



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



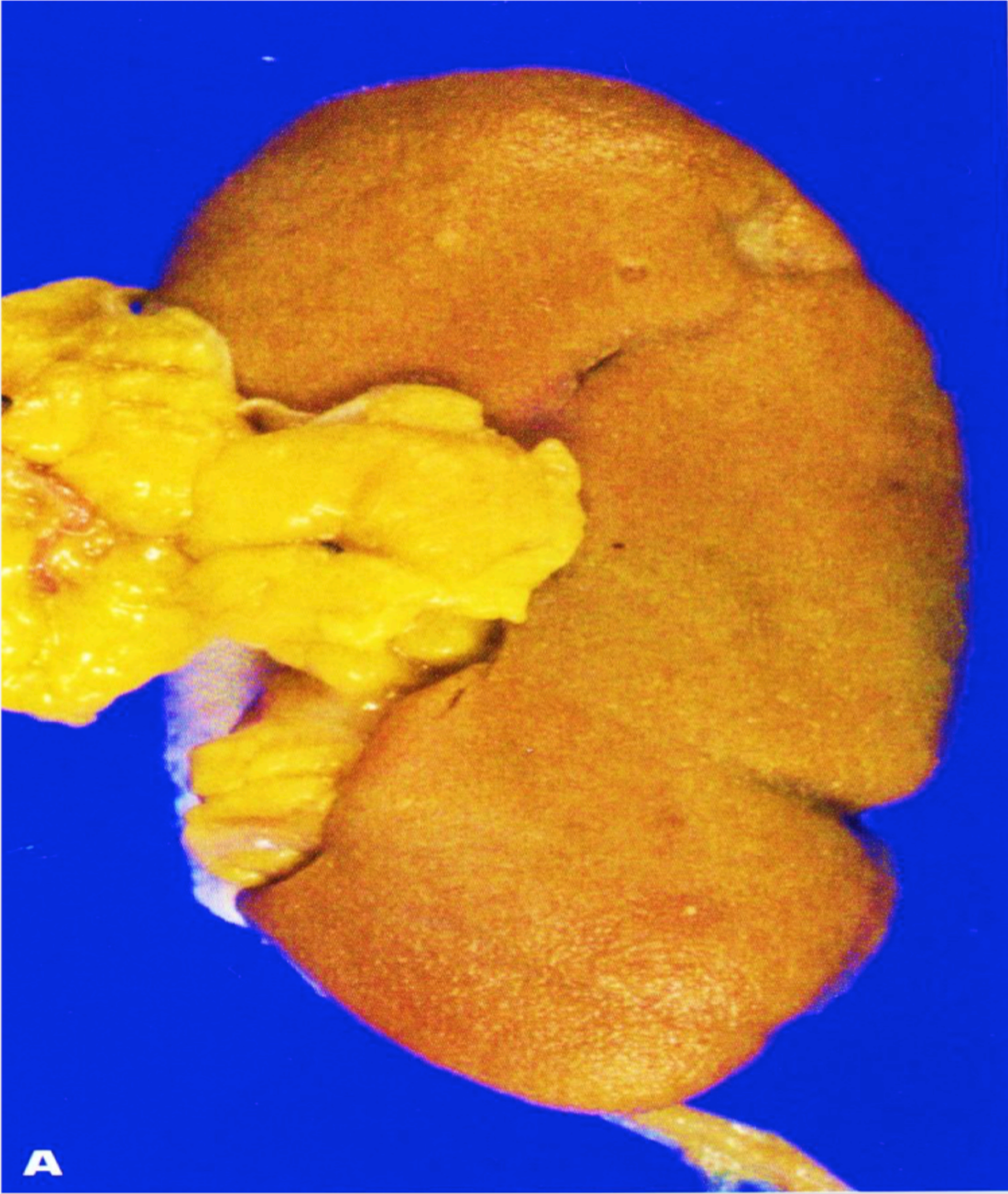
Malignant RENAL NEOPLASMS

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

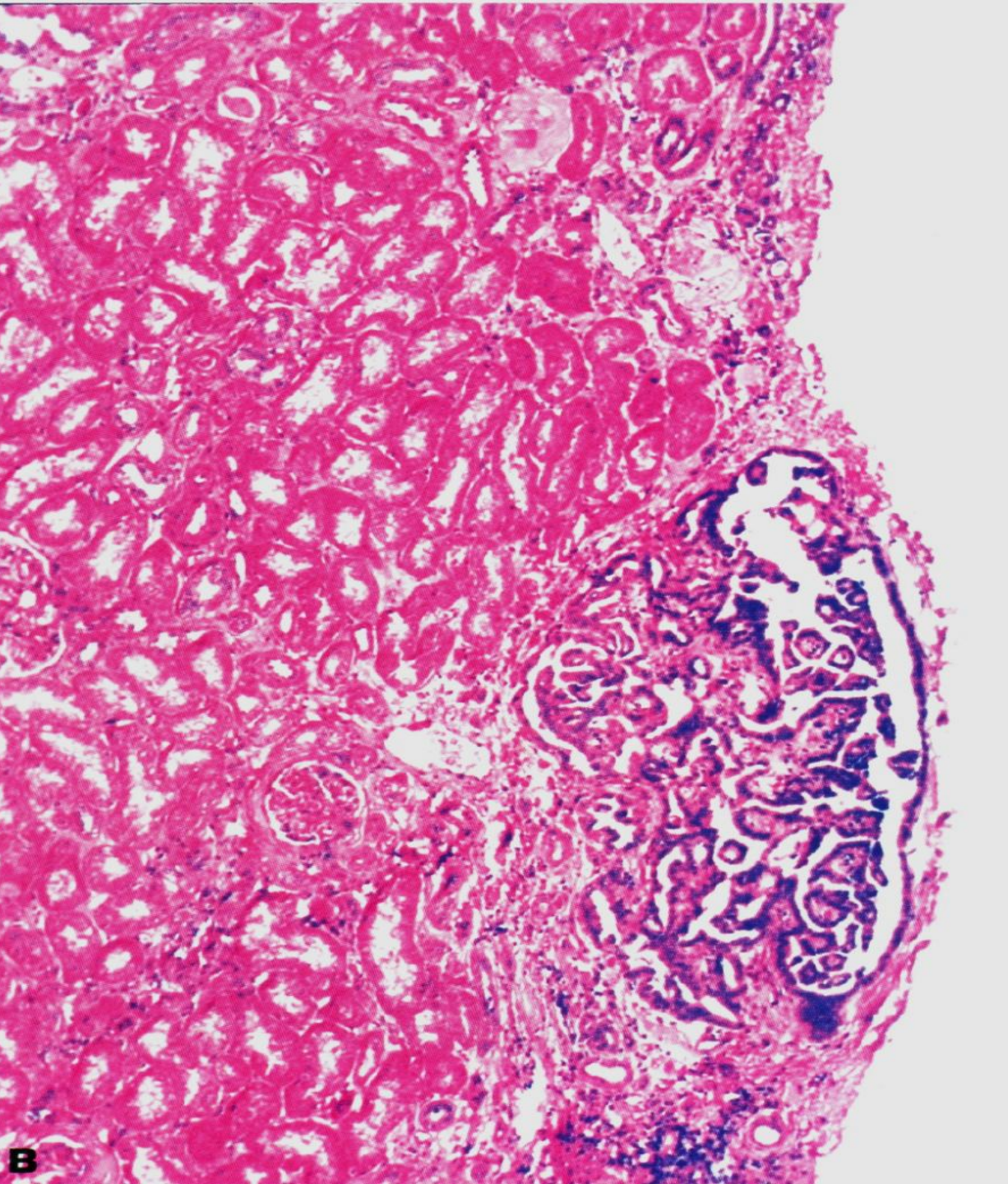


RENAL NEOPLASMS

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



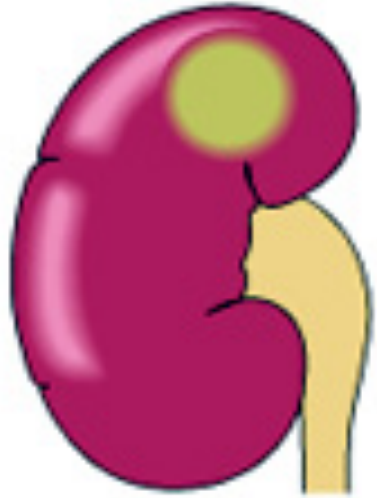
Kidney with
ischemic
atrophy also
bears very small
subcapsular
adenomas near
to each pole.



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

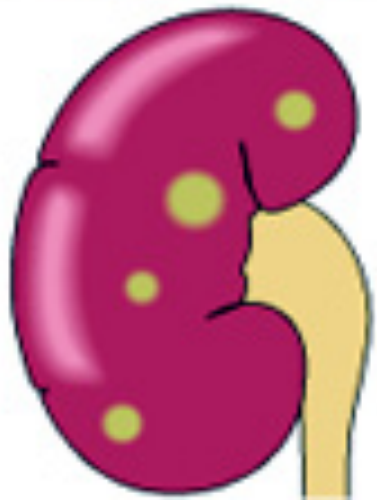
Human renal cell carcinoma

SPORADIC PAPILLARY



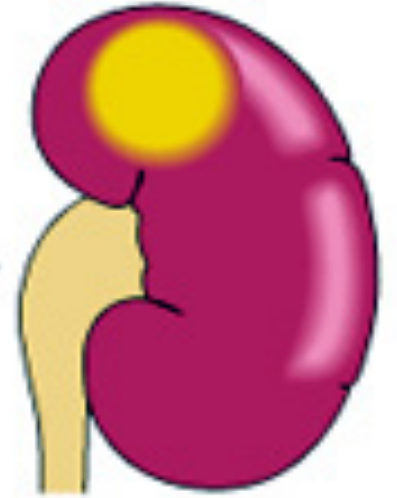
Trisomy 7, 16, 17
Loss of Y
Mutated, activated MET
 $t(X;1) \rightarrow$ PRCC oncogenes

HEREDITARY PAPILLARY



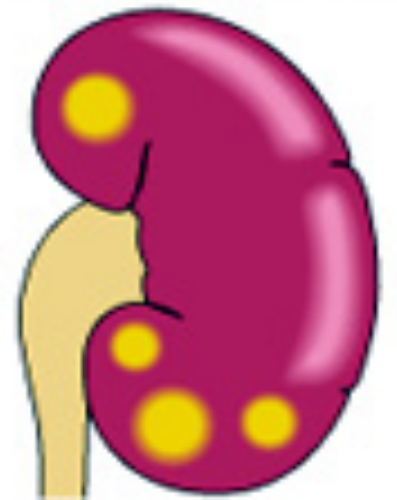
Trisomy 7
Mutated, activated MET

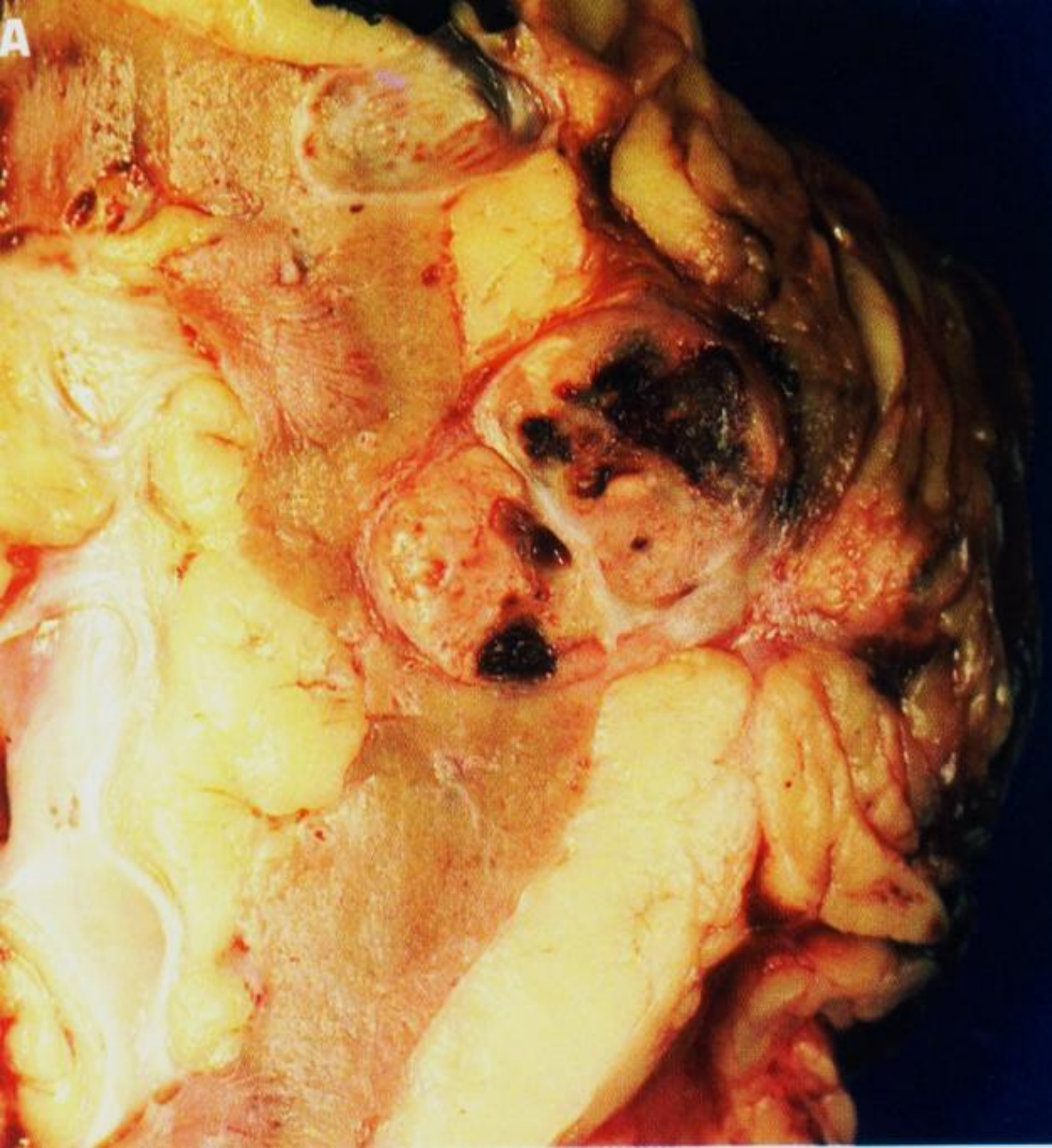
SPORADIC CLEAR CELL



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

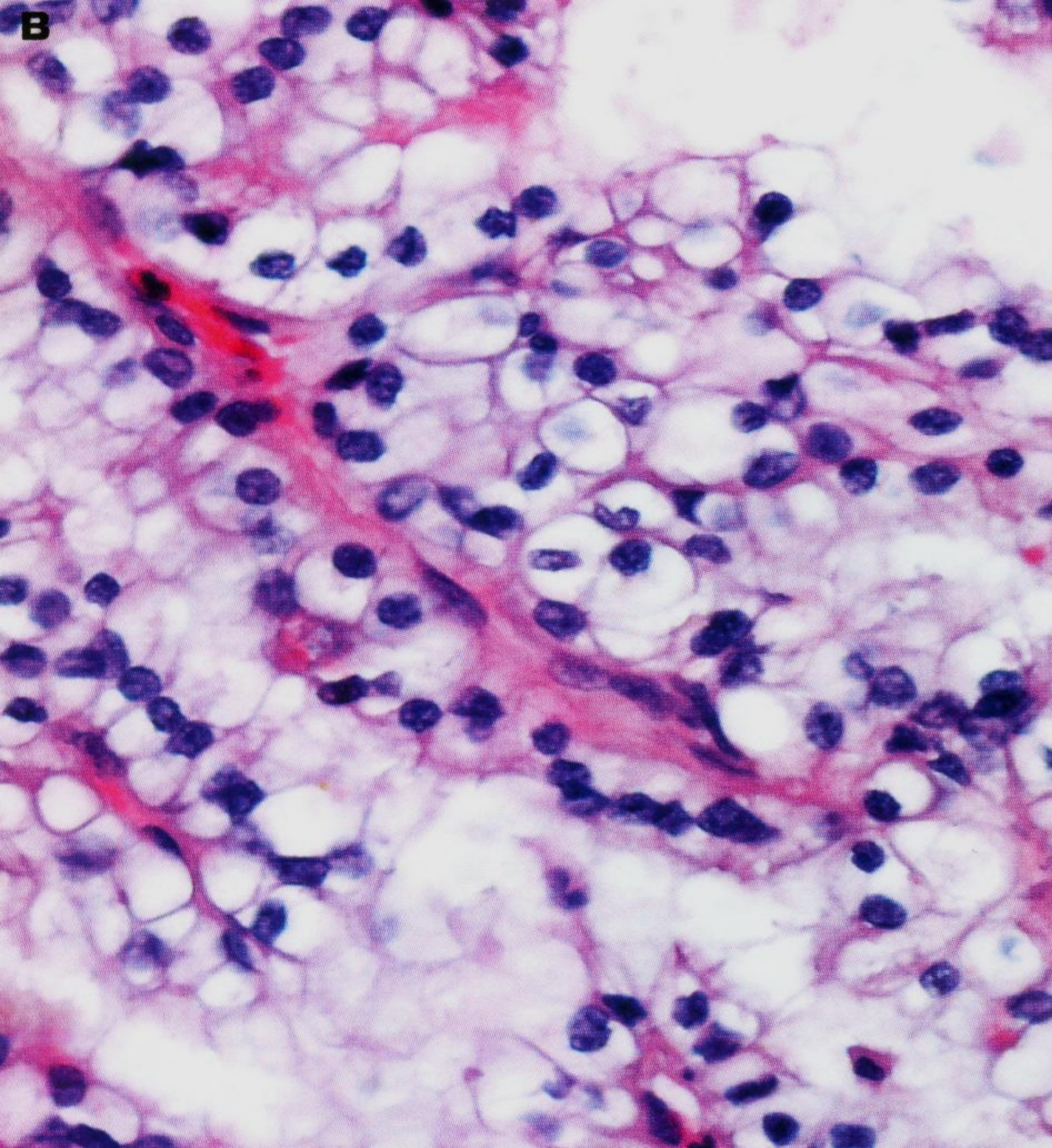
HEREDITARY CLEAR CELL





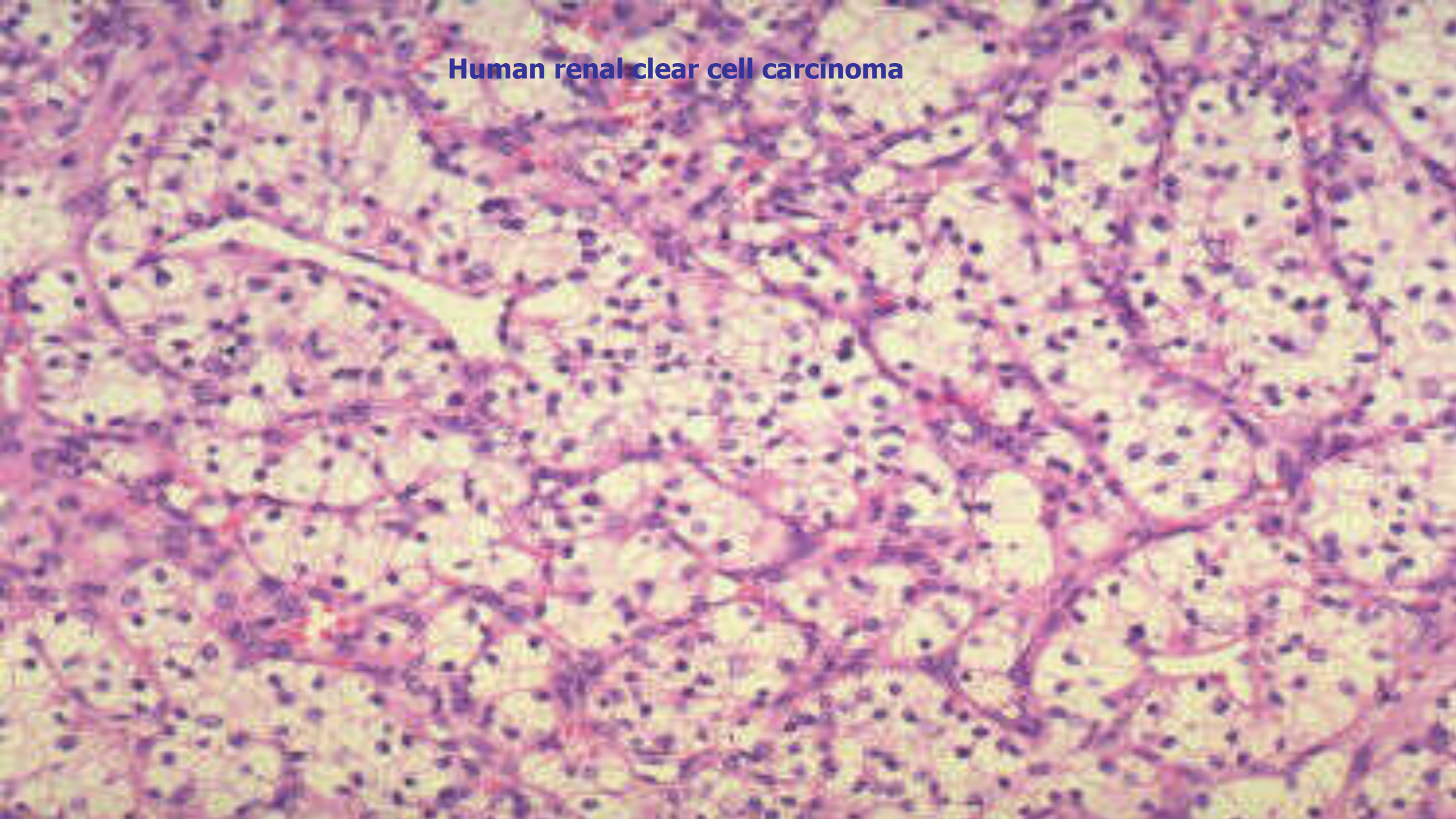
Renal cell carcinoma

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

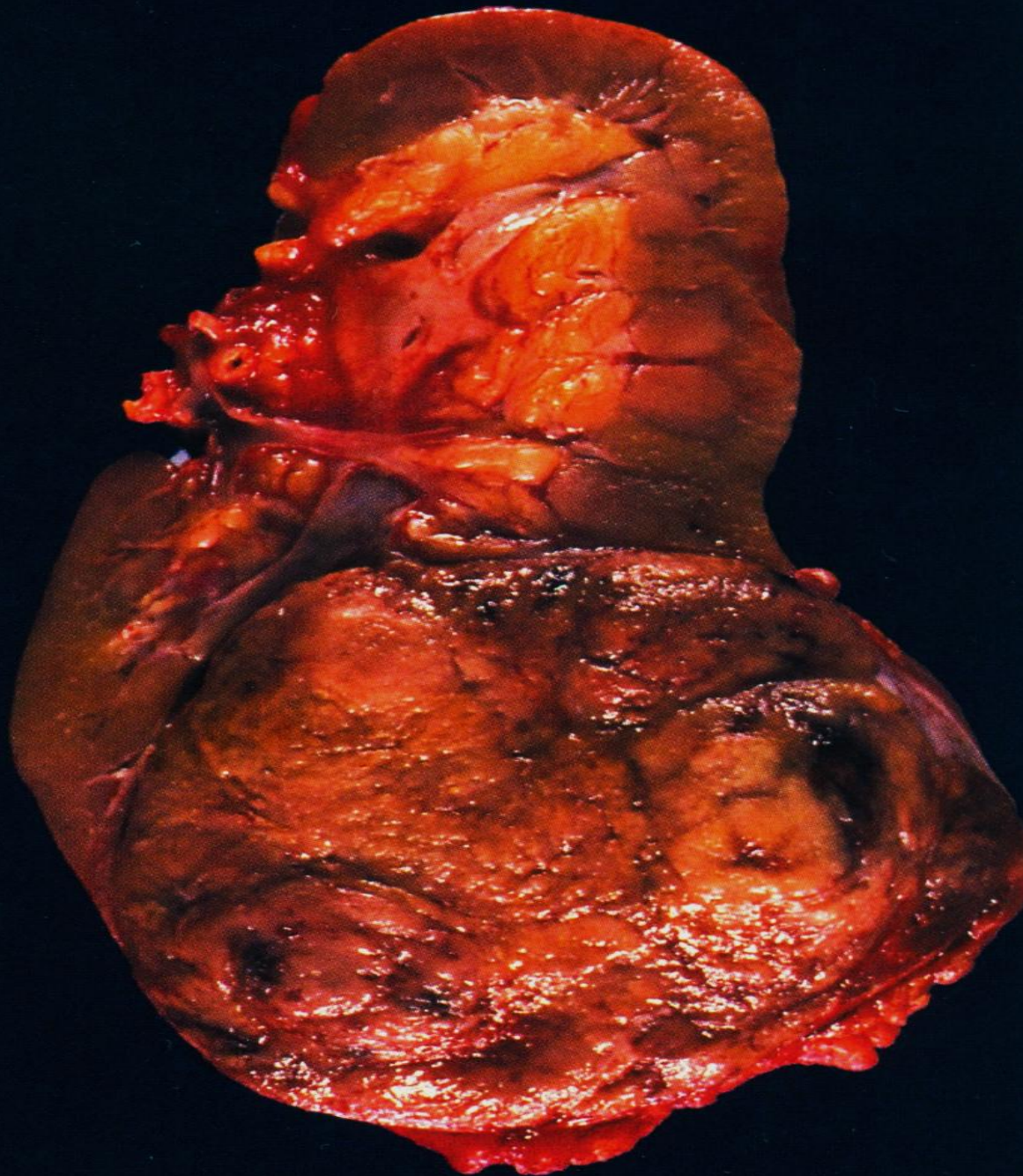


Small clear cell **renal cell carcinoma** (hypernephroma, Grawitz tumor) is spreading into perirenal adipose tissue.

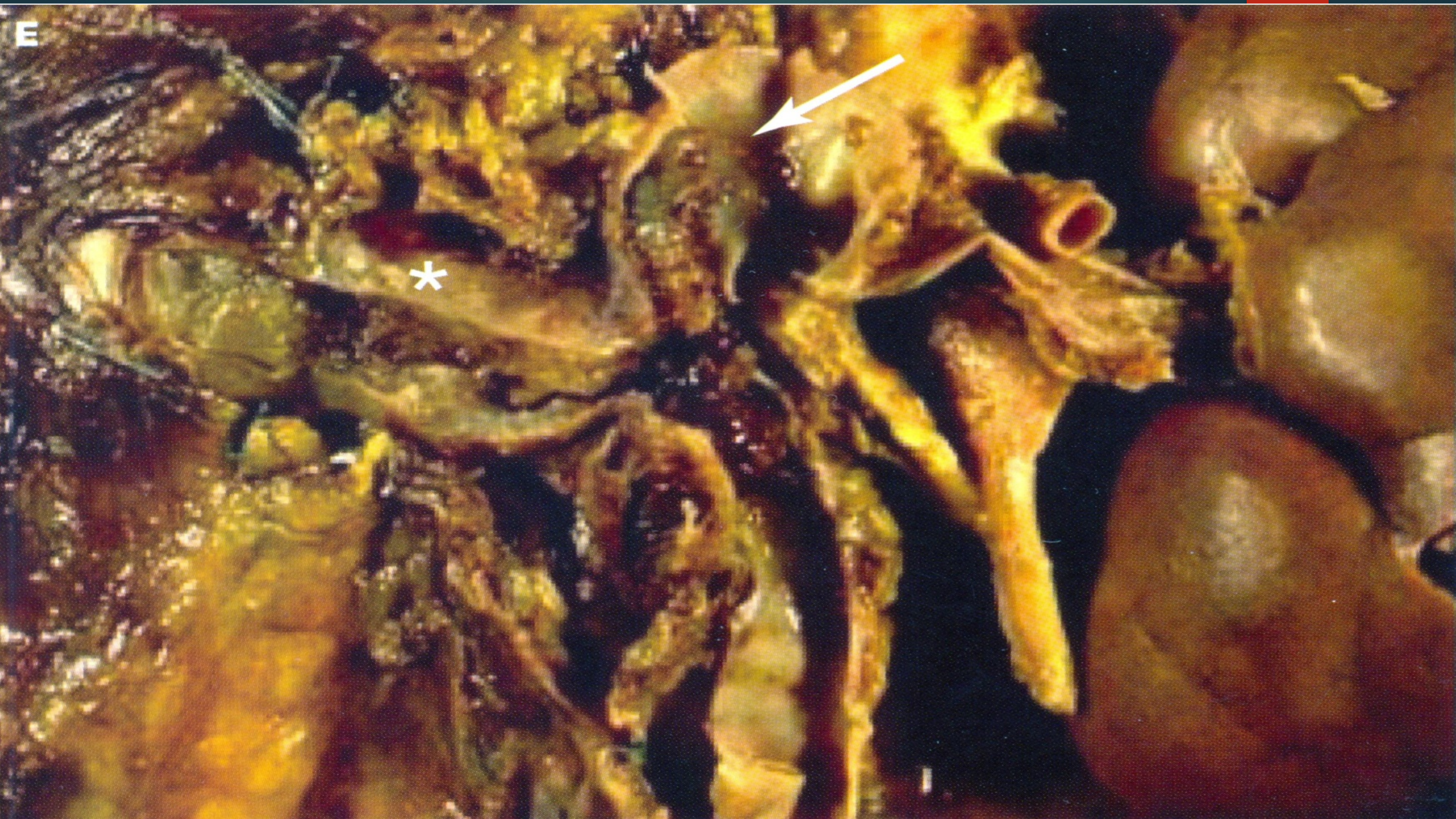
Human renal clear cell carcinoma



c



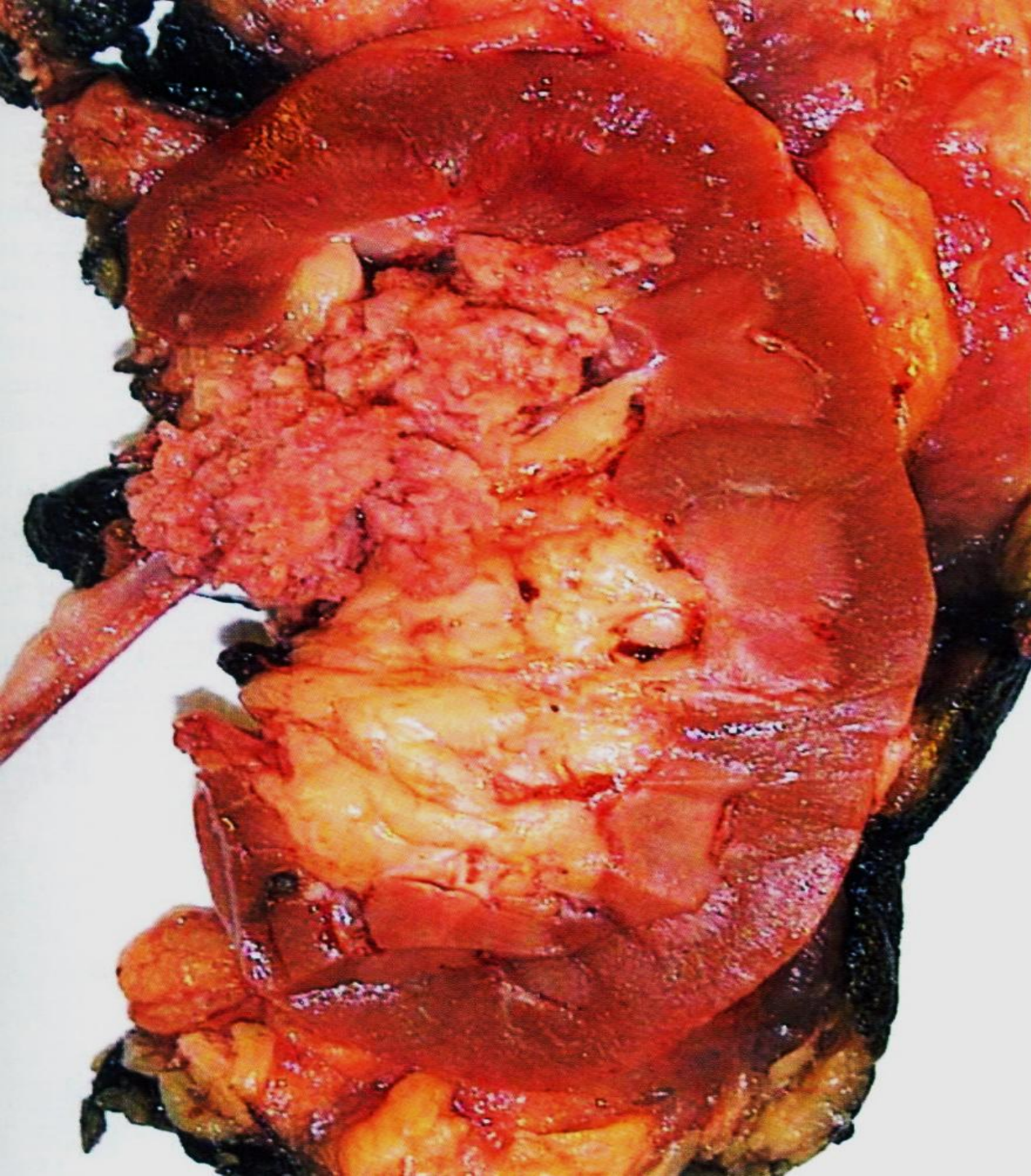
Typical lobulated, whorled, tan-colored cut surface of **renal cell carcinoma**.



E

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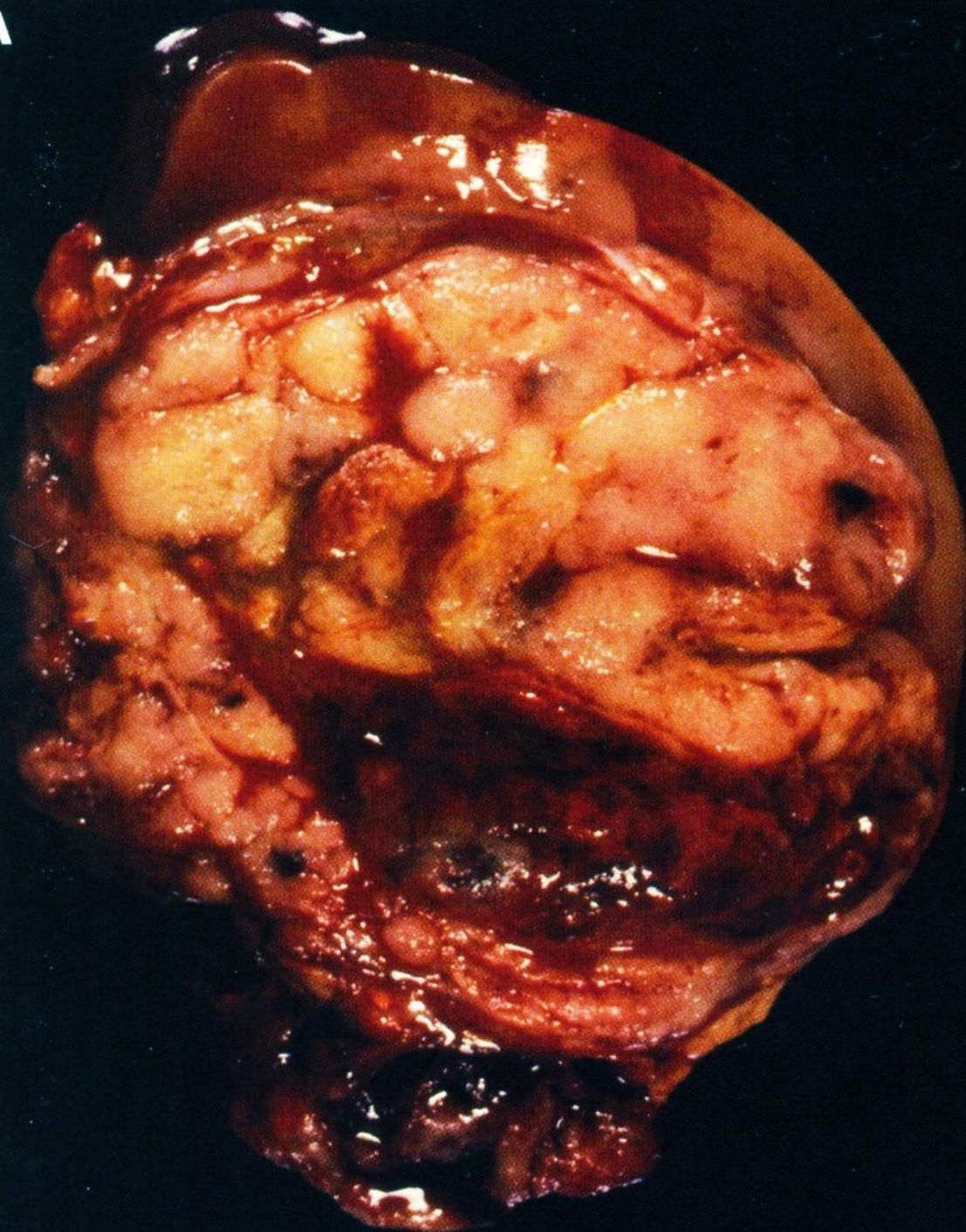




Transitional cell carcinoma of the renal pelvis.

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

A



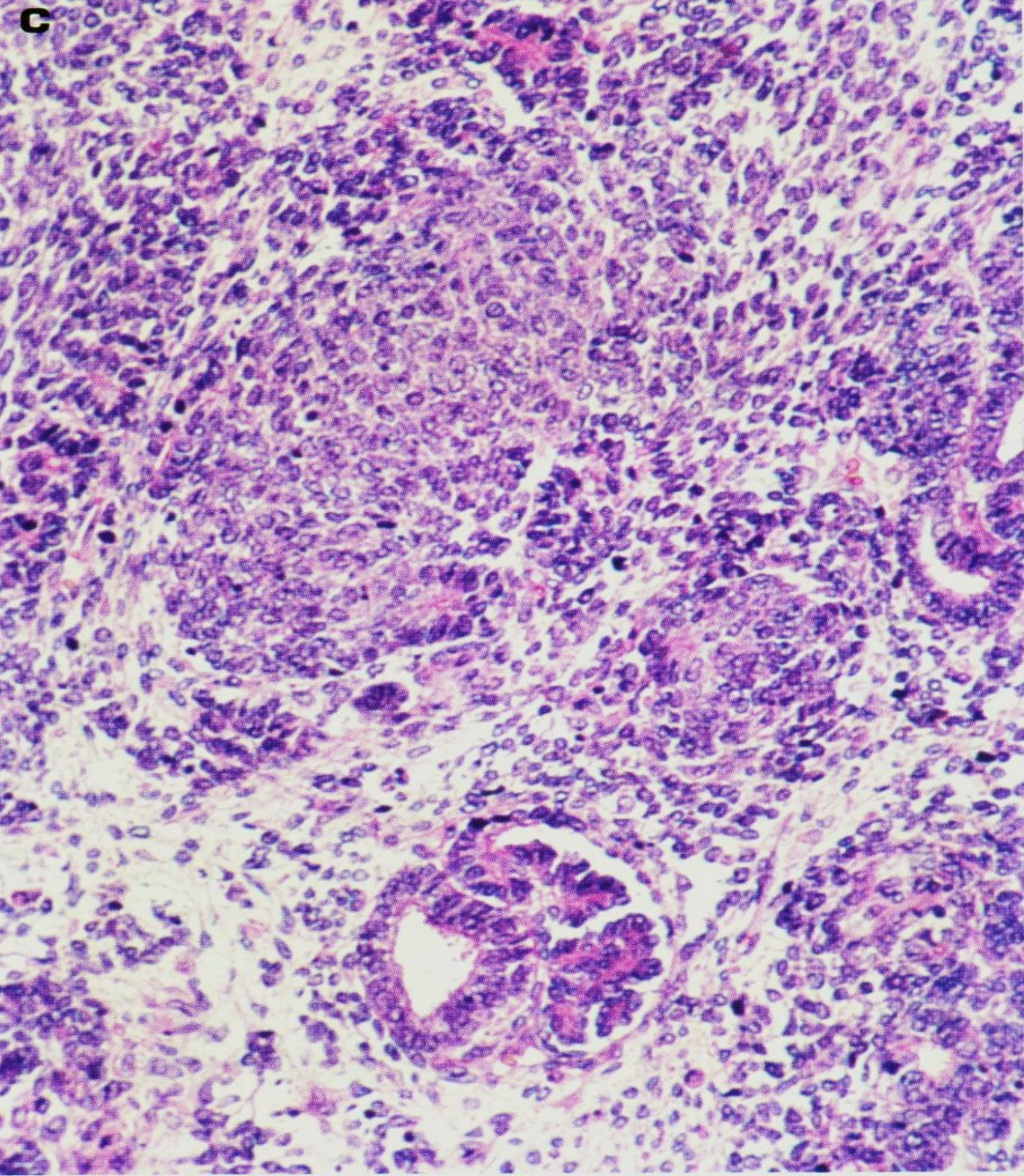
Wilms' tumor (nephroblastoma)

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

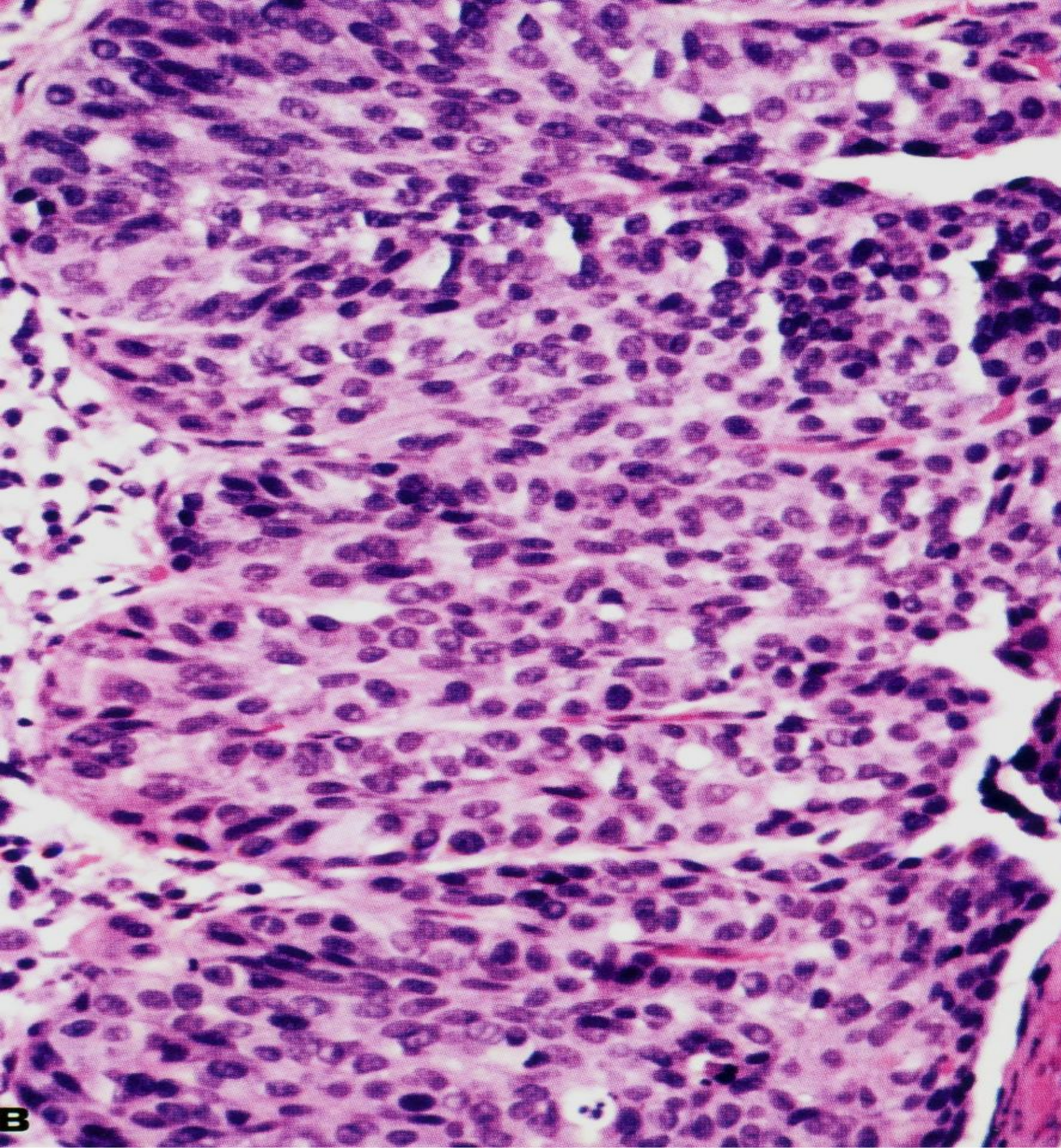


Wilms' tumor

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



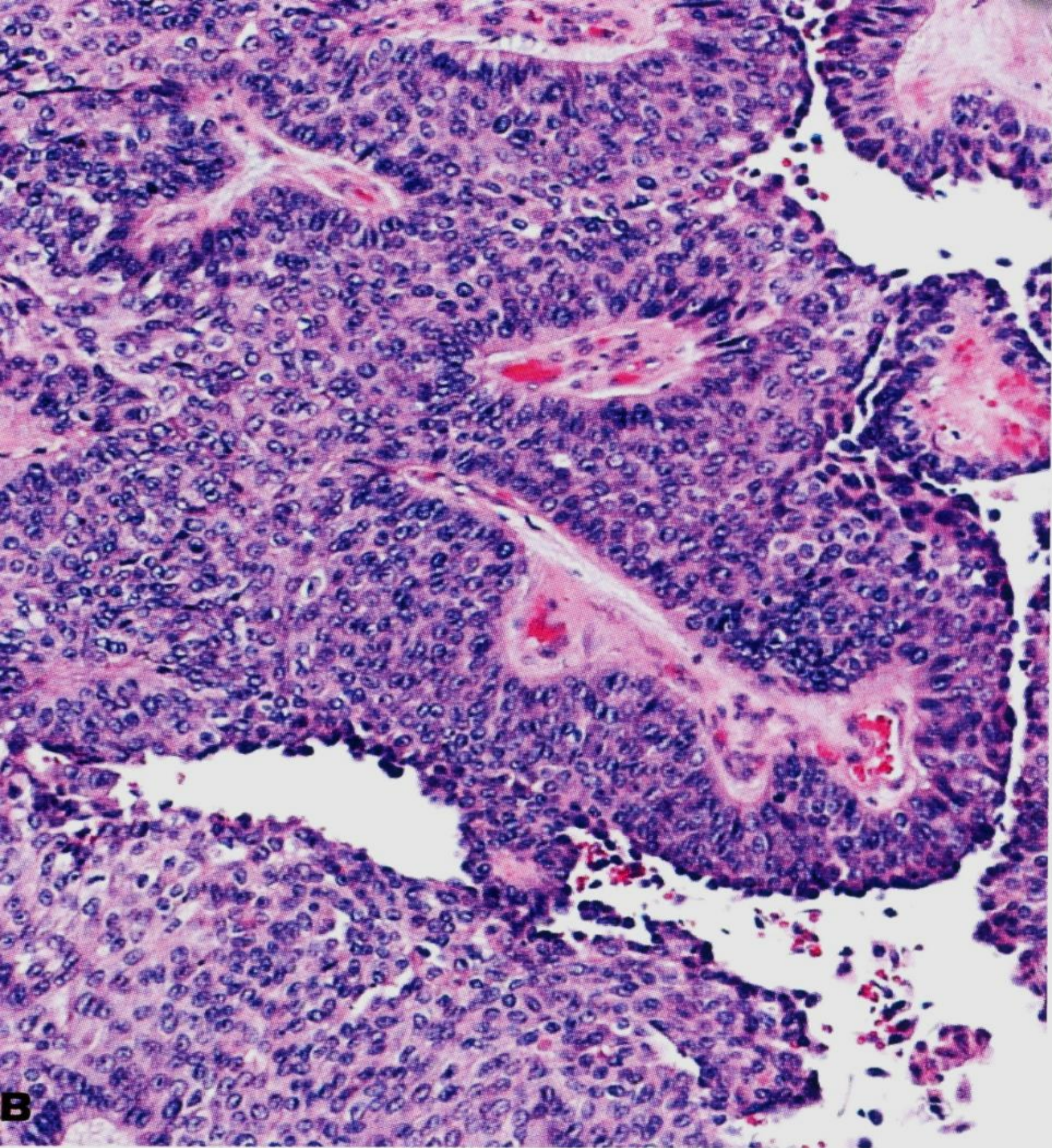
Urothelial (transitional cell) carcinoma in situ of the urinary bladder if untreated, up to 75% of cases go on to invasive cancer.



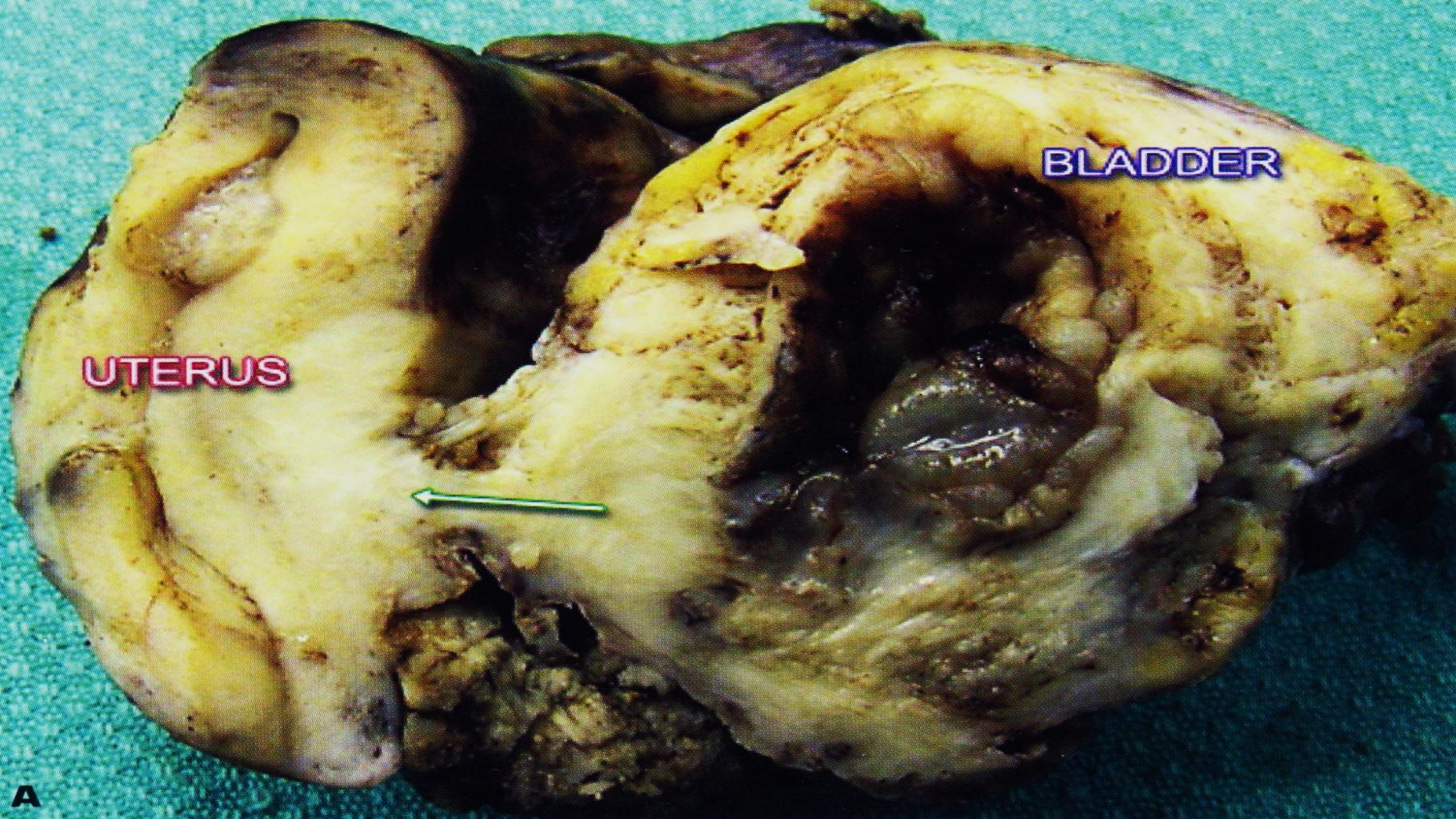
Histology of **carcinoma in situ** (surface is to the right).



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



Urothelial carcinoma of bladder.

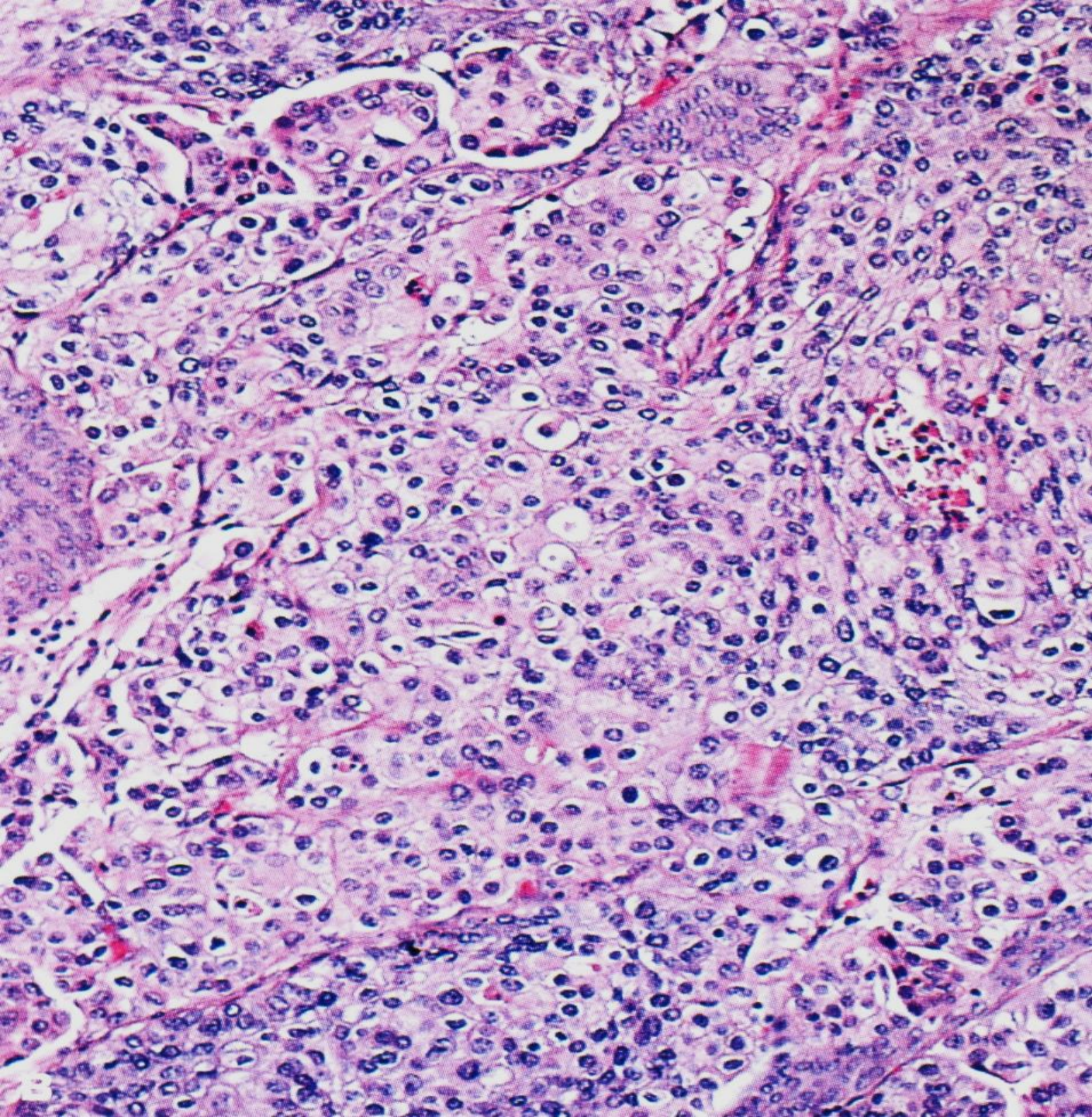


UTERUS

BLADDER



A



Poorly differentiated
urothelial carcinoma.