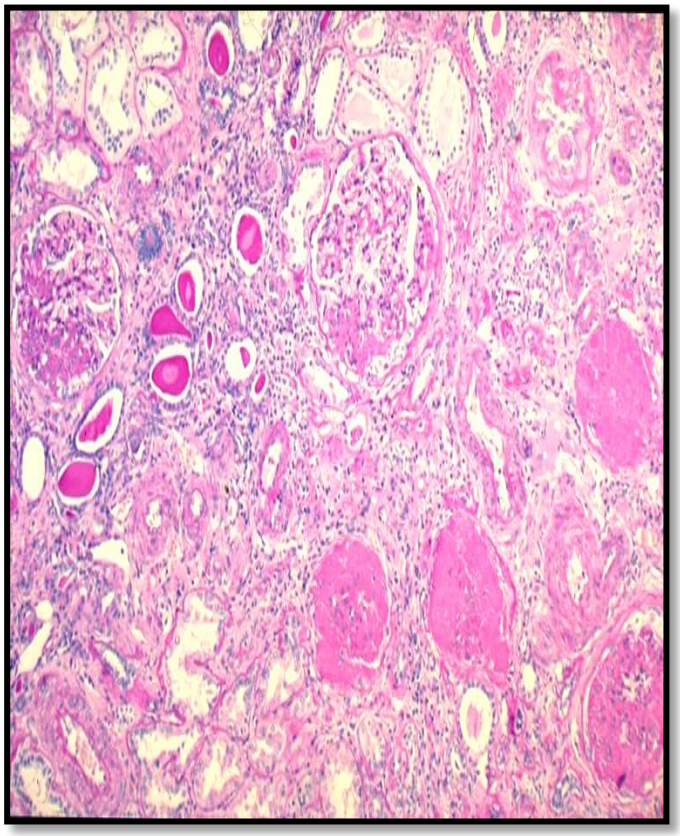


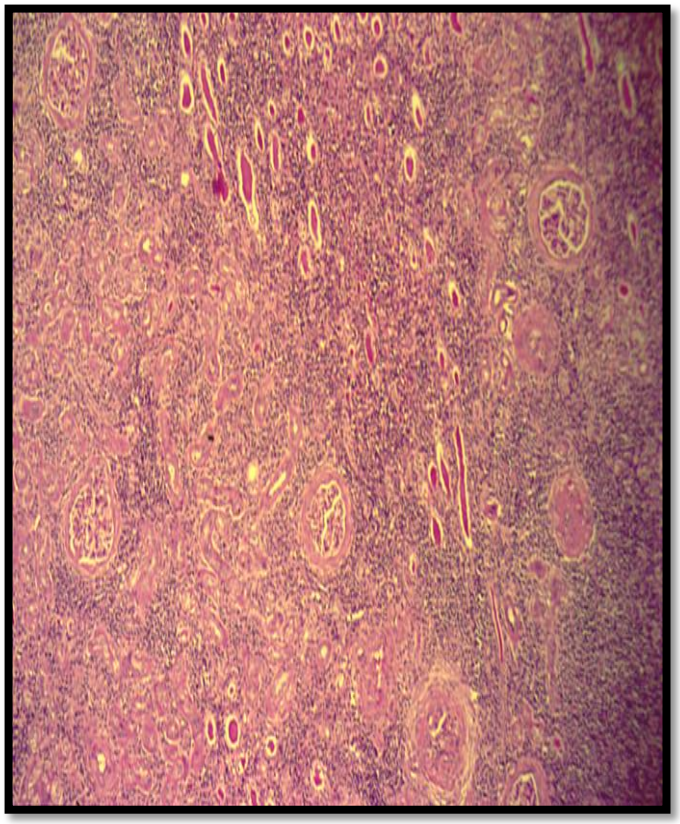
microscopy section of slide 3 :

1- **Fibrosis** & chronic inflammatory cells in the tubules & the interstitial. Because Chronic pyelonephritis include tubules & the interstitial, it's called " Chronic tubulointerstitial inflammation "

   Note : Loss of tubules causes the glomeruli to be sclerosed.

