Practical Pathology

3rd stage – Pyelonephrits-Tubulo- intristitial Disorder

م. د . وليد نزال هوسي

طب وجراحة عامة

M.B. Ch .B /A.B.S(PATH)

شهادة البورد العربي (دكتوراه) في النسيج المرضي وتشخيص الامراض الحميدة والخبيثة

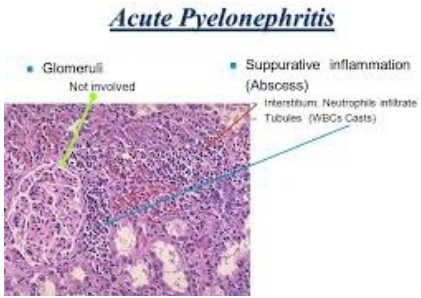
جامعة تكريت/كلية الطب/فرع الامراض

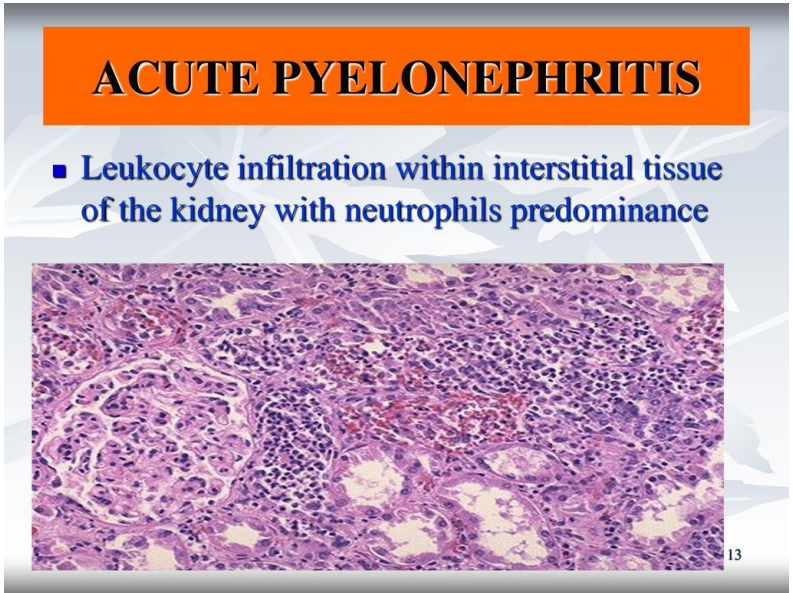
walid.n.husi@tu.edu.iq

- A 32-year-old woman presents to the emergency department with a 3-day history of fever, chills, flank pain, and dysuria. She describes the pain as sharp and located in her right flank, with radiation to the lower abdomen. She also reports nausea and decreased appetite but denies vomiting. Her past medical history includes recurrent urinary tract infections.

- On examination, she is febrile (38.9°C), tachycardic (110 bpm), and appears ill. There is tenderness over the right costovertebral angle (CVA tenderness). Urinalysis reveals pyuria, bacteriuria, and positive nitrites, and urine culture is pending. Unfortunately the patient do not responding for usual treatment ,Nephro-ectomy was done ,gross and microscopic shown in next slide.

