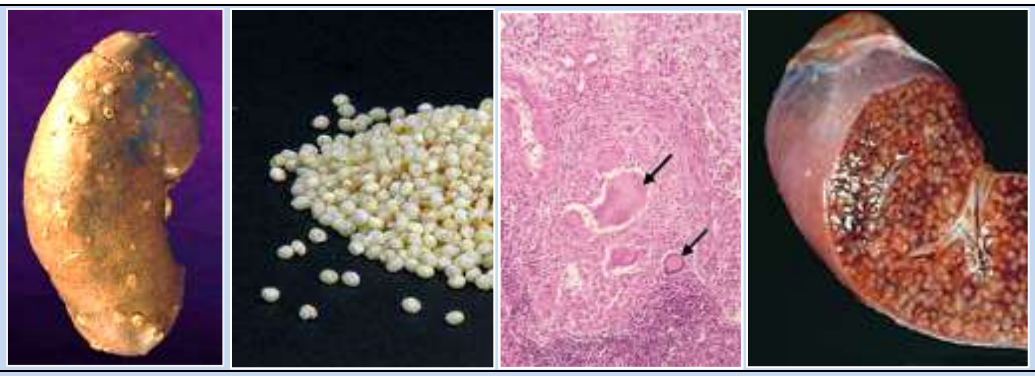


Tuberculosis (miliary) IV- 1.3311

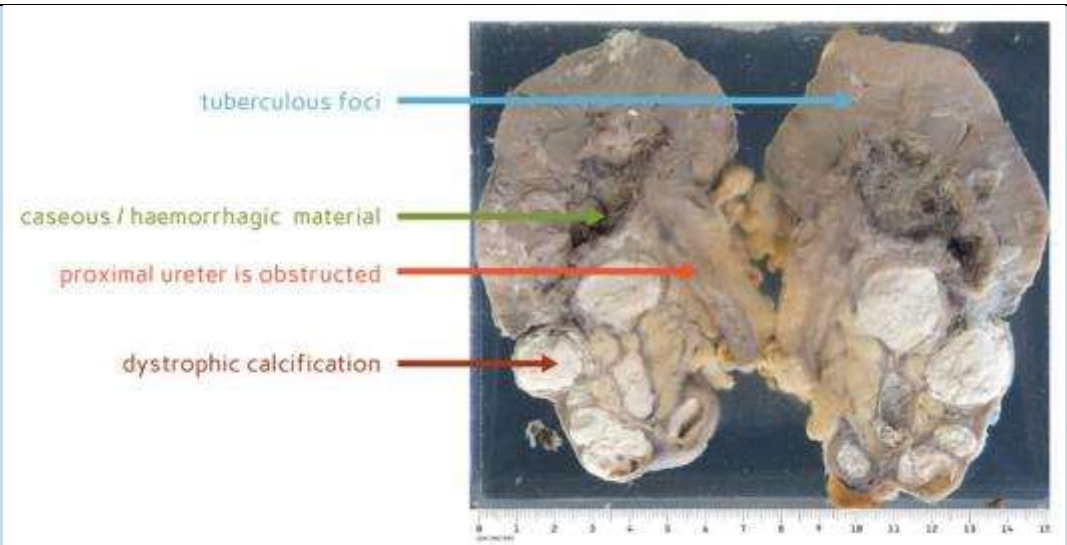
Kidney:	***Size:***	• Slightly enlarged
Subcapsular surface:		• Shows tubercles
Cut surface:		• Shows minute tubercles (localized areas of caseous necrotizing Tubercles) • Multiple (numerous) specially in the cortex • Miliary (small in size; great in number) • Necrotic lesions (caseous) • Opaque yellowish-grey • No hyperaemic (red) peripheral margin

N.B.:

Tuberculosis of the kidney may appear as one of three forms:

1. ***Miliary:*** *Numerous small tubercles (part of general miliary tuberculosis).*
2. ***Nodular:*** *Large necrotic areas of caseation.*
3. ***Cavitating.***

- The renal lesion **may be**
  - **Part of many-organ-tuberculosis** or
  - May appear as the only tuberculous lesion in the body (isolated organ-renal tuberculosis.
- In all cases, **the infection is blood borne and the kidney lesion may persist whereas the primary tuberculous focus (source of infection to the kidney) has healed and disappeared.**
- So that, there is **no so-called primary form of renal tuberculosis**; careful search in the body will reveal the source of infection to the kidney.
- **Clinically,** the condition in the kidney may be overshadowed by the systemic infection.



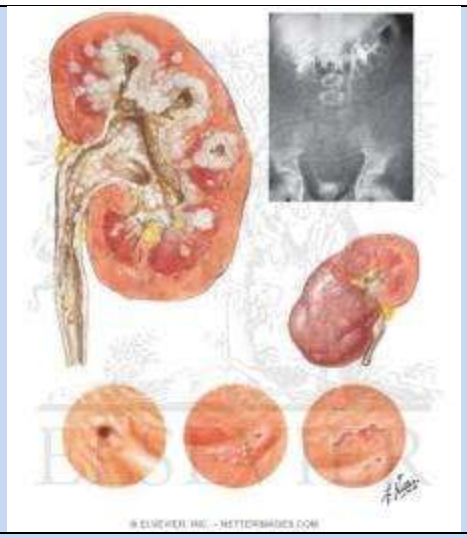
Tuberculosis (early; nodular)

Kidney:	• Is slightly enlarged • Shows caseating nodules (coalesced tubercles)
Nodules:	• Chiefly at the cortico-medullary junction • Irregular • Caseous • Necrotic and liquefied at centre • Pale (opaque) yellow • Soft in consistence

N.B.: Tuberculosis of the kidney

- **Miliary** as a part of general miliary tuberculosis; here, both kidneys are affected; and, the infection is usually from pulmonary tuberculosis (a blood-borne spread).
- **Secondary** to an active tuberculous focus elsewhere in the body (hematogenous infection); the disease affects one kidney (at least at first), and the early lesion appears first in the cortex.

Fate	1. ***Healing.*** 2. ***Ulceration*** *into the tubules → secondary lesions at the apex of the pyramids in the form of a localized nodule* ***that Spreads:*** • *Up → tuberculous lesion in pyramids.* • *Down → tuberculous pyelonephritis.* 3. ***Cavitation*** *after destruction → large cavities with rough ragged walls containing thick creamy* sterile pus. • These communicate with the pelvis → are secondarily-infected → tuberculous pyonephrosis → destruction of the kidney by caseation, softening and liquefaction. 4. ***Ulceration*** into the calyces.



Tuberculosis (late; cavitating)

Kidney:	Shows a tuberculous focus opening into calyces	
	Apices:	• Irregularly ulcerated • Show a cavity filled with caseous material • Communicate with the renal pelvis
	Remaining tissue:	• Shows tubercles • Yellowish necrotic tissue
	Renal pelvis	• Filled with caseous material • Lined by tuberculous granulation tissue
	Ureter	• Thickened walls • Oedematous • Dilated lumen

N.B.1:

- *In the cavitating form of renal tuberculosis, there occurs extension of the nodular tuberculous lesion into the pyramids → sloughing →* ***excavation of papillae*** *→ cavitation which increases by progressive extension into the cortex.*

N.B.2:

- This stage of tuberculosis is reached at **when the tuberculous cavity in the kidney communicates with the renal pelvis.**
- **Depending on the presence (or not) of tuberculous stricture of the ureter, the kidney may appear enlarged or is shrunken.**
- The pus is inspissated and lime salts are deposited → calcareous, caseous sac with ragged edges.
- Clinically, **the cystitis (which is a very common accompaniment to renal tuberculosis)** may overshadow the manifestations of the affected kidney → frequency of micturition, dysuria, haematuria and nocturia.

DIAGNOSTIC TESTS:

The following are some of the tests used in the diagnosis of tuberculosis:

1. Mantoux test/Tuberculin sensitivity test
2. Acid fast bacilli (AFB) test
3. Mycobacterial culture
4. PCR (Polymerase chain reaction) test
5. Radiographic procedures

Tuberculosis IV- 4. 331	
Kidney:	• Is enlarged • Shows an open type of tuberculosis • Destruction of renal tissue
Ureter:	• Is thickened
Urinary bladder:	• Shows tuberculous cystitis • ***Evidence of spread of tuberculosis***

N.B.:

Spread of tuberculosis of kidney (common) :

- *To renal pelvis;*
- *ureter; urinary bladder;*
- *prostate;*
- *seminal vesicles;*
- *vas deferens;*
- *epididymis (and testis);*
- *the other kidney (by an ascending injection from the affected bladder).*

Localization (rare):

- Plugging of ureter → closed cystic kidney →walling off by fibrosis and calcification → localization of the kidney-lesion → auto-nephrectomy.

Effects:

1. Haematuria (early).
2. Pus in urine (late; when caseation occurs).
3. Loin-pain and polyuria.
4. Painful and frequent micturition (early vesical affection).
5. Chronic wasting and intercurrent infection.

Causes of death :

1. Uraemia.
2. General miliary tuberculosis.