2- periglomerular **fibrosis**
3- glomerular **sclerosis** and hyalinization with marked **chronic interstitial inflammation.**





In general

Chronic pyelonephritis

Section of kidney reveals that:

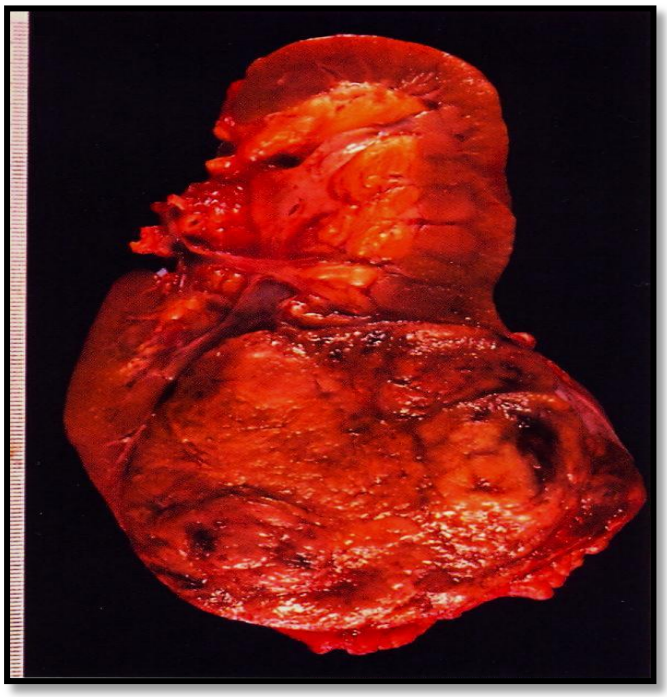
1- The glomeruli show varying degrees of **sclerosis** (global & segmental focal) and periglomerular **fibrosis.**

2- The tubules show varying degrees of atrophy. Some tubules are dilated and filled with **Eosinophilic hyaline casts** resembling colloid (**thyroidization**).

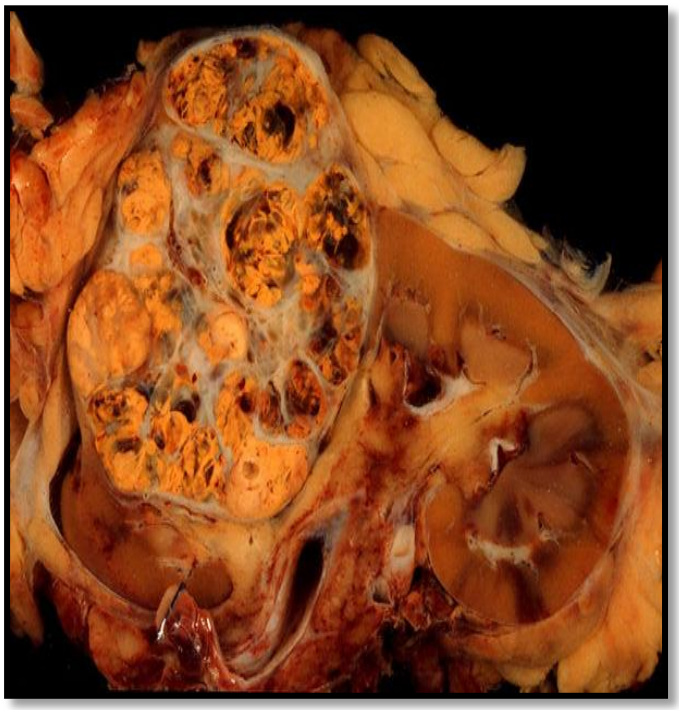
3- Interstitial tissue shows chronic inflammatory cells infiltrate and **Fibrosis.**

Cast : it takes the shape the place it presents in.