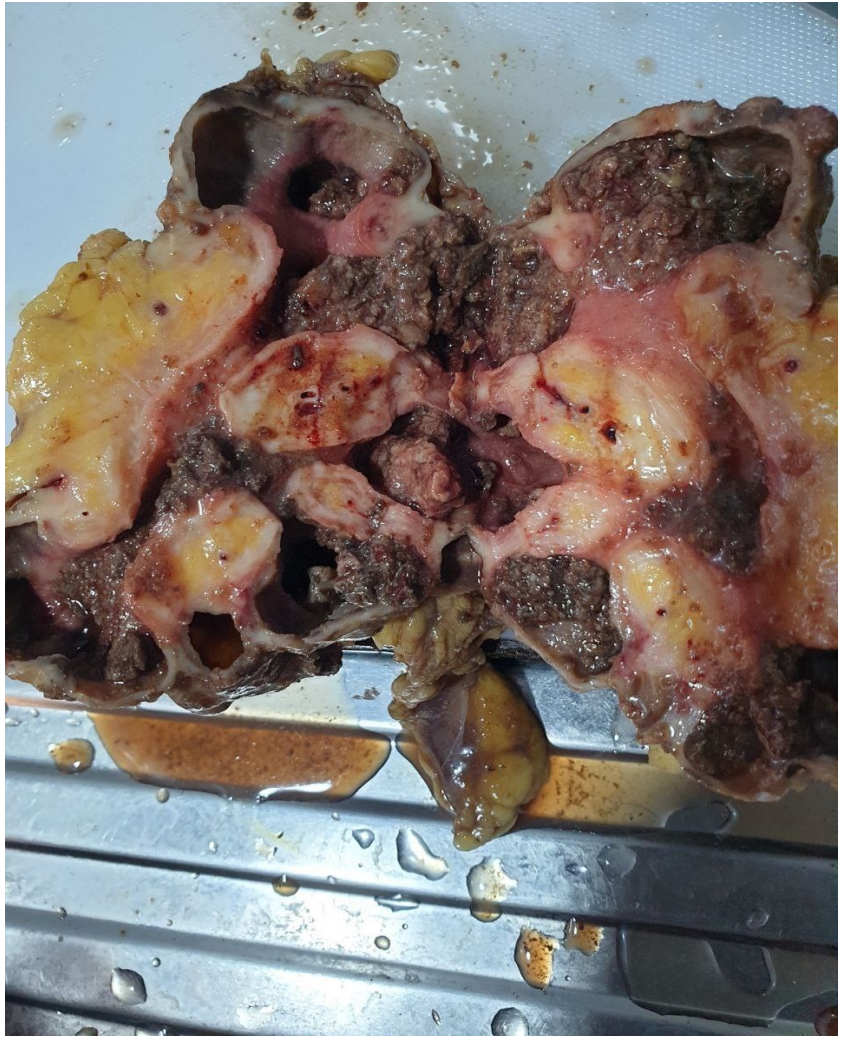
Gross and Microscope





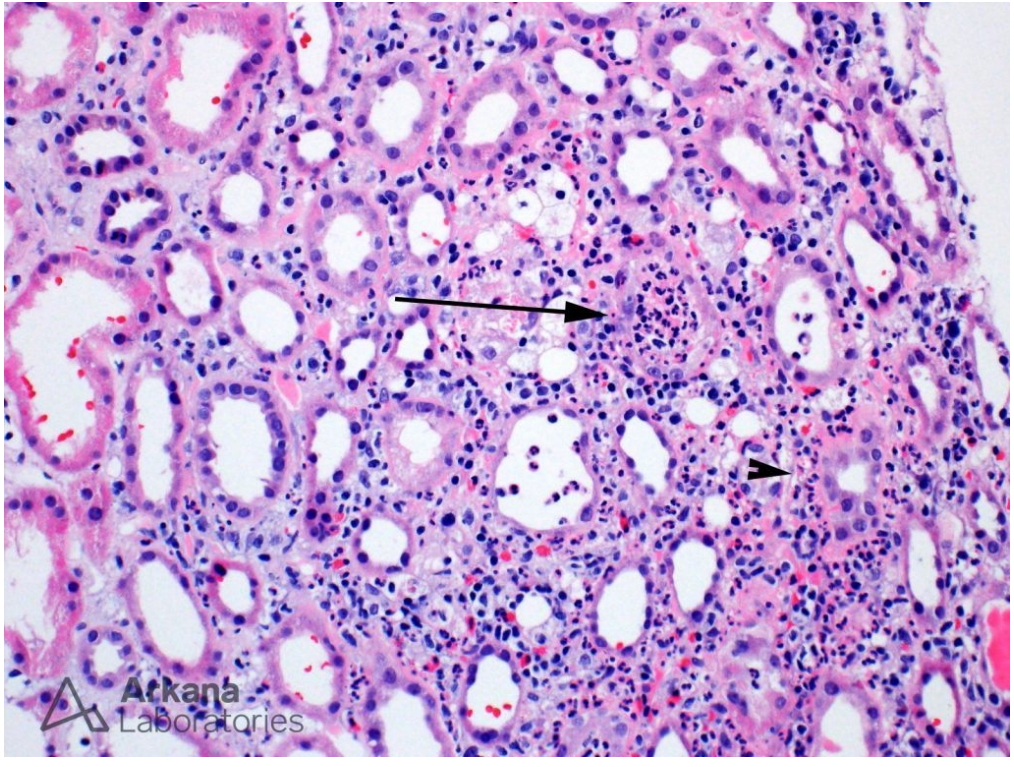
Gross of acute pyelonephritis

- Focal abscesses or wedge shaped areas of suppuration
- In emphysematous pyelonephritis, the kidney is smaller than usual with hemorrhage, necrosis and crepitus on palpation; gas filled cysts are present in renal cortex and renal papillae; renal capsule is detached and filled with subcapsular blood / blood clots



