



# TUMORS OF THE KIDNEY AND URINARY BLADDER

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# Objectives:

At the end of the lecture the students will be able to:

- ▶ 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.

# Benign tumors of the kidney:

- 1- adenoma
- 2- angiomyolipoma

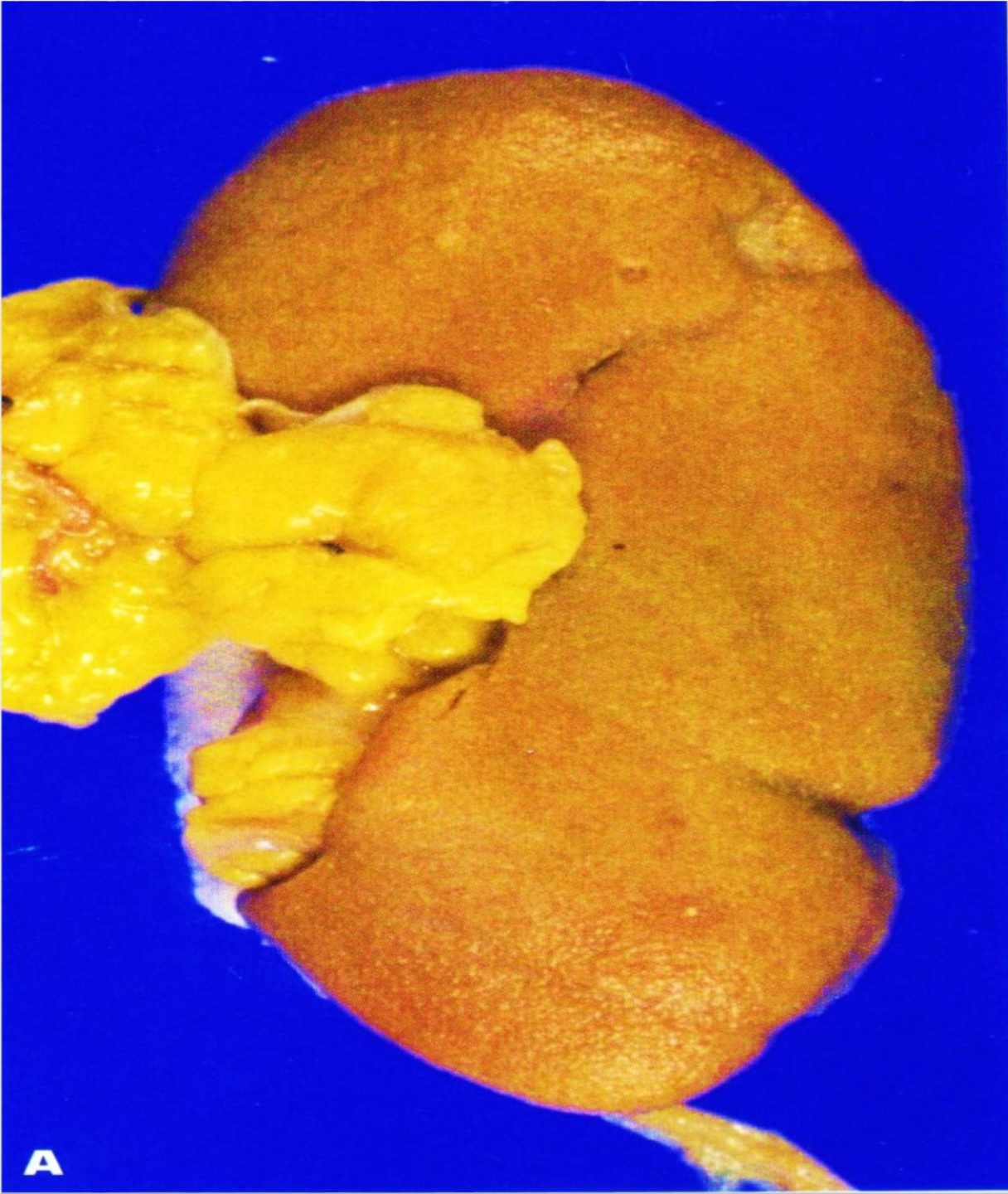
# ***Malignant RENAL NEOPLASMS***

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



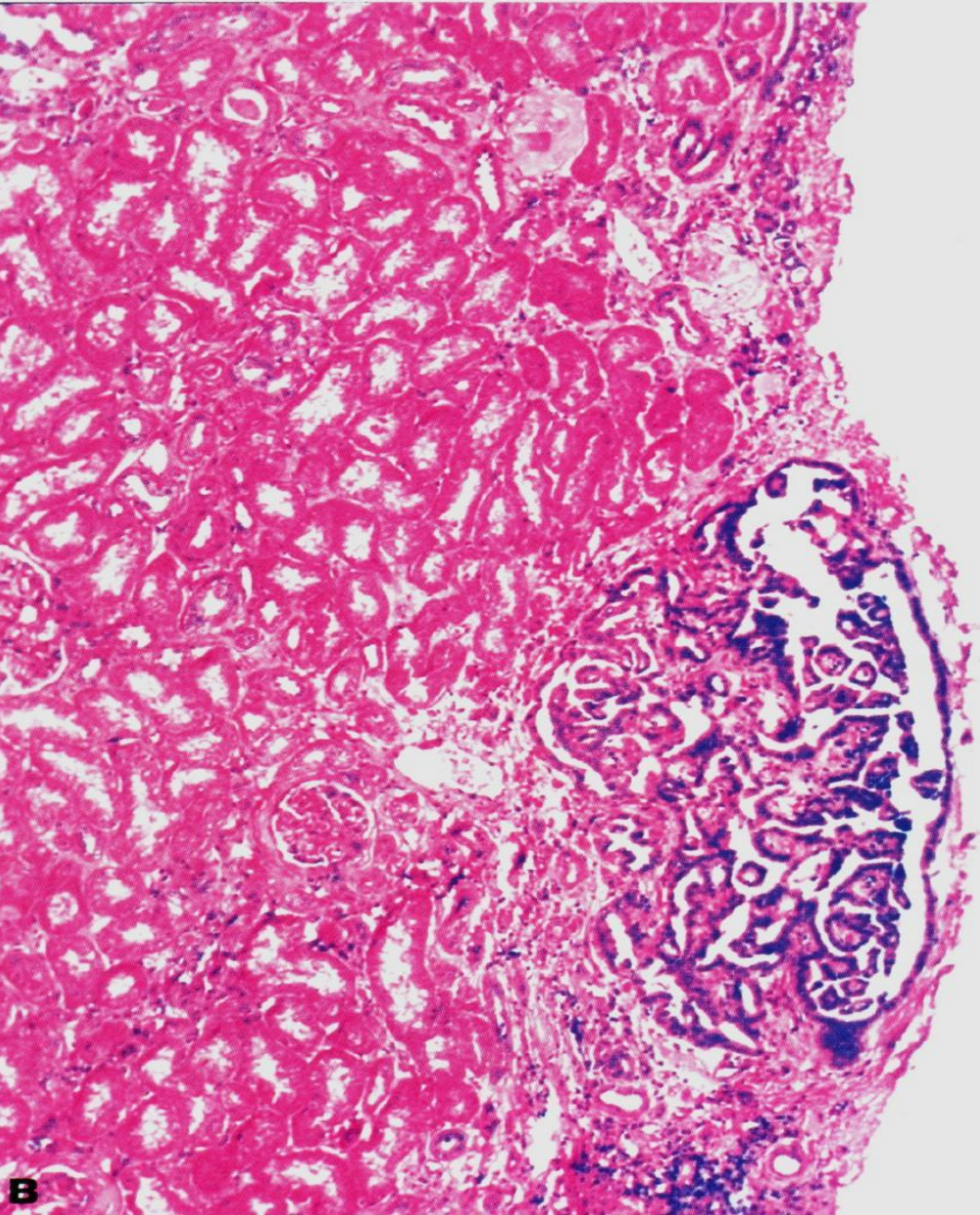
# ***RENAL NEOPLASMS***

- Gross pathology and histology
- Histogenesis
- Clinical manifestations
- Diagnosis: radiographic imaging
- Treatment and prognosis
- Pathophysiology



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



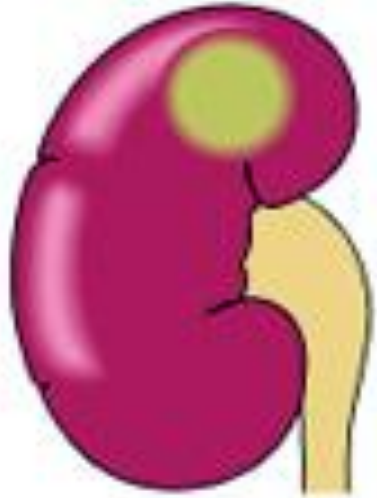


Histology of a subcapsular papillary **adenoma** shows tubules arranged in a papillary fashion.



