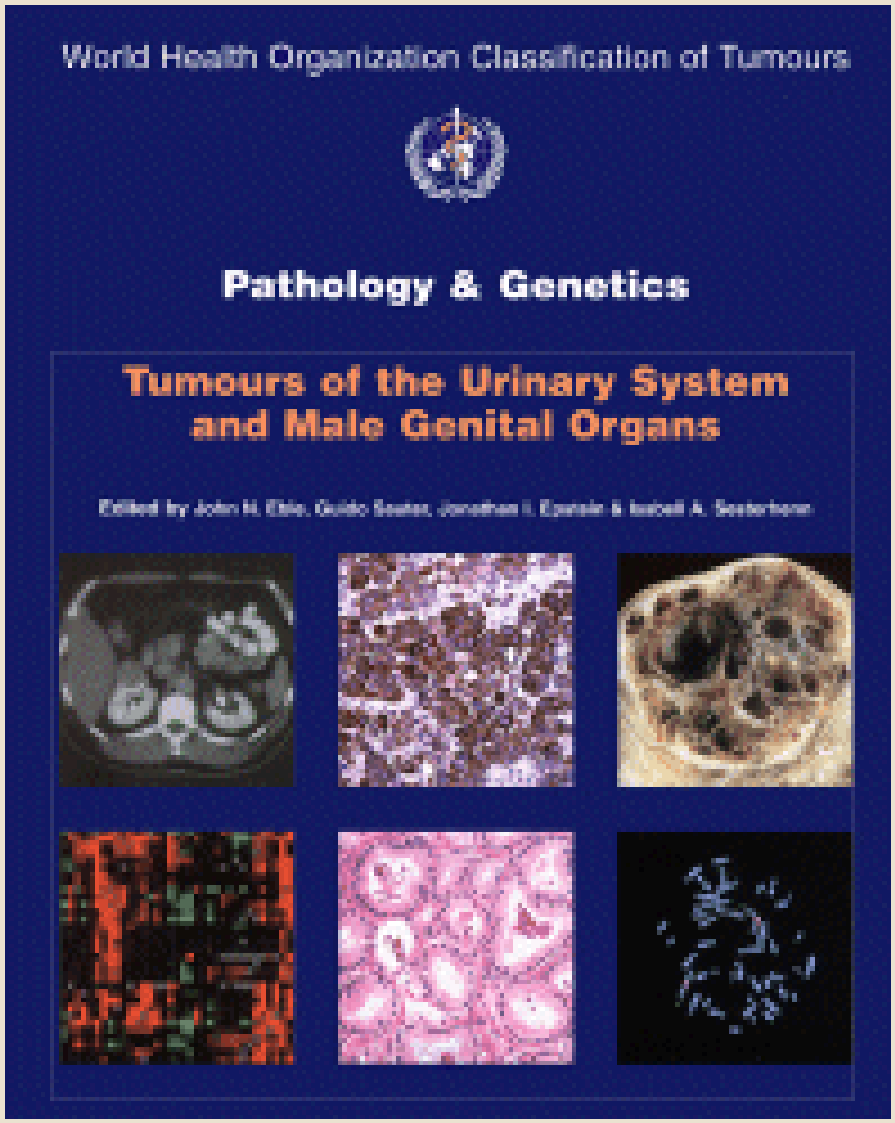
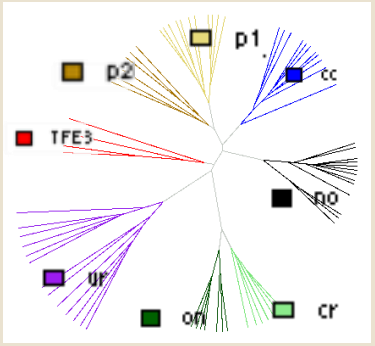
RENAL TUMOURS





Dr Ph Camparo
Centre de Pathologie
Amiens
France

Renal cell tumours

Clear cell renal cell carcinoma	8310/3
Multilocular cystic renal neoplasm of low malignant potential	8316/1
Papillary renal cell carcinoma	8255/1
Hereditary leiomyomatosis and renal cell carcinoma (HLRCC)-associated renal cell carcinoma	8311/3*
Chromophobe renal cell carcinoma	8317/3
Collecting duct carcinoma	8319/3
Renal medullary carcinoma	8510/3
MiT Family translocation carcinomas	8311/3
Succinate dehydrogenase (SDH)-deficient renal carcinoma	8312/3
Mucinous tubular and spindle cell carcinoma	8480/3
Tubulocystic renal cell carcinoma	8316/3
Acquired cystic disease associated renal cell carcinoma	8316/3
Clear cell papillary renal cell carcinoma	8323/1
Renal cell carcinoma, unclassified	8312/3
Papillary adenoma	8260/0
Oncocytoma	8290/0

Metanephric tumours

Metanephric adenoma	8325/0
Metanephric adenofibroma	9013/0
Metanephric stromal tumour	8935/1

Nephroblastic tumours

Nephrogenic rests	
Nephroblastoma	8960/3
Cystic partially differentiated nephroblastoma	8959/1
Paediatric cystic nephroma	8959/0

Mesenchymal tumours

Mesenchymal tumours occurring mainly in children

Clear cell sarcoma	8964/3
Rhabdoid tumour	8963/3
Congenital mesoblastic nephroma	8960/1
Ossifying renal tumour of infants	8967/0

Mesenchymal tumours occurring mainly in adults

Leiomyosarcoma	8890/3
Angiosarcoma	9120/3
Rhabdomyosarcoma	8900/3
Osteosarcoma	9180/3
Synovial sarcoma	9040/3
Ewing sarcoma / Peripheral neuroectodermal tumour	9260/3
Angiomyolipoma	8860/0
Epithelioid angiomyolipoma	8860/1
Leiomyoma	8890/0
Haemangioma	9120/0
Lymphangioma	9170/0
Haemangioblastoma	9161/1
Juxtaglomerular cell tumour	8361/0
Renomedullary interstitial cell tumour	8966/0
Schwannoma	9560/0
Solitary fibrous tumour	8815/1

Mixed epithelial and mesenchymal tumours

Cystic nephroma	8959/0
Mixed epithelial and stromal tumour	8959/0

Neuroendocrine tumours

Well-differentiated neuroendocrine tumour	8240/3
Large cell neuroendocrine carcinoma	8013/3
Small cell neuroendocrine carcinoma	8041/3
Paraganglioma	8693/1
Phaeochromocytoma	8700/0

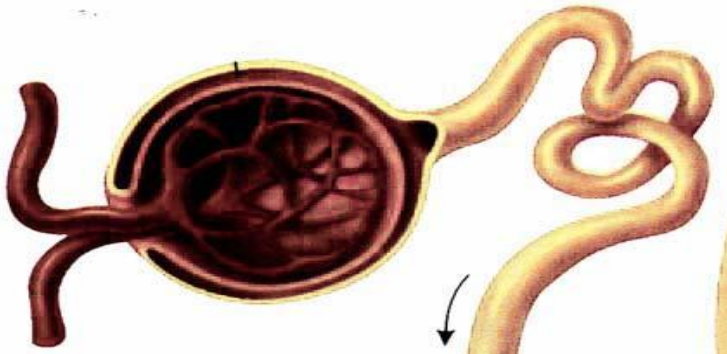
Miscellaneous tumours

Renal haematopoietic neoplasms
Germ cell tumours

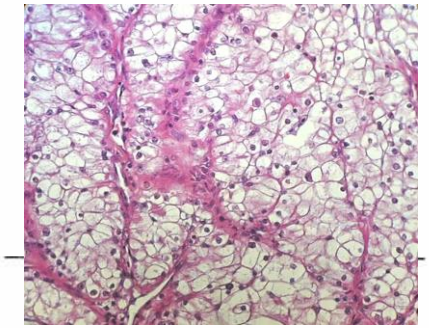
Metastatic tumours

The morphology codes are from the International Classification of Diseases for Oncology (ICD-O) {917A}. Behaviour is coded /0 for benign tumours; /1 for unspecified, borderline, or uncertain behaviour; /2 for carcinoma in situ and grade III intraepithelial neoplasia; and /3 for malignant tumours. The classification is modified from the previous WHO classification {756A}, taking into account changes in our understanding of these lesions.

* These new codes were approved by the IARC/WHO Committee for ICD-O.

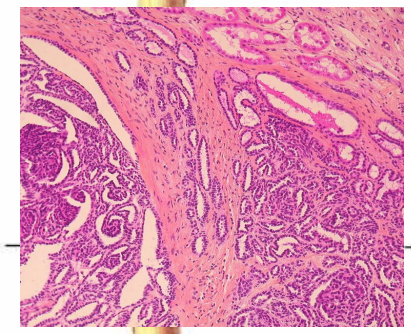


Clear cells



CD10+ VIM + CaIX +
CK7- Racemase +/-
3p25-26.-

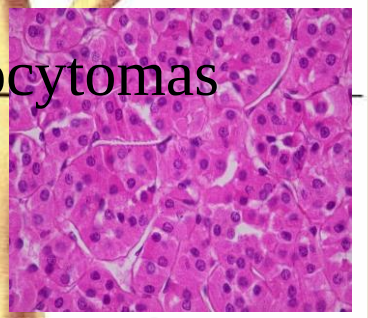
Papillary RCC



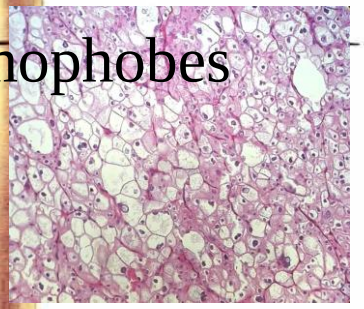
CK7+, CD10+ VIM + Racemase+
CaIX -
+7;+17.

CK7-, CD117+/-
, CD10-, EMA+
-1;-Y.

Oncocytomas



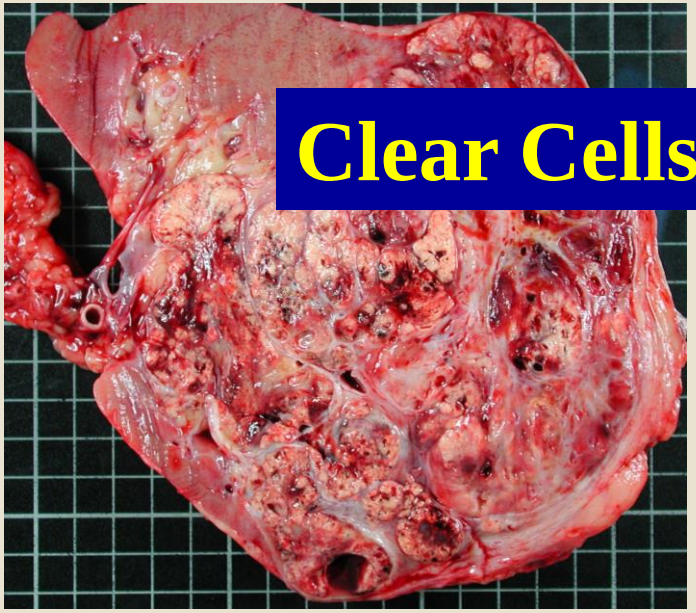
Chromophobes
RCC

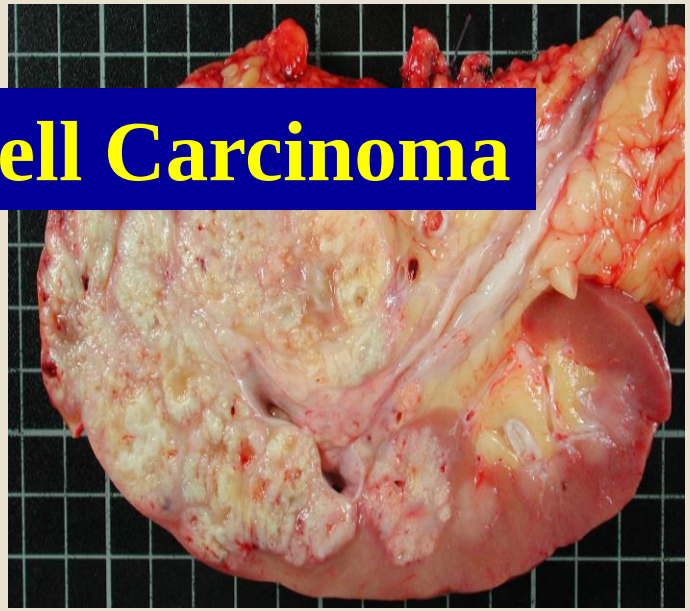


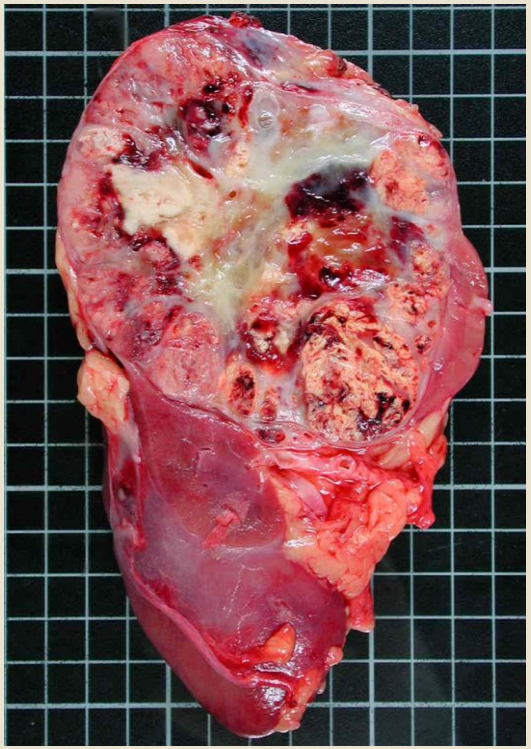
CK7+, CD117+,
VIM + EMA+
-1;-2;-6;-10;-Y

PAX 8 is supposed to be explained by all renal cell carcinomas
Not specific (uterine ans ovarian tumors)

Clear Cells Renal Cell Carcinoma



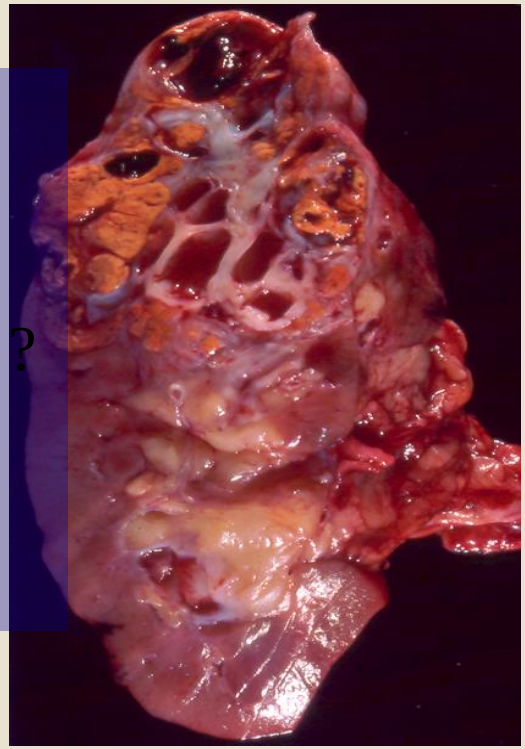




Modified Fuhrman Nuclear Grading

Molecular classification ?

Antiangiogenic and immunotherapies



Clear Cells Renal Cell Carcinoma

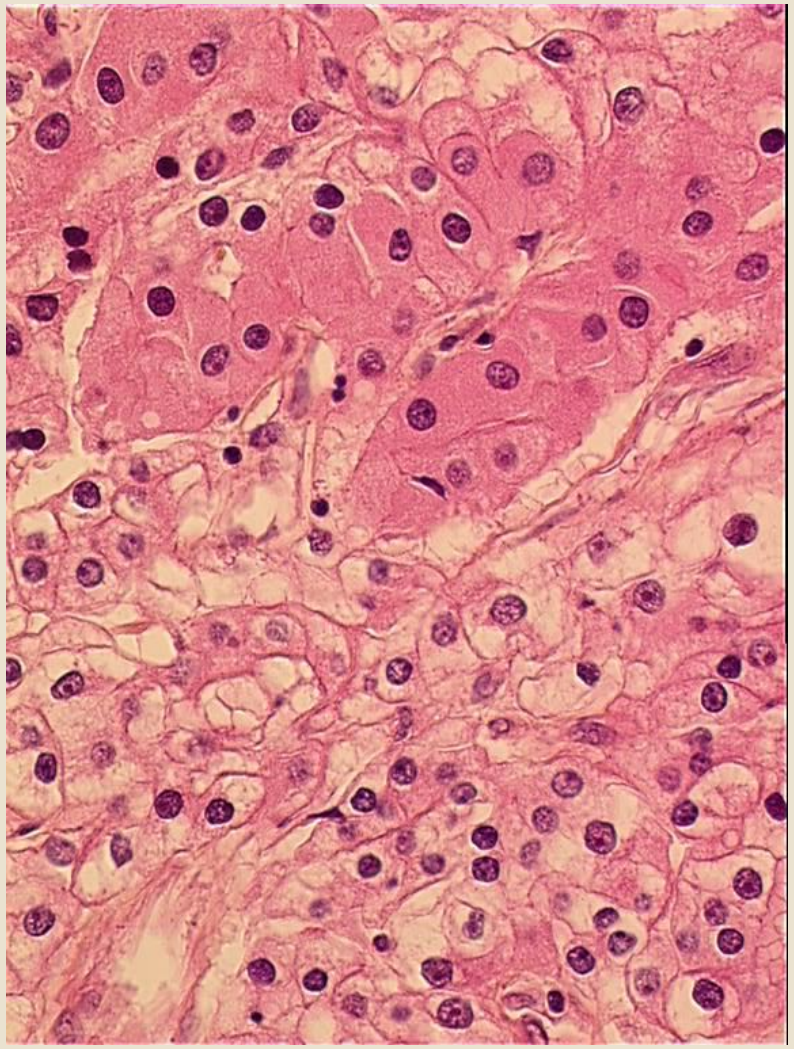
Sporadic >40 y.o.

Clear (slightly eosinophilic) cells

Alveolar trabecular massive cystic architecture

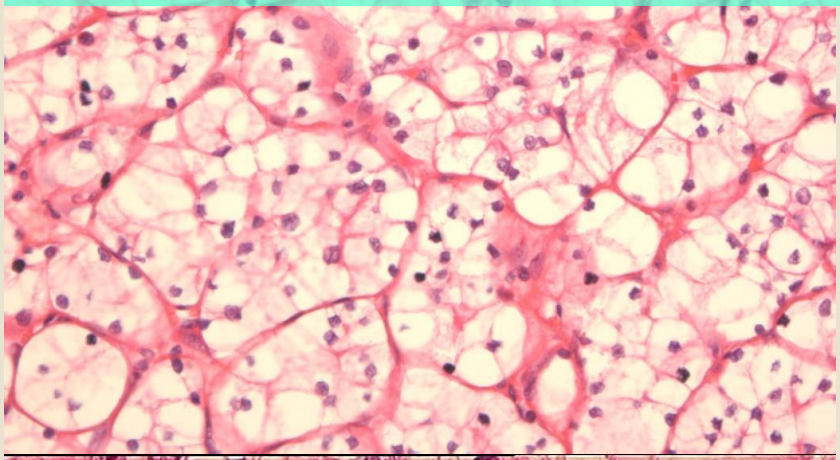
Numerous vessels ++

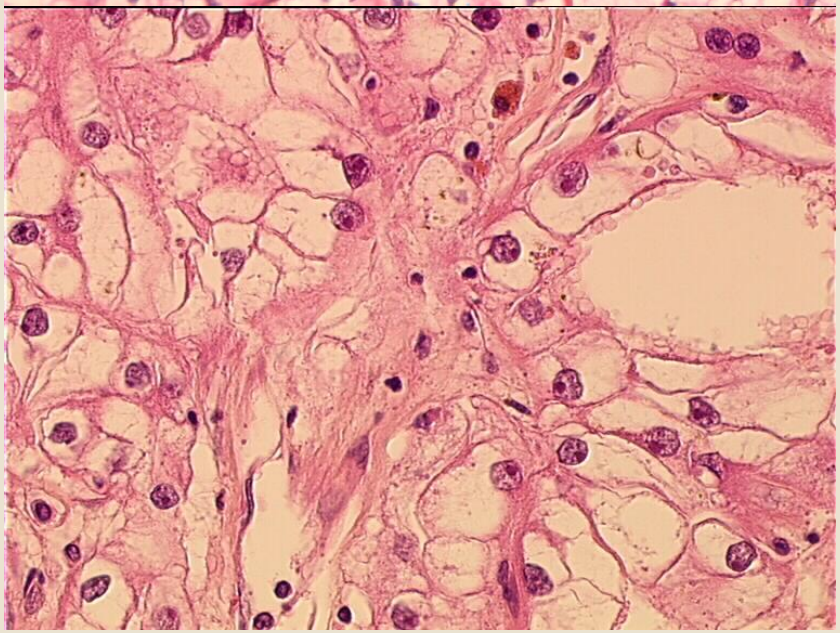
RCC+ CD10+ VIM + CaIX+ CK7- Racemase +/- CD117-

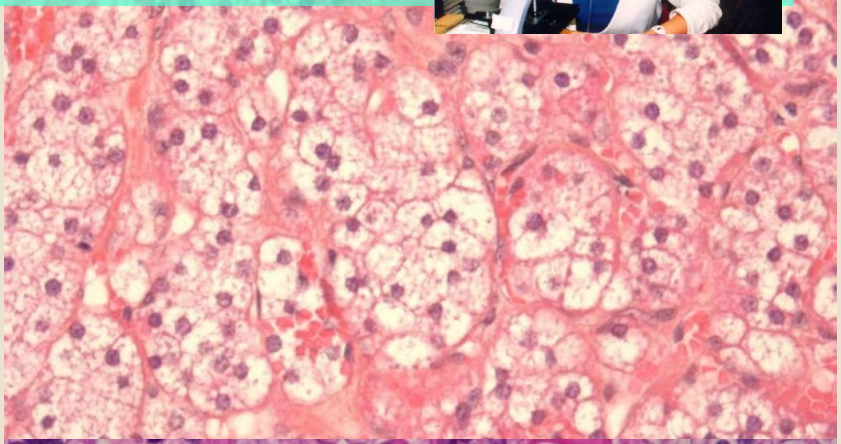


Grade Fuhrman/ISUP

80% of







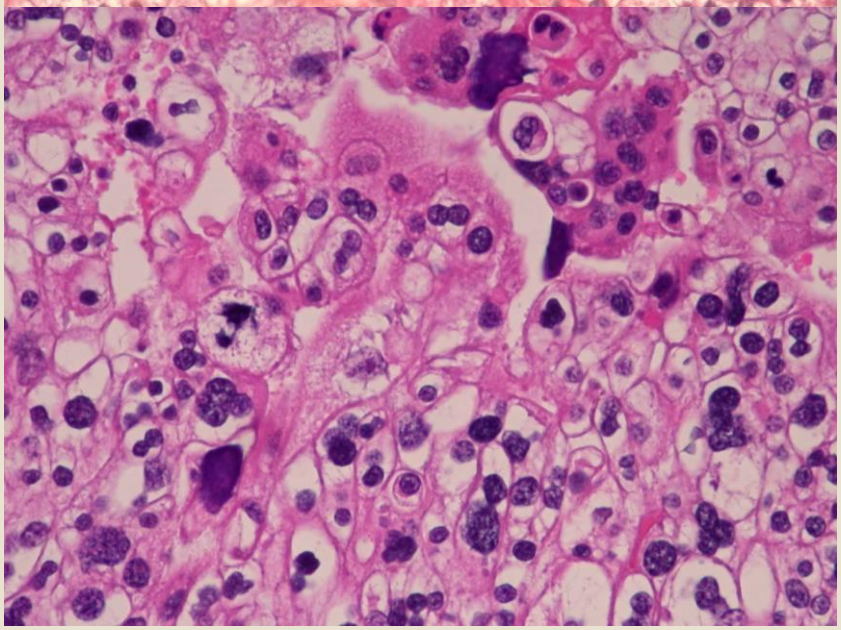
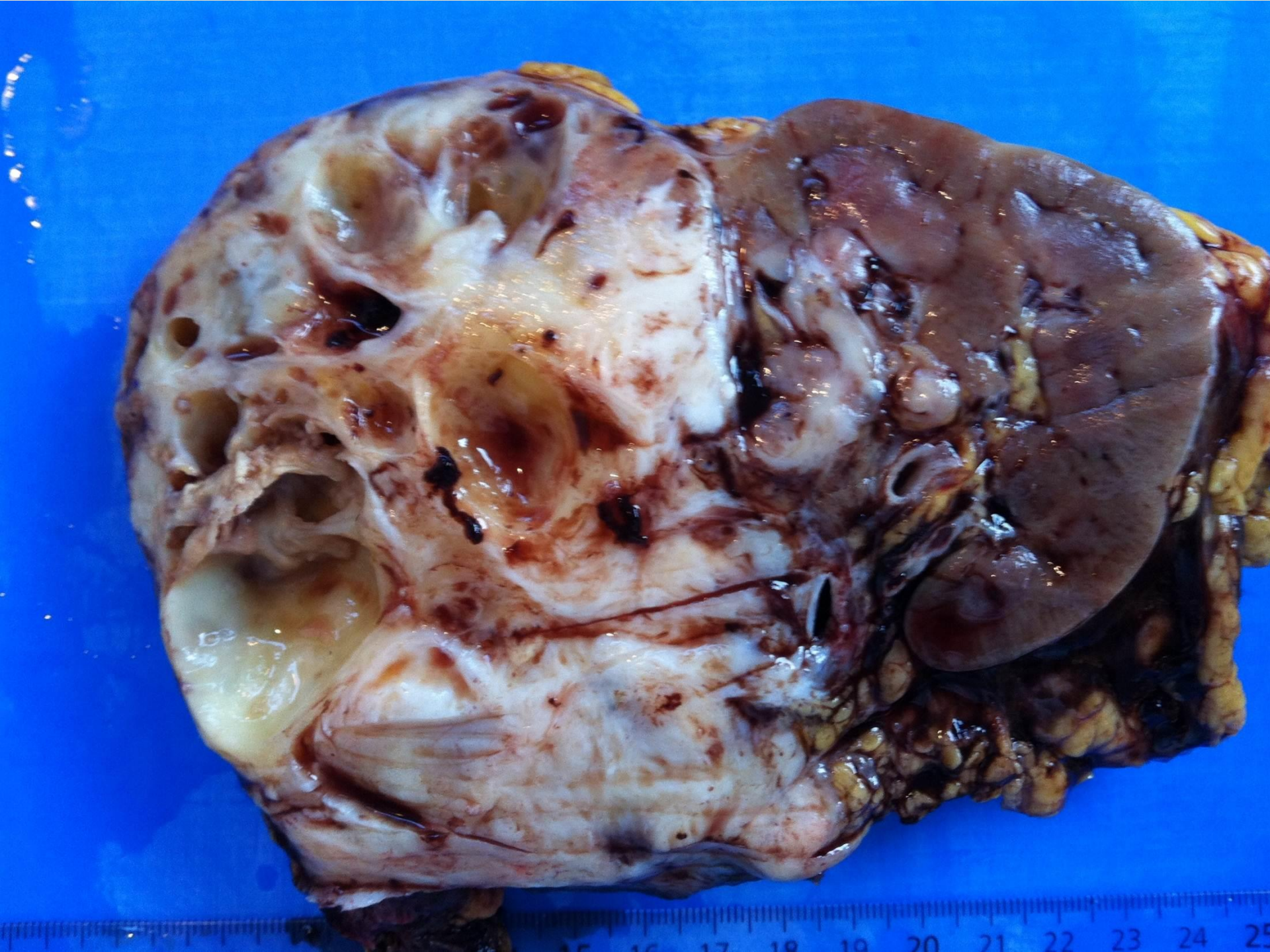


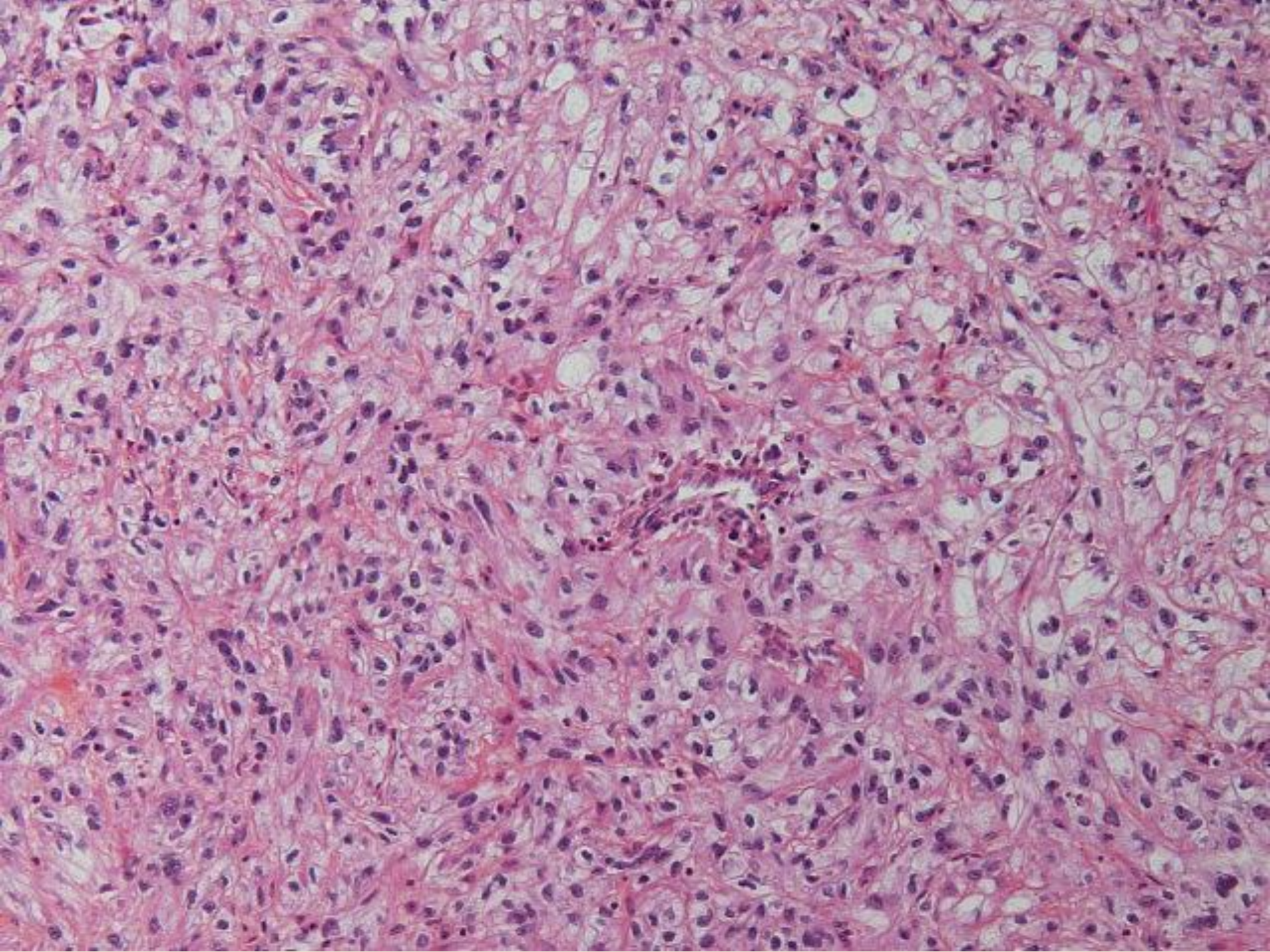
Table 1.03 WHO / International Society of Urological Pathology (ISUP) grading system for clear cell renal cell carcinoma and papillary renal cell carcinoma {677}.

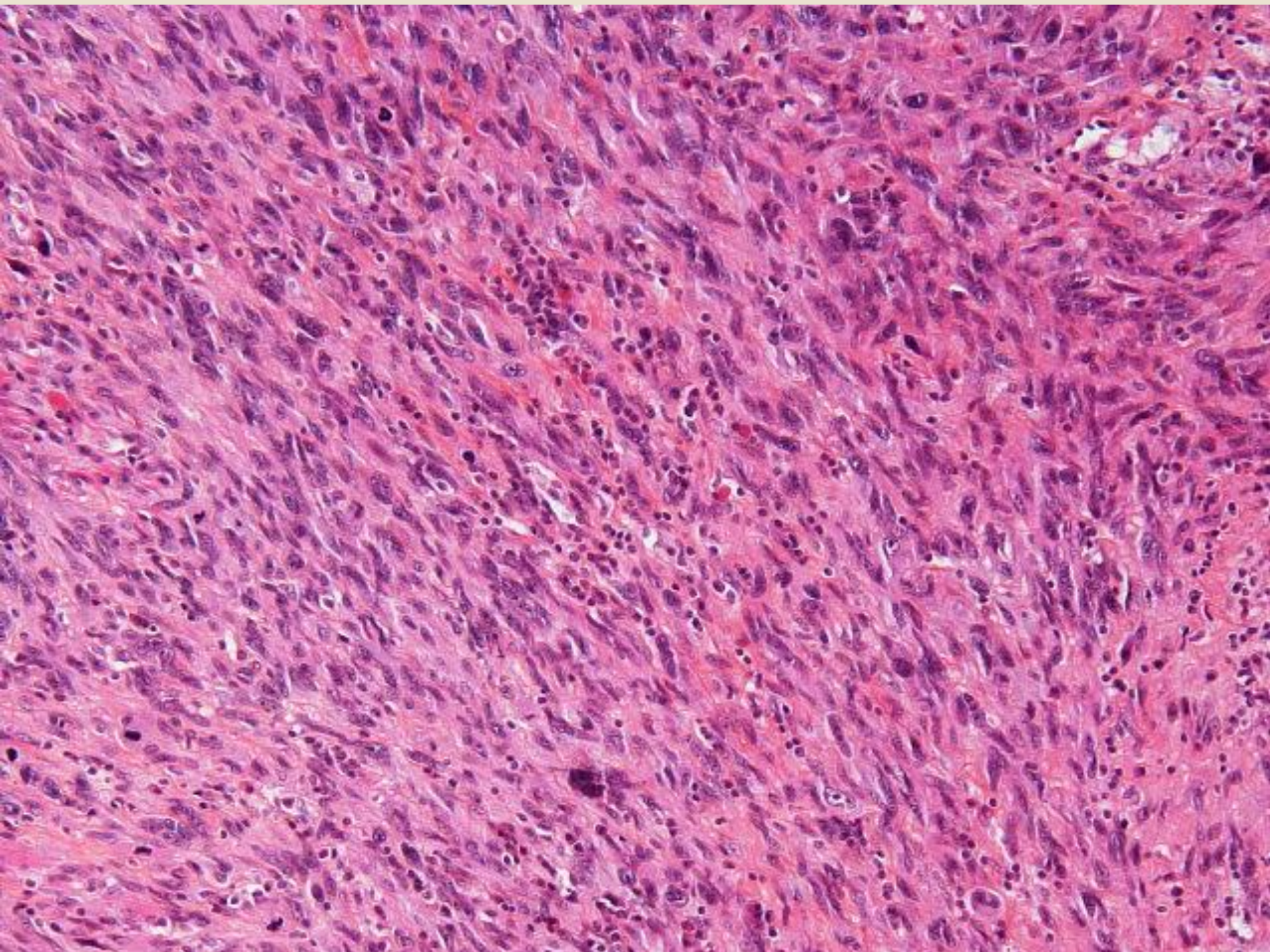
Grade	Description
Grade 1	Nucleoli are absent or inconspicuous and basophilic at ×400 magnification.
Grade 2	Nucleoli are conspicuous and eosinophilic at ×400 magnification and visible but not prominent at ×100 magnification.
Grade 3	Nucleoli are conspicuous and eosinophilic at ×100 magnification.
Grade 4	There is extreme nuclear pleomorphism, multinucleate giant cells, and/or rhabdoid and/or sarcomatoid differentiation.

Prognositc factors
Sarcomatoid differenciation

- 1-8%, mainly CCRCC
- 15 à 20 % 5y OS
- Biphasic
  - Heterologous : chondrosarcoma, osteosarcoma, rhabdomyosarcoma, fibrosarcoma…
- Loss of chromosomes 13q or 4q





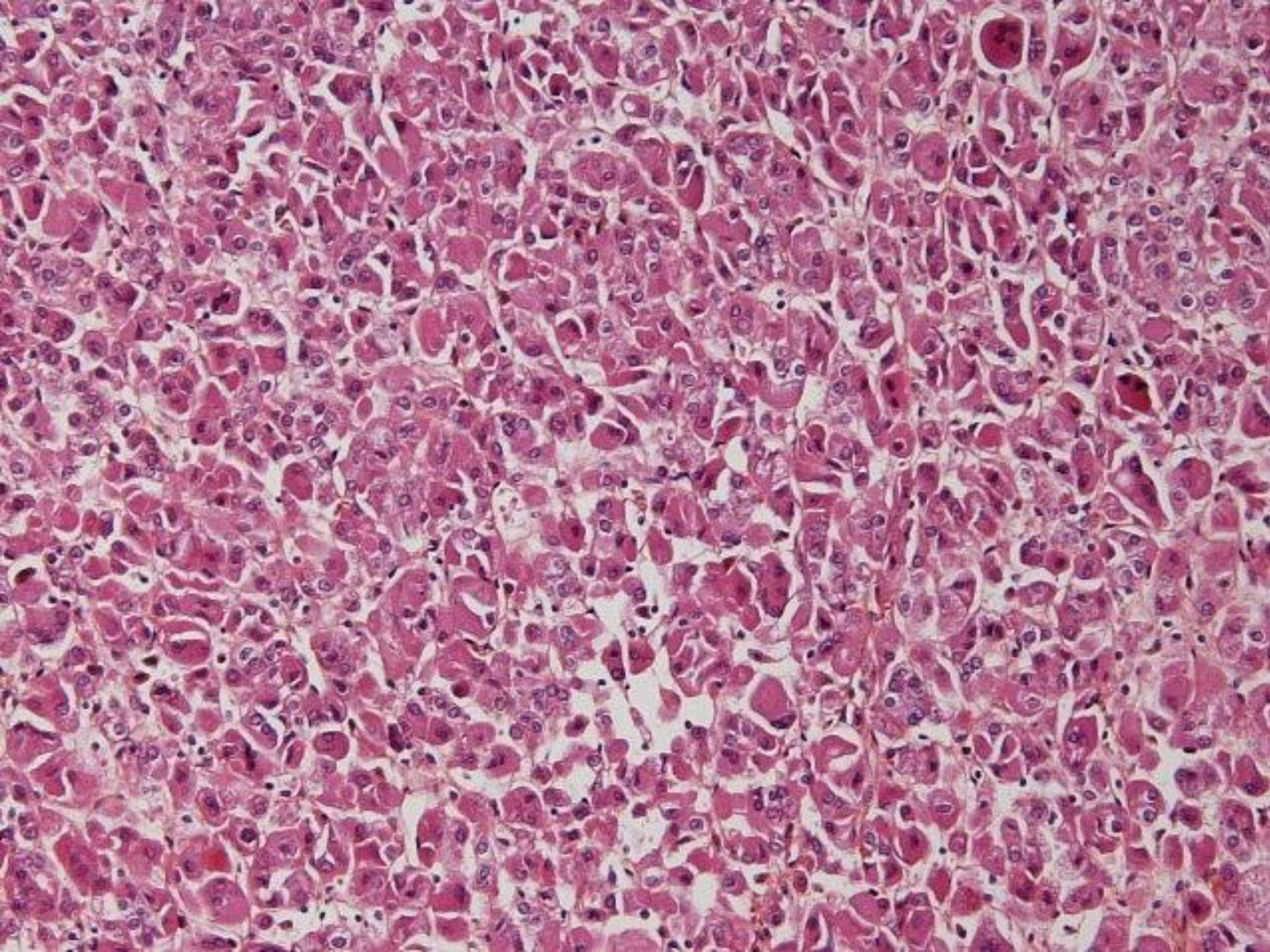


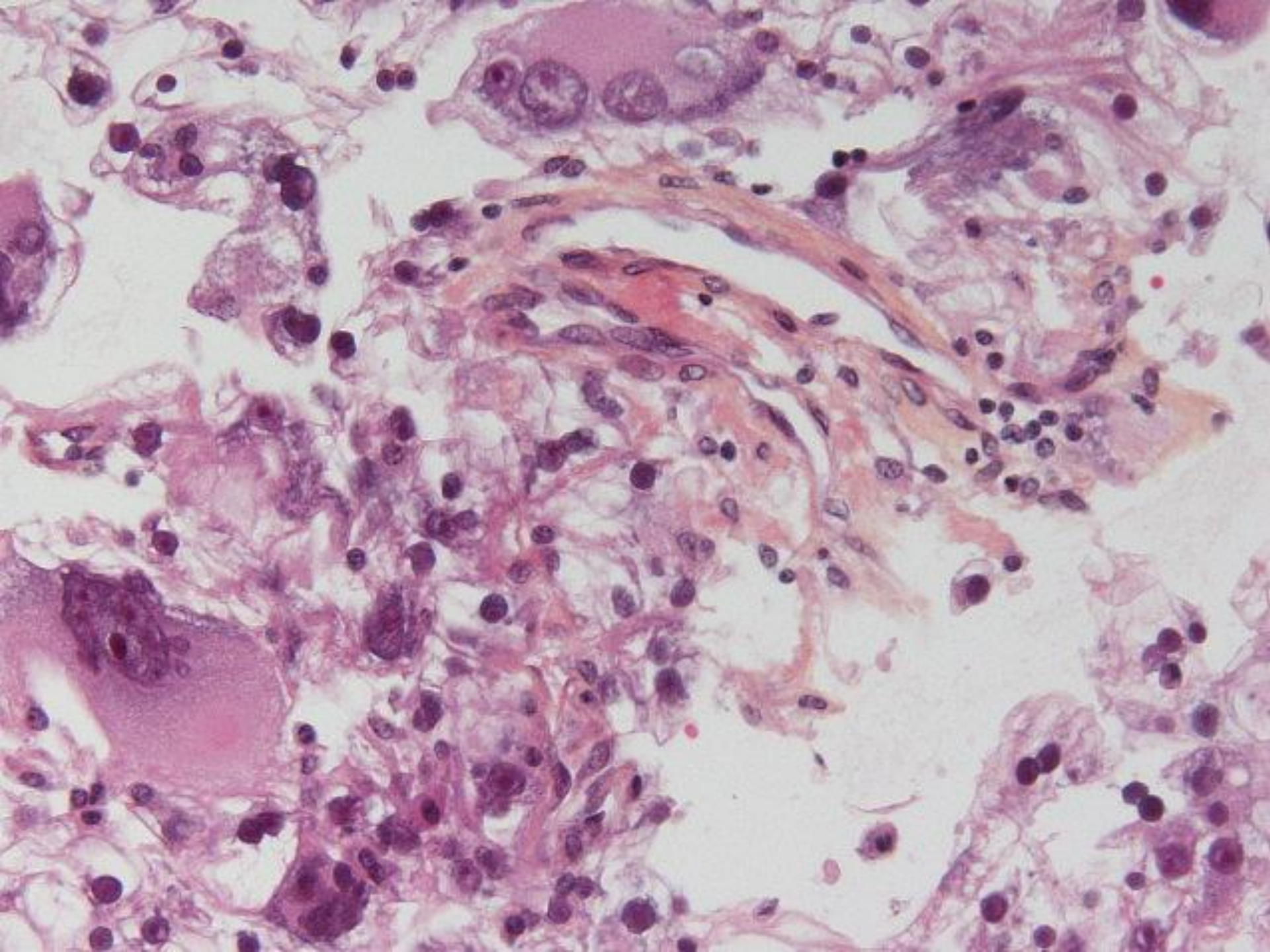
Sarcomatoïd differenciation

- From 1 to 100% of tumor cells (no need to specify but recommanded ICCR)
- if 100% sarcomatoid
  - RCC undifferenciated with 100 % sarcomatoid component
- Always Grade IV

Prognostic factors
Rhabdoïd differenciation

- Associated with poor prognosis
- Most often CCRCC

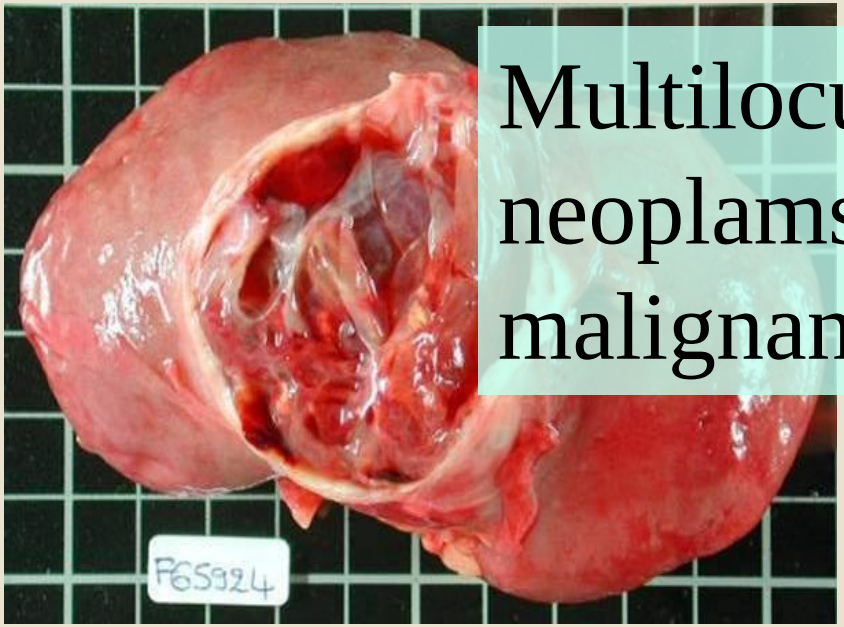


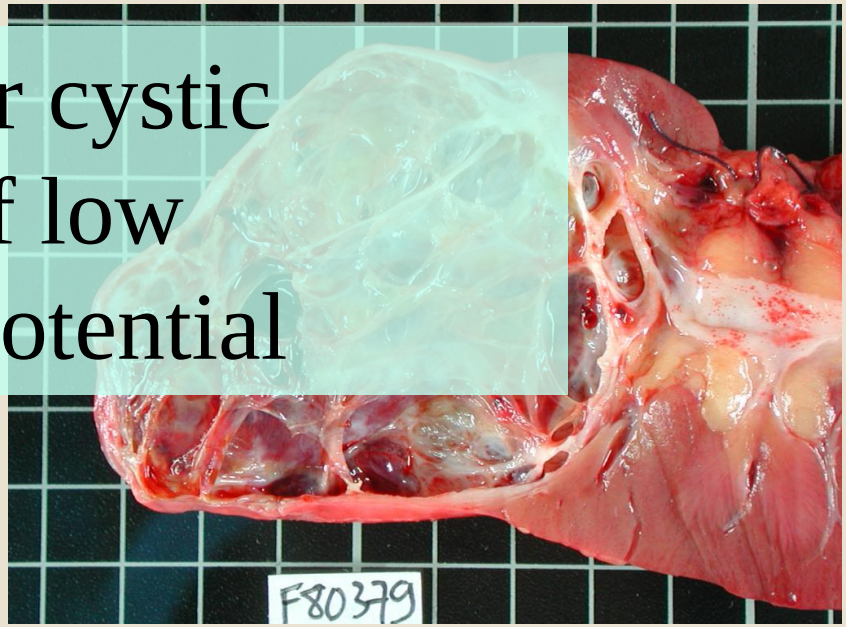


Prognostic factors
Necrosis

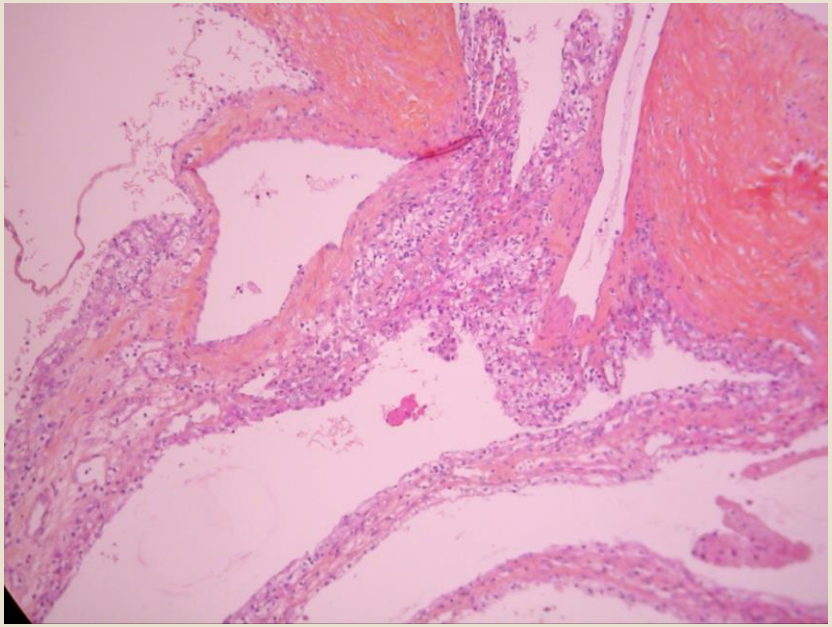
- Poor prognosis
- %
- focal/extensive

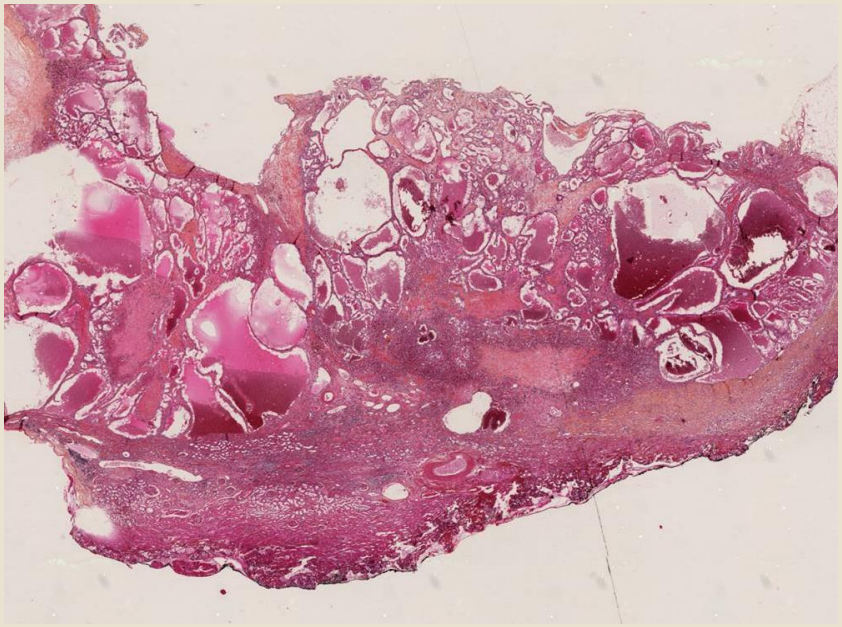
Multilocular cystic neoplams of low malignant potential

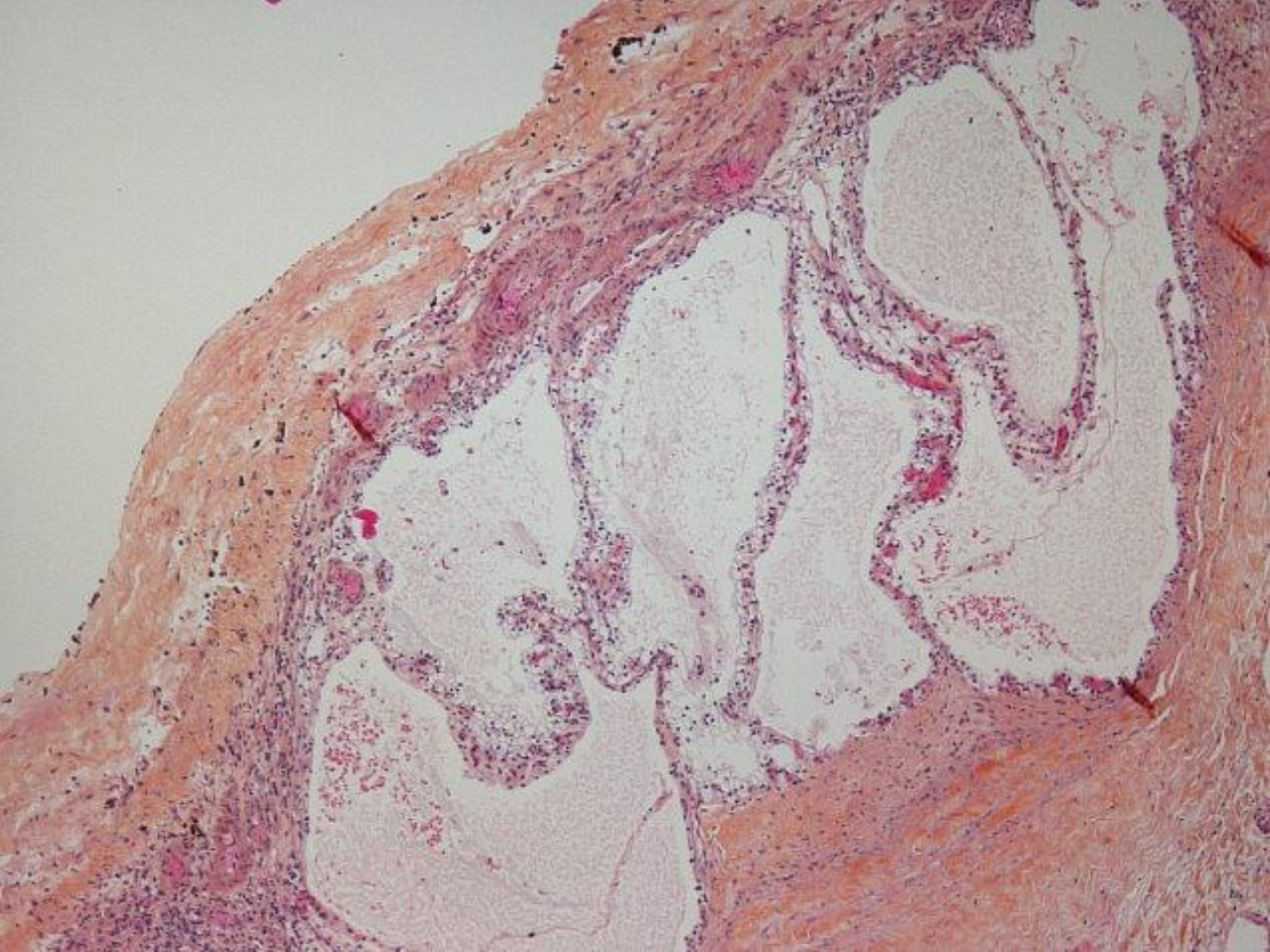


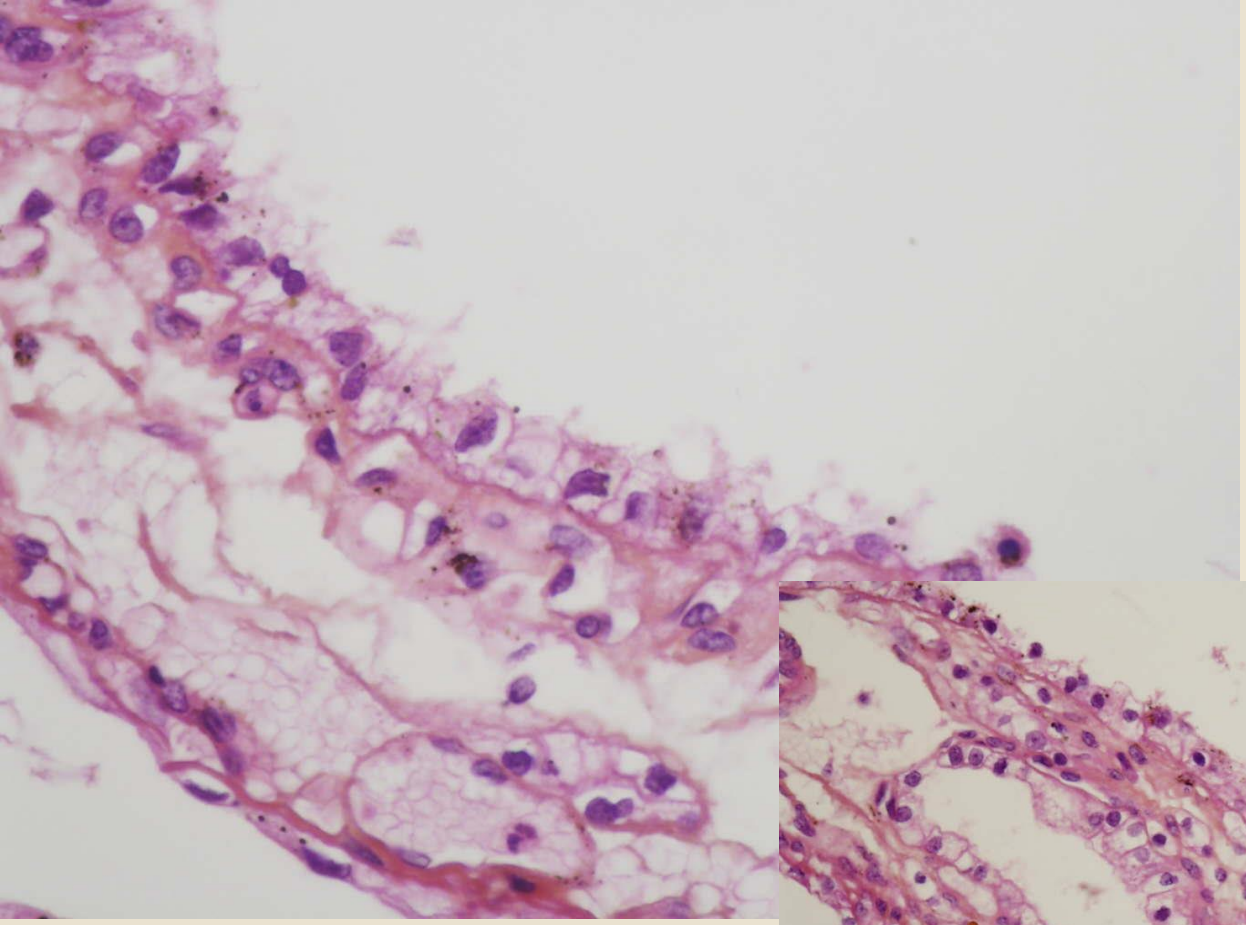


Cystic lesions Bosniak 3 or 4



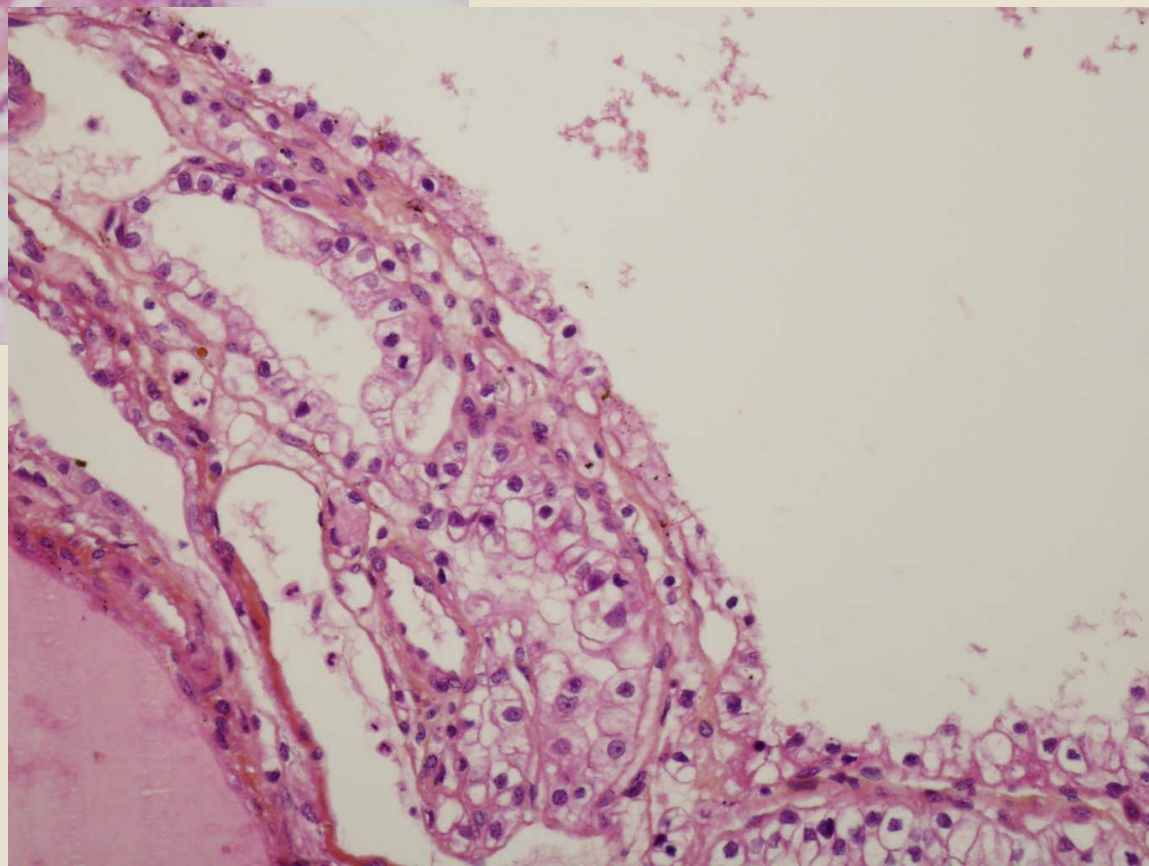






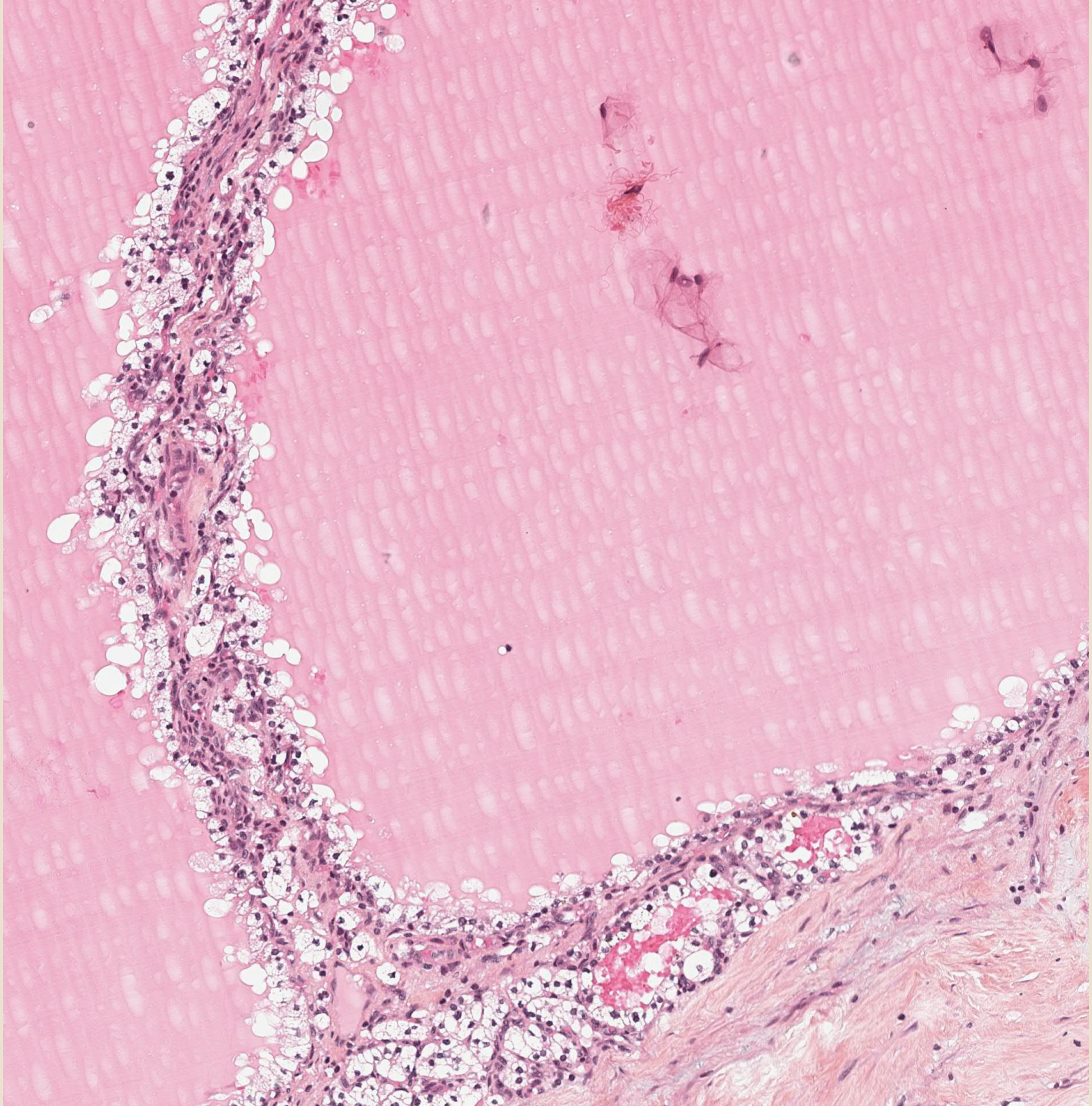
Cysts lined by clear cells

Clusters of clear cells within septas



Variant of CCRCC
Low Fuhrman grade

Treatment :
Complet exision



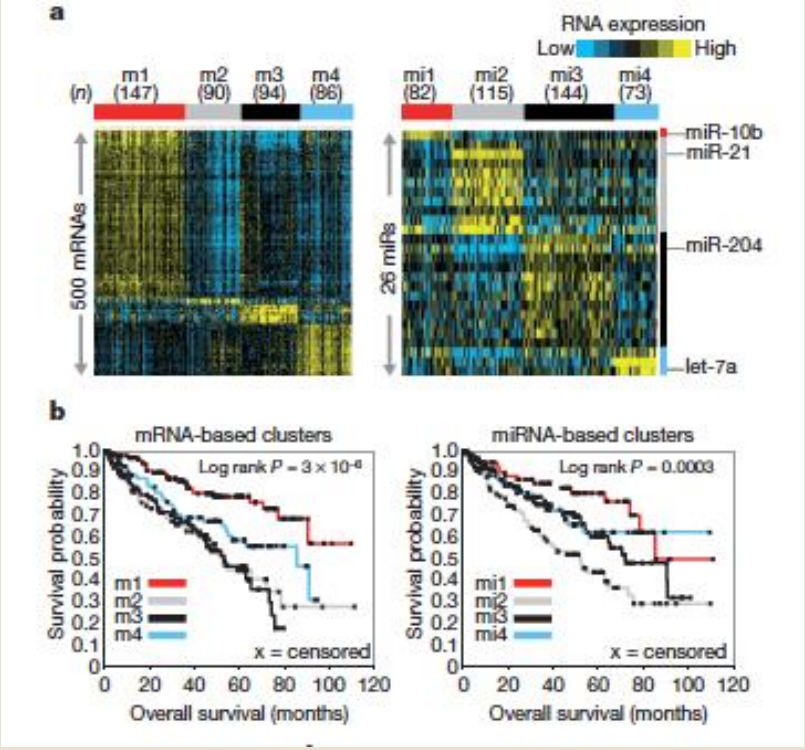
ARTICLE

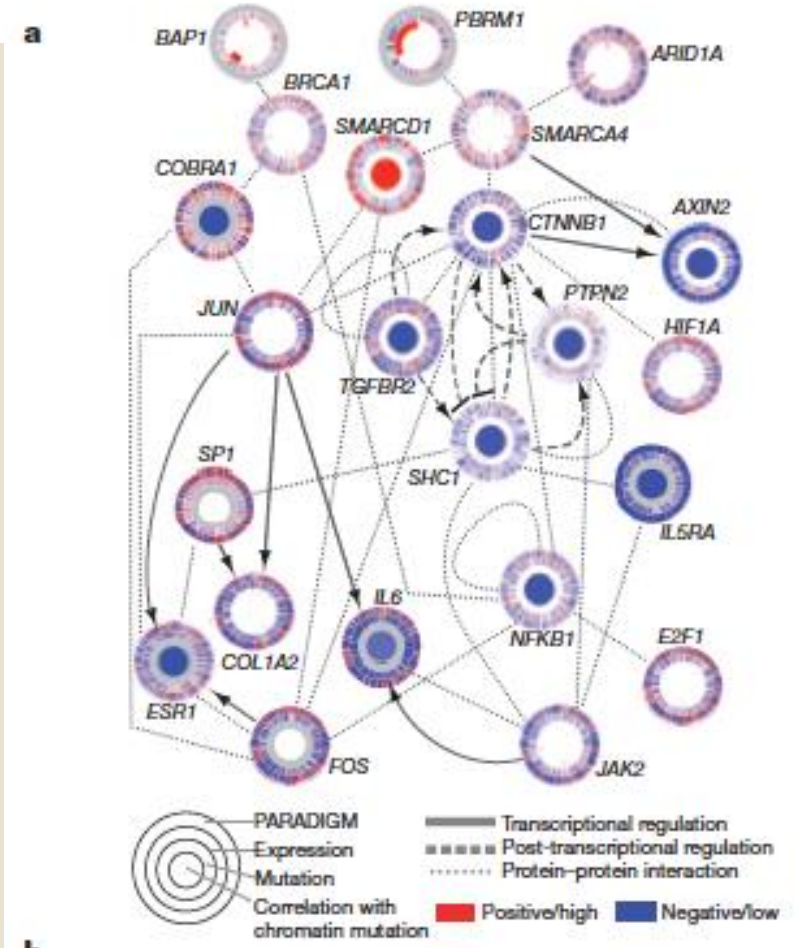
OPEN
doi:10.1038/nature12222

Comprehensive molecular characterization of clear cell renal cell carcinoma

The Cancer Genome Atlas Research Network*

Nature 2013 49:43-49





BAP 1 : Peña-Llopis S et col. BAP1 loss defines a new class of renal cell carcinoma. Nat Genet. 2012;44:751–759.

BRCA1 associated protein-1
Cell proliferation and DNA stabilization and repair (BRCA1).
BAP1 mutation in lung and breast cancers, mélanomas, mesothéliomas

PBRM1 : Dalgliesh GL, et col. Systematic sequencing of renal carcinoma reveals inactivation of histone modifying genes Nature. 2010 Jan 21; 463(7279): 360–363.

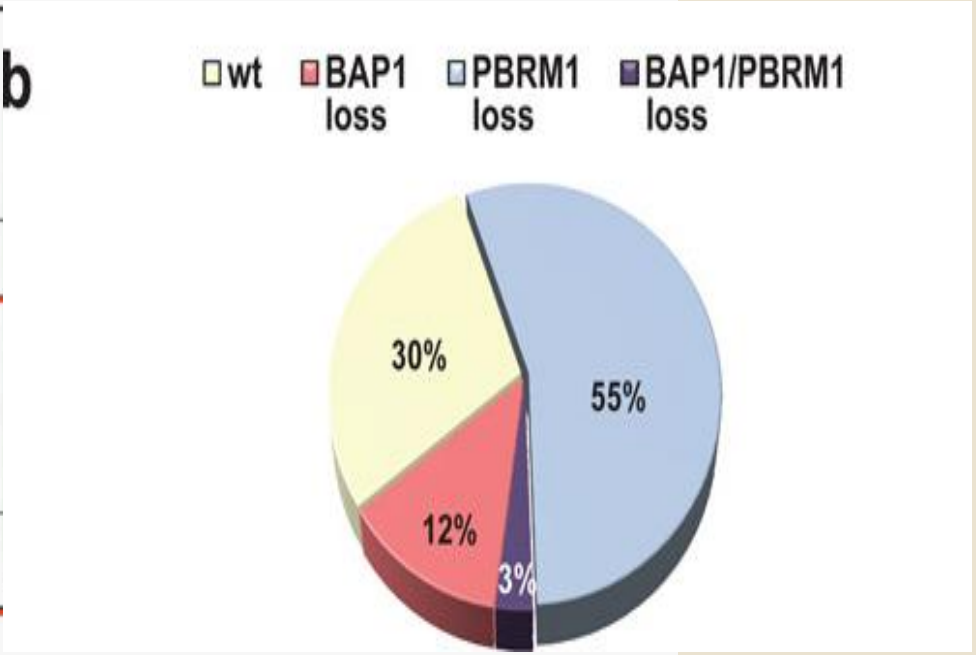
Polybromo-1
Part of Switch/Sucrose NonFermentable (SWI/SNF) complex. DNA stabilisation and repair.
In CCRCC

Inactivating mutations of BAP1 : 10-15%
Inactivating mutations of PBRM1 : 50-53%.

BAP1 and *PBRM1* mutations are largely mutually exclusive in meta-analysis

Study	*n*	*PBRM1*	*BAP1*	*BAP1/ PBRM1*
Peña-Llopis *et al.*	176	89	21	3
Guo *et al.*	98	21	8	
Hakimi *et al.*	185	53	10	1
TCGA	293	101	22	5
Total	**576**	**175**	**40**	**6**

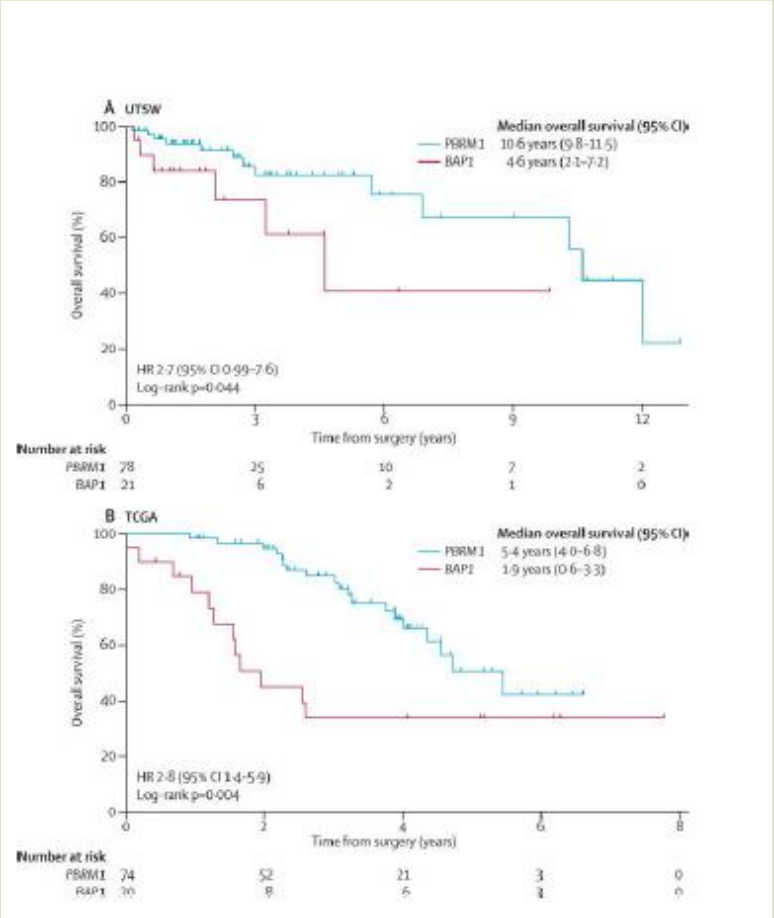
b



PBRM1 and BAP1 mutated CCRCC have distinct prognosis

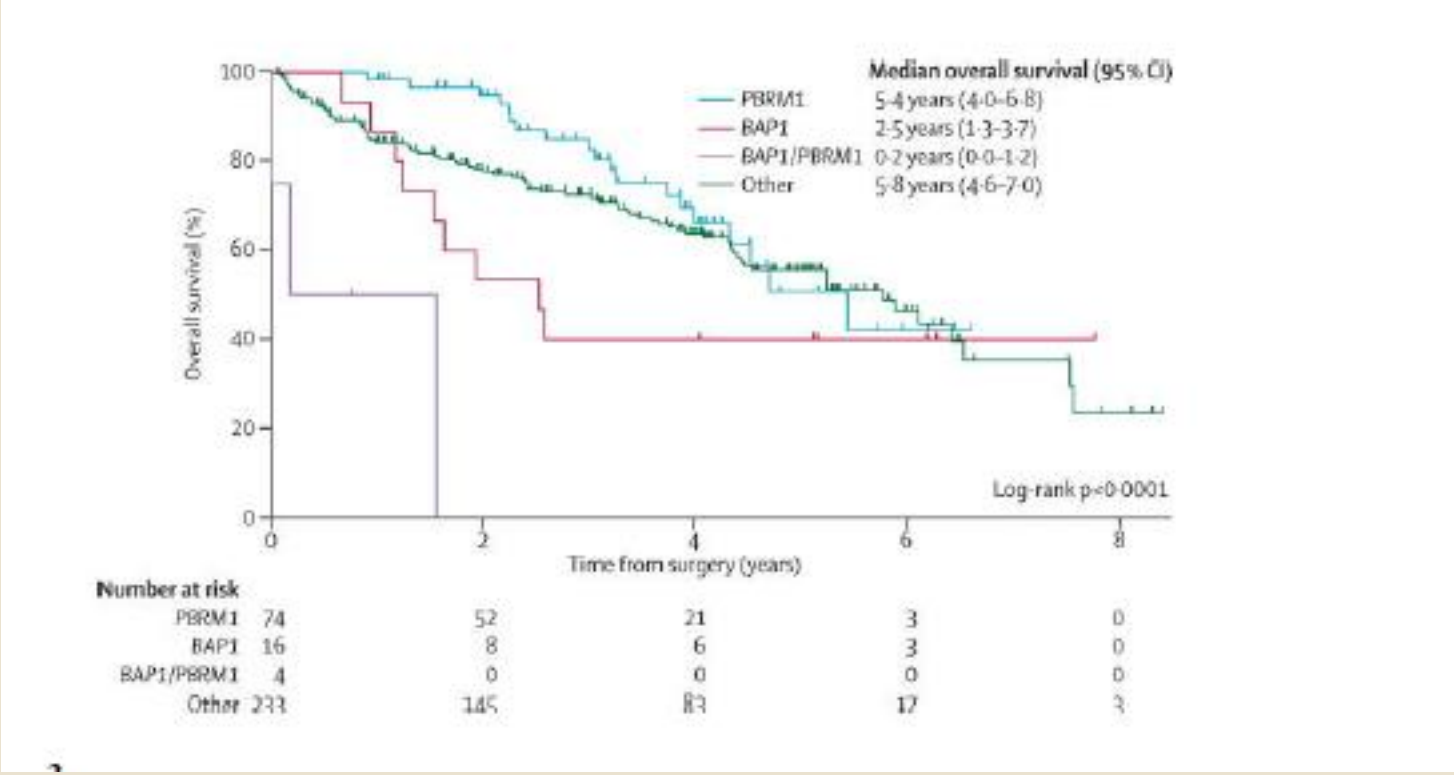
Inactivating mutations of BAP1 associated with

- hight risk tumors (HR 7,71 95% CI 2,08-28,6 p=0002)
- Shortened OS (4,6 y (95% CI 2,1-7,2) vs 10,6 y for PBRM1mutations (95% CI 9.8-11.5).

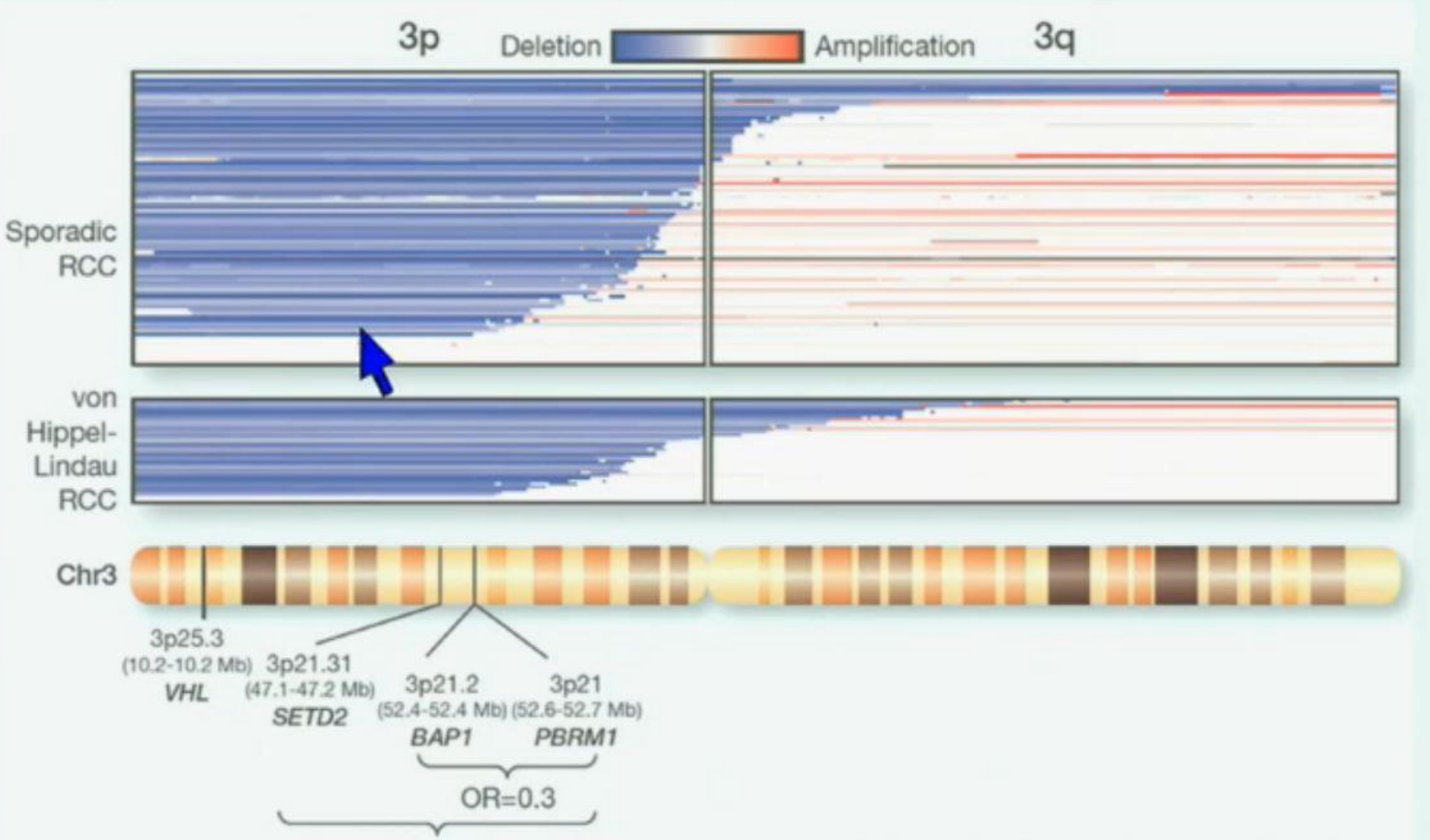


Effects on survival of *BAP1* and *PBRM1* mutations in sporadic clear-cell renal-cell carcinoma: a retrospective analysis with independent validation
P Kapur et coll Lancet Oncology 2013;14:159-67

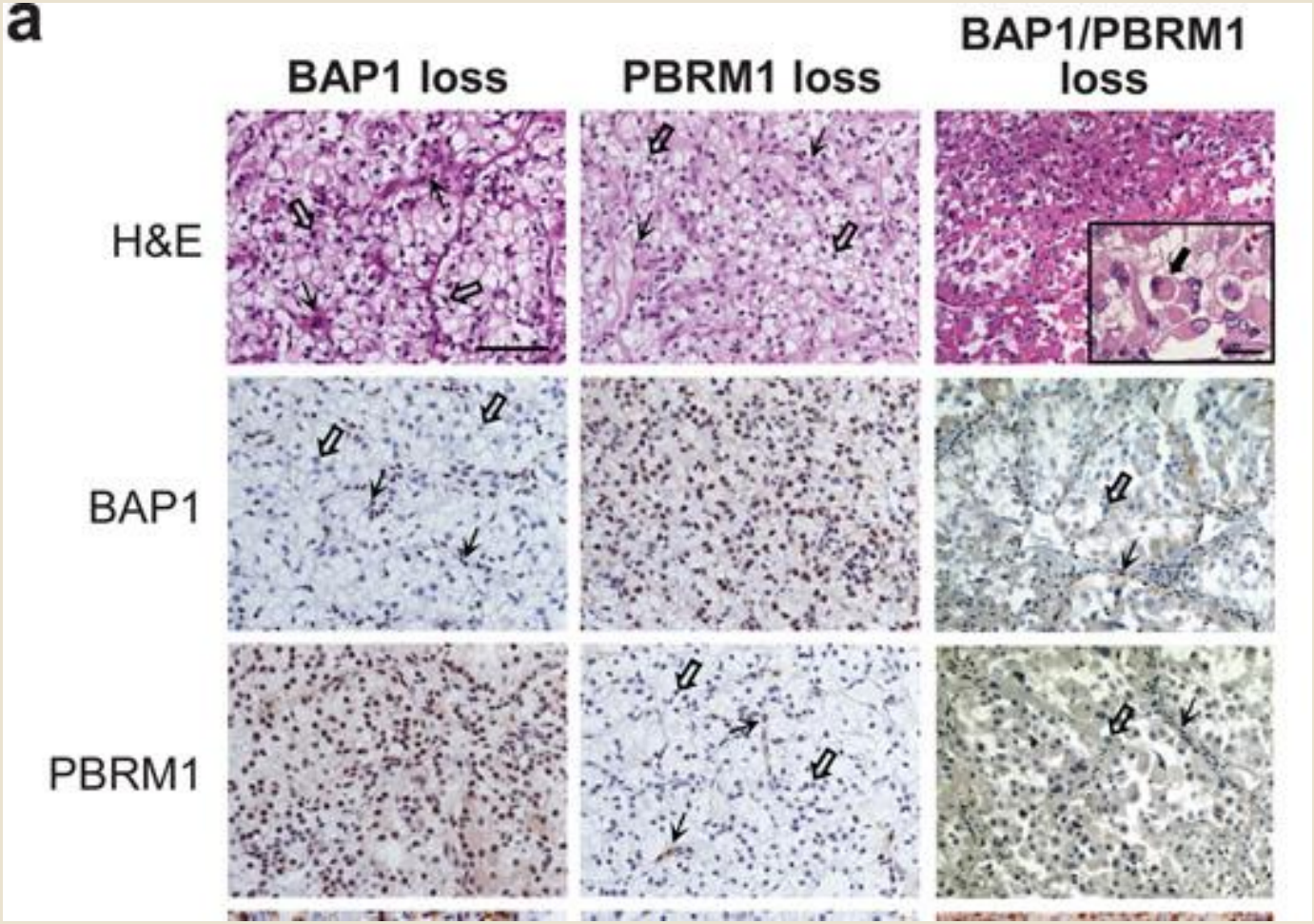
Effects on survival of *BAP1* and *PBRM1* mutations in sporadic clear-cell renal-cell carcinoma: a retrospective analysis with independent validation
P Kapur et coll Lancet Oncology 2013;14:159-67



BAP1 and *PBRM1* genes are on chromosome 3p and one allele is frequently co-deleted with *VHL* in ccRCC



BAP1 and PBRM1 can be detected by IHC



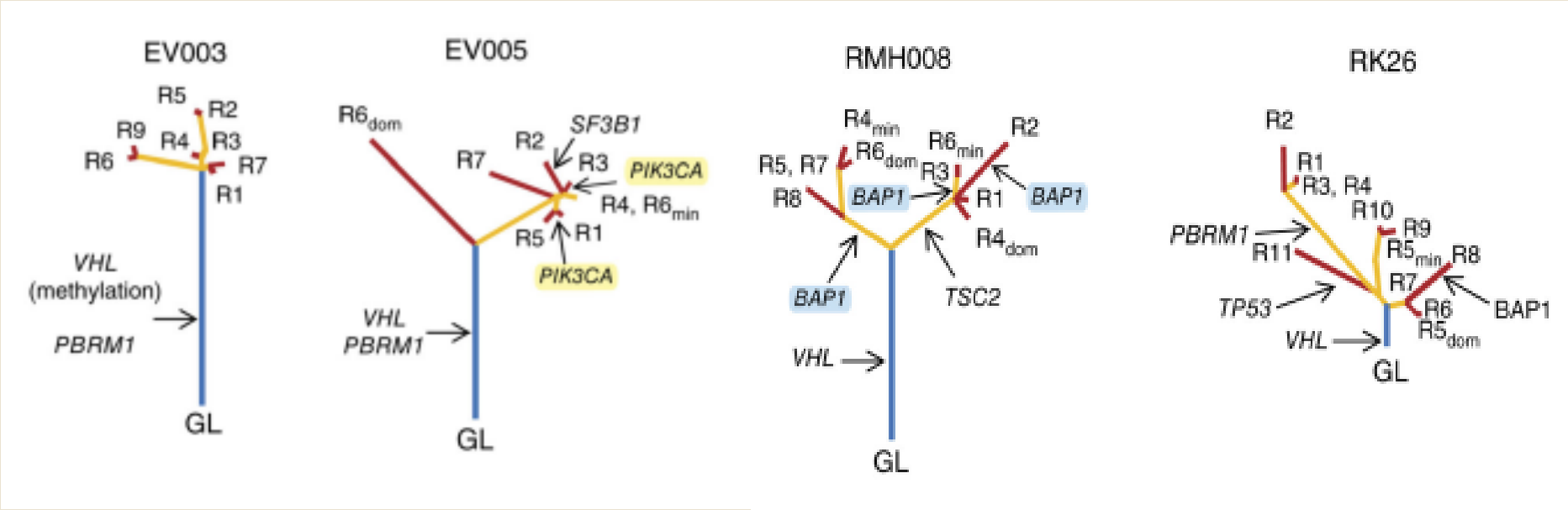
Joseph RW, Kapur et al. Loss of BAP1 protein expression is an independent marker of poor prognosis in patients with low-risk clear cell renal cell carcinoma. Cancer. 2014 Apr 1;120(7):1059-67.

Involved in CCRCC

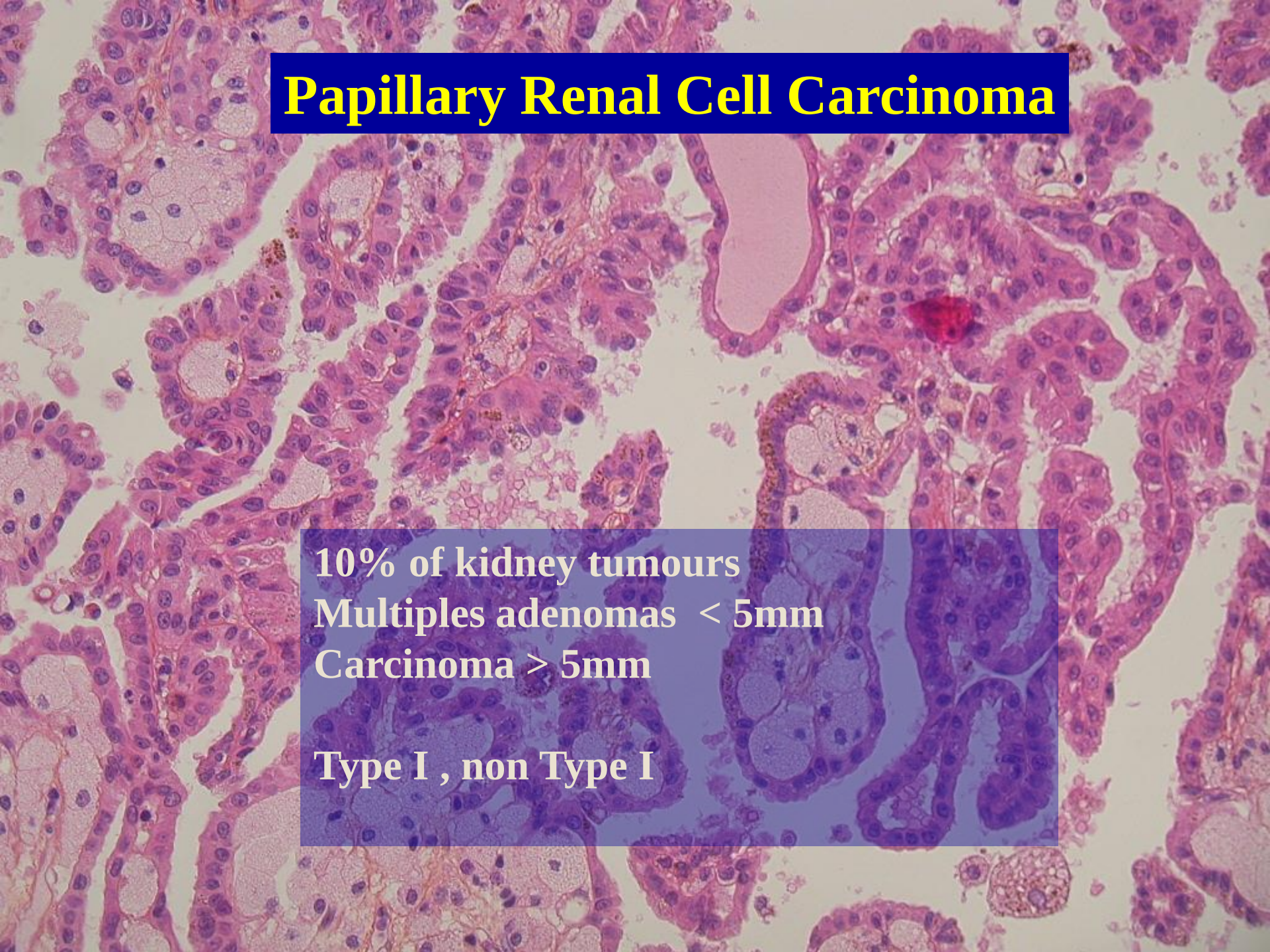
DNA repair and stabilization	: 32,4%
SWI/SNF complex	: 30,6%
PI3K/AKT/mTOR (15,2%) and p53	: 10,7%

(Cancer Genome Atlas 2013)

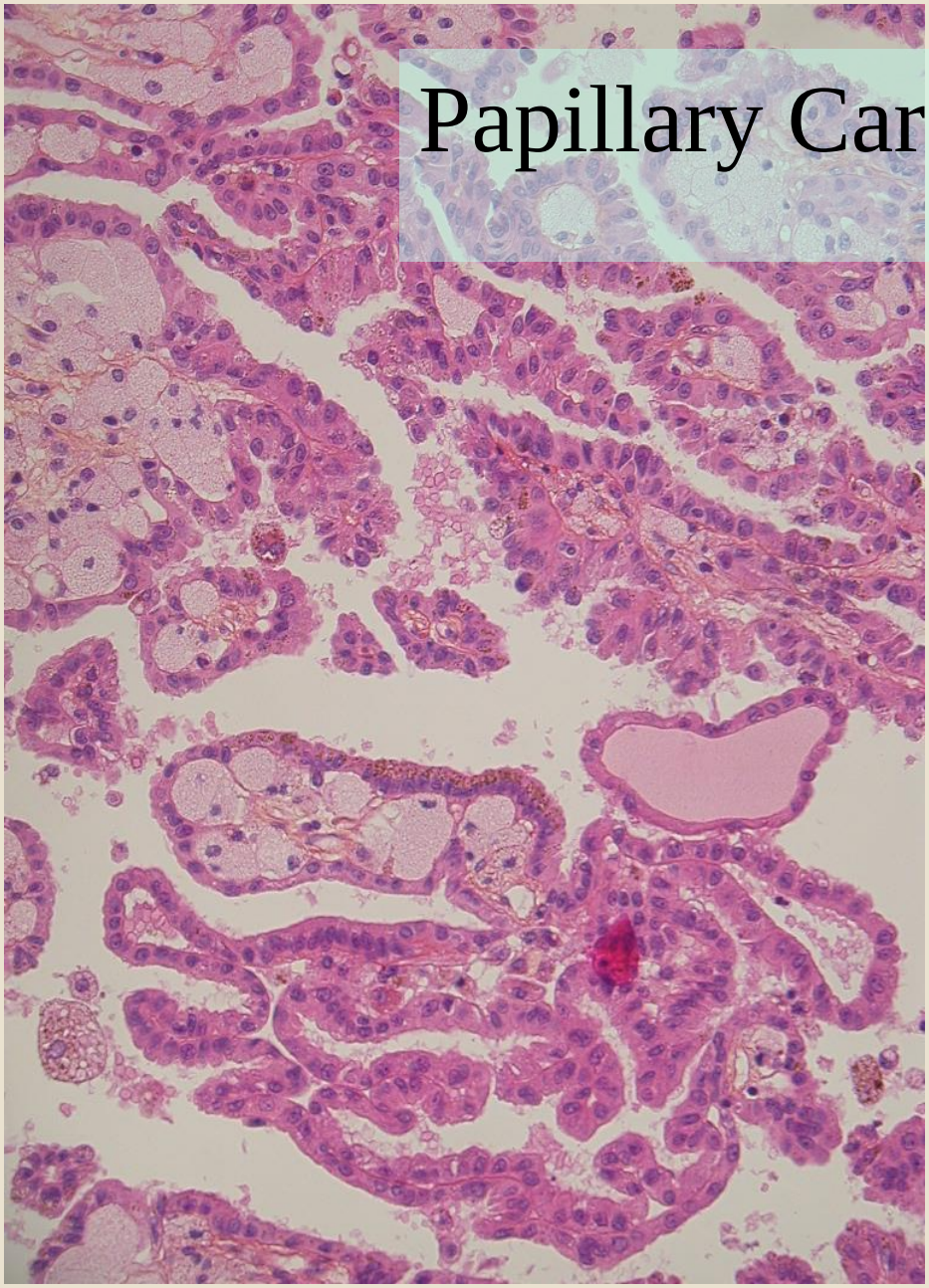
Intra tumoral heterogeneity : Genomic alterations are sequential

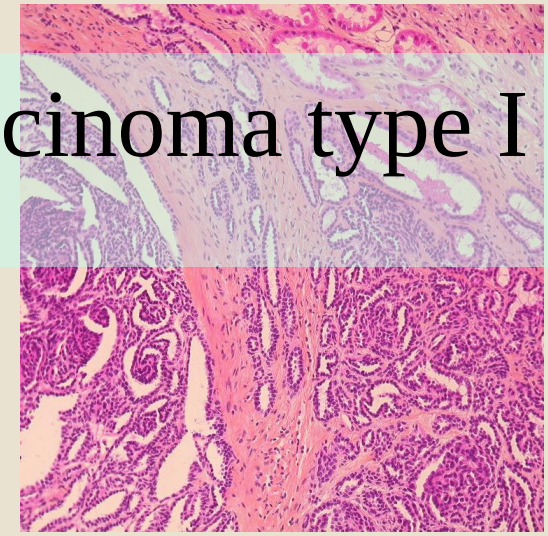


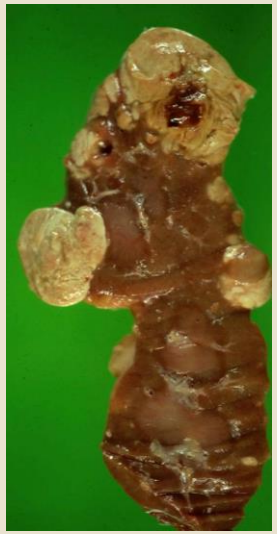
Gerlinger et coll : nature genet 2014 46:225-233


Papillary Renal Cell Carcinoma
10% of kidney tumours
Multiples adenomas < 5mm
Carcinoma > 5mm
Type I , non Type I

Papillary Carcinoma type I



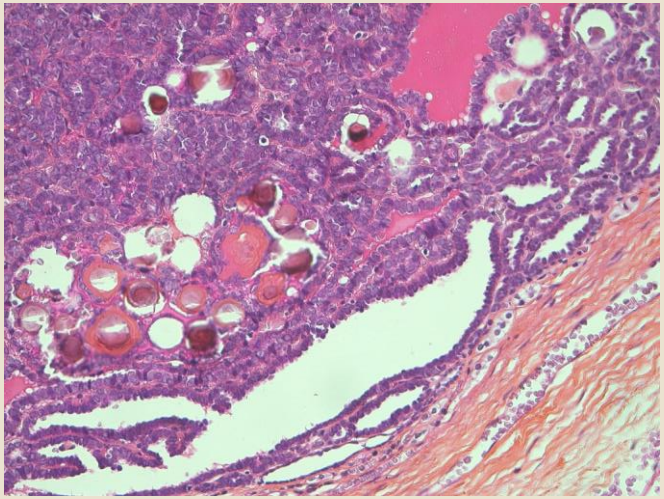


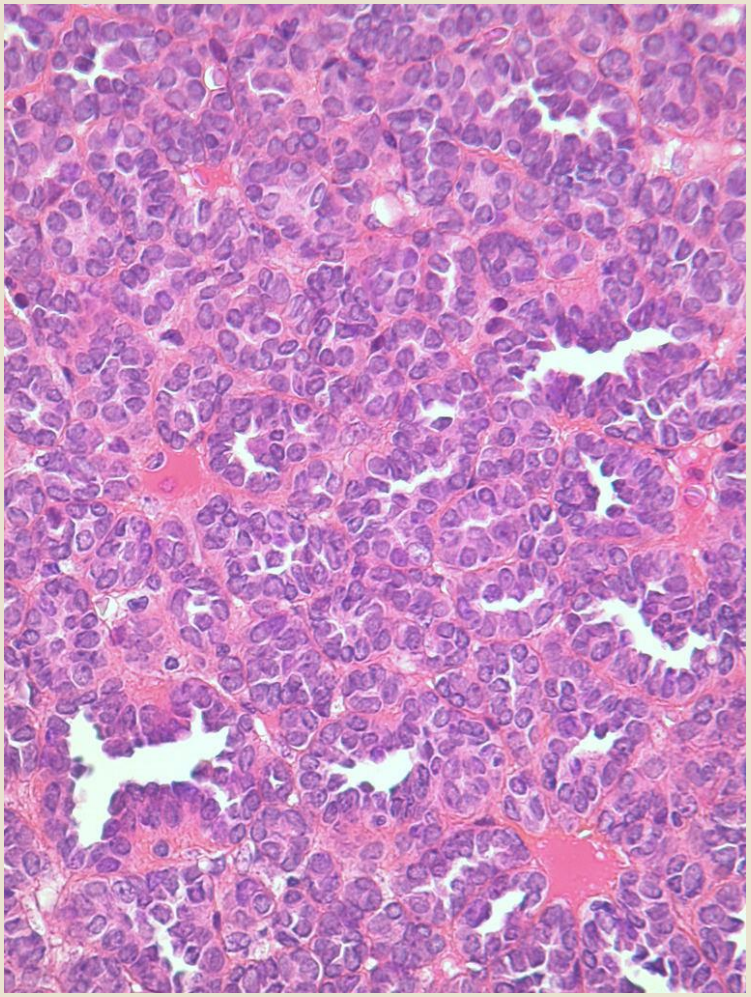


Small cuboidal eosinophilic cells
Papillary architecture
Foamy cells
Necrosis, sometimes ++
CK7+ P504+
Ususally sporadic and unique
Familal forms multifocal and bitateral
Cmet mutations

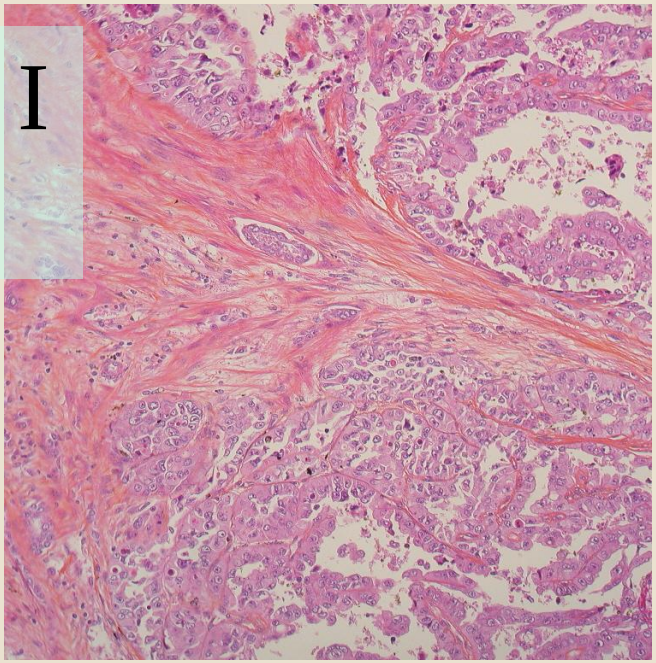
Differential diagnosis
Metanephric adenoma

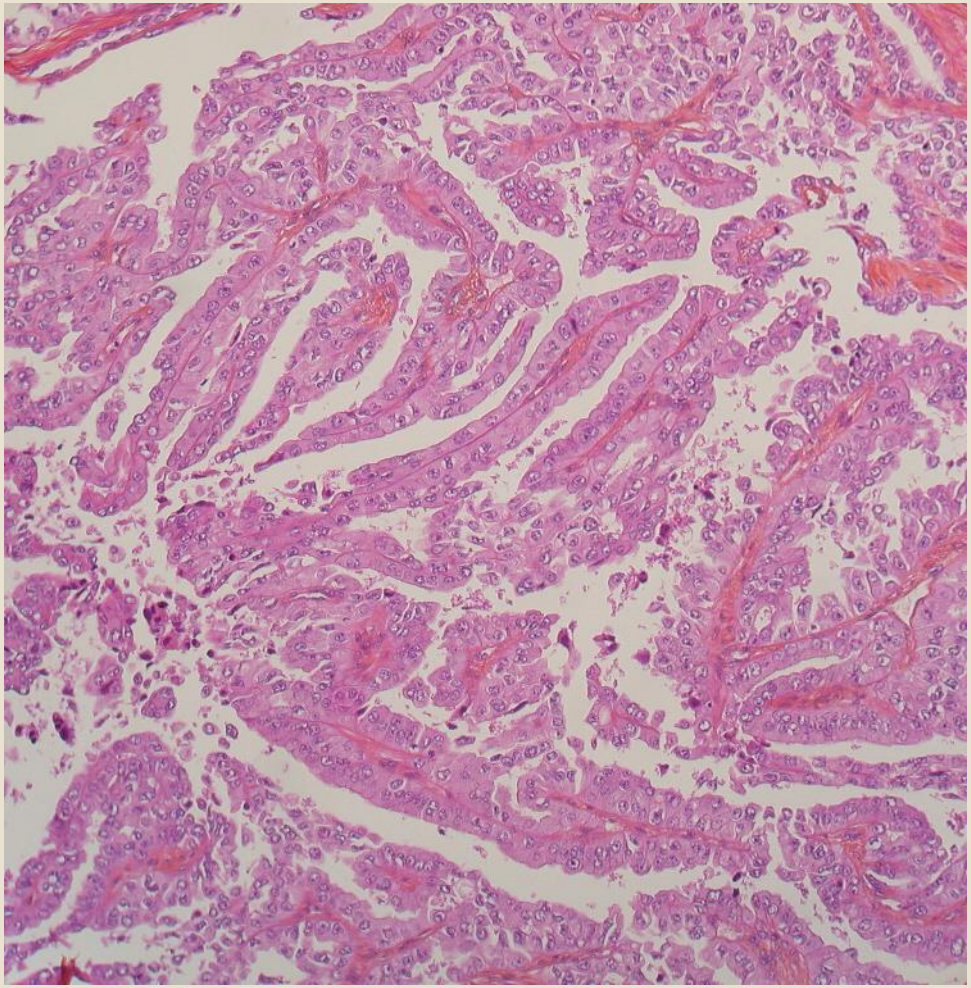
Rare
Well delimited
Uniform
CK7- Vim + CD57+ WT1 +

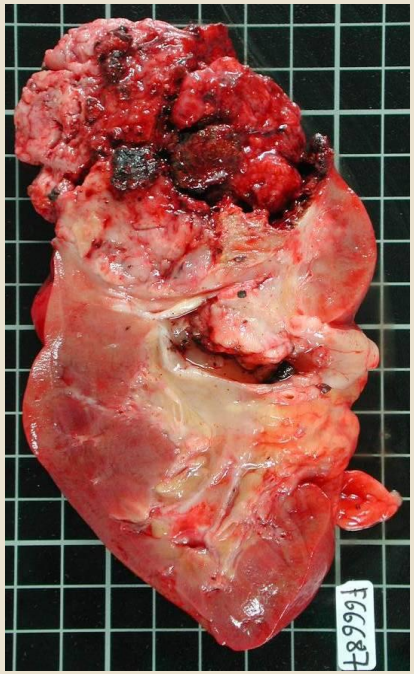


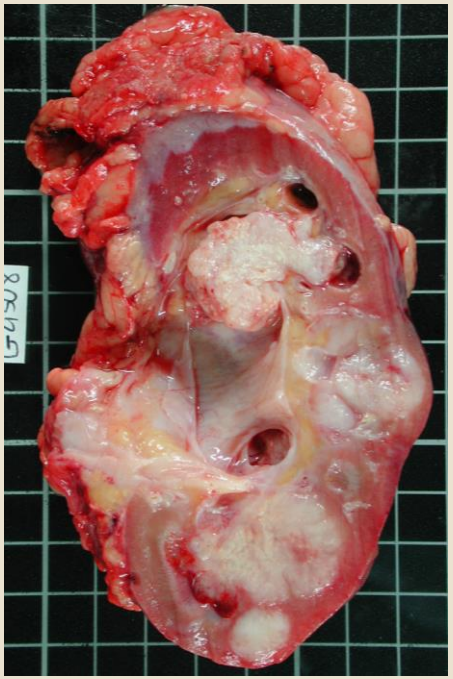


Papillary Carcinoma non type I
An Evolving entity









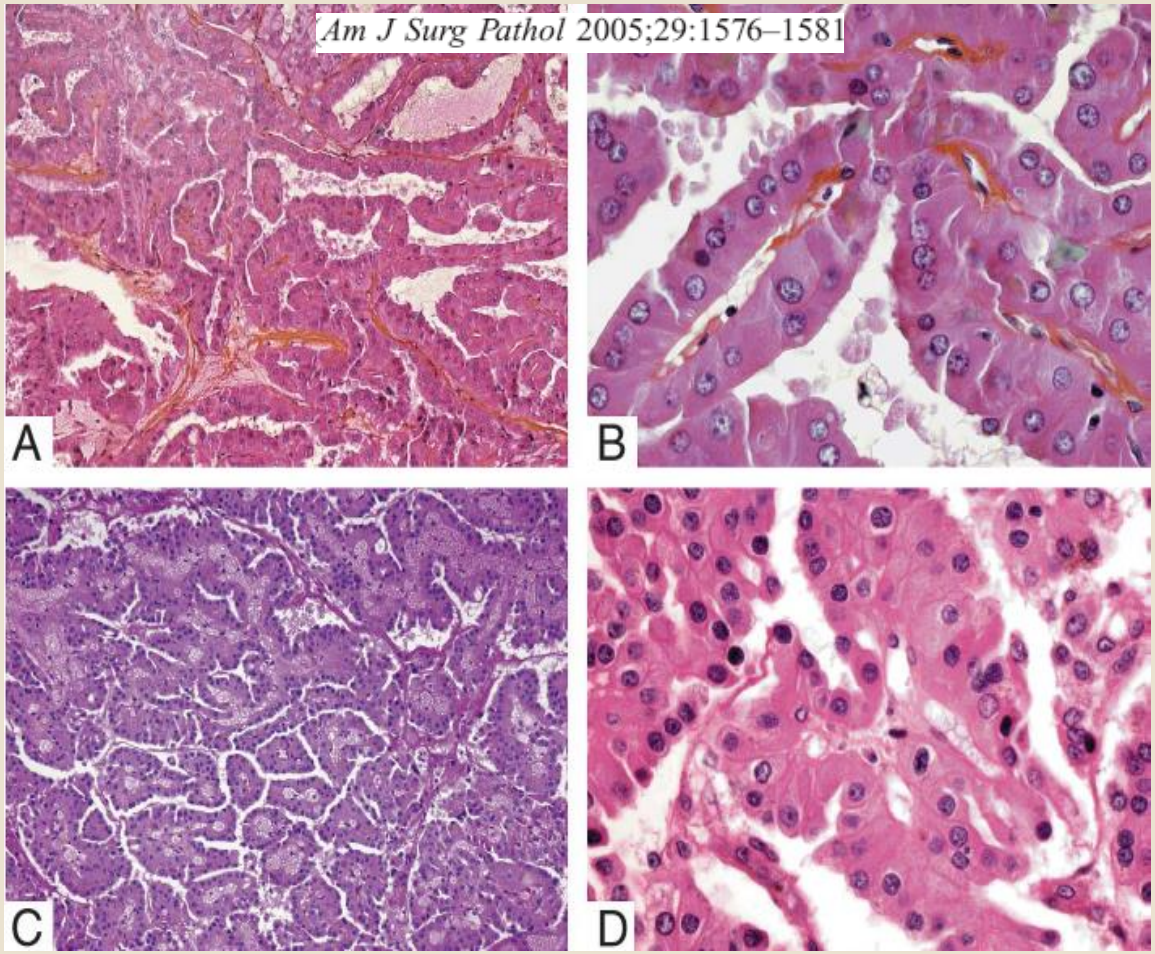
ORIGINAL ARTICLE

Adult Papillary Renal Tumor With Oncocytic Cells

Clinicopathologic, Immunohistochemical, and Cytogenetic Features of 10 Cases

Marine Lefèvre, MD, Jèrôme Couturier, MD,† Mathilde Sibony, MD, PhD,* Céline Bazille, MD,¶ Karine Boyer, MD,‡ Patrice Callard, MD,* Annick Vieillefond, MD,‡ and Yves Allory, MD*§||*

Am J Surg Pathol 2005;29:1576–1581



Papillary renal cell carcinoma with oncocytic cells

Papillary renal cell carcinoma with oncocytic cells and nonoverlapping low grade nuclei: expanding the morphologic spectrum with emphasis on clinicopathologic, immunohistochemical and molecular features

Lakshmi P. Kunju MD[a], Kirk Wojno MD[b], J. Stuart Wolf Jr MD[b], Liang Cheng MD[c], Rajal B. Shah MD[a,b,*]

[a]*Department of Pathology, University of Michigan School of Medicine, Ann Arbor, MI 48109, USA*
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Received 19 March 2007; revised 15 May 2007; accepted 17 May 2007

CK7+,
AMACR+,
CD10+,
Vim +

Renal cell tumours	
Clear cell renal cell carcinoma	8310/3
Multilocular cystic renal neoplasm of low malignant potential	8316/1
Papillary renal cell carcinoma	8255/1
Hereditary leiomyomatosis and renal cell carcinoma (HLRCC)-associated renal cell carcinoma	8311/3*
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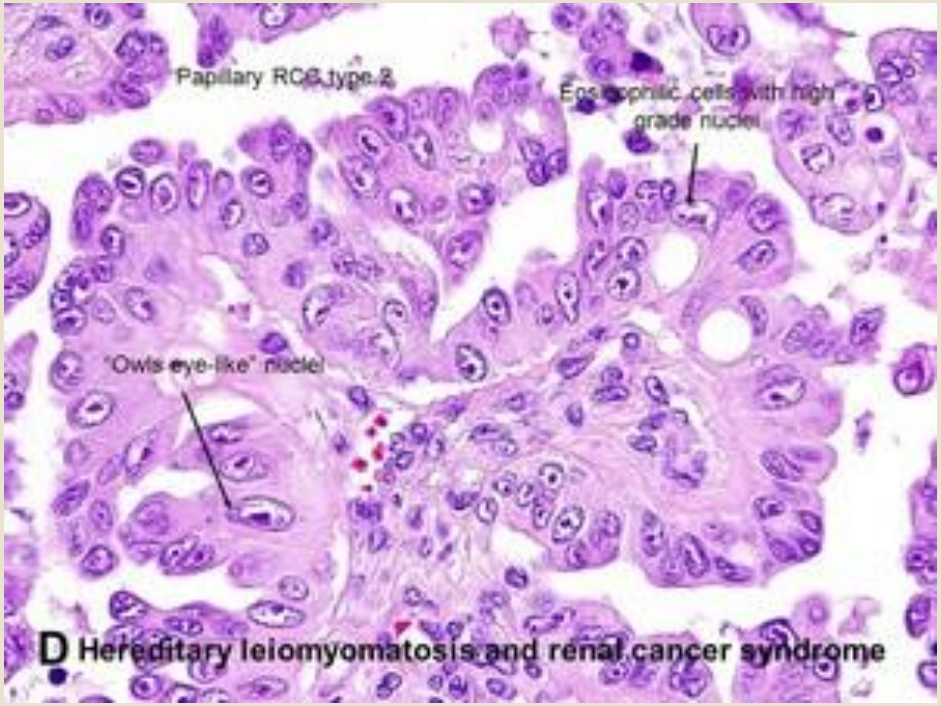
Clear cell papillary renal cell carcinoma	8323/1
Renal cell carcinoma, unclassified	8312/3
Papillary adenoma	8260/0
Oncocytoma	8290/0

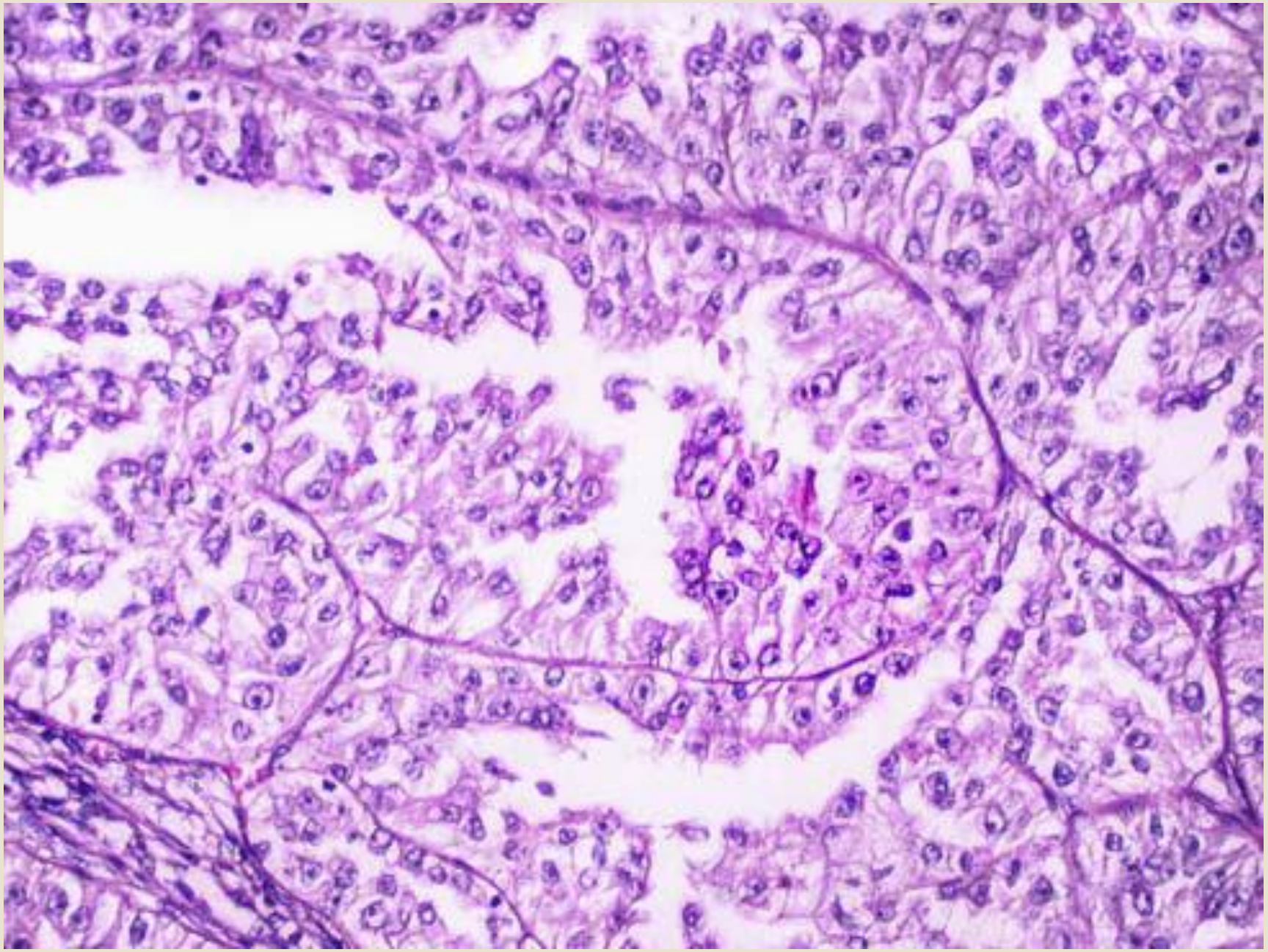
New entitie: Hereditary Leiomyomatosis and Renal Cell Carcinoma-Associated Renal Cell Carcinoma

Papillary type 2
Large cells with large nucleus « CMV like » aspects

Association with cutaneus and uterine leiomyomas (reed syndrom)

Therefore : clinical informations ++



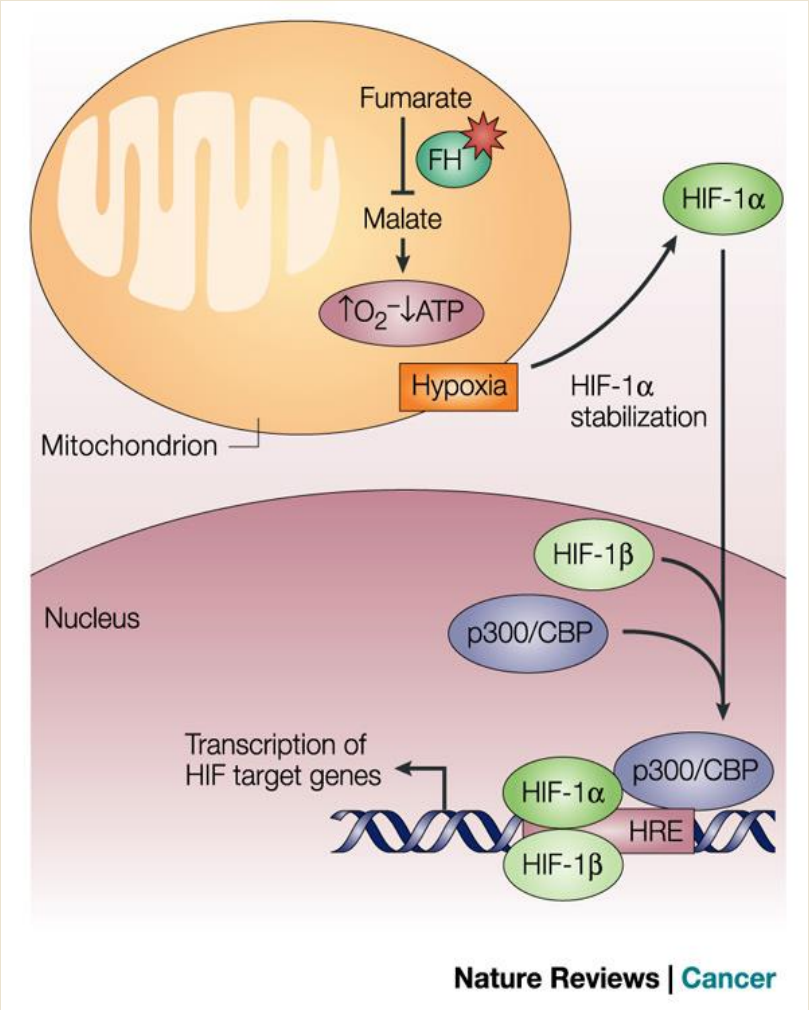


Hereditary leiomyomatosis and renal cell carcinoma-associated renal cell carcinoma

Dominant Autosomic Gene:
Chr 1q42.3-43 = fumarate hydratase (HIF/VHL metabiolic pathway)

IHC : loss of FH expression

Poor prognosis
Early metastasis



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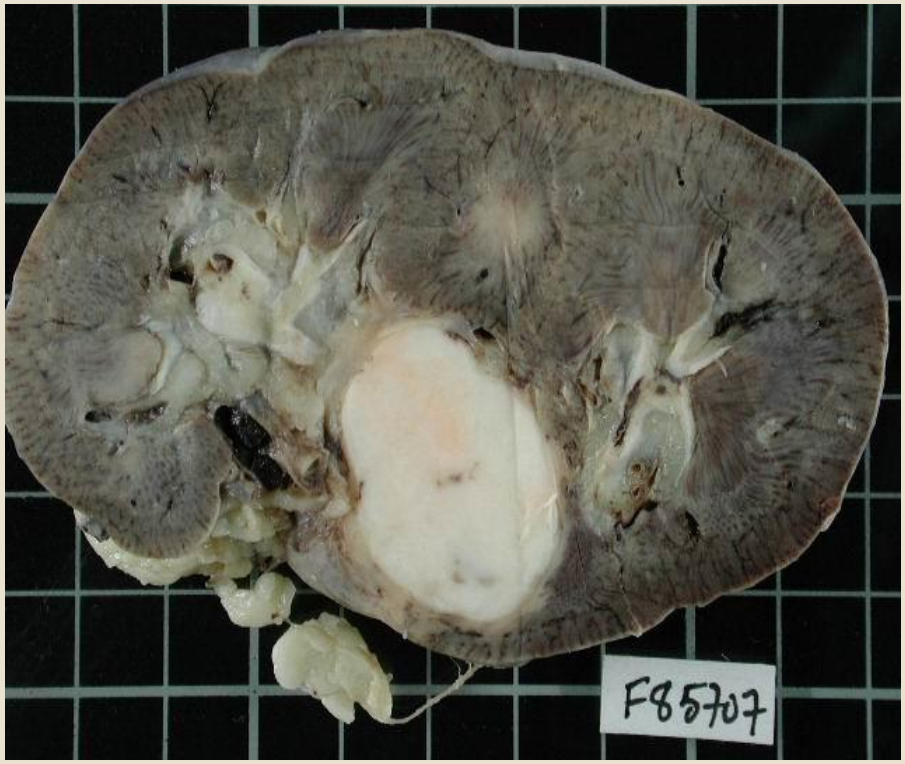
Oncocytoma	8290/0

Mucinous tubular and spindle cell renal carcinoma



Mean age 50 years

Male to female ratio 1:3

Well delimited

Whitish or gray

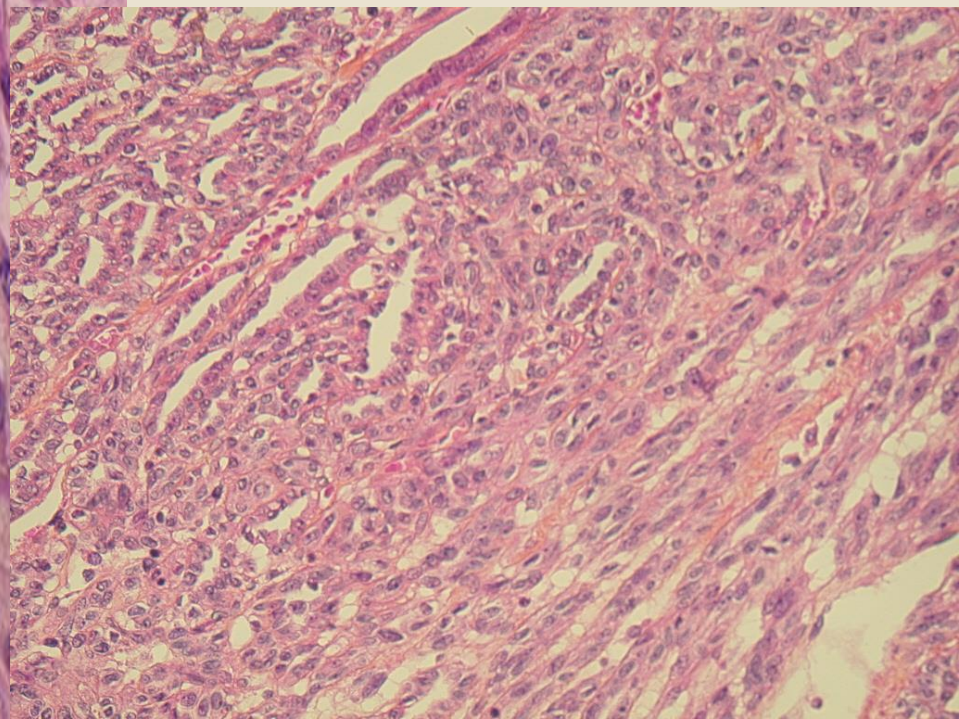
Usually

No Necrosis and hemorrhage

Mucinous tubular and spindle cell Carcinoma

Regular spindle cells arranged in sheets

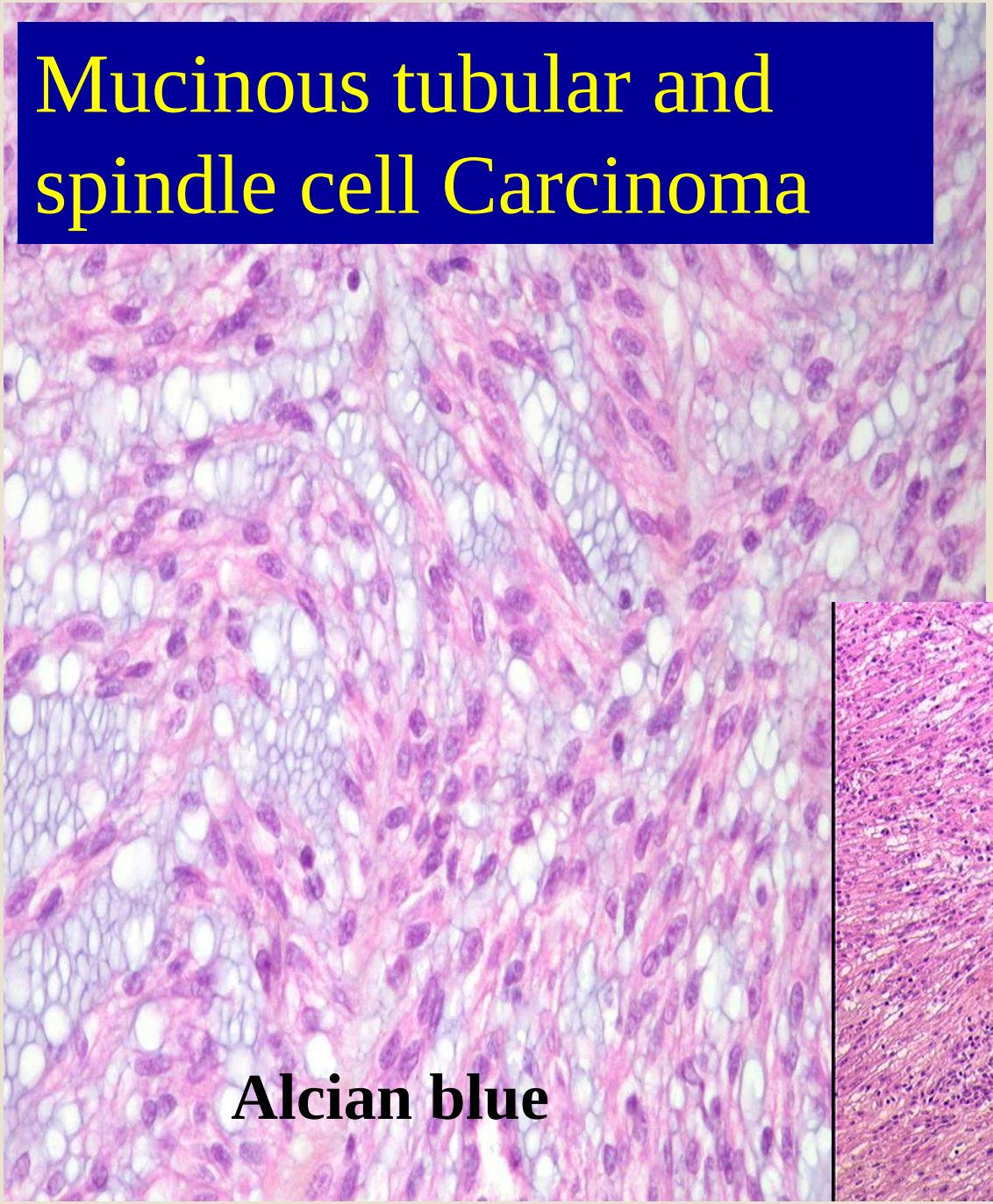
Cuboidal regular cells arranged in cords tubules and papillae



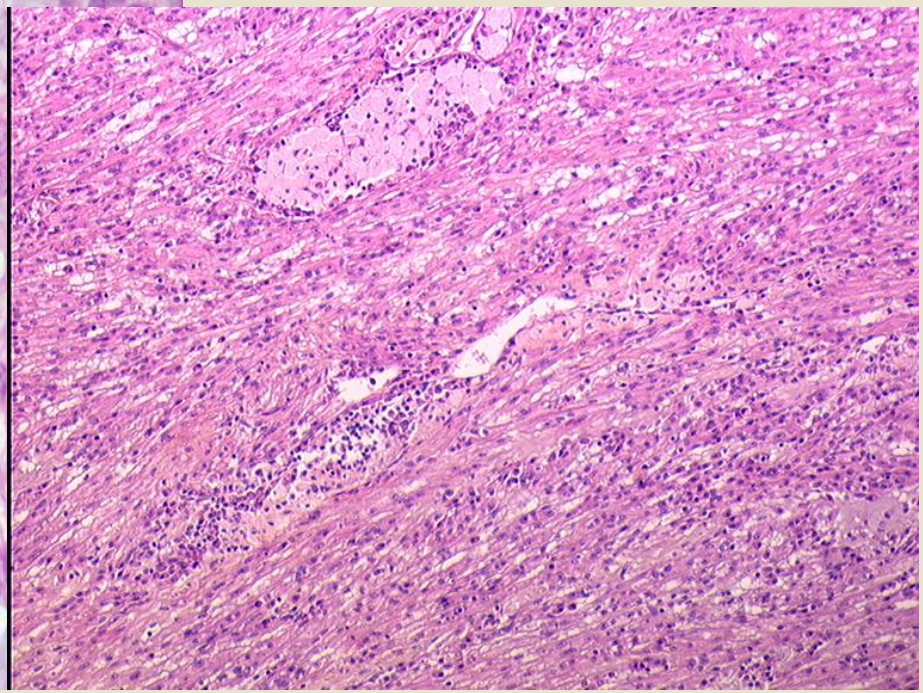
Mucinous tubular and spindle cell Carcinoma

myxoïd stroma (alcian blue +)

clusters of foamy cells



Alcian blue



Mucinous tubular and spindle cell Carcinoma

KL1 + AE1/AE3 + EMA +

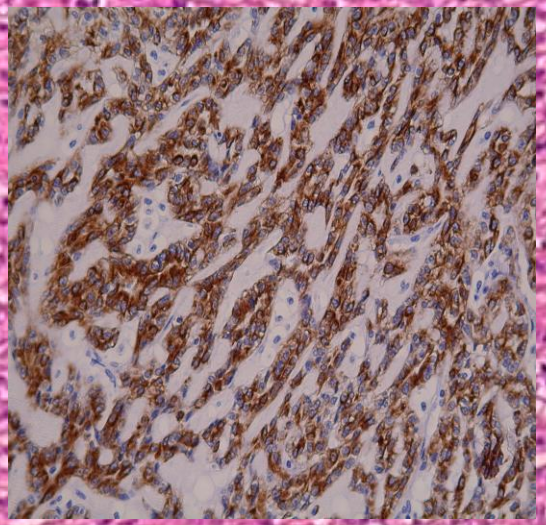
CK 7 +, CK19 +

AMACR +

E-cadherine +

Vimentin -, CD 10 –

Low grade

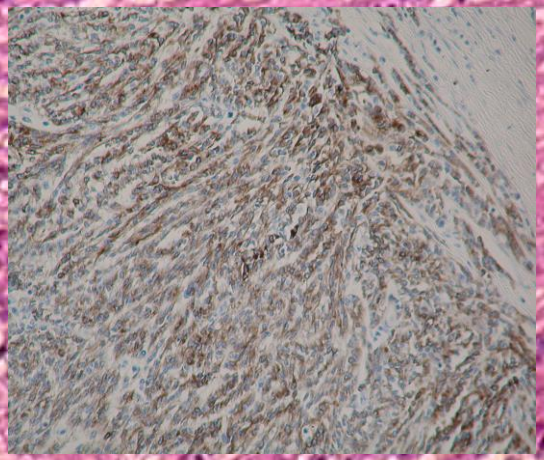


CK19

Multiple chromosomic loss (1, 4, 6, 8, 13, 14, 15 , 18)

No 3p-

No 7+ nor 17+



CK7

Expanding the Histologic Spectrum of Mucinous Tubular and Spindle Cell Carcinoma of the Kidney

Samson W. Fine, MD, Pedram Argani, MD,† Angelo M. DeMarzo, MD, PhD,† Brett Delahunt, MD,‡ Thomas J. Sebo, MD,§ Victor E. Reuter, MD,* and Jonathan I. Epstein, MD†*

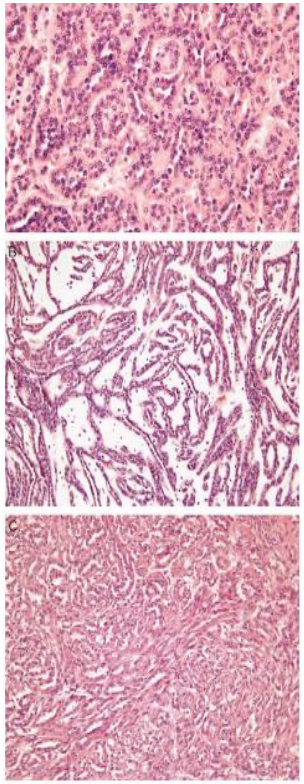


FIGURE 1. "Classic" MTSC with short tubules set in a myxoid matrix (A), cellular cords and tubules in abundant mucinous matrix (B), or transitions between tubular and spindled morphology (C).

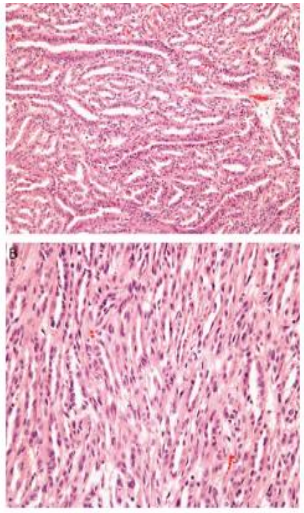


FIGURE 2. "Mucin-poor" MTSC with elongated to serpentine tubules (A); transitions from tubular to spindled morphology (B).

DISCUSSION

Mucinous, tubular, and spindle cell carcinoma is a rare, recently described variant of RCC whose true incidence is not yet established. These lesions have received increasing attention owing to recognition of apparently low-grade distal nephron-derived carcinomas,[2,12,19,24,25,30-33] and their reported overall favorable prognosis.[7,15,24,30] According to the 2004 WHO classification of renal tumors, these tumors are composed of tightly packed, small, elongated tubules with transitions to a spindle cell configuration, separated by pale mucinous stroma, hence the name "mucinous tubular and spindle cell carcinoma."[29] Although the notion that any 1 of the 3 MTSC components may focally predominate has been previously observed,[18,24,30,31] this series is the first to document cases of MTSC with widespread absence of the mucinous/myxoid component and confirm these findings histochemically. As most regard the typically abundant extracellular matrix as a key to MTSC diagnosis,[6,18,25] its absence makes accurate diagnosis of this entity more challenging. These difficulties are compounded in tumors with "mucin-poor" histology and either tubular predominance or spindle-cell

Mucinous tubular and spindle cell carcinoma of kidney are excluded from papillary renal cell carcinomas

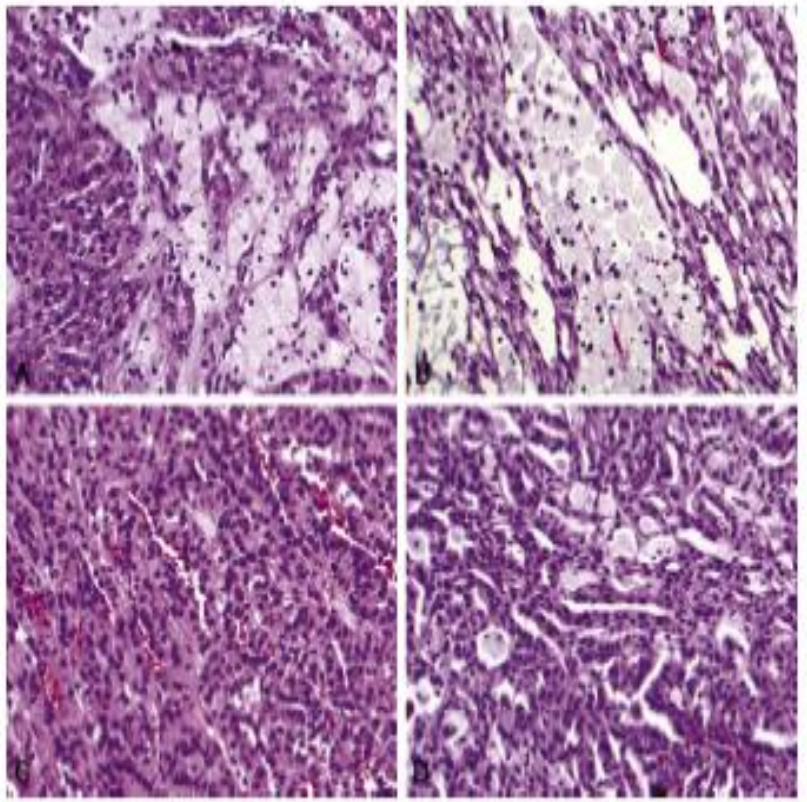
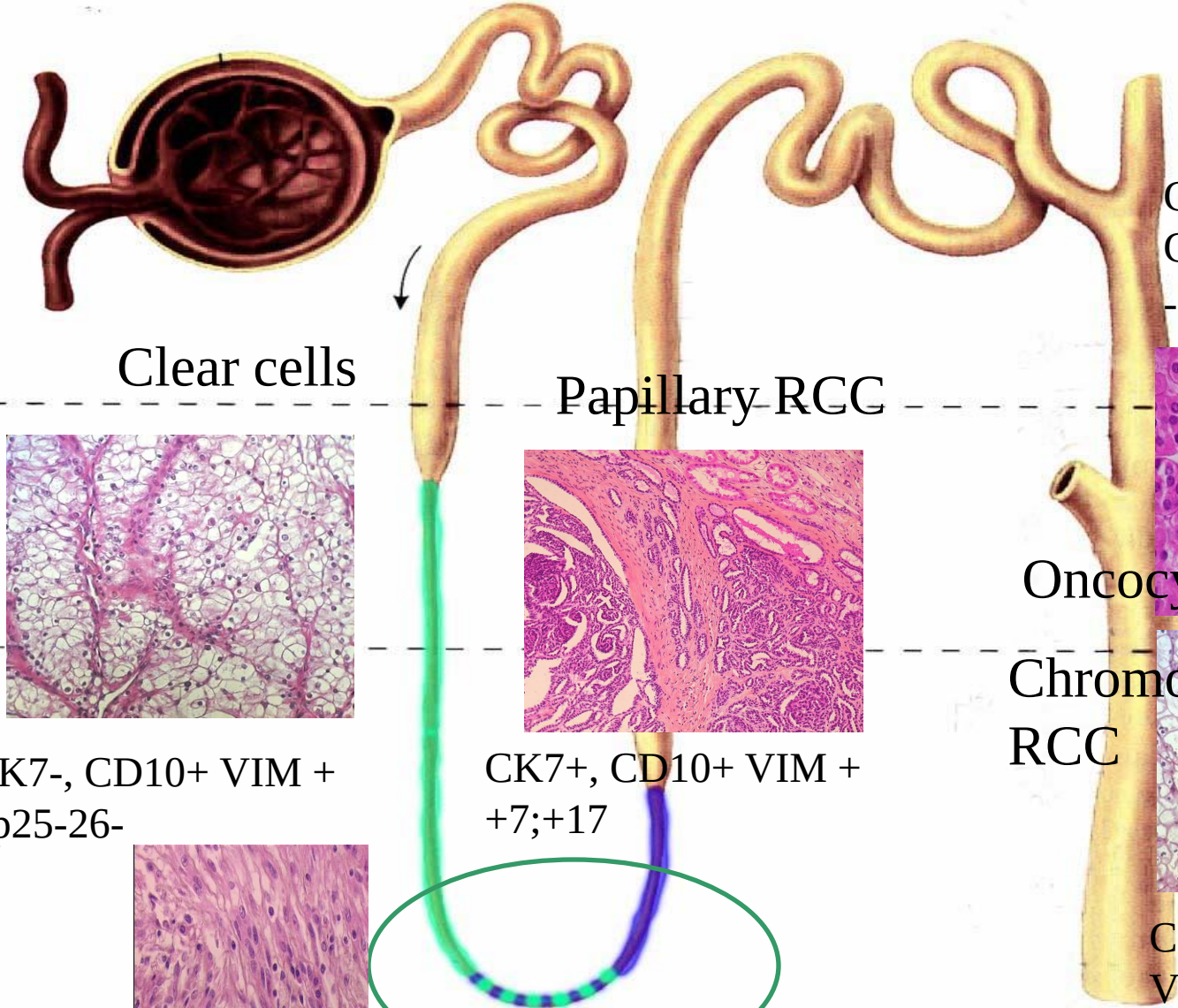


Fig. 4. Presence of clusters or nests of foamy macrophages within spindle cell areas (A, original magnification ×200), within tubular areas (B, original magnification ×200), and within focally compressed tubulopapillary areas of the tumor (C and D, original magnification ×200).



Clear cells

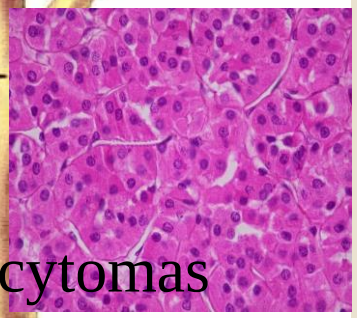
CK7-, CD10+ VIM +
3p25-26-

Papillary RCC

CK7+, CD10+ VIM +
+7;+17

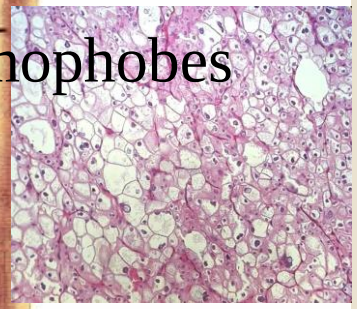
Mucinous TSC RCC

CK7-, CD117-,
CD10-; EMA+
-1;-Y;



Oncocytomas

Chromophobes
RCC



CK7+, CD117+,
VIM + EMA+
-1;-2;-6;-10;-Y

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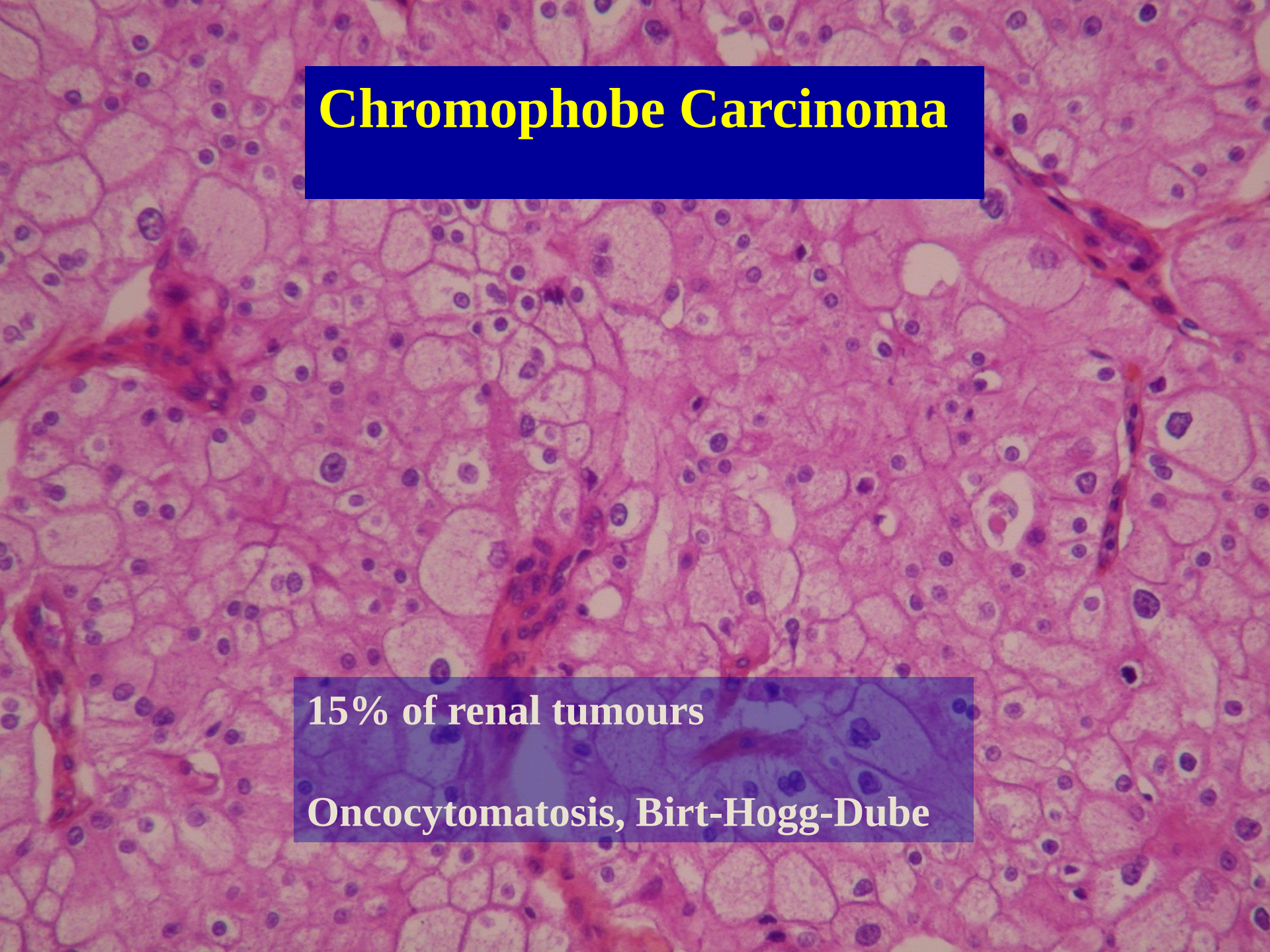
Chromophobe Carcinoma

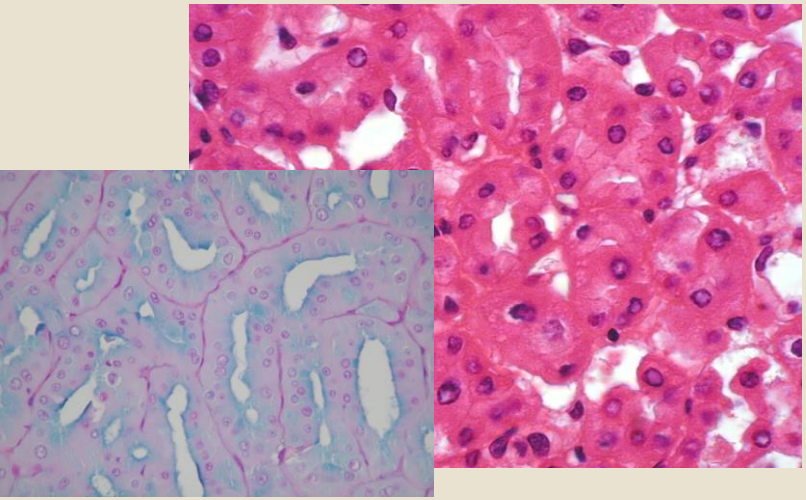


15% of renal tumours

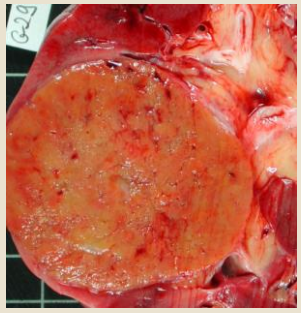
Oncocytomatosis, Birt-Hogg-Dube

Main problem : Differencial Diagnosis Oncocytoma / Chromophobe RCC

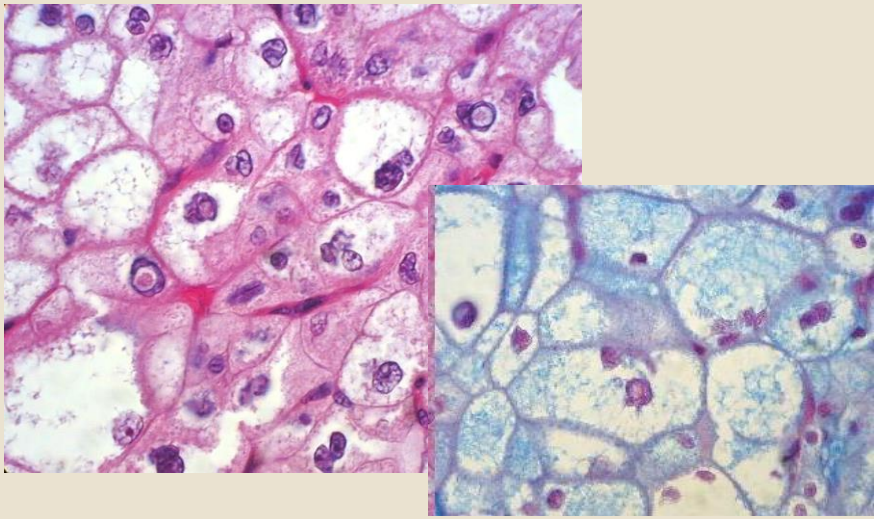
Oncocytoma

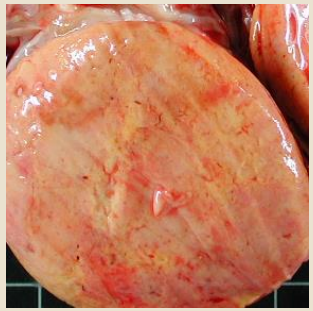


Hale apical
CK7 -/+
EMA -/+
C-kit +/-
E-cadhérine +/-
Vimentine -
Chromosome 1, Y

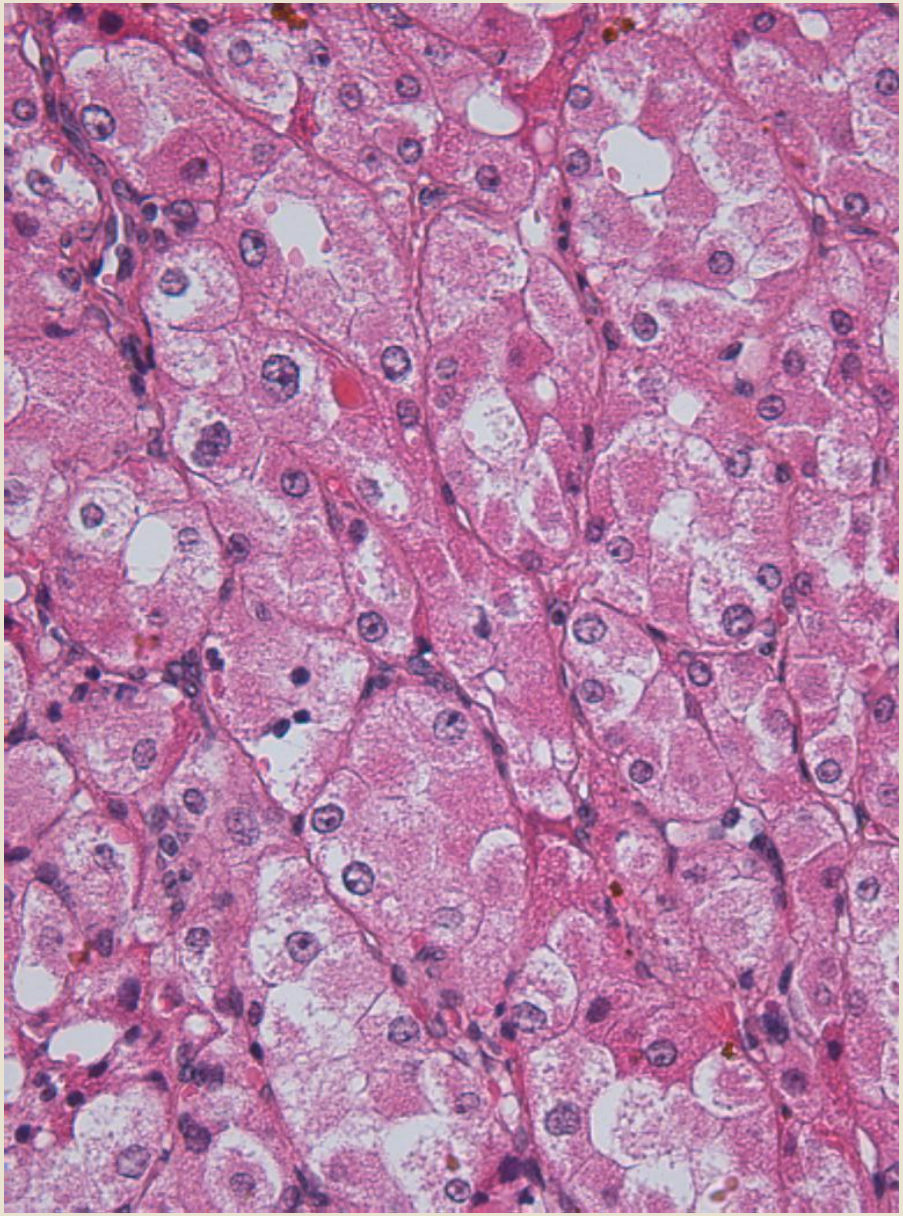


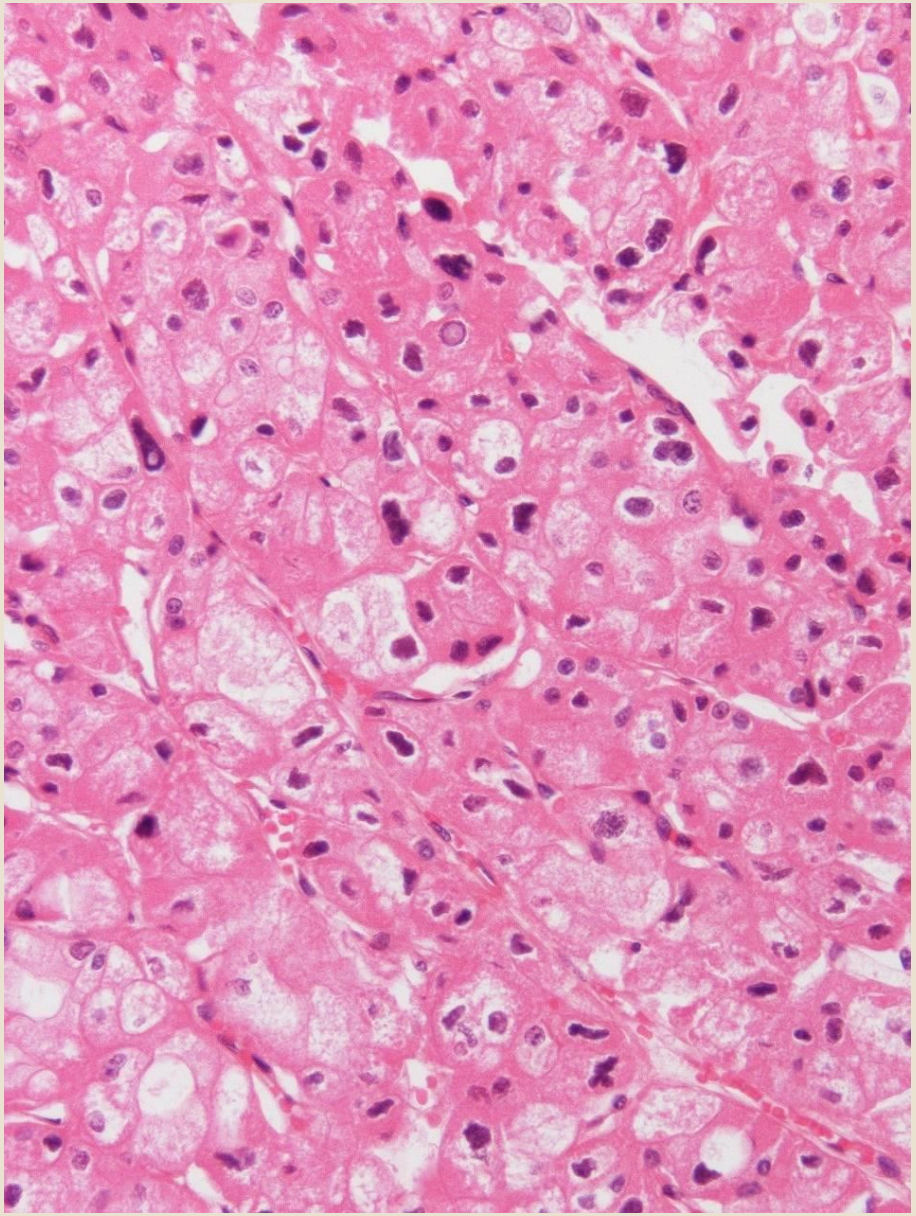
Chromophobe carcinoma





Hale cytoplasm
CK7 +
EMA +
C-kit +/-
E-cadhérine +/-
Vimentine +
Multiple Chromosome loss

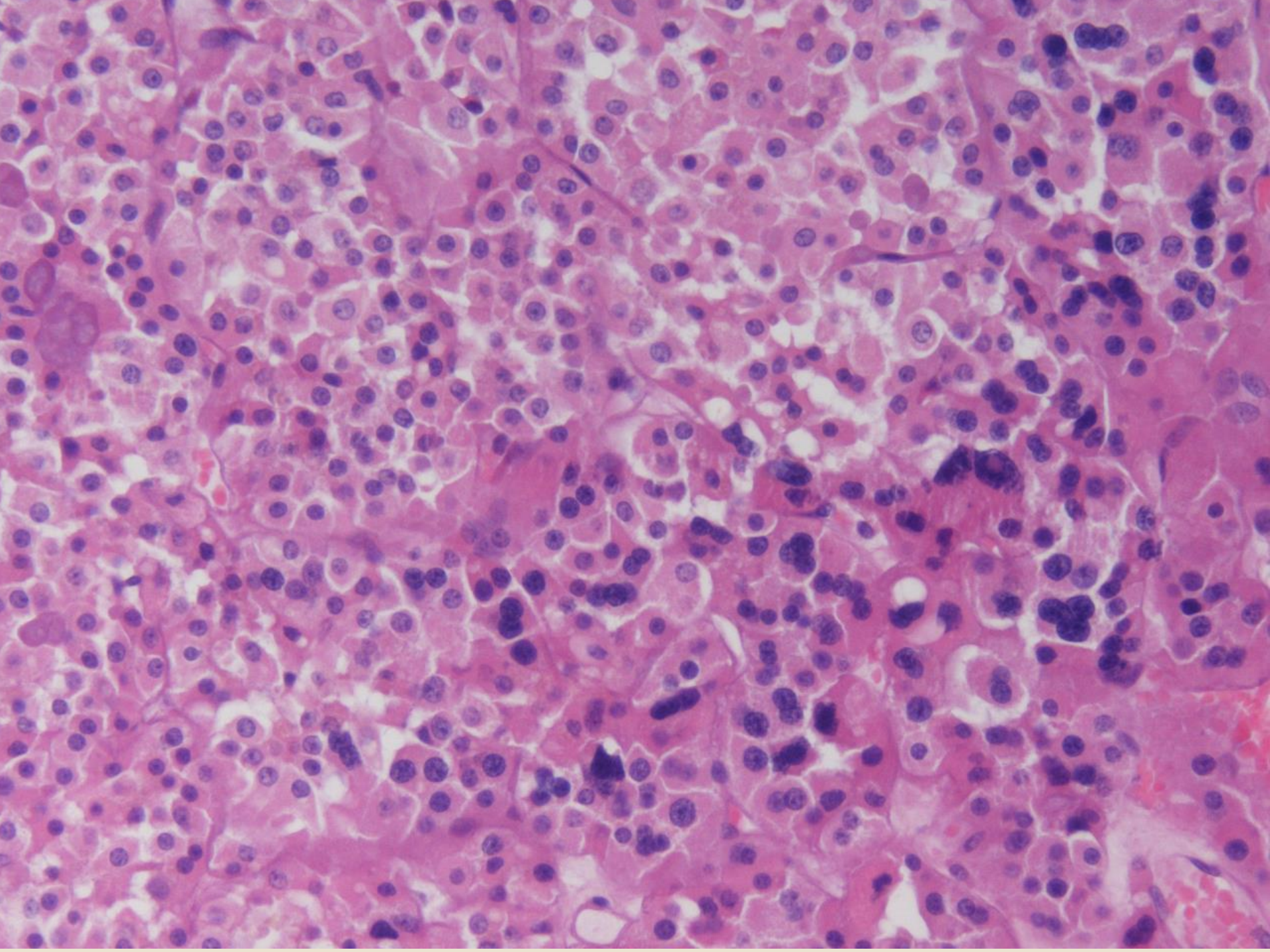


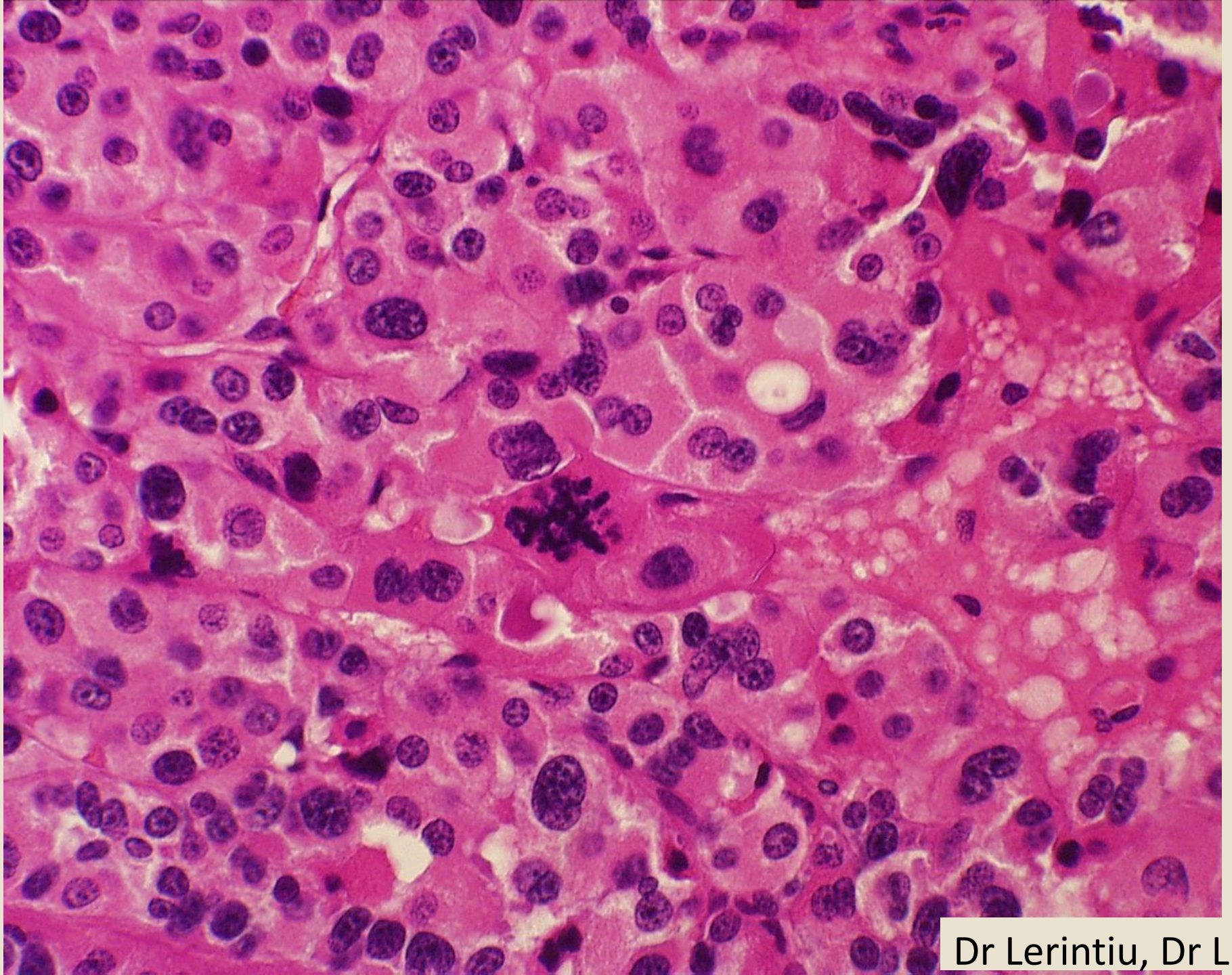


Oncoytomas : atypical aspects possibles

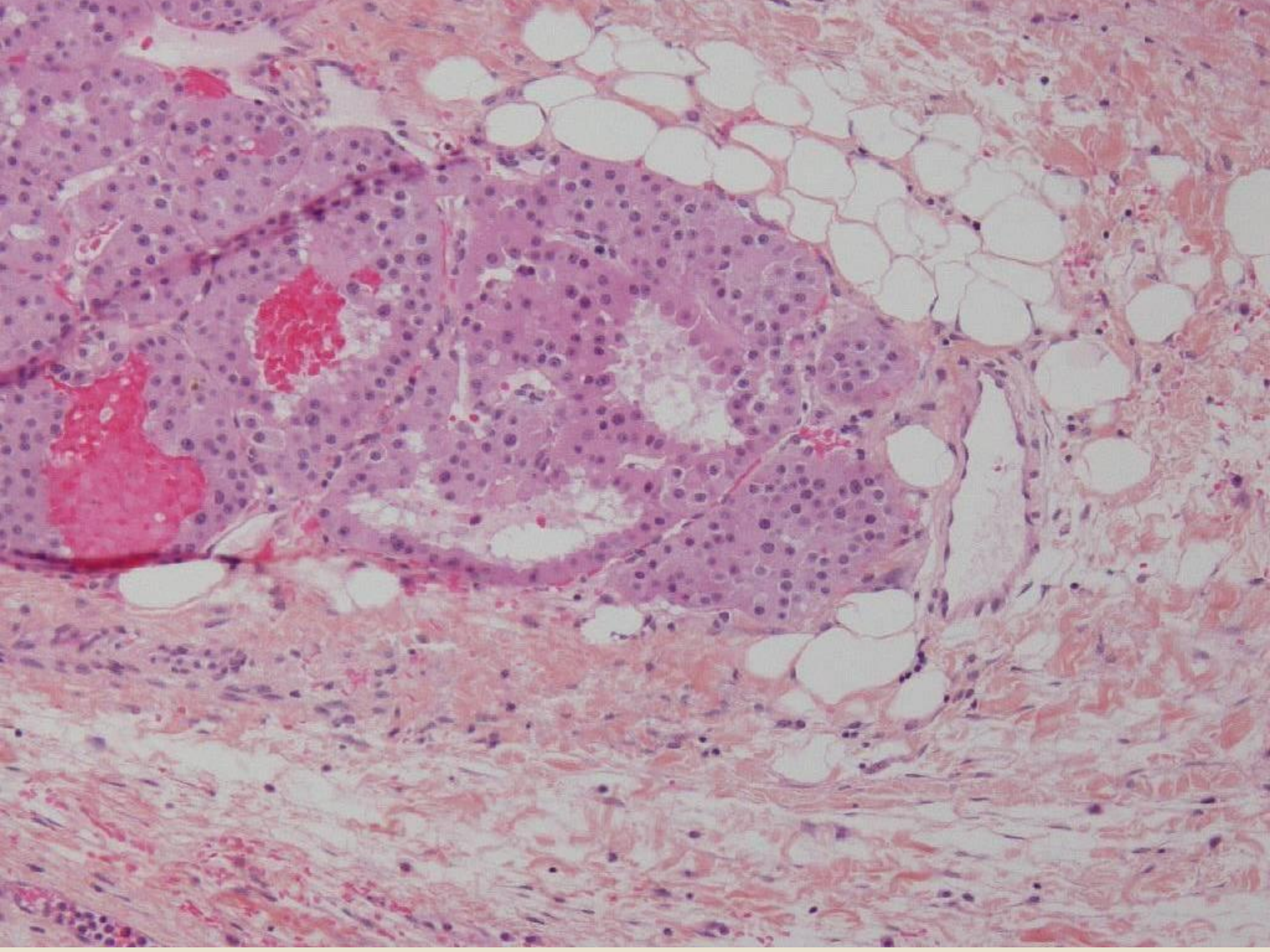
- possible
  - atypias
  - binucleation
  - Atypical mitosis
  - Necrosis
  - clear cells <5%
- « permissible atypical features »

Amin, AJSP, 32:1822-1834





Dr Lerintiu, Dr Lin

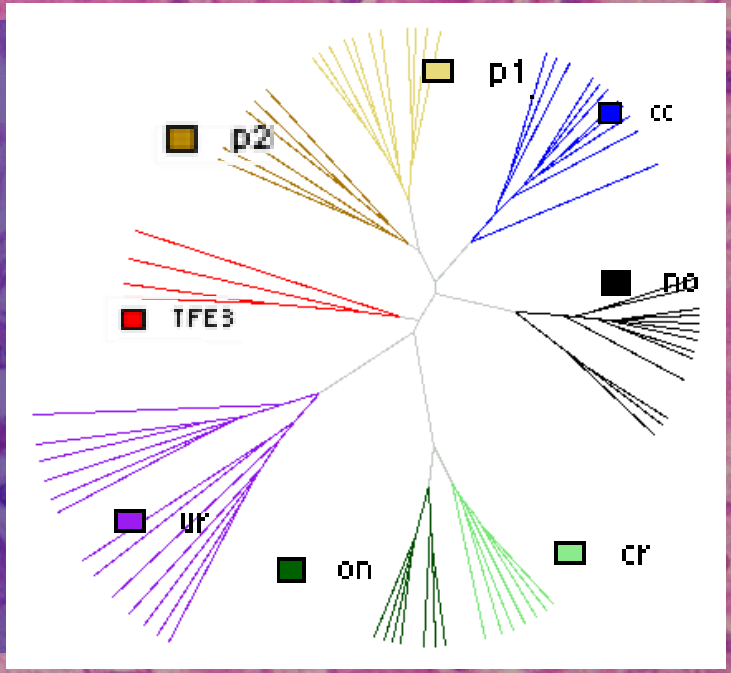


Oncocytoma & chromophobe Carcinoma, Oncocytomatosis, Birt-Hogg-Dube syndrom

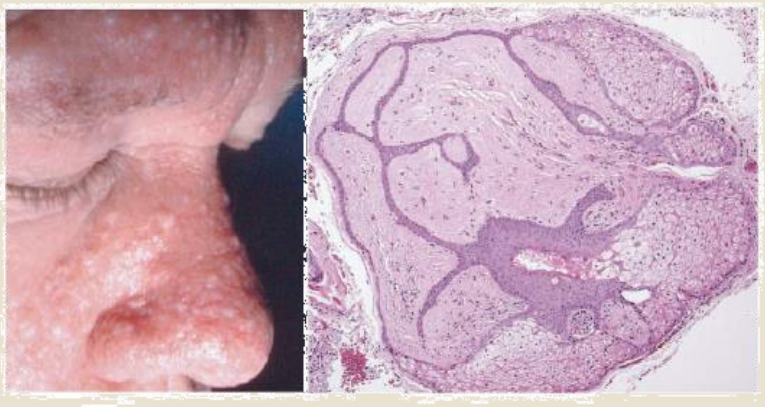
A molecular spectrum of lesion

Oncocytoma benign
Chromophobe carcinoma malignant

If multiple tumours especially ChRCC, investigate for BHD syndrom



Birt-Hogg-Dubé



BHD : 17p11.2 (folliculin)

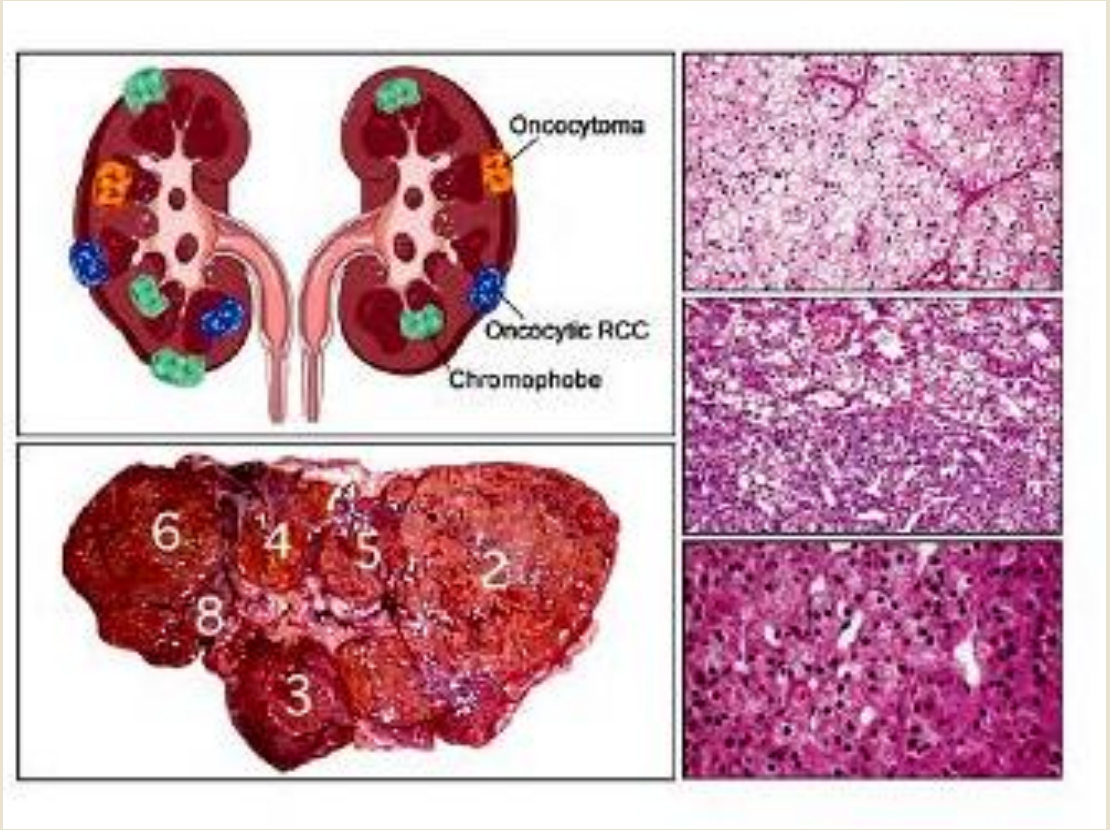
Dominant autosomal

Benign skin tumors (fibrofolliculomas)

Spontaneous Pneumothorax

Oncocytomas, chromophobes carcinomas, multiple tumours, hybrid tumours

Other Renal carcinomas



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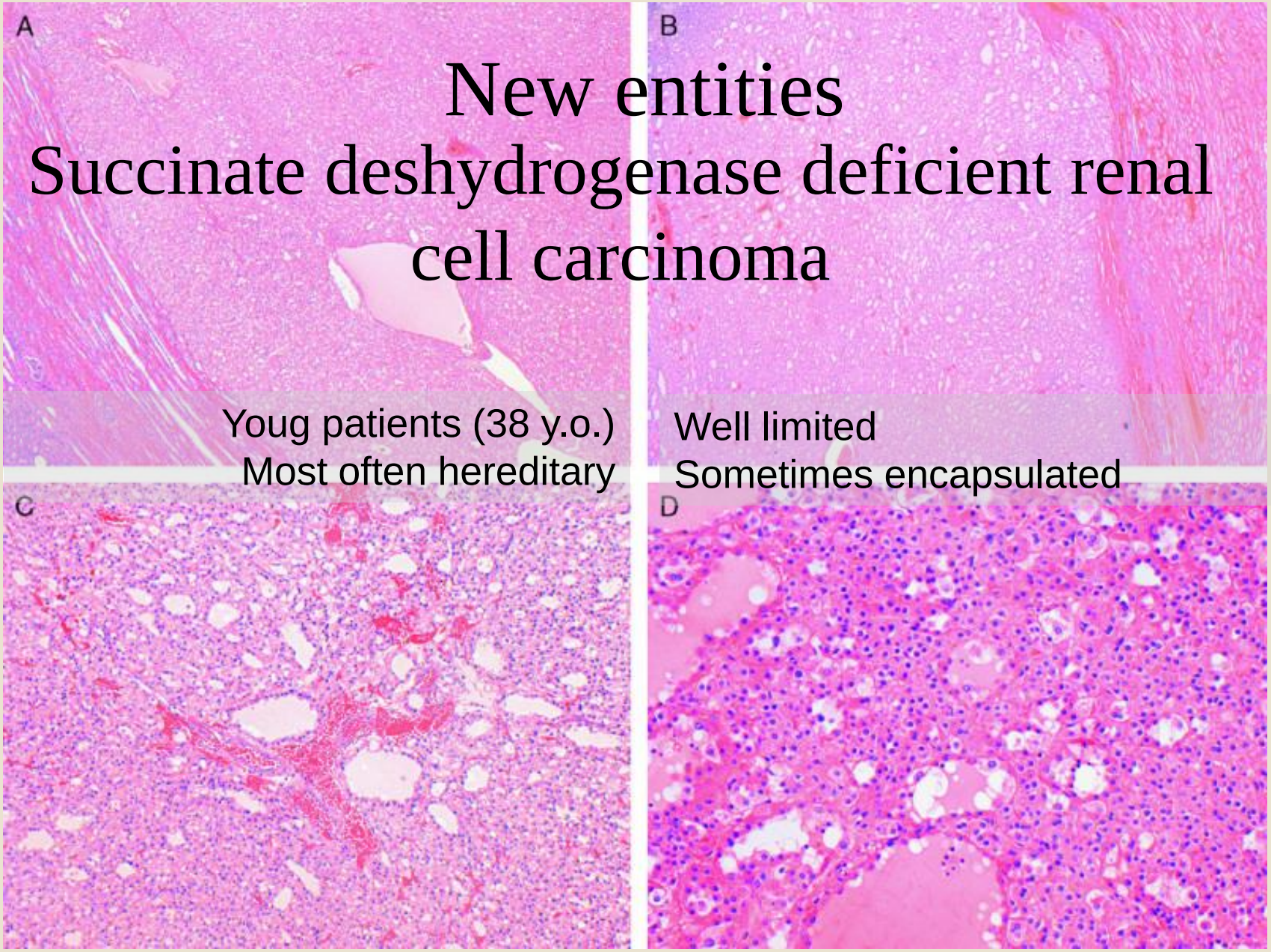
New entities
Succinate deshydrogenase deficient renal cell carcinoma



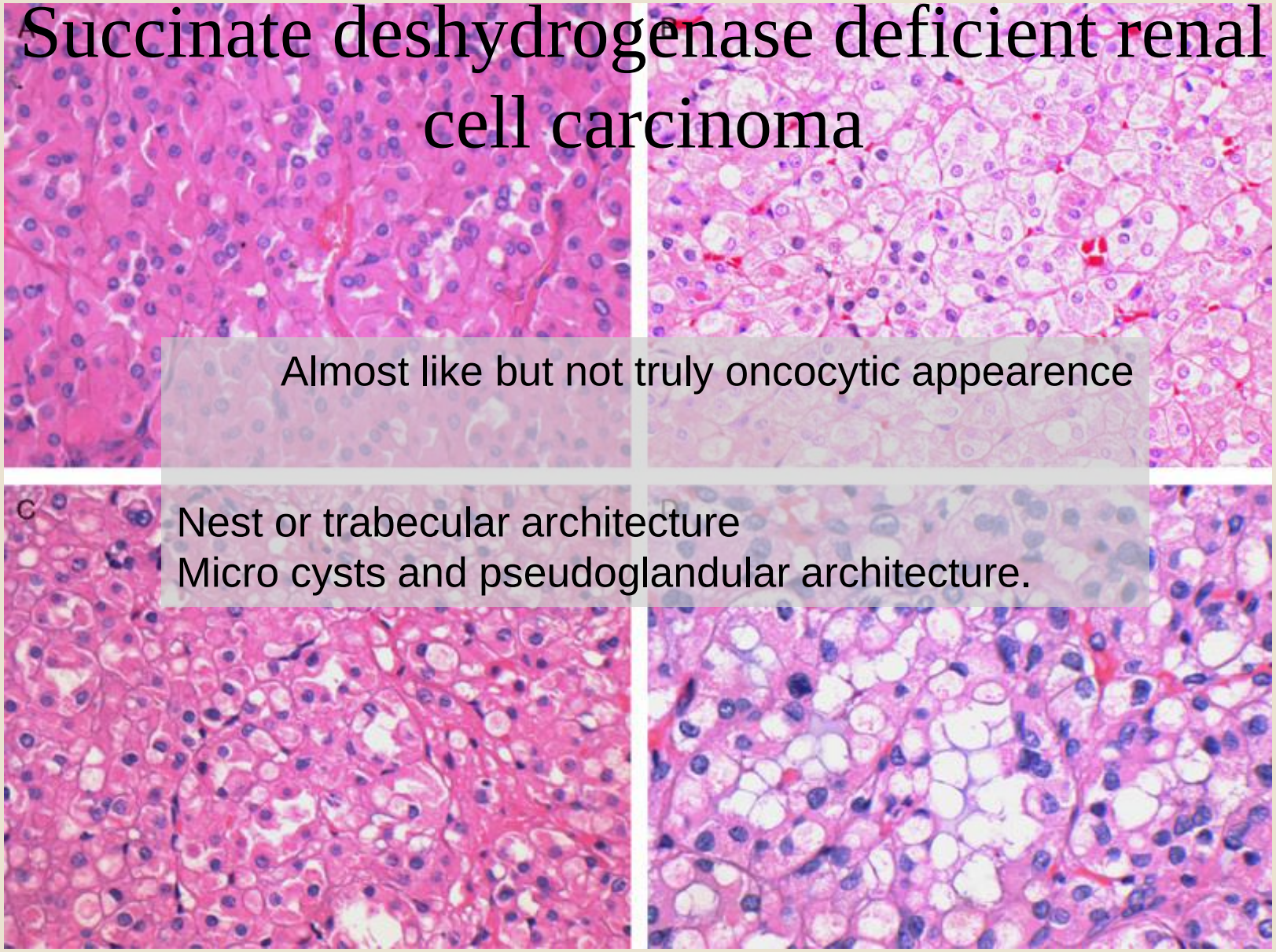
Youg patients (38 y.o.)
Most often hereditary

Well limited
Sometimes encapsulated

Succinate Dehydrogenase B mutation associated RCC

- « hereditary paraganglioma-pheochromocytoma syndrome » (PGL/PC) : rare
- Stromal tumors (GIST) : rare
- Tumors uncapsulated
- 0,02 to 0,5% of renal tumor

Succinate deshydrogenase deficient renal cell carcinoma



Almost like but not truly oncocytic appearence

Nest or trabecular architecture
Micro cysts and pseudoglandular architecture.

Succinate deshydrogenase deficient renal cell carcinoma

Germ cell mutations of SDH-B (most often)
Risk to develop renal neoplasia 14%

IHC : SDH-B - (but SDH-A and C +)
CK7 – c-kit +/- (focally)
Pax8 and E-Cadh « always » +

Prognosis good but fex cases and short follow up

DD : Oncocytoma

Am J Surg Pathol. 2014 Dec;38(12):1588-602

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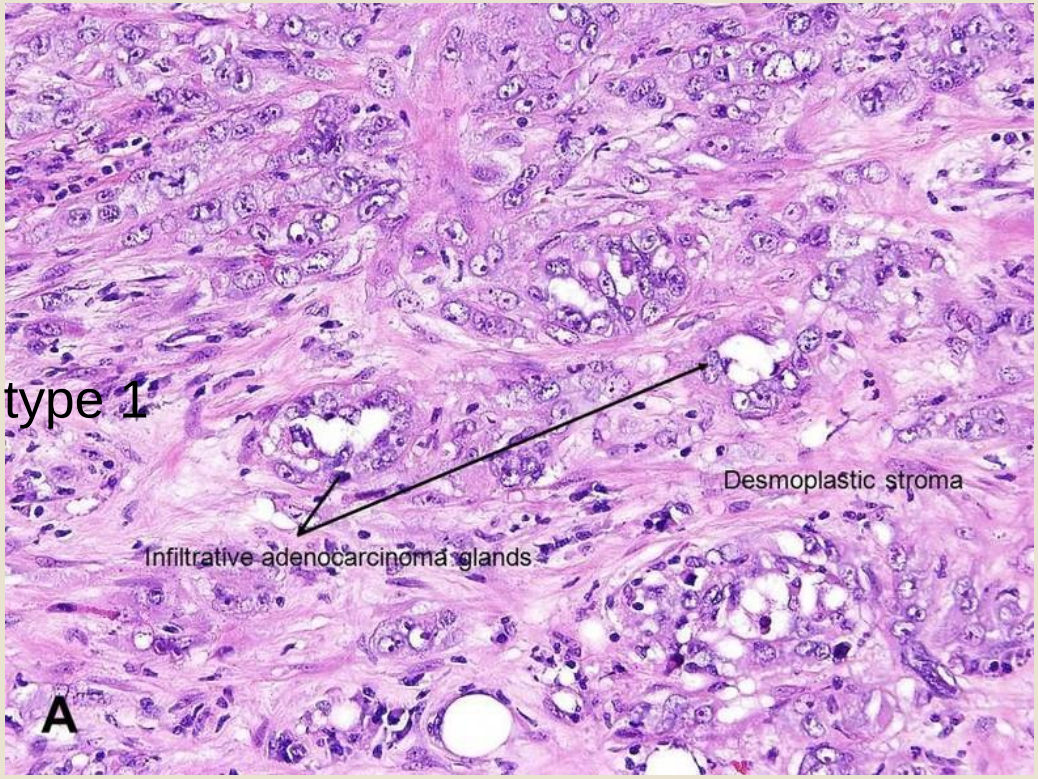
Collecting duct Carcinoma

Medullary located tumors
With infiltrative and irregular fibrous borders
Irregular glands and trabeculae
Hight nuclear grade

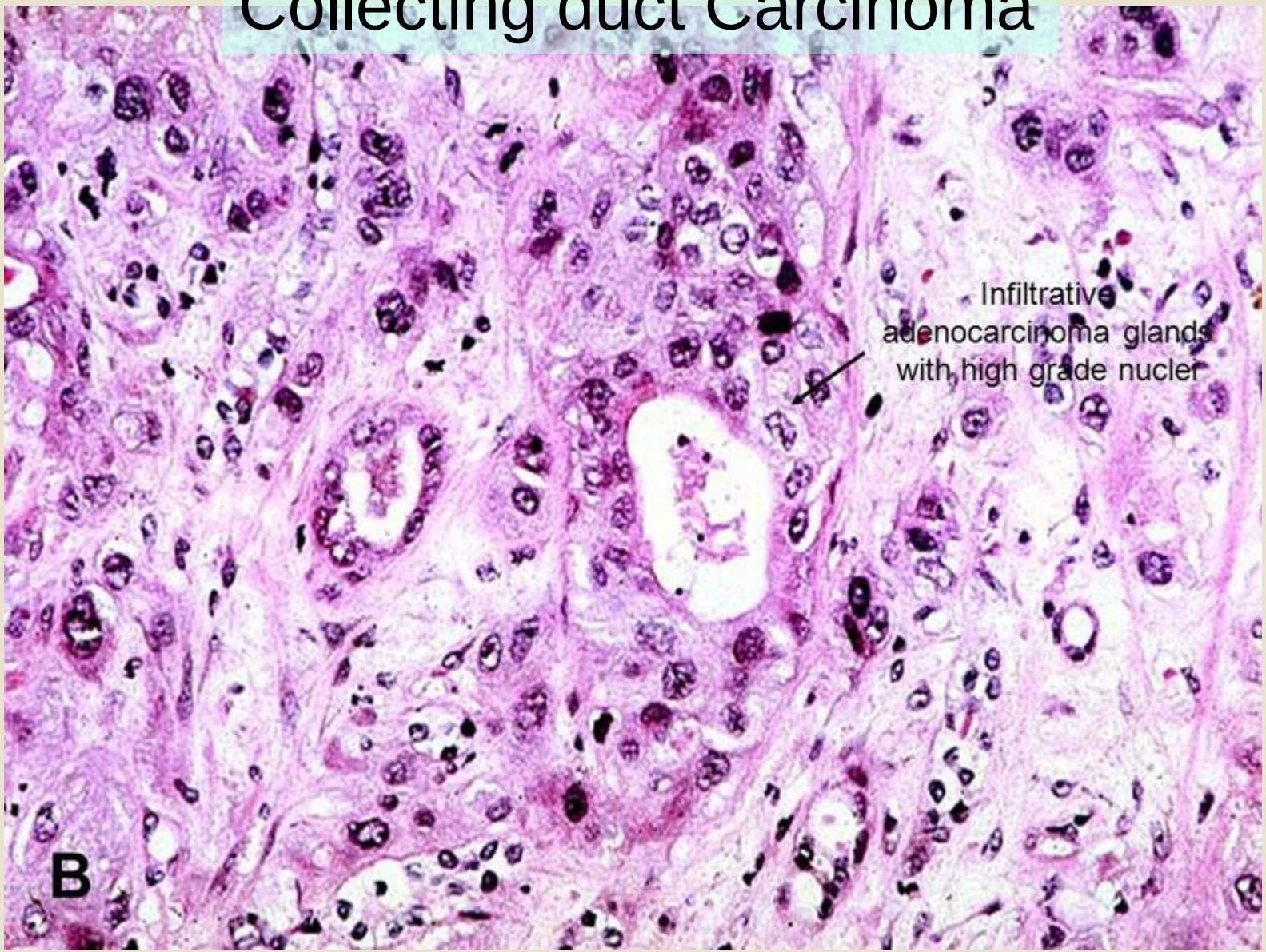
CK7+,
AMACR+,
INI1+

DD : Tubulopapillary non type 1
Metastasis
Medullary carcinoma

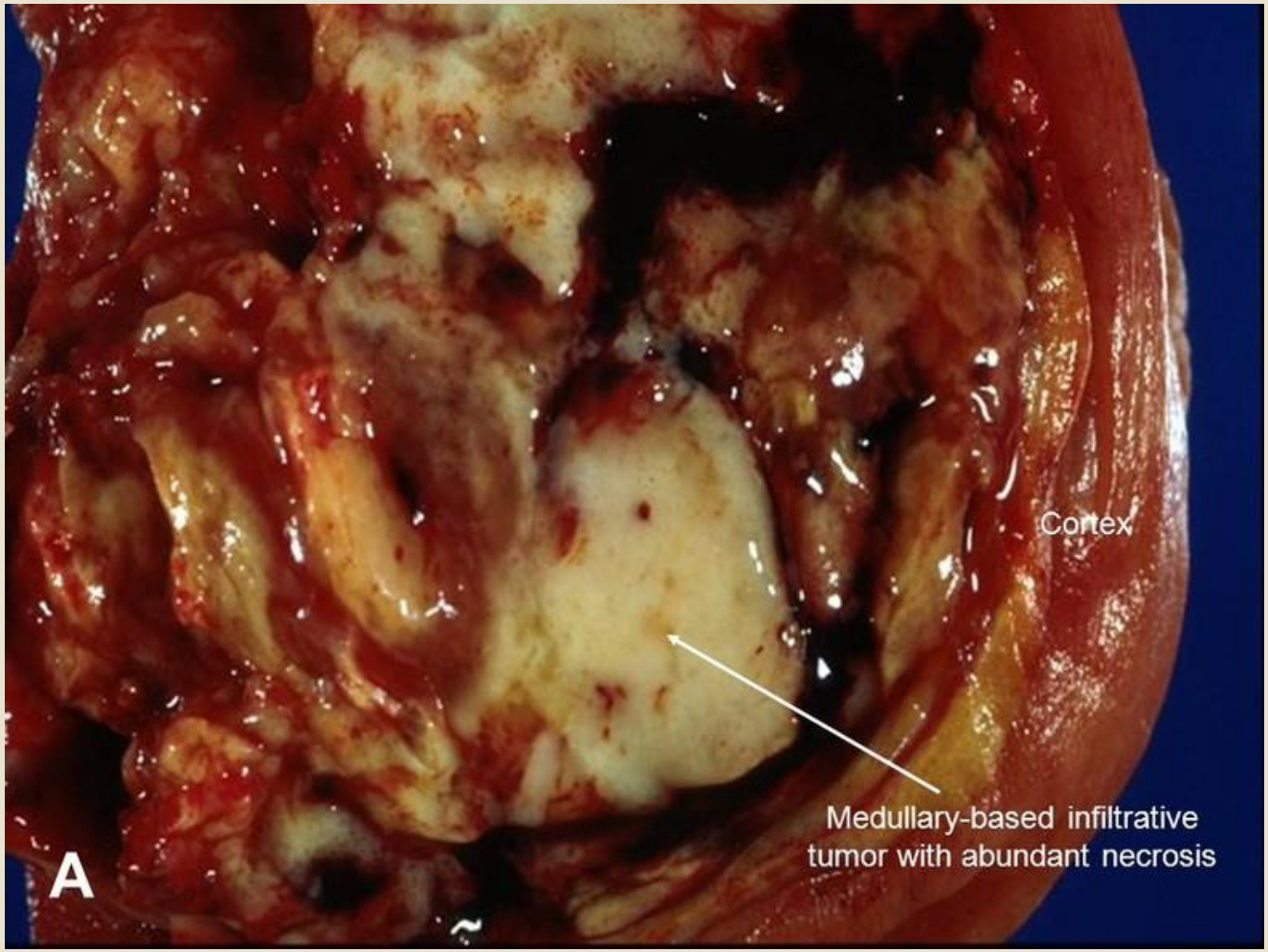
Agressive tumors



Collecting duct Carcinoma

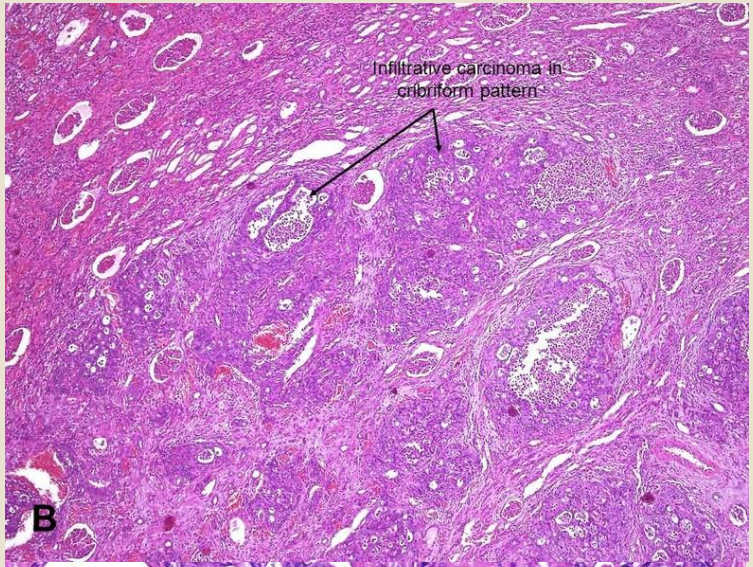


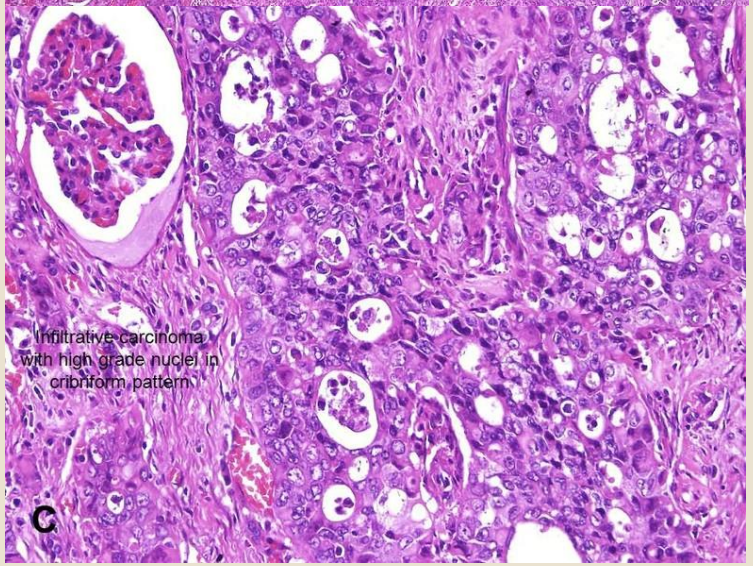
Medullary Carcinoma



Young adults with sickle cell disease

Medullary Carcinoma

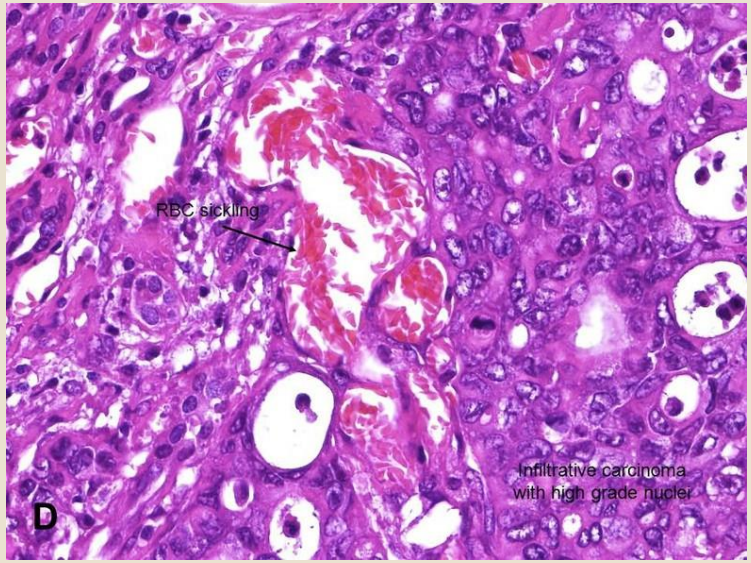




Young adults with sickle cell disease

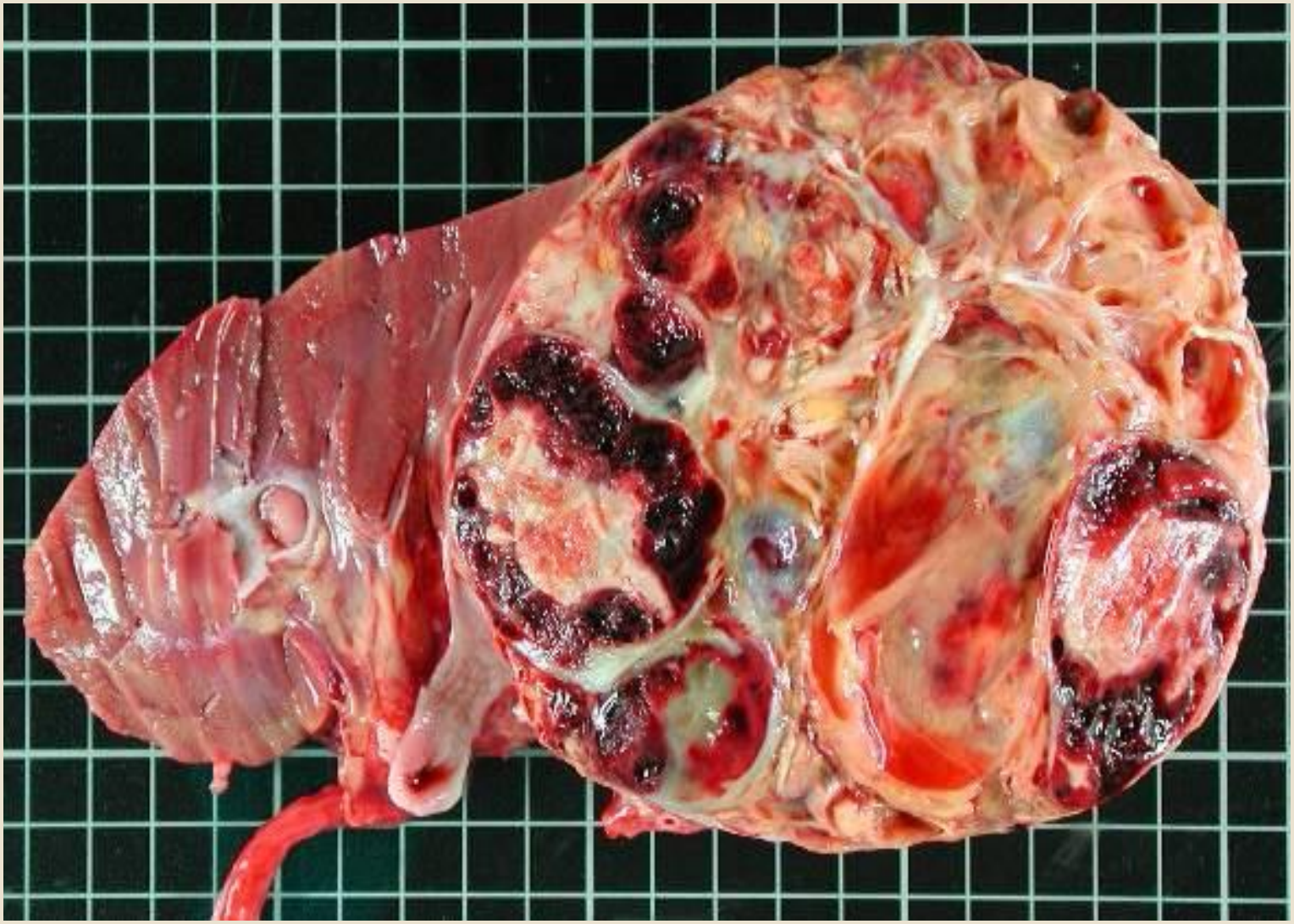
Irregular shaped glands in dense fibrous stroma

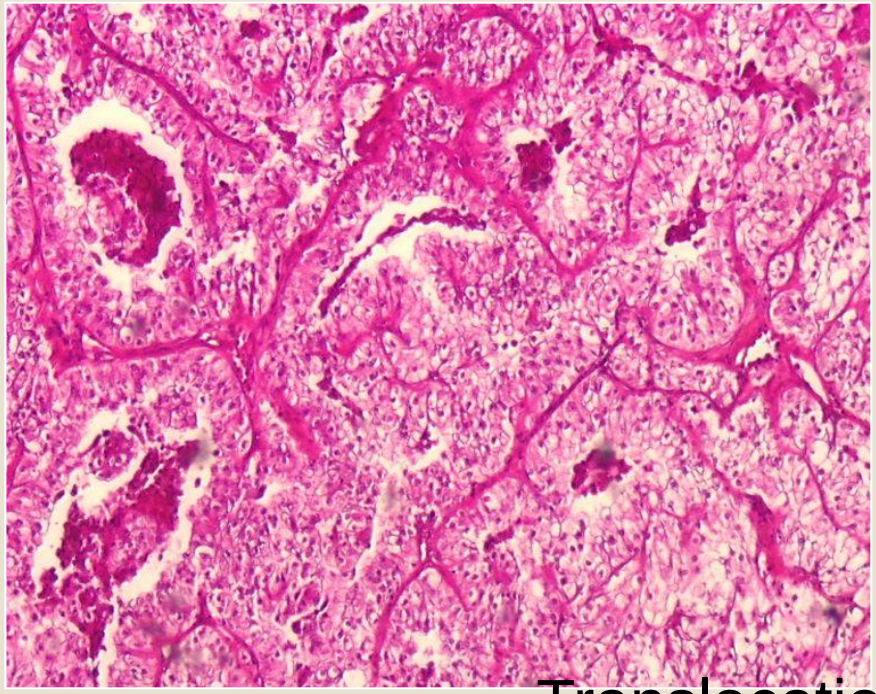
Sickle cells can be seen
INI1 -
Highly aggressive (< 6 months)

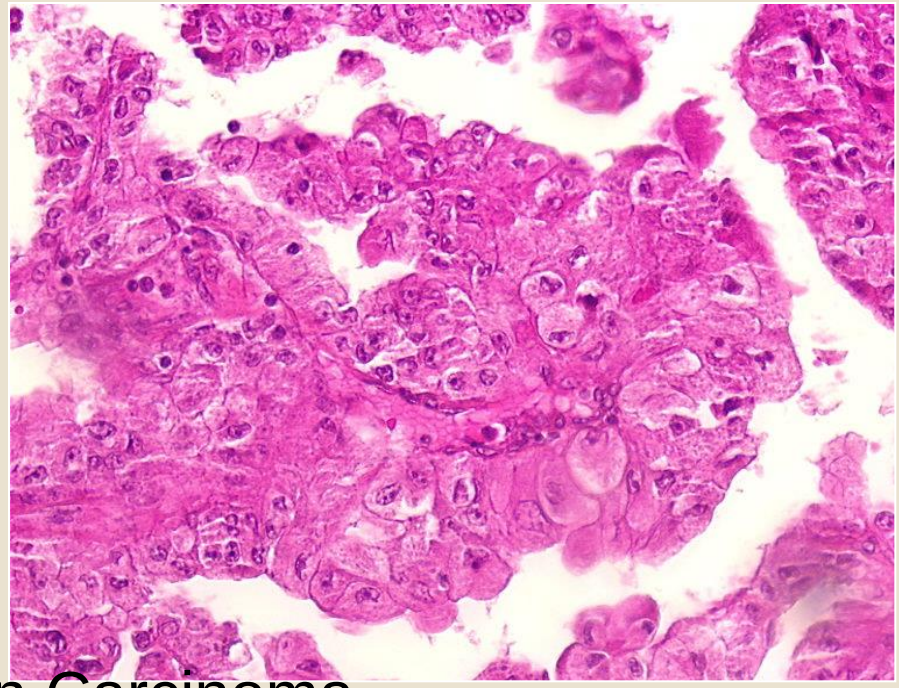


Renal cell tumours	
Clear cell renal cell carcinoma	8310/3
Multilocular cystic renal neoplasm of low malignant potential	8316/1
Papillary renal cell carcinoma	8255/1
Hereditary leiomyomatosis and renal cell carcinoma (HLRCC)-associated renal cell carcinoma	8311/3*
Chromophobe renal cell carcinoma	8317/3
Collecting duct carcinoma	8319/3
Renal medullary carcinoma	8510/3
MiT Family translocation carcinomas	8311/3
Succinate dehydrogenase (SDH)-deficient renal carcinoma	8312/3
Mucinous tubular and spindle cell carcinoma	8480/3
Tubulocystic renal cell carcinoma	8316/3
Acquired cystic disease associated renal cell carcinoma	8316/3
Clear cell papillary renal cell carcinoma	8323/1
Renal cell carcinoma, unclassified	8312/3
Papillary adenoma	8260/0
Oncocytoma	8290/0

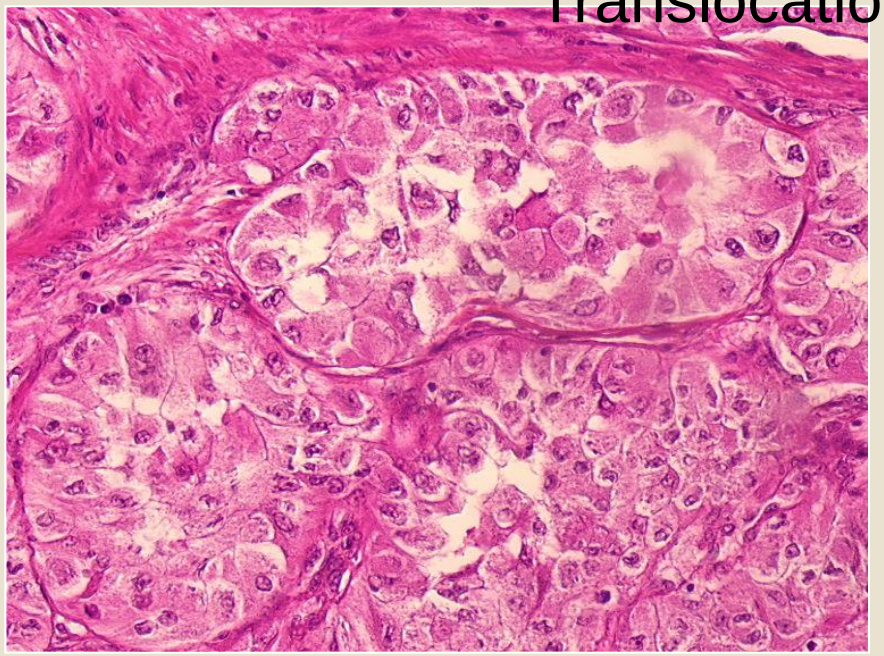
MIT Family Translocation Carcinoma

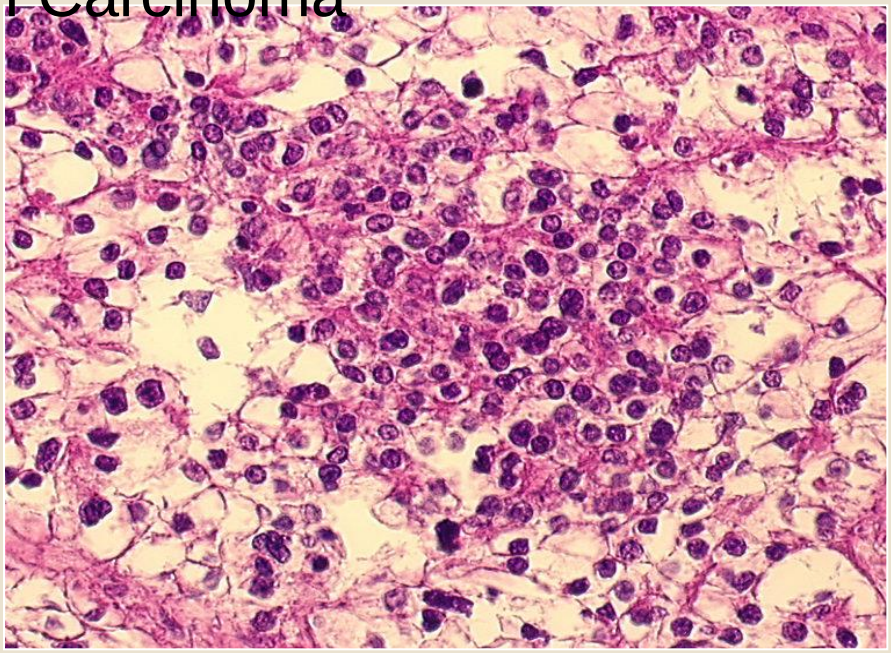






Translocation Carcinoma





Translocation Carcinoma

Mean age : 23
Sex ratio : 1,7/2,3

N+ : 40-70%

Translocation involving MiTF
TFE3 (Xp11), TFEB (6p11)
Various fusion genes

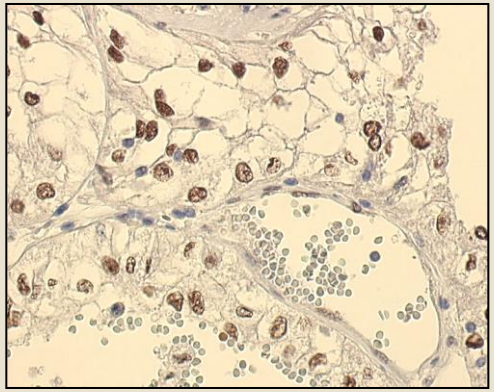
CK7- CD10+ AMACR+
Melanocytic markers

Renal Translocation Carcinomas

Clinicopathologic, Immunohistochemical, and Gene Expression Profiling Analysis of 31 Cases With a Review of the Literature

Philippe Camparo, MD, Viorel Vasiliu, MD, Vincent Molinie, MD, Jerome Couturier, MD, Karl J. Dykema, BA, David Petillo, PhD, Kyle A. Furge, PhD, Eva M. Comperat, PhD, Marick Lae, PhD, Raymonde Bouvier, MD, Liliane Boccon-Gibbod, PhD, Yves Denoux, MD, Sophie Ferlicot, PhD, Eric Forest, MD, Gaelle Fromont, PhD, Marie C. Hintzy, MD, Myriam Laghouati, MD, Mathilde Sibony, PhD, Marie L. Tucker, MD, Nina Weber, MD, Bin T. Teh, PhD, and Annick Vieillefond, MD

Am J Surg Nov 2007



TFE3

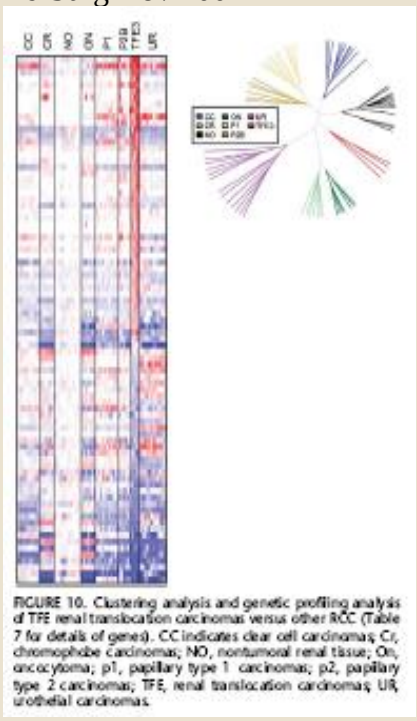
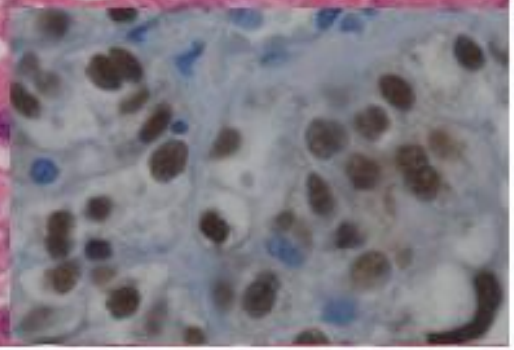


FIGURE 10. Clustering analysis and genetic profiling analysis of TFE renal translocation carcinomas versus other RCC (Table 7 for details of genes). CC indicates clear cell carcinomas; Cr, chromophobe carcinomas; NO, nontumoral renal tissue; On, oncocytoma; pT, papillary type 1 carcinomas; pT2, papillary type 2 carcinomas; TFE, renal translocation carcinomas; UR, urothelial carcinomas.

Translocation Carcinoma

Young adults
Atypical histology

Prognosis still to be determined
Depend on fusion gene



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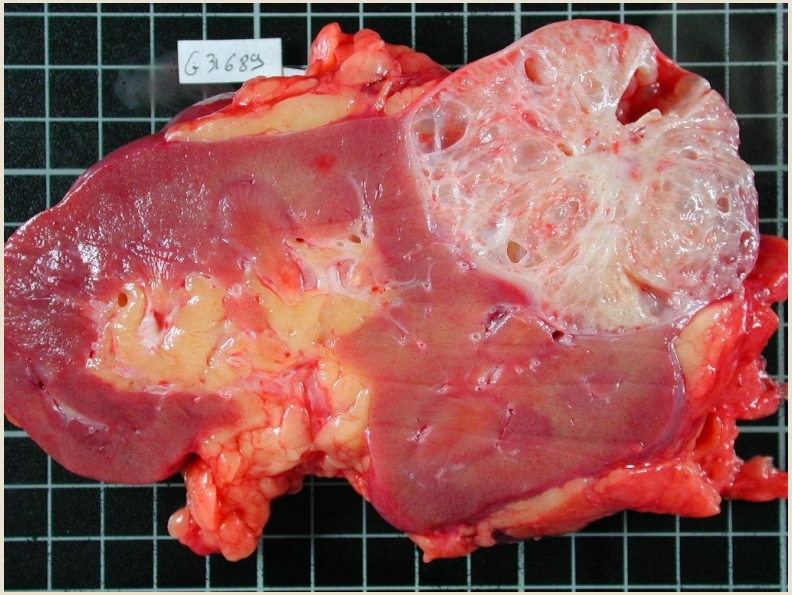
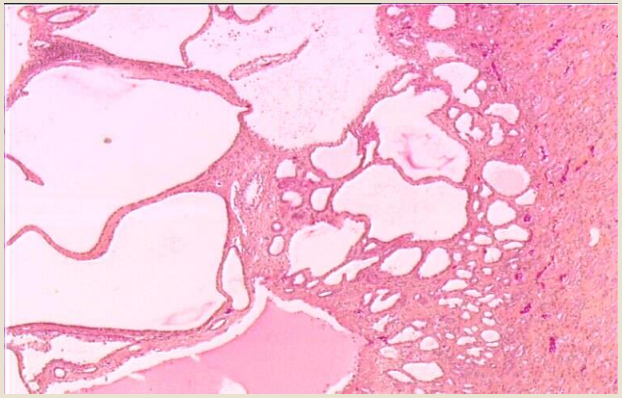
Oncocytoma	8290/0

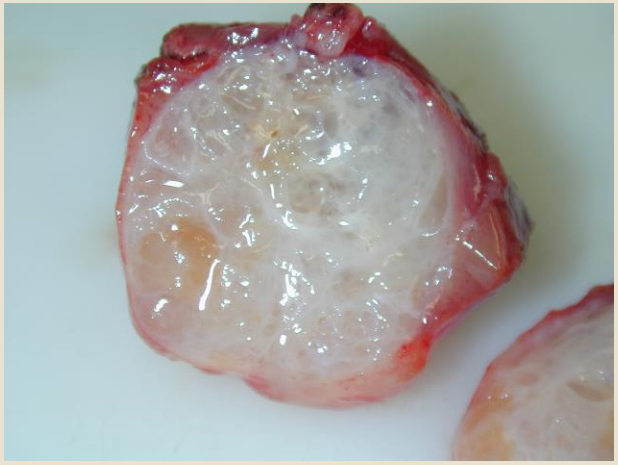
Tubulo-cystic carcinoma (low grade)

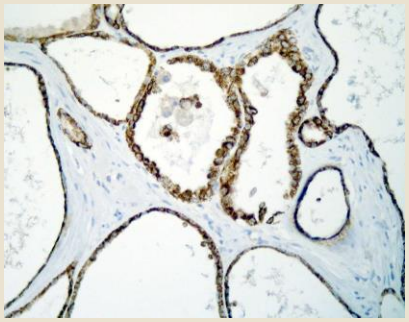


Small spongiform tumours

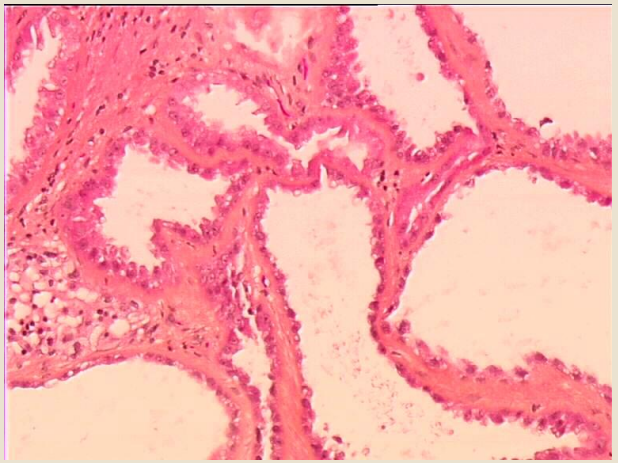


Dilated tubules lined by a single layer of hobnail cells Low Fuhrman grade





CK7 +
AMACR +
CD10+



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Papillary adenoma	8260/0
Oncocytoma	8290/0

Acquired cystic disease associated renal cell carcinomas

Spectrum of Epithelial Neoplasms in End-Stage Renal Disease

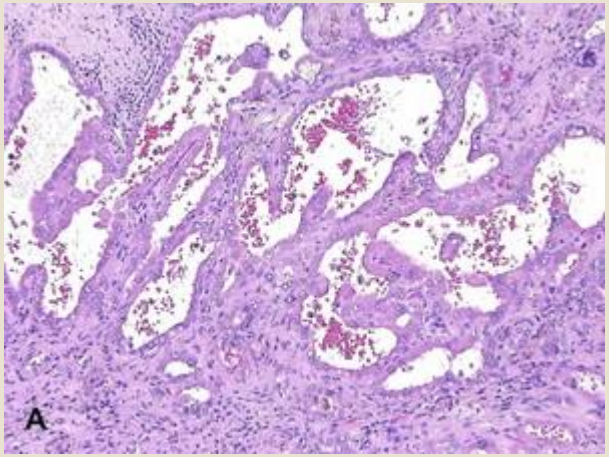
An Experience From 66 Tumor-Bearing Kidneys With Emphasis on Histologic Patterns Distinct From Those in Sporadic Adult Renal Neoplasia

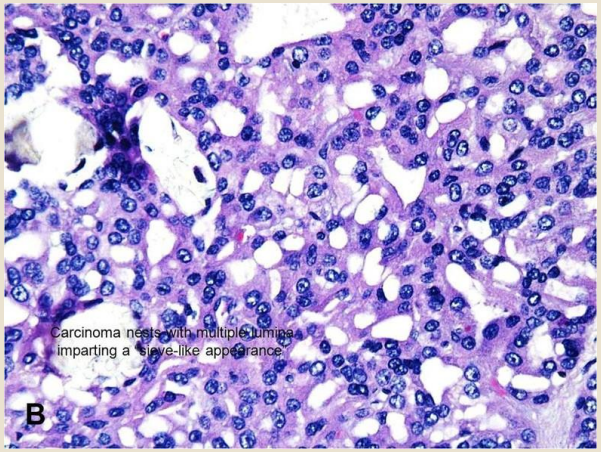
Satish K. Tickoo, MD, Mariza N. dePeralta-Venturina, MD,†‡ Lara R. Harik, MD,* Heath D. Worcester, MD,§ Mohamed E. Salama, MD,‡ Andrew N. Young, MD,§ Holger Moch, MD,‖ and Mahul B. Amin, MD§*

>30% carcinomas in end-stage renal disease

Multifocal

Bilateral 1/3





Acquired cystic disease associated renal cell carcinomas

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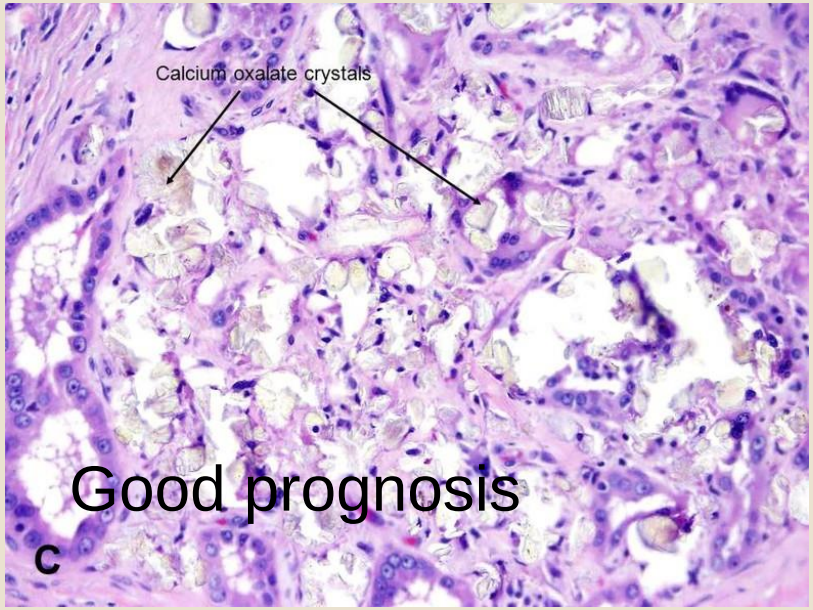
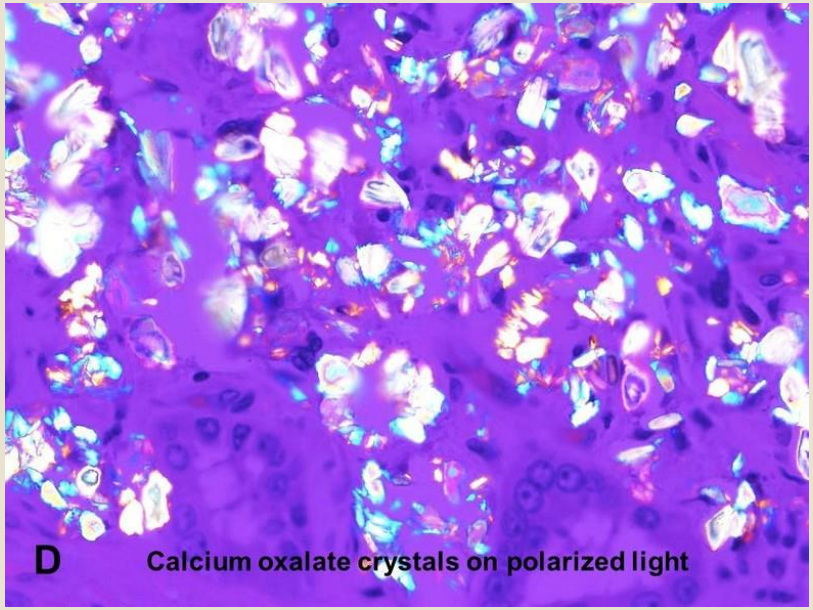
Polymorphic irregular glandular appearence

Calcium Oxalate crystals



Good prognosis



Clear Cell Papillary Renal Cell Carcinomas

Mean age : 58.1

Sex ratio : 2,3/1

Spectrum of Epithelial Neoplasms in End-Stage Renal Disease

An Experience From 66 Tumor-Bearing Kidneys With Emphasis on Histologic Patterns Distinct From Those in Sporadic Adult Renal Neoplasia

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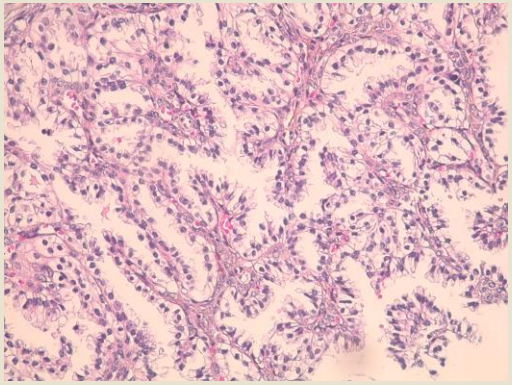
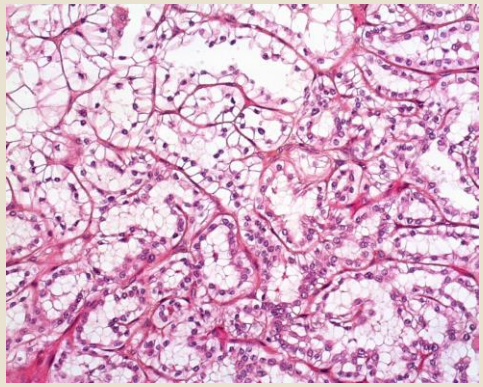
30% end-stage renal disease

60% : normal kidney

Tubular or papillary architecture, compact or cystic





Clear cells

Small size

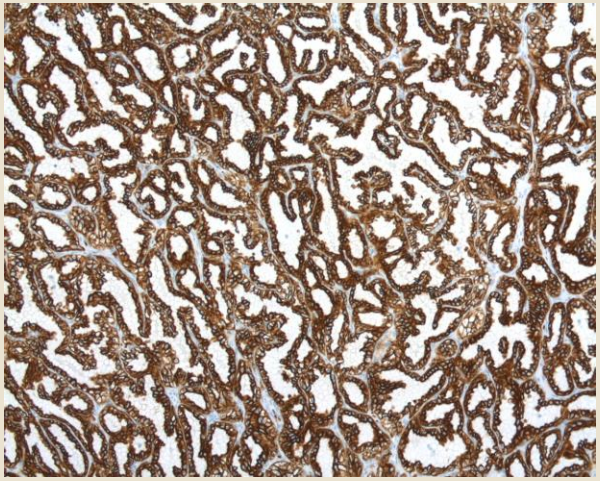
Central nucleus

Clear Cell Papillary Renal Cell Carcinomas

CK7+

Vim +

CA IX +



CD10-

AMACR -

No cytogenetic abnormalities

pT1

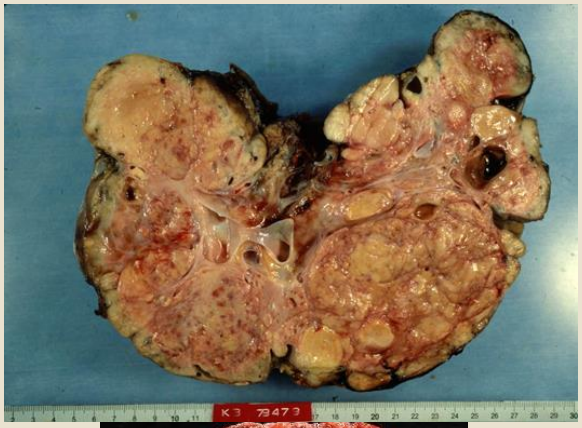
Low Fuhrman grade

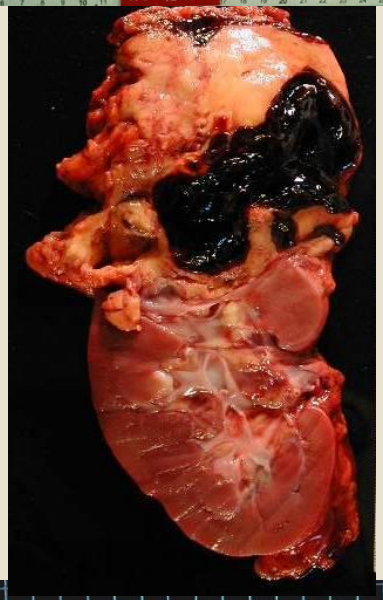
No follow up

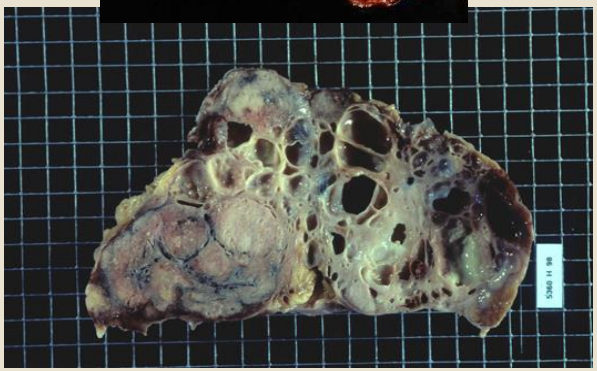
Clear and Papillary RCC Immunohistochemstry

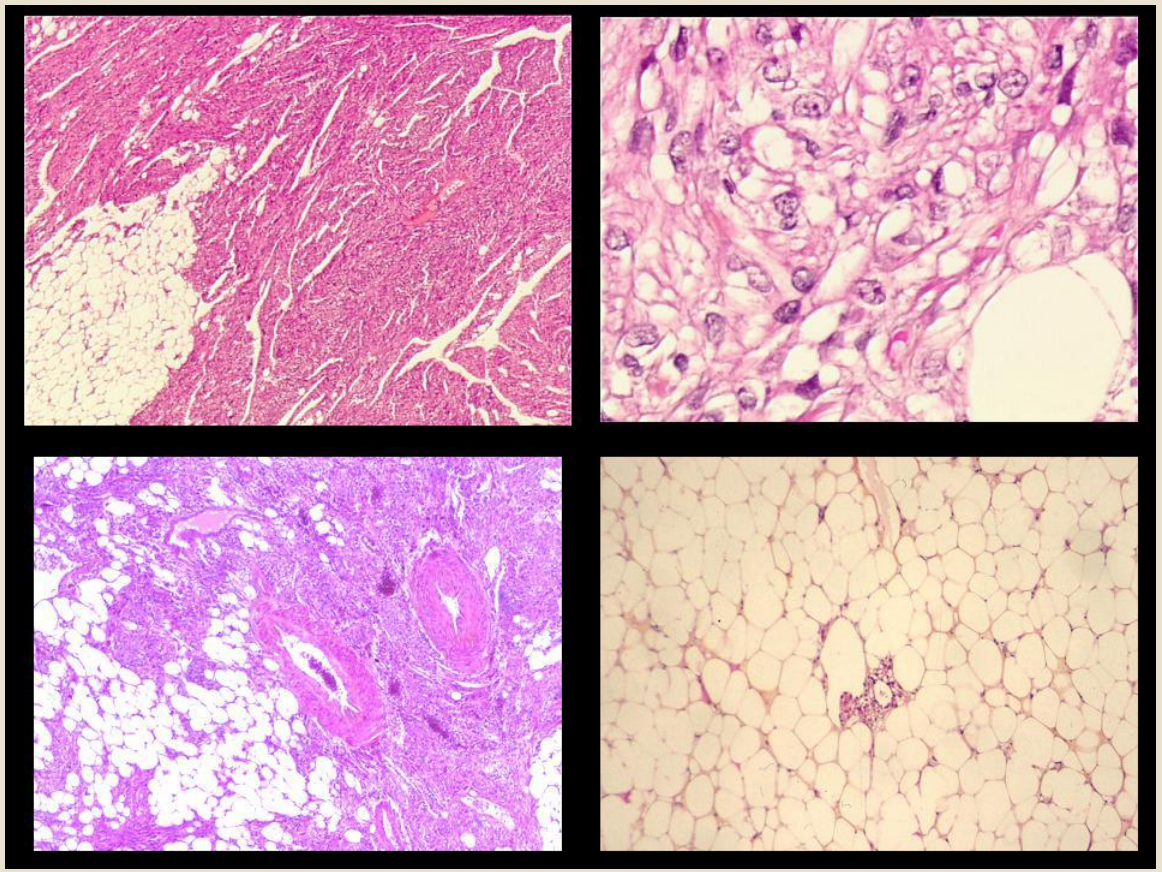
Histologic subtype	EMA	CD10	Vim	Ca9	CK7	AMACR
Clear Cell	+	+	+	+	-	-
Tubulo papillary Carcinoma	-	-	-	-	+	+
Mucinous tubular and spindle cell carcinoma	-	-	-	-	+	+
Translocation Carcinoma	-	+	+	-	-	+
Clear Cell with papillary features	+	+	+	+	-	-

Angiomyolipoma (TSC)

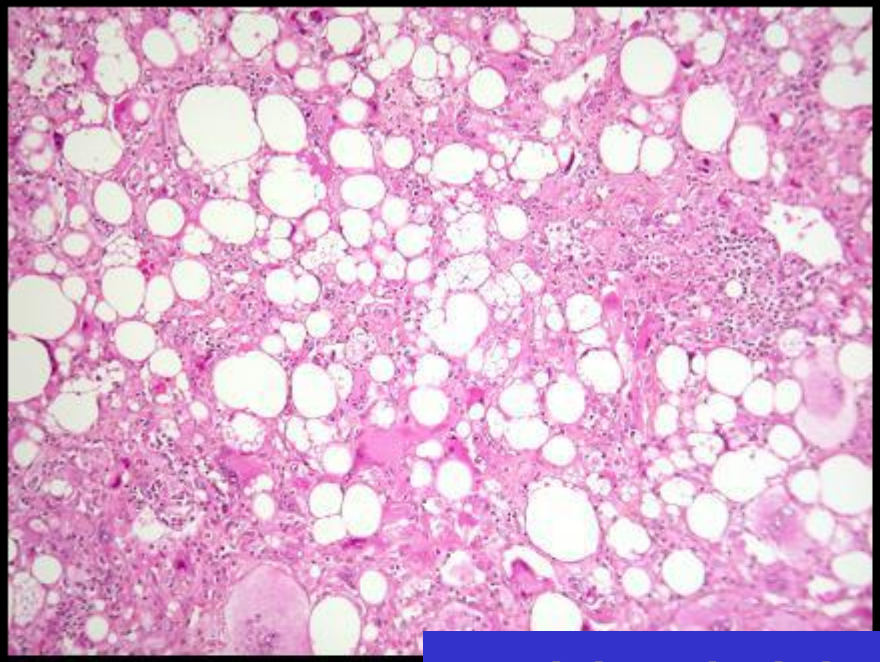
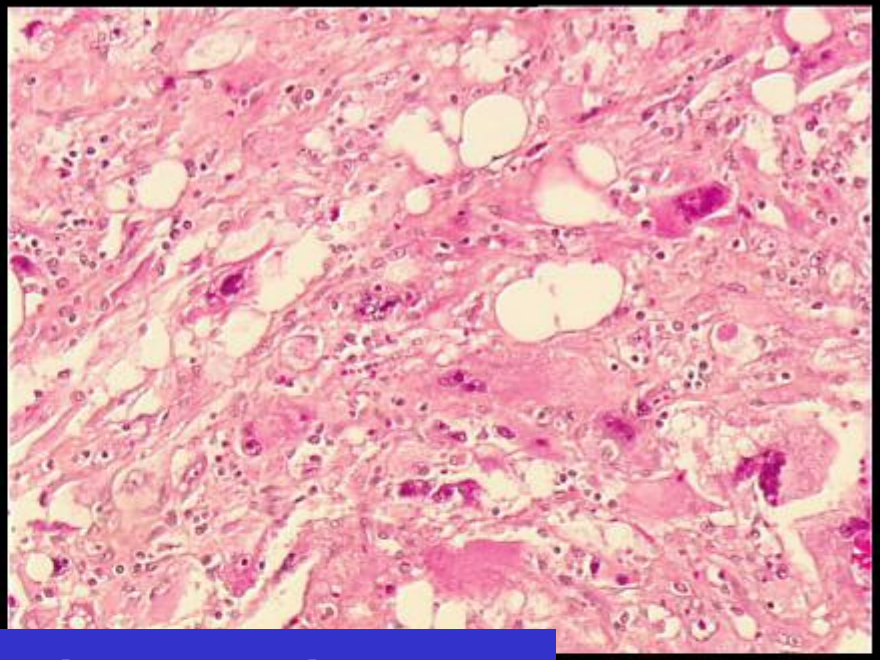




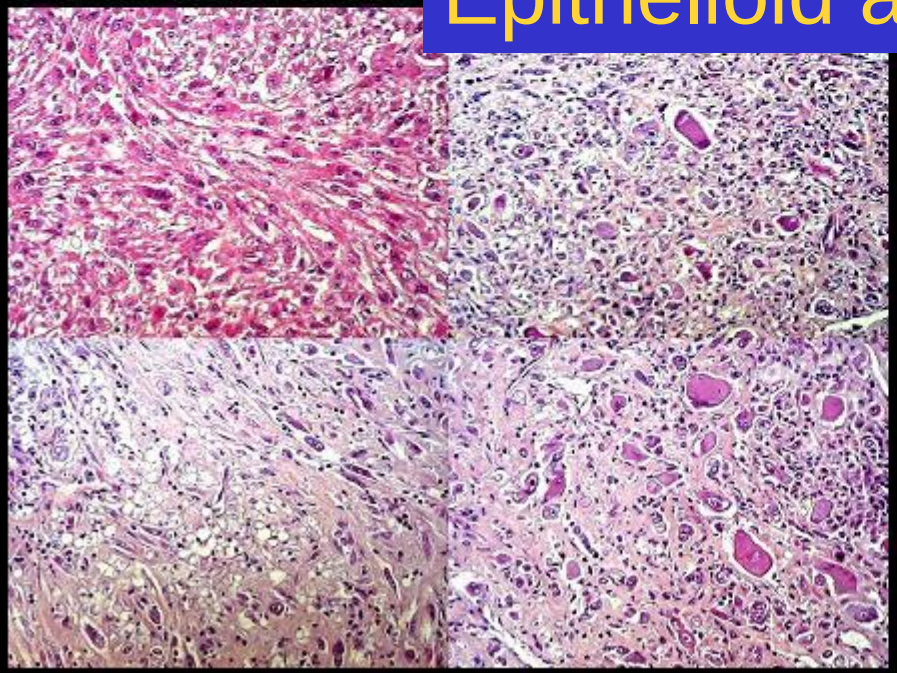
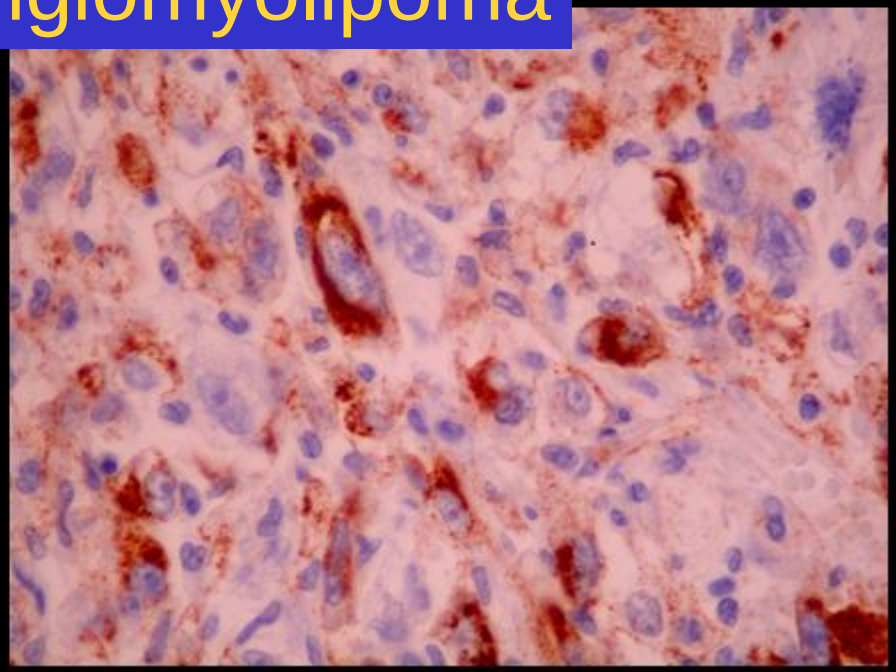




Vim, AML, Melanocytic markers

Epithelioid angiomyolipoma

Epithelioid angiomyolipoma

Variant described in 1997 and 1998.
Association with TSC (like AML)

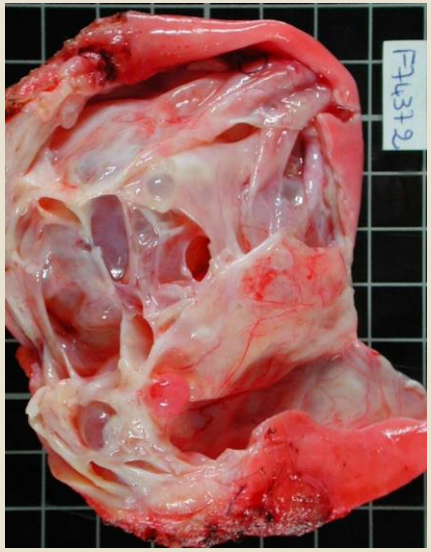
Fusiform and epithelioid cell prolifération (atypical and suspicious for high grade RCC)

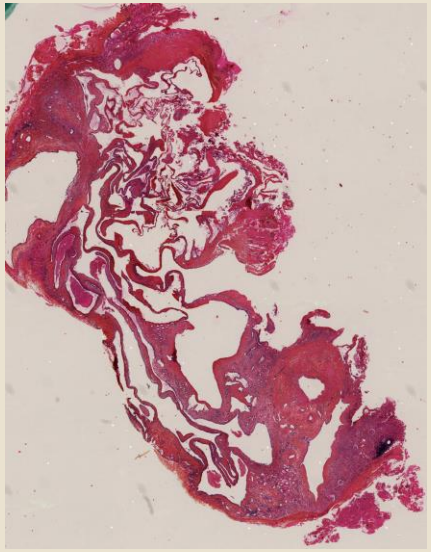
No CK expression (DD sarcomatoid carcinoma)
Positivity for HMB45 (and muscular markers MLA)

Lymph node and visceral metastasis in about 1/3 cases.

Malignant Pecoma

Cystic nephroma





Female predominance

Multilocular cysts (>4 cm)

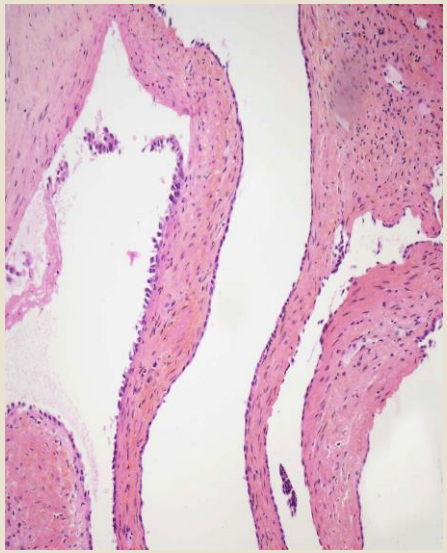
Unistratified cubic or flat epithelium with hobnail pattern

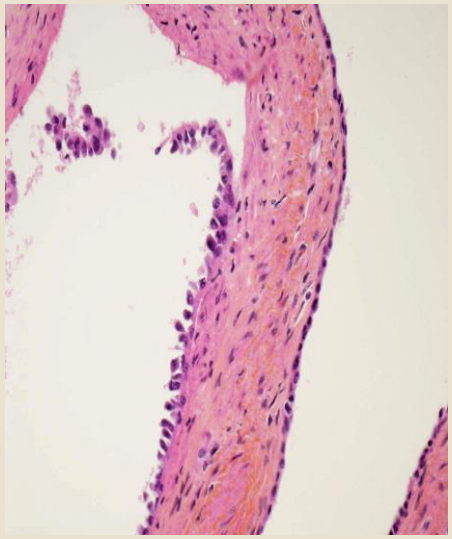
Fibrous septa with some residual renal tubules poorly cellular

Vimentine+,

Actine+, Desmine+