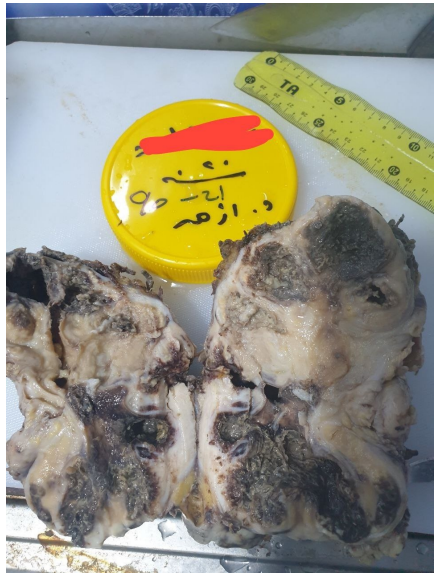
Microscope

The renal biopsy image shows features characteristic of acute pyelonephritis. There is a neutrophil-rich interstitial inflammatory infiltrate and evidence of acute tubular injury. Some tubular lumens are filled with neutrophils (arrow), and in some areas, neutrophils encircle the outer aspect of the tubules between the tubular basement membrane and the interstitium (arrowhead). In some cases, micro abscesses may even form (not shown). In most cases of ascending infection, large vessels and glomeruli are uninvolved. If arteritis or neutrophilic infiltrates involve glomeruli, the possibility of a hematogenous infectious source should be considered.

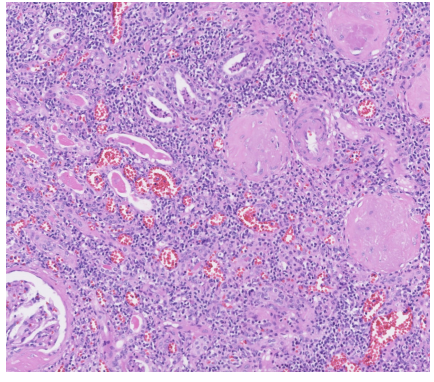


- Diagnosis: Acute Pyelonephritis
- Management: IV fluids, empirical IV antibiotics (e.g., ceftriaxone), analgesia, and urine culture-guided antibiotic therapy

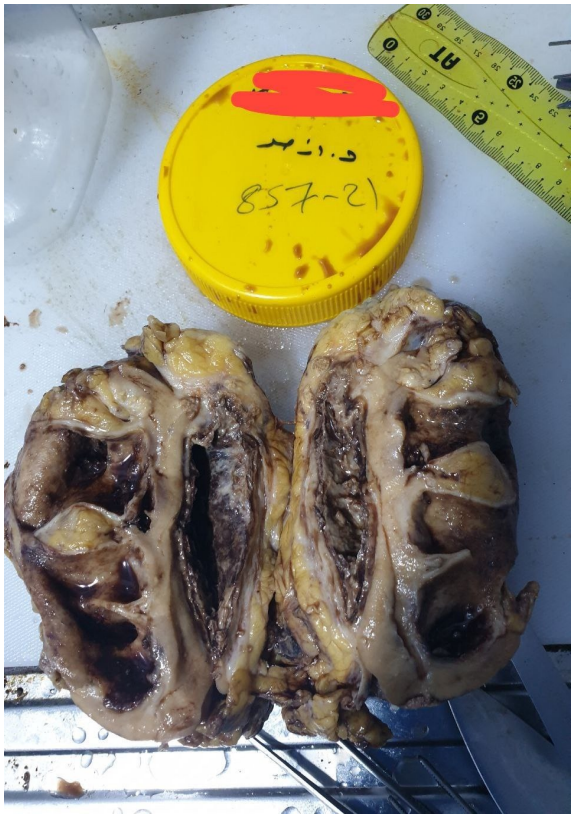
A 45-year-old woman with a history of recurrent urinary tract infections (UTIs) presents to the clinic with fatigue, flank pain, and occasional fever. She reports experiencing frequent episodes of burning urination over the past several months. On examination, she has mild tenderness over her right flank. Laboratory tests reveal elevated serum creatinine, proteinuria, and pyuria. A renal ultrasound shows cortical scarring and calyceal blunting.