# Human renal cell carcinoma

SPORADIC PAPILLARY



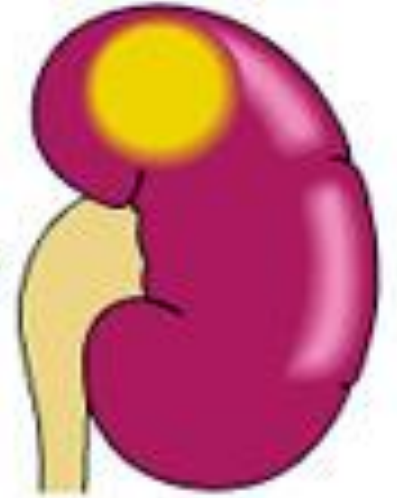
Trisomy 7, 16, 17  
Loss of Y  
Mutated, activated MET  
 $t(X;1) \rightarrow$  PRCC oncogenes

HEREDITARY PAPILLARY



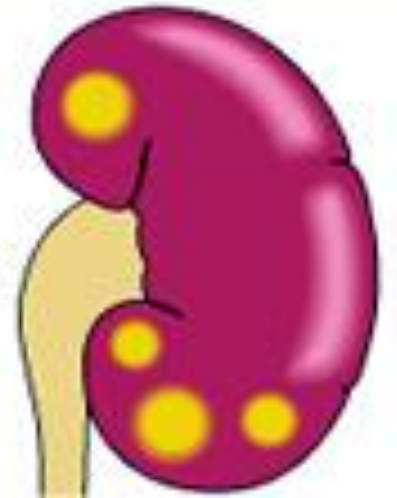
Trisomy 7  
Mutated, activated MET

SPORADIC CLEAR CELL

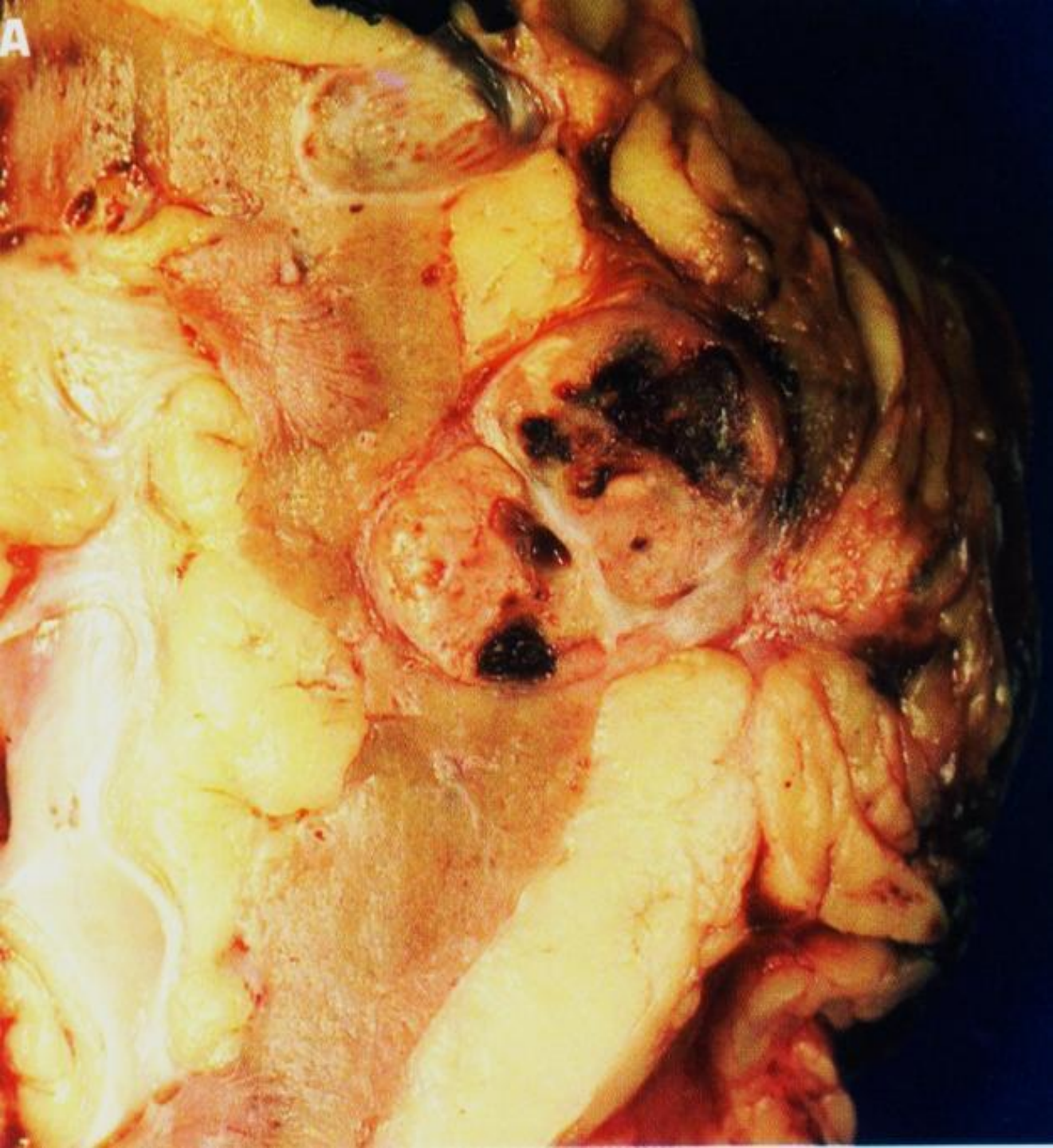


Translocations 3;6, 3;8, 3;11  
Deletions on chromosome 3  
Loss of VHL  
Inactivated, mutated VHL  
Hypermethylation of VHL