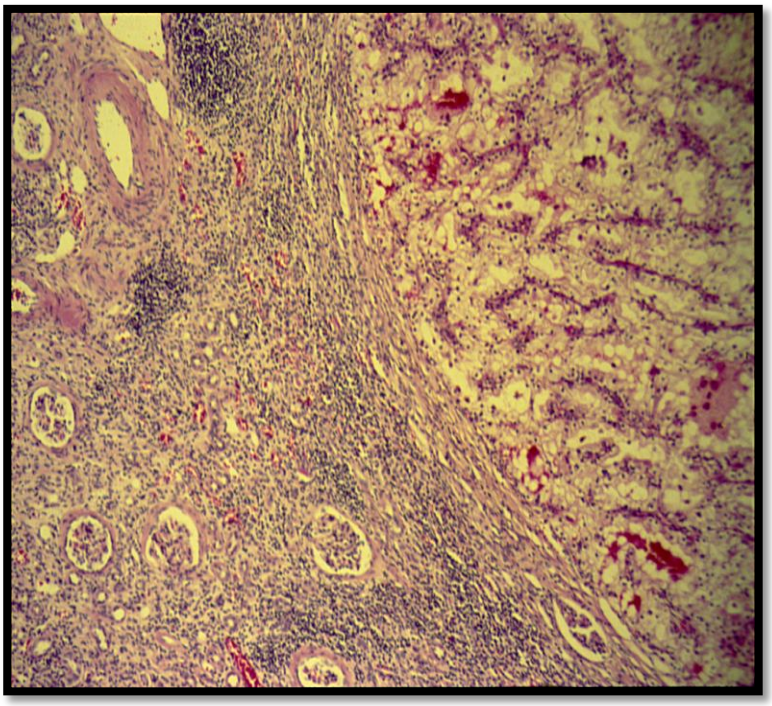
6- Renal Carcinoma

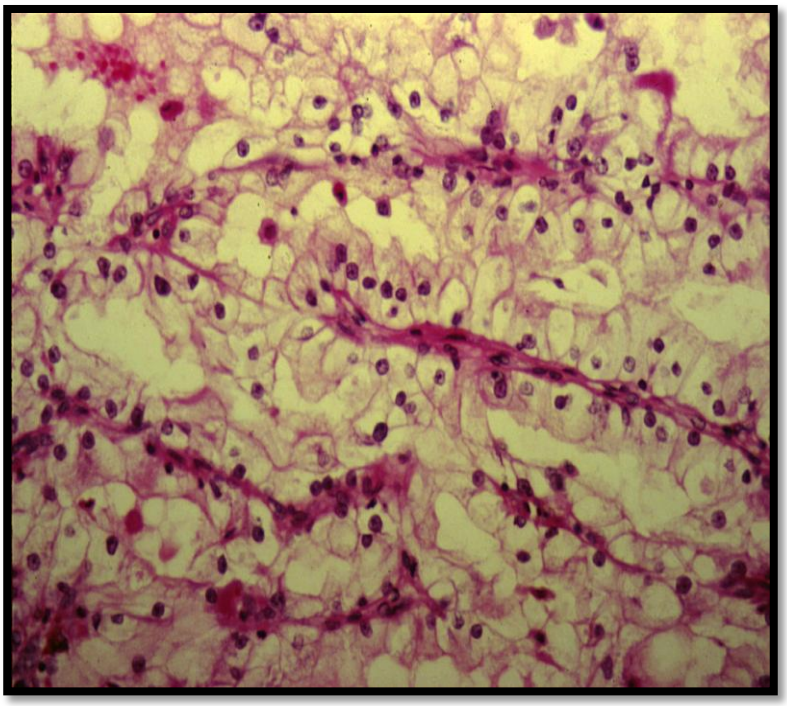


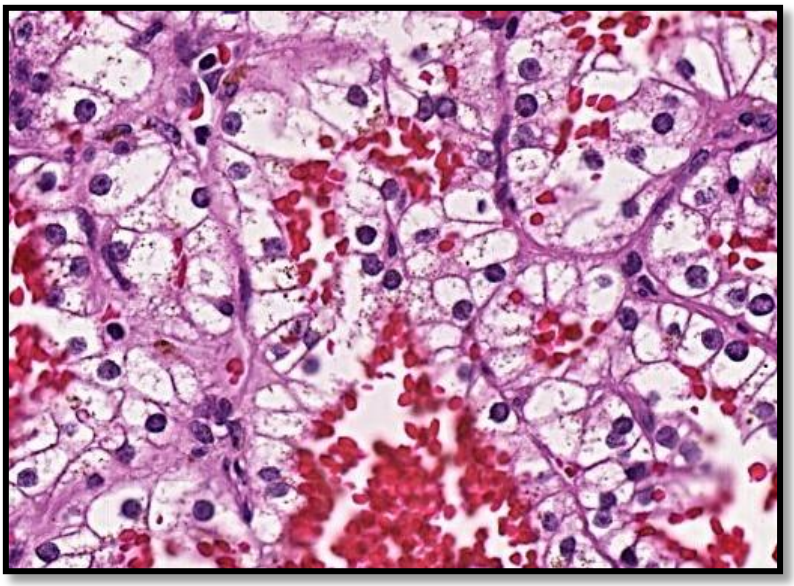
Renal cell carcinoma occupying the lower renal pole



Gross picture shows a well circumscribed renal cortical mass which is partly yellow and partly hemorrhagic with lobulated cut surface .







Section shows:

1- clear tumour cells with pleomorphic nuclei.

2- areas of hemorrhage .

In general

Clear cell carcinoma of the kidney

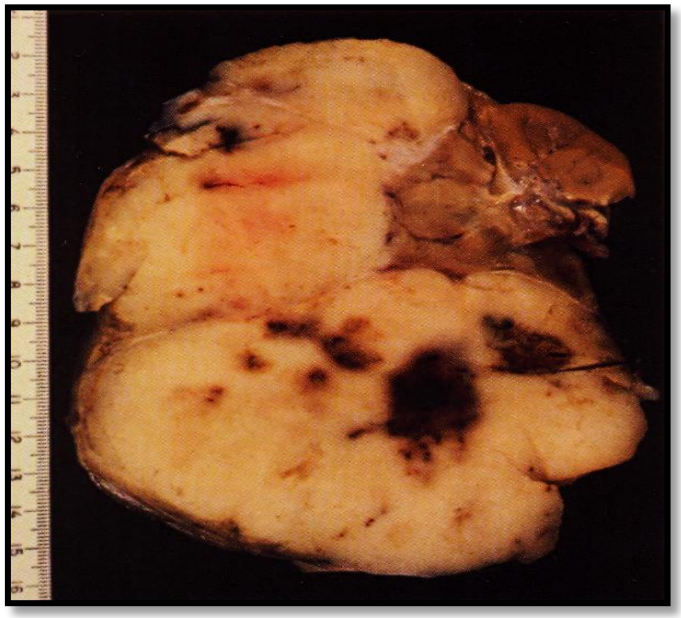
Section of the kidney shows:

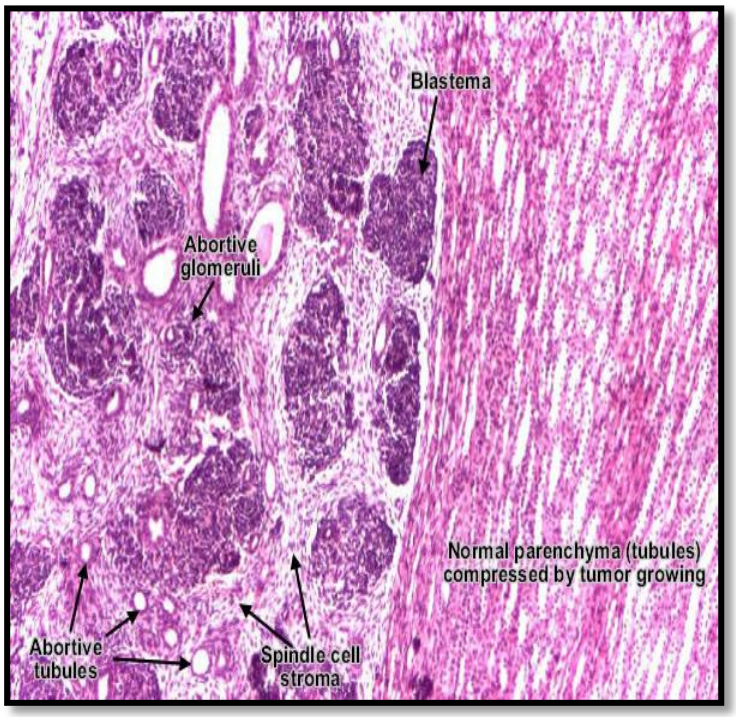
1. Compressed kidney tissue at the margin of the tumour masses.
2. Tumour cells are large polygonal with clear cytoplasm (dissolved glycogen and lipid) and piknotic nuclei.
3. Cells are arranged as alveolar groups or tubules with papillary formations separated by thin fibrovascular septae.
4. Cells show pleomorphism and mitosis.
5. Areas of haemorrhage and necrosis are present.

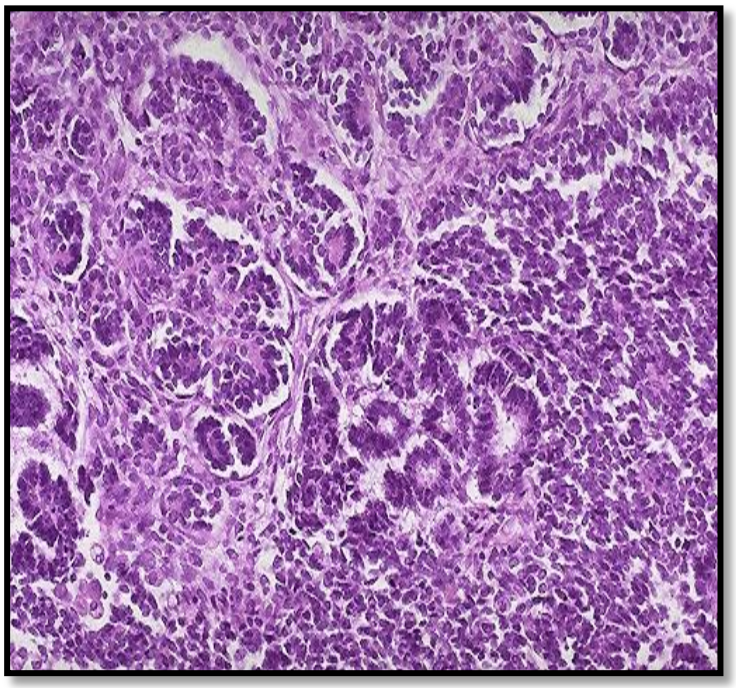
Renal clear cell carcinoma may secrete erythropoietin hormone..

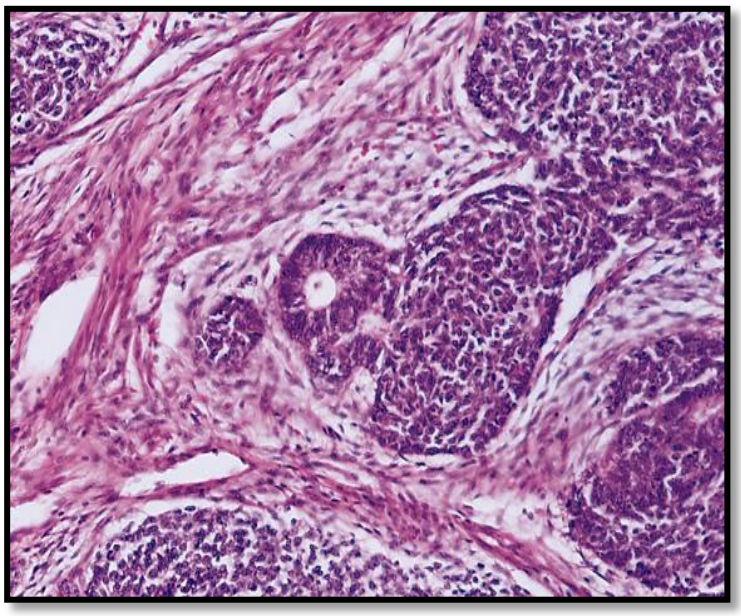
7- Wilm's tumour

Gross picture shows partly pale and partly hemorrhagic solid tumour replacing almost the entire renal parenchyma and areas of necrosis also seen .





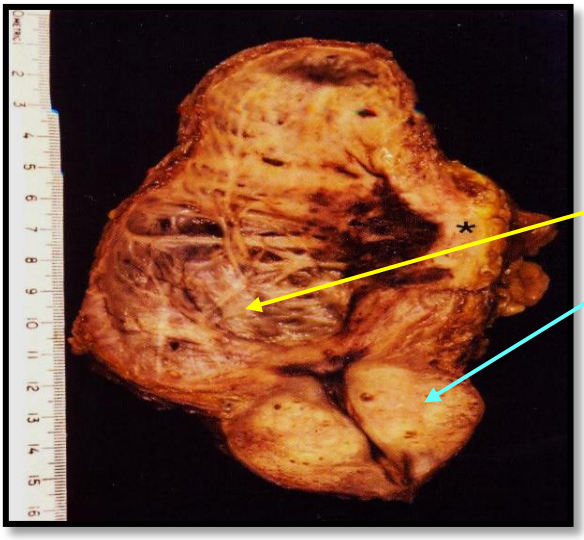




Wilm's tumor resembles the fetal nephrogenic zone of the kidney.
Three major components:

1- **Undifferentiated blastema cells .**
2- **Epithelial tissue which shows attempts to form primitive glomerular.**
3- **Tubular structures and mesenchymal (stromal) tissue**

8- Carcinoma of the urinary bladder

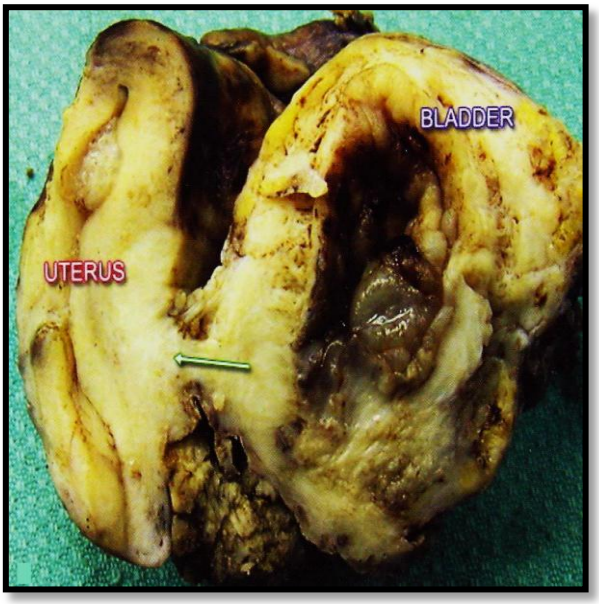


Longitudinal section of urinary bladder and prostate showing:

-trabeculation of the urinary bladder wall

-benign prostatic hyperplasia

-bladder carcinoma (asterix) which is most likely proved histologically to be transitional cell carcinoma .



Urinary bladder carcinoma infiltrating the urinary bladder wall with extention to the uterus through a fistula (arrow).

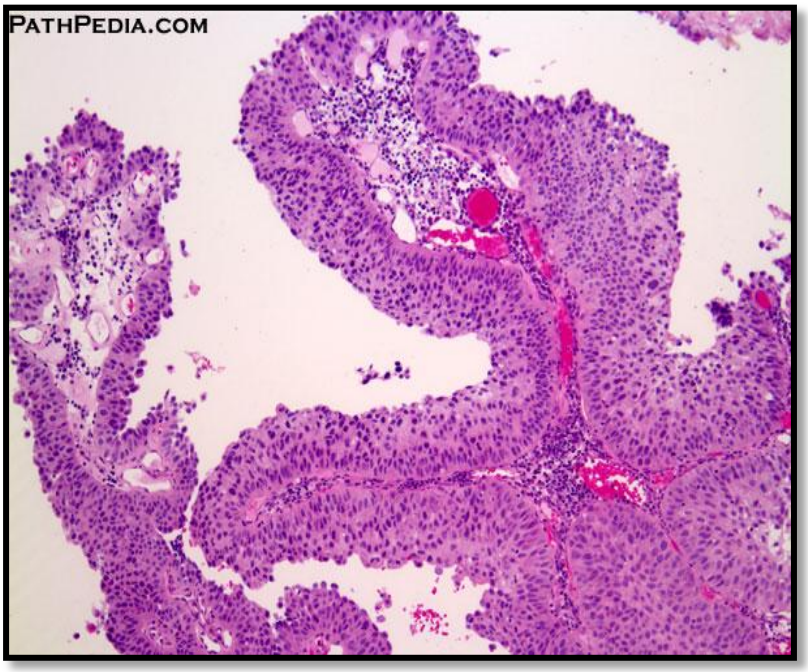
Predisposing factors include:

-smoking

-Aniline dyes

-long term use of analgesics

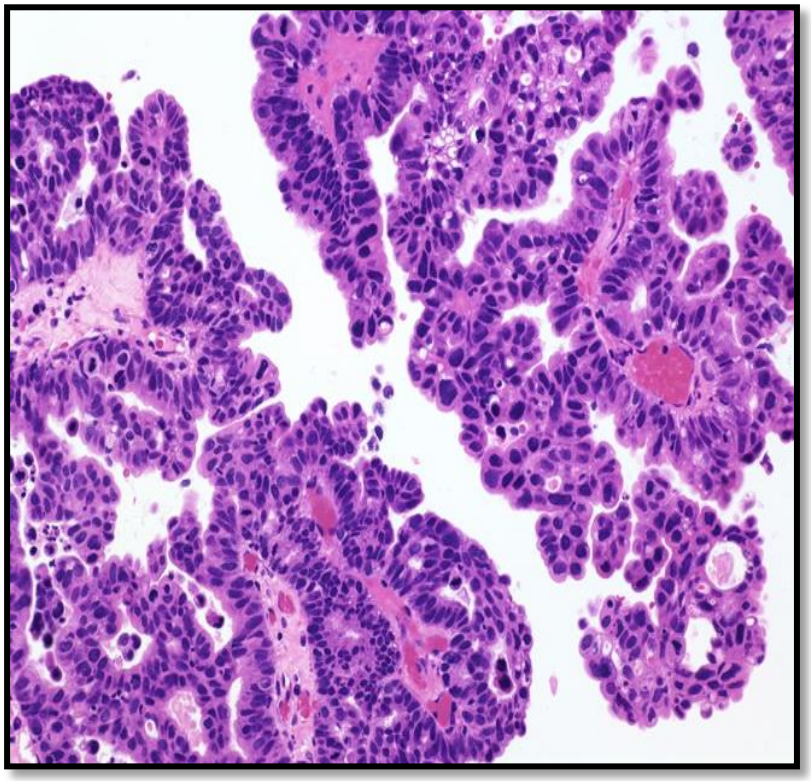
-heavy long term exposure to cyclophosphamide .



UROTHELIAL CARCINOMA, **LOW GRADE**

The low grade tumors show overall preservation of cell polarity, few mitoses, and lack of significant morphologic atypia.

This exophytic papillary tumor shows multiple finger-like projections lined by multiple layers of urothelium (transitional epithelium).



Papillary Urothelial Carcinoma, **High-grade.**

The nuclei in this high-grade tumor are significantly enlarged and show variably increased chromatin content.