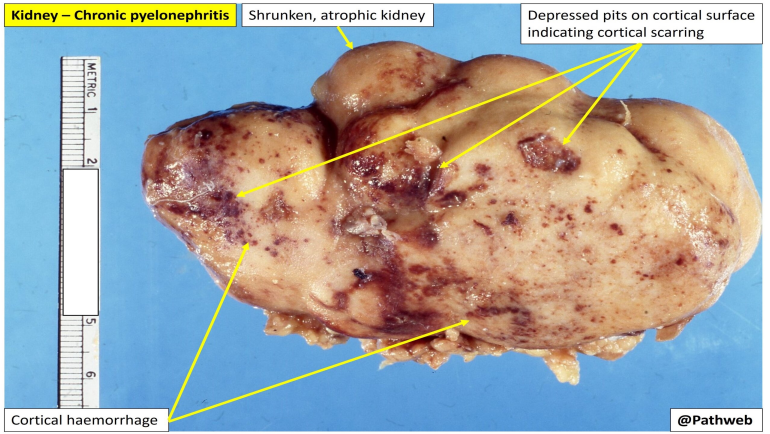


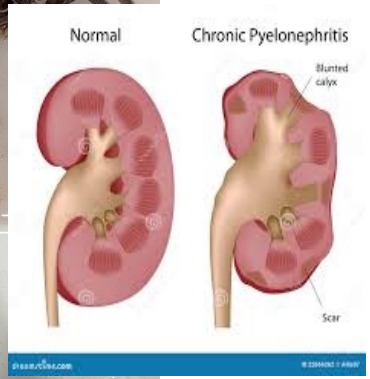
The doctor diagnoses chronic pyelonephritis, likely due to repeated infections leading to progressive renal scarring. She is advised on long-term management, including antibiotics for acute exacerbations, blood pressure control, and regular monitoring of kidney function.Nephroectomy was done ,the Gross and microscope shown .what is the Diagnosis



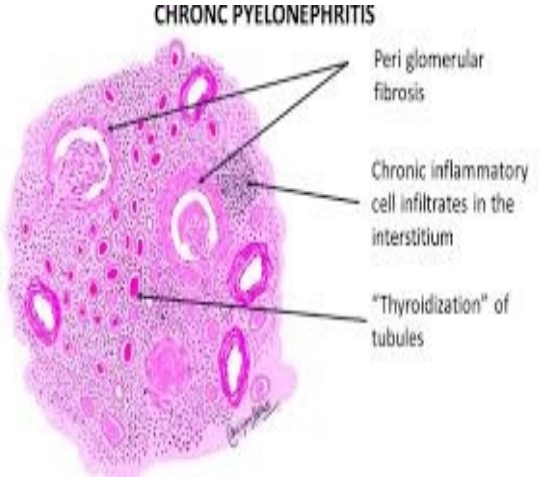
Gross

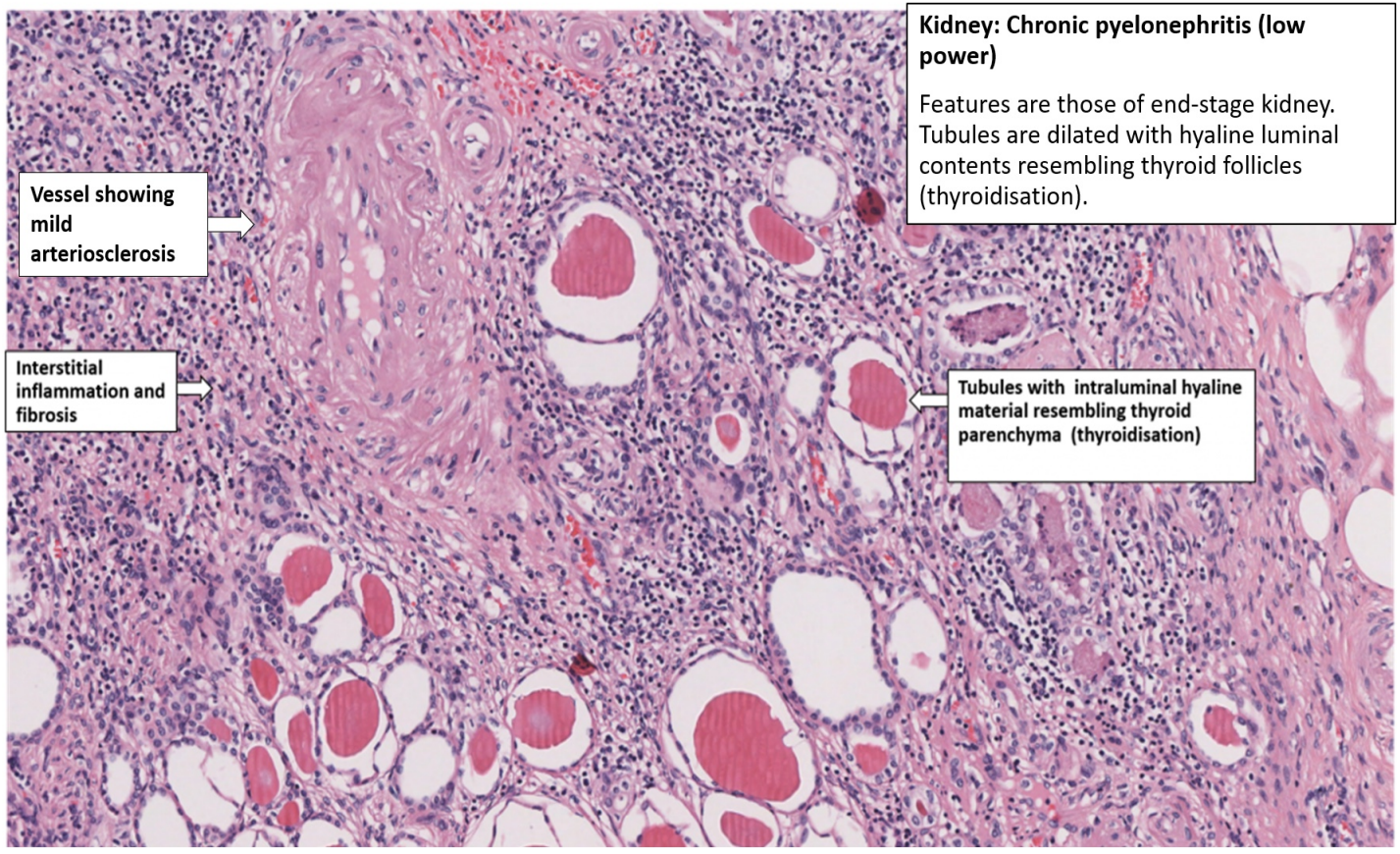



Kidney – Chronic pyelonephritis
Shrunken, atrophic kidney
Depressed pits on cortical surface indicating cortical scarring
Cortical haemorrhage
@Pathweb


Normal
Chronic Pyelonephritis
Blunted calyx
Scar

Microscope





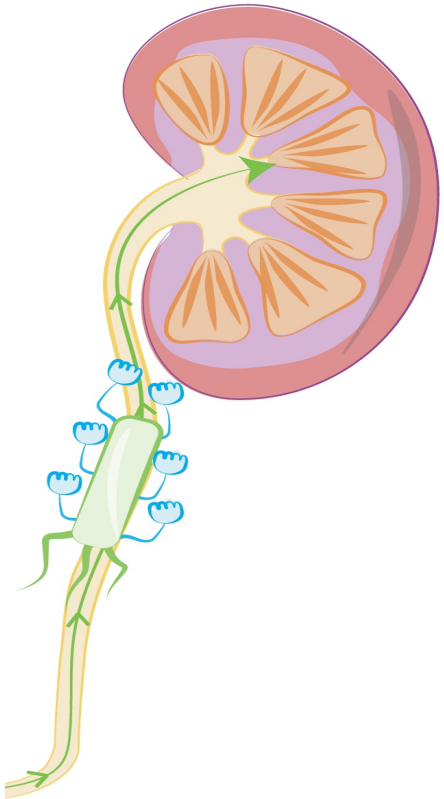
Kidney: Chronic pyelonephritis (low power)

Features are those of end-stage kidney. Tubules are dilated with hyaline luminal contents resembling thyroid follicles (thyroidisation).