HEREDITARY CLEAR CELL



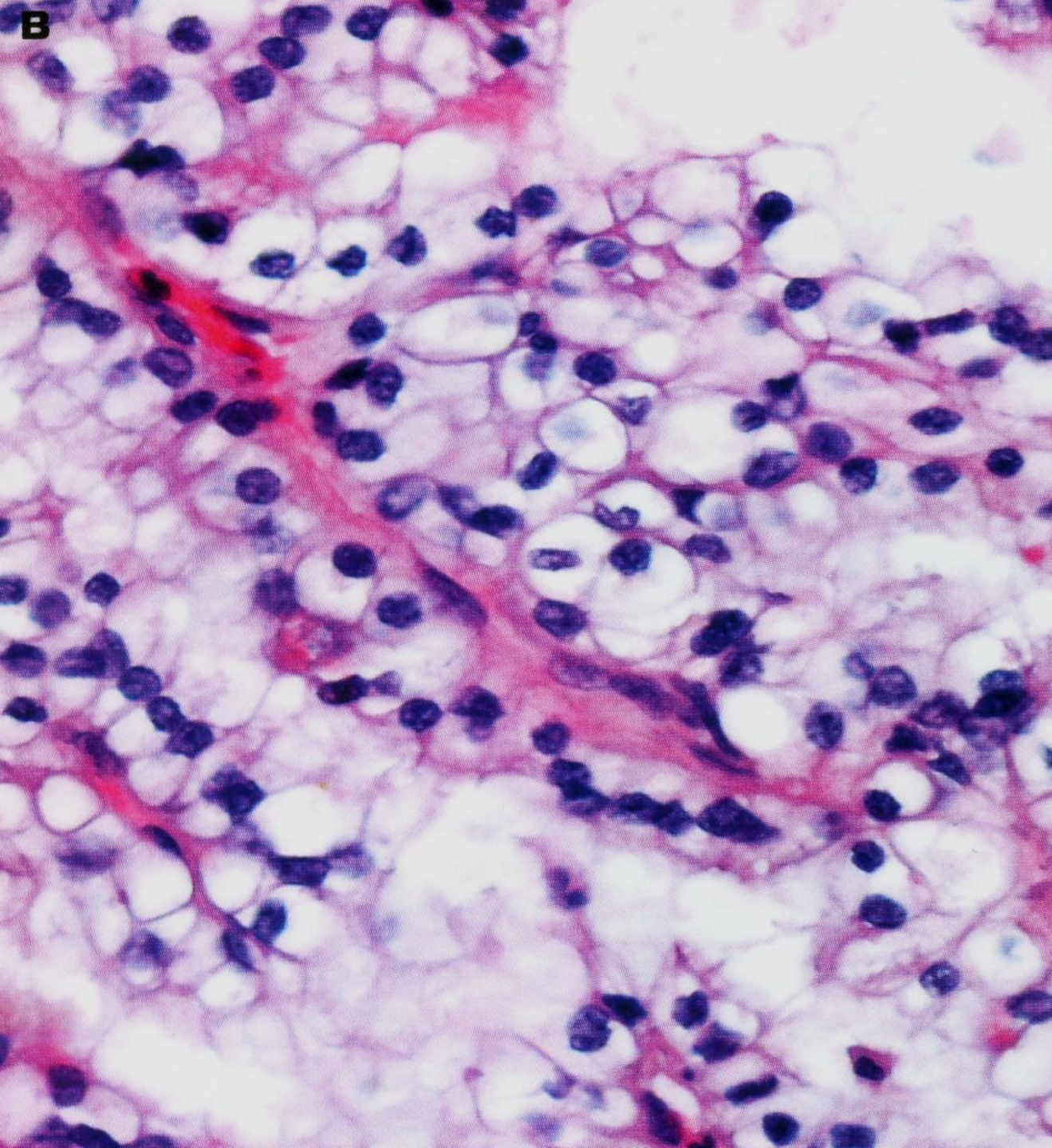




## Renal cell carcinoma

Renal cell carcinoma is the most common primary renal tumor in adults and may be occult.

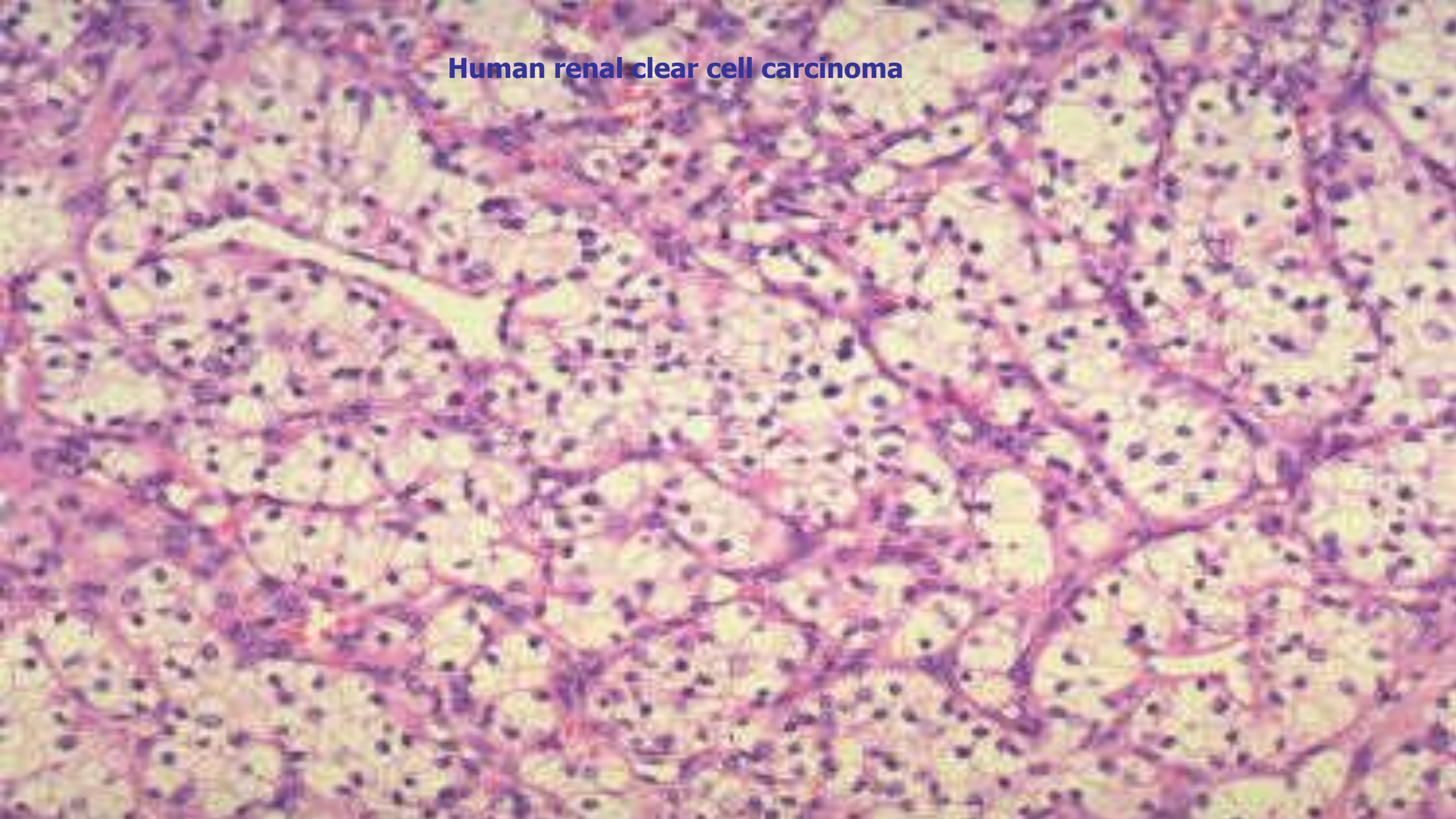




Small clear cell **renal cell carcinoma** (hypernephroma, Grawitz tumor) is spreading into perirenal adipose tissue.

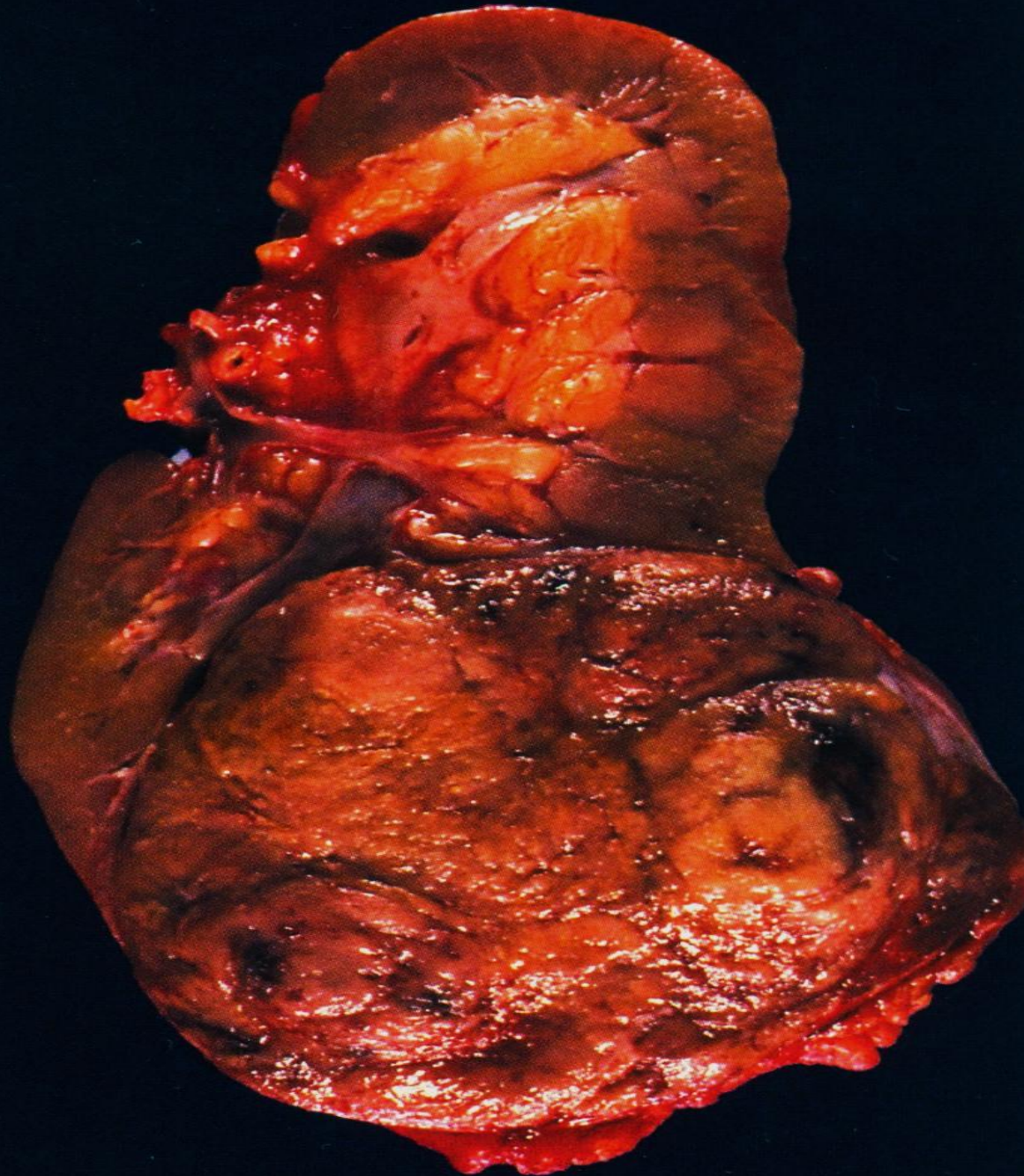


**Human renal clear cell carcinoma**



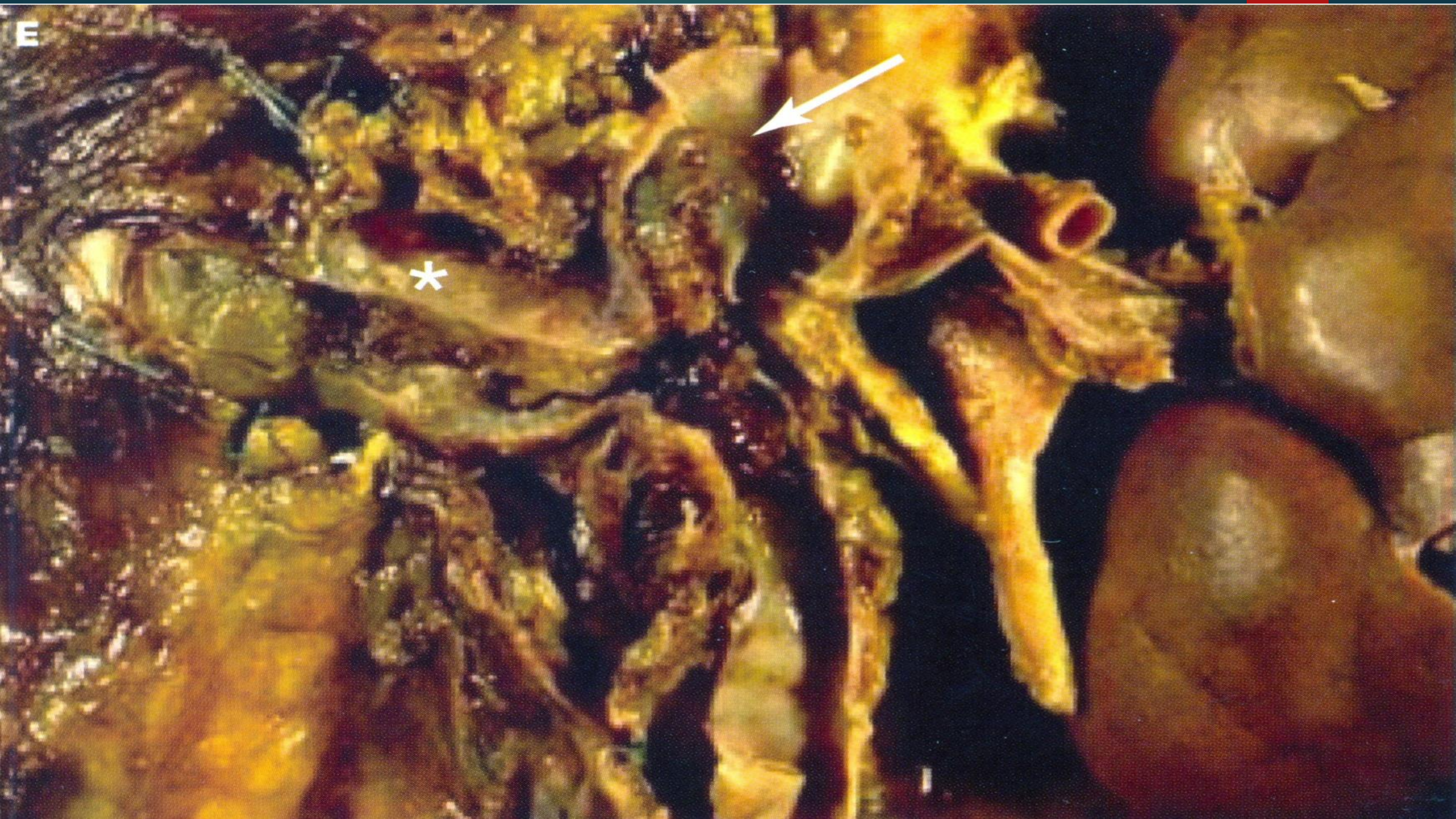


c



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



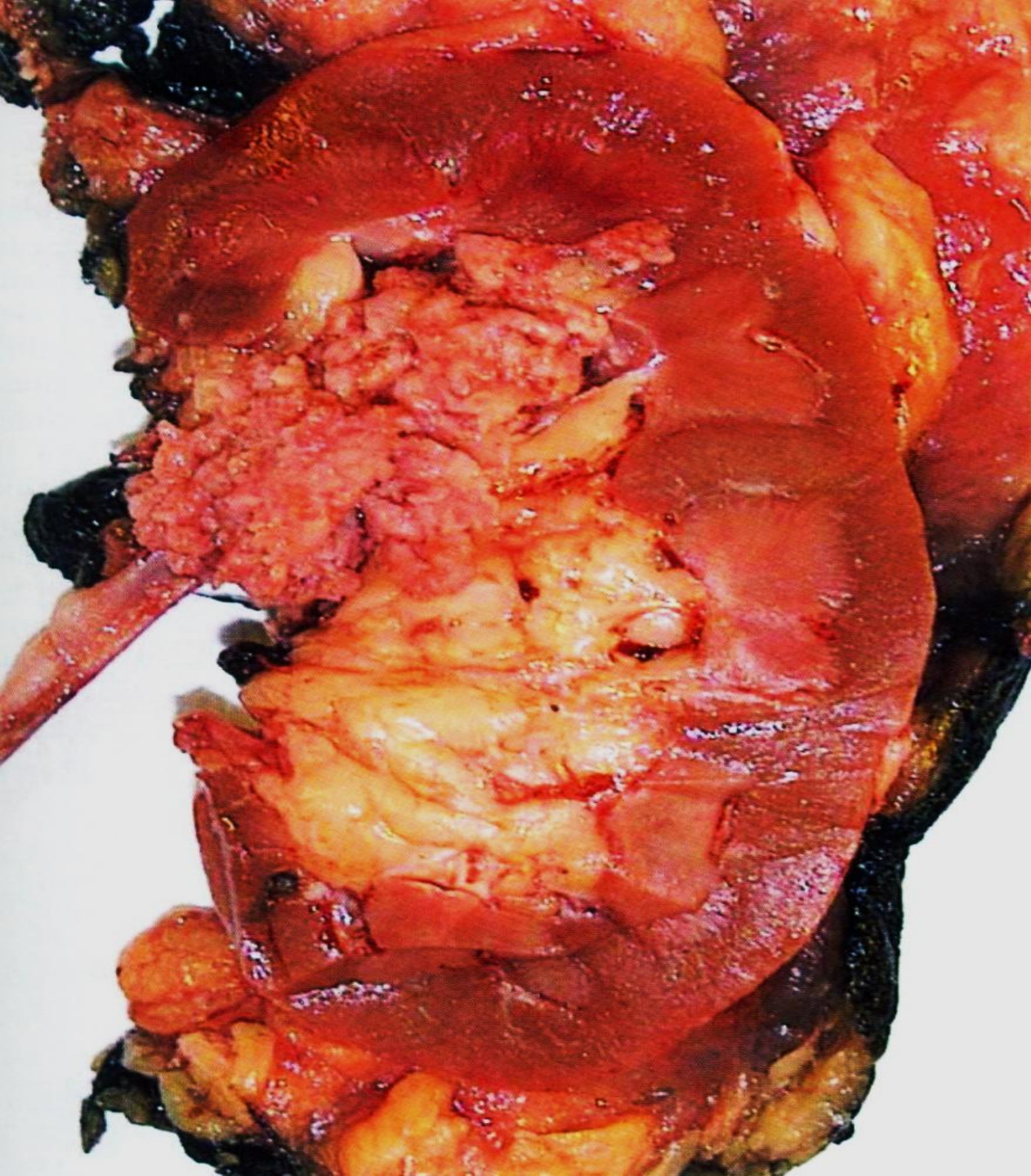


E

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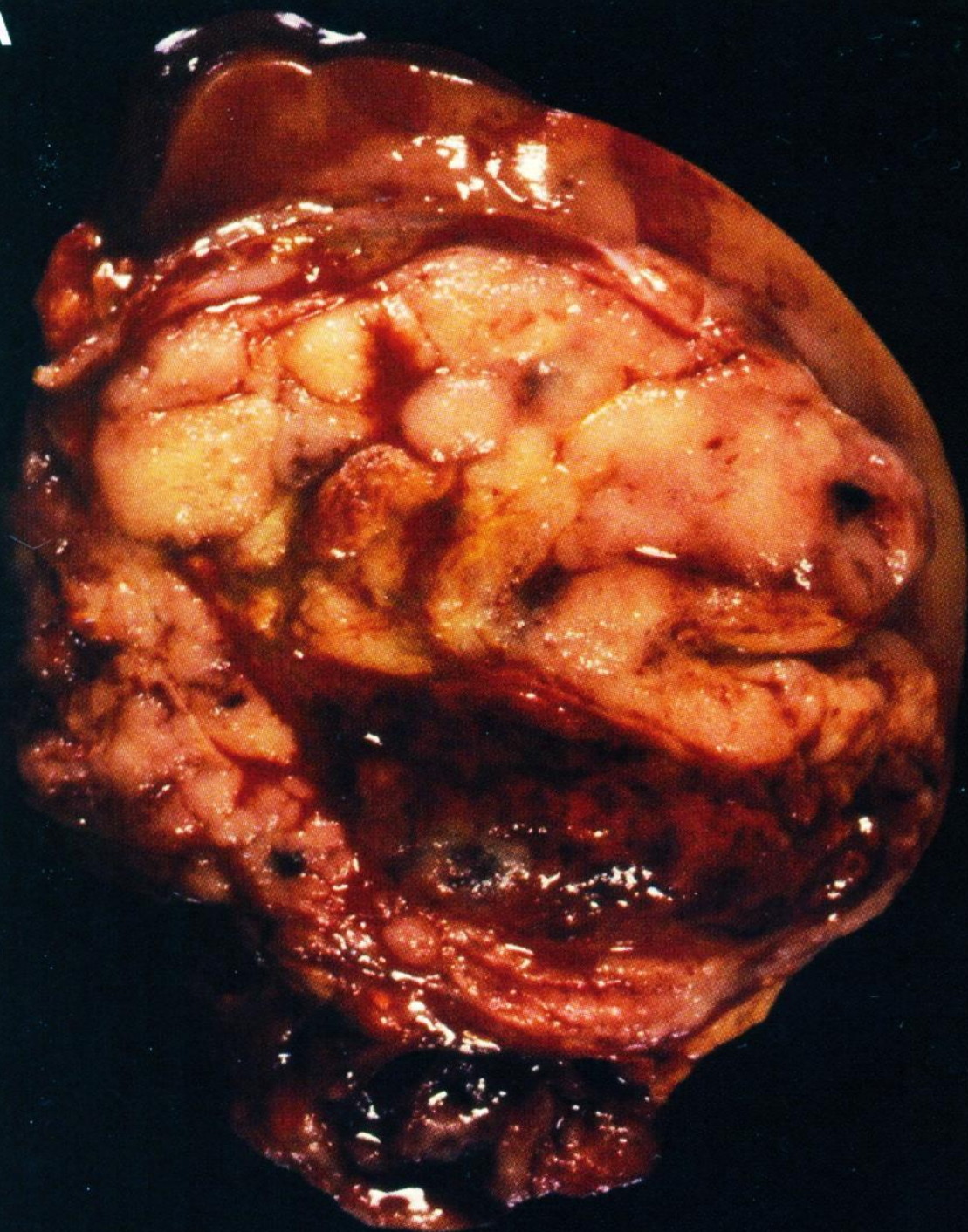


Transitional cell carcinoma of the renal pelvis.

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



A



## Wilms' tumor (nephroblastoma)

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

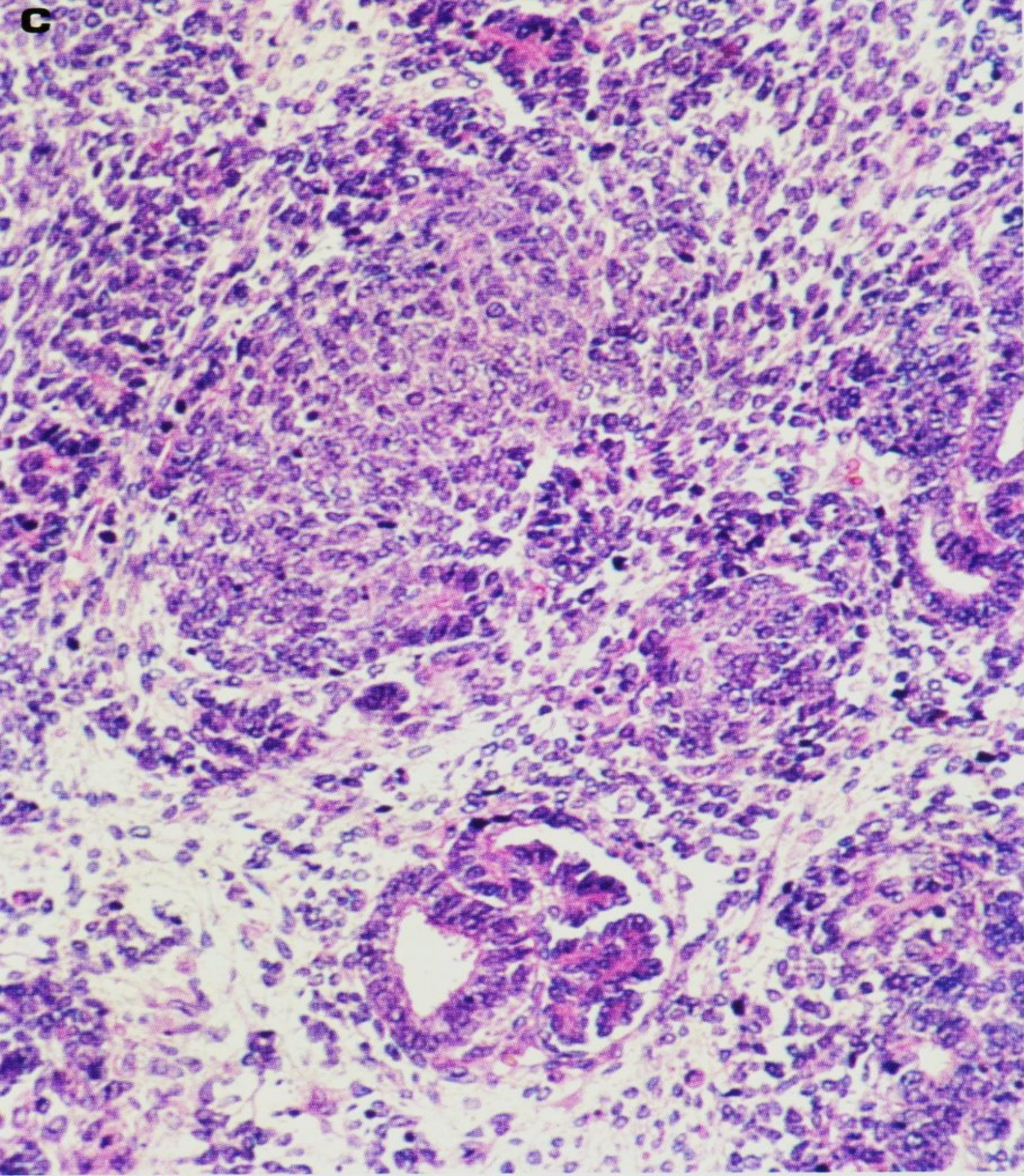


**B**



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

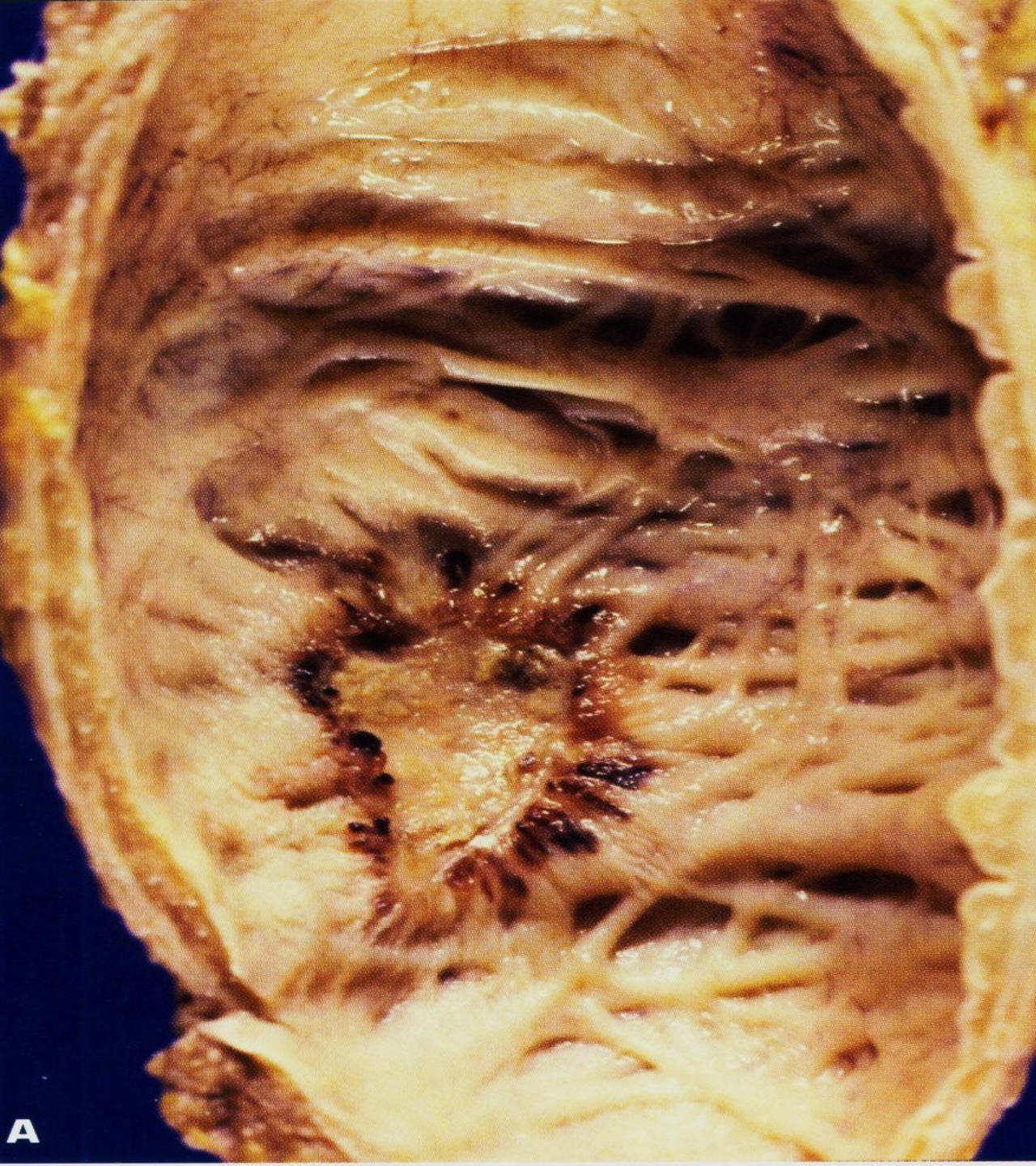




## Wilms' tumor

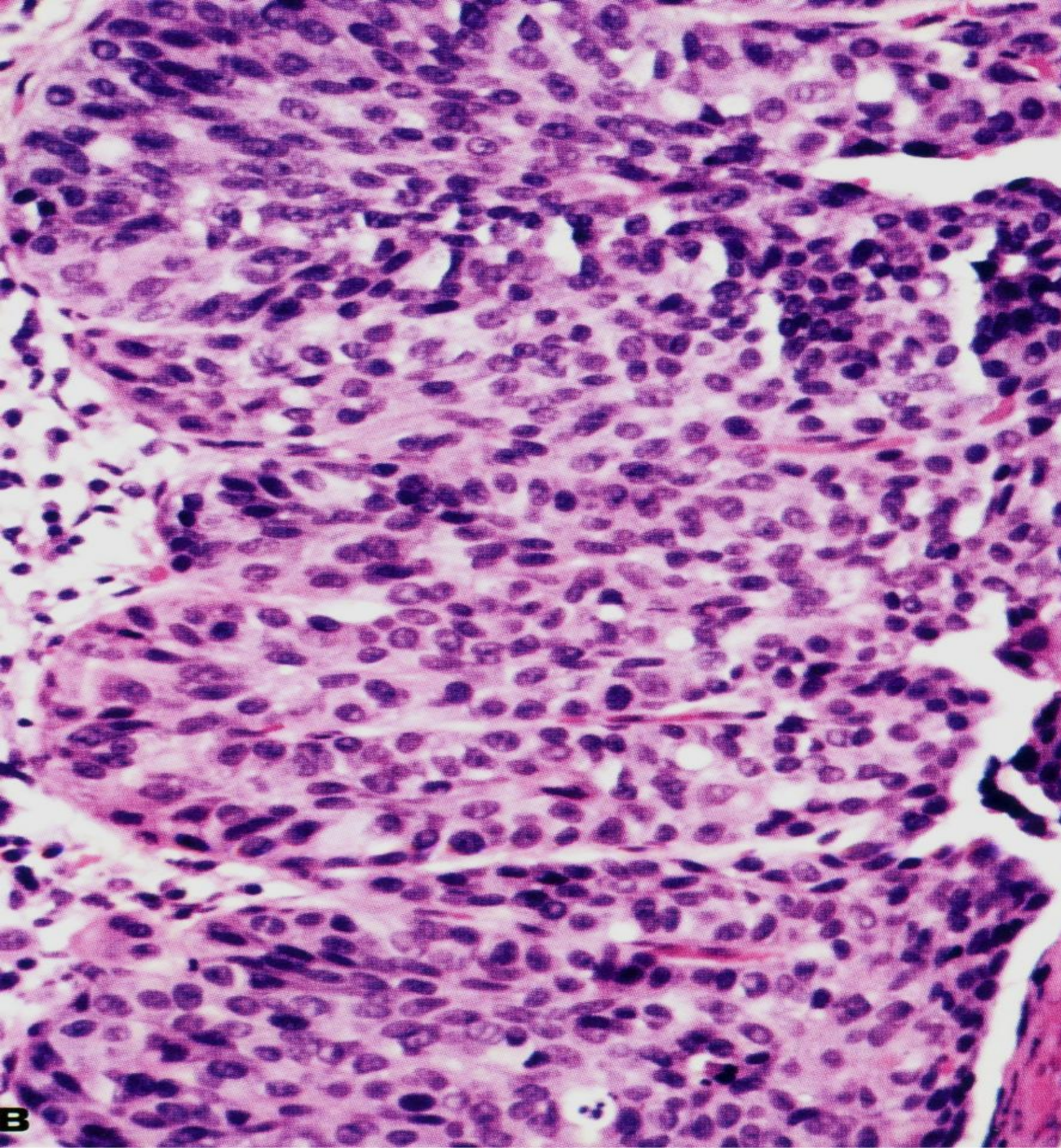
Histology shows hypercellular areas comprising undifferentiated blastema, loose stroma with undifferentiated glomeruloid body.





**Urothelial (transitional cell) carcinoma in situ** of the urinary bladder if untreated, up to 75% of cases go on to invasive cancer.





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

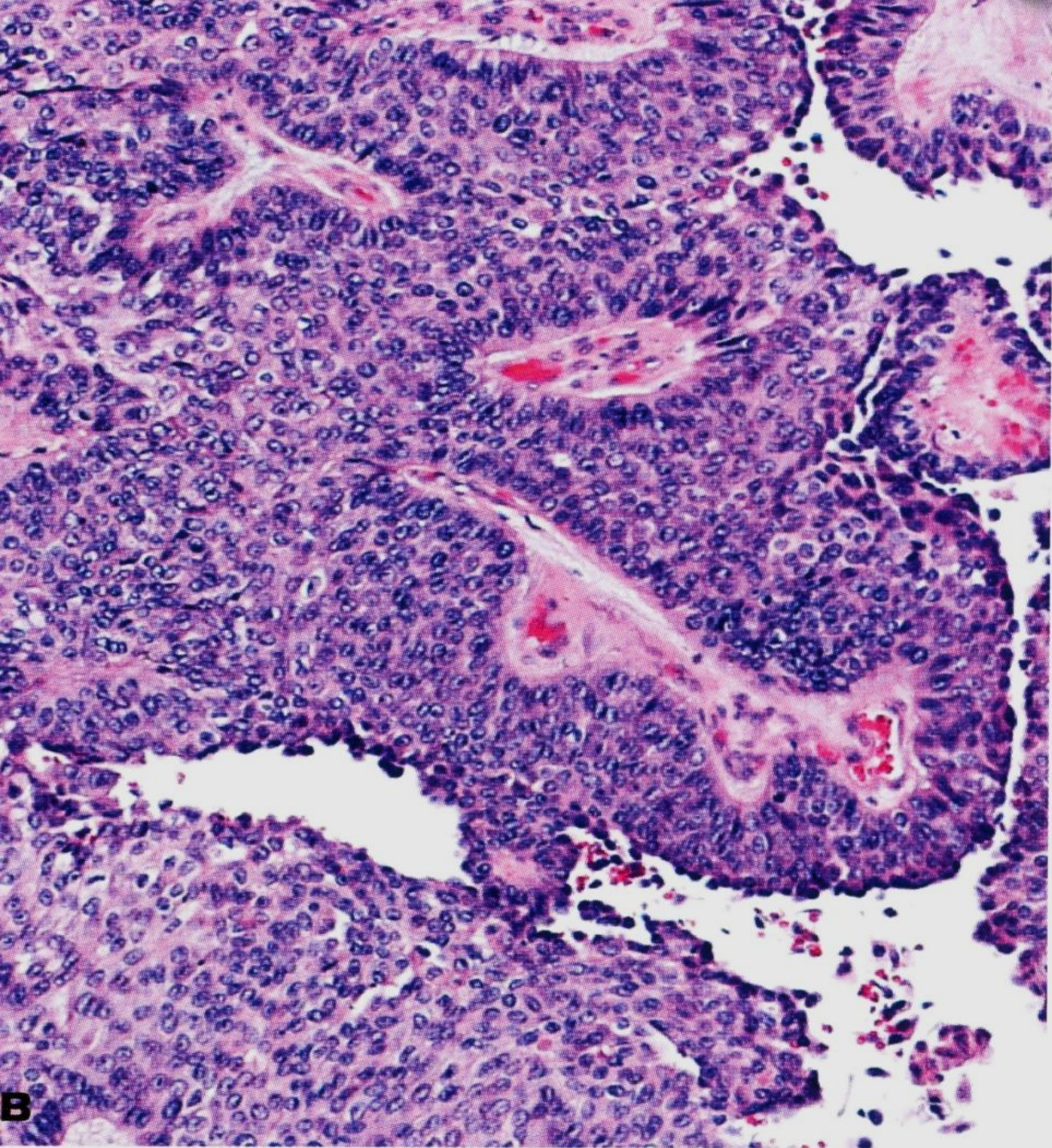




A

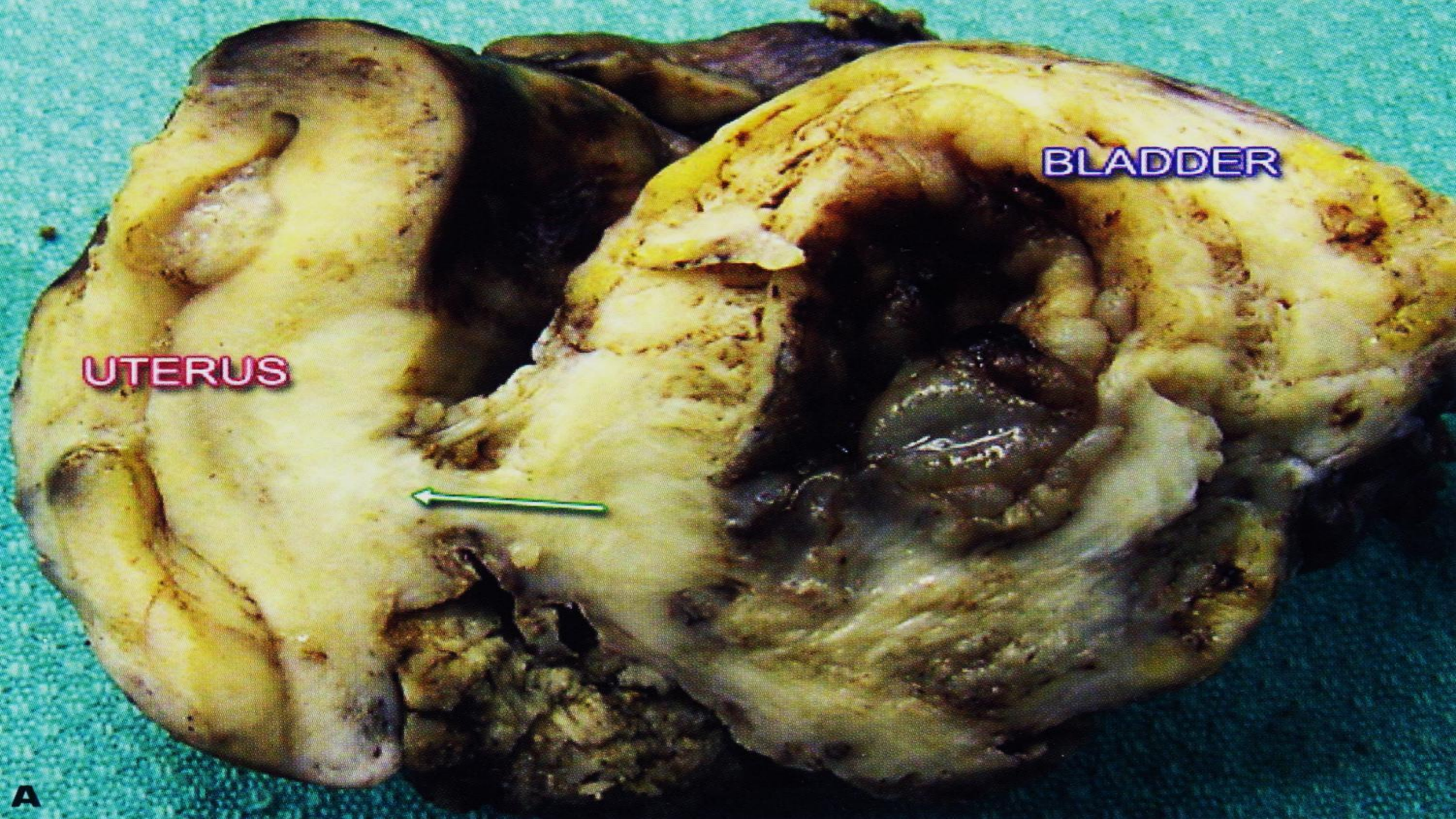
**Invasive urothelial carcinoma of the bladder is invading the muscle coat on the right side of the picture.**





Urothelial carcinoma of bladder.





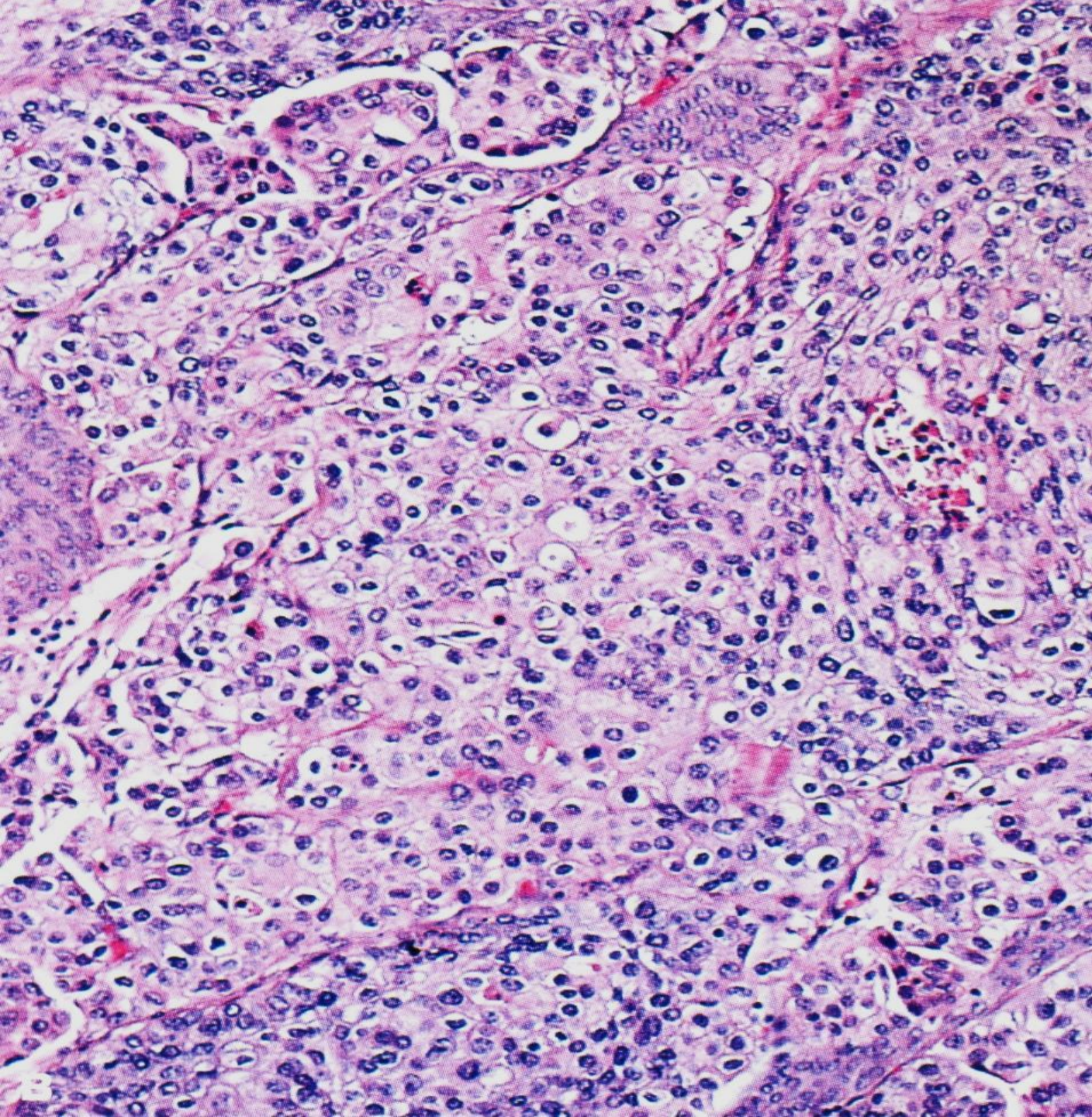
UTERUS

BLADDER



A





Poorly differentiated  
**urothelial carcinoma.**