Conclusion

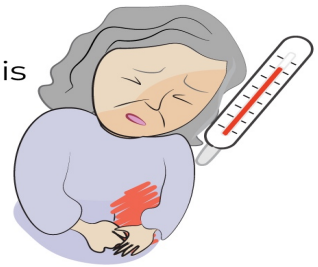
Pyelonephritis

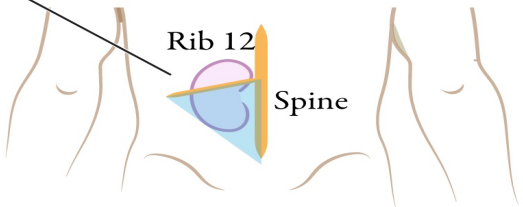
Most often a complication of UTI:
Infection ascends to the renal parenchyma & renal pelvis.



Acute -

- Urination S/Sx similar to cystitis
- Additional manifestations:
  - Fever with chills
  - Flank/abdominal pain
  - Nausea/vomiting
  - Costovertebral angle tenderness





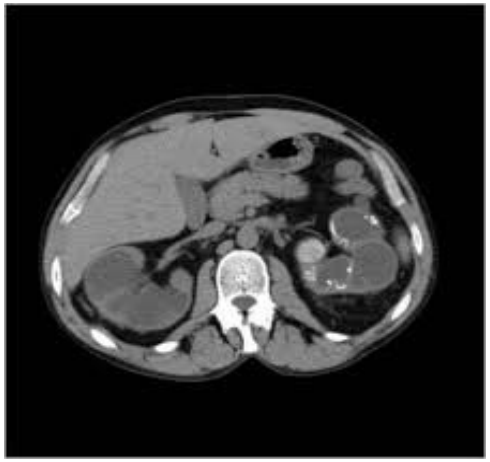
Chronic -

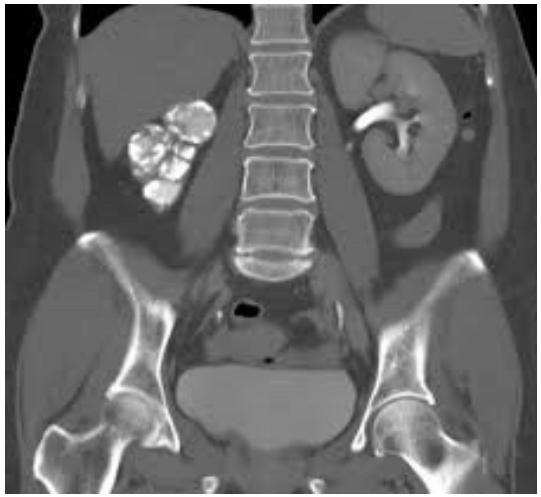
- Persistent/recurrent kidney infection
- Inflammation & fibrosis
- Most often assoc. w/anatomic anomalies (children w/ureterovesical reflux)

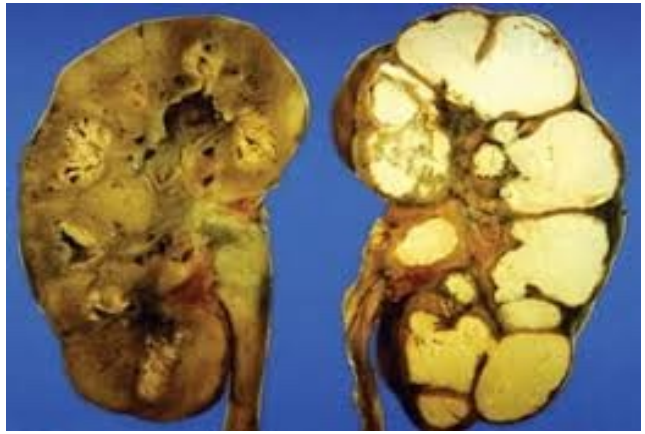
TREATMENT

- Antibiotic therapy
- Relieve obstruction
- Analgesics
- The role of surgical correction of vesicoureteric reflux remains uncertain, but meticulous control of infection appears to prevent progressive scarring.

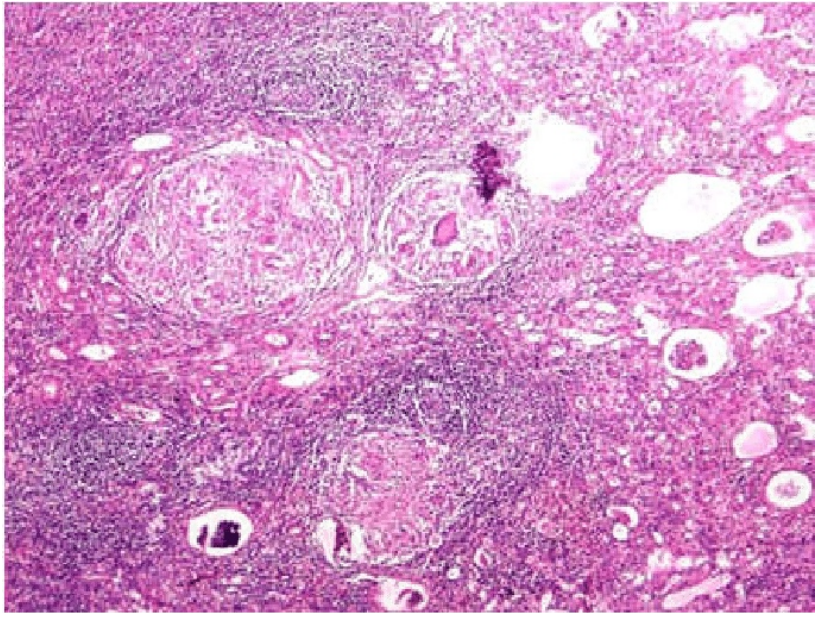
- A 45-year-old man(doctor) with a history of untreated pulmonary tuberculosis (get infection from hospital)presents with persistent flank pain, dysuria, and intermittent fever. Urinalysis reveals sterile pyuria and microscopic hematuria. A CT scan shows renal calcifications and cortical scarring. A urine culture for Mycobacterium tuberculosis confirms the diagnosis of renal tuberculosis. He is started on anti-tubercular therapy .unfortunately he dose not responding for anti-TB after his condition get worse and he developed renal failure and needs for dialysis and renal transplant..



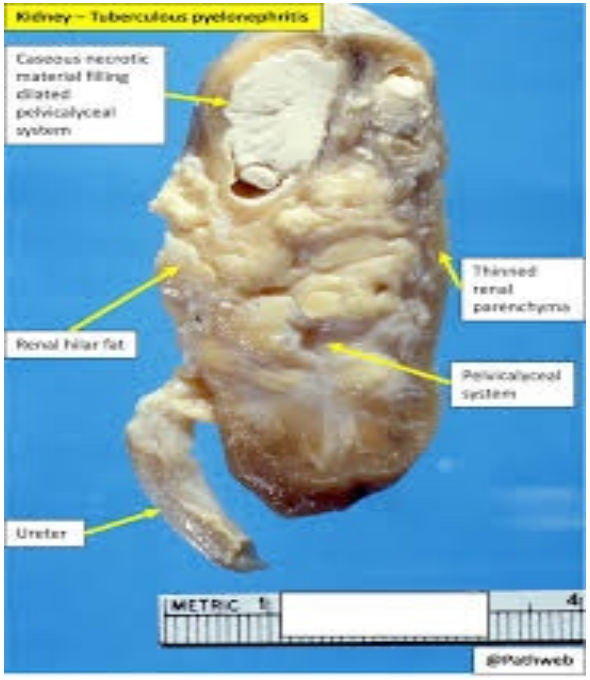




Renal Tuberculosis



Renal tuberculosis showing renal tissue with epithelioid granulomas, Langhan.s type of giant cells and lymphocytic infiltrate (10x: H-E) cases of chronic pyelonephritis, hydronephrotic changes



Conclusion and suggestion

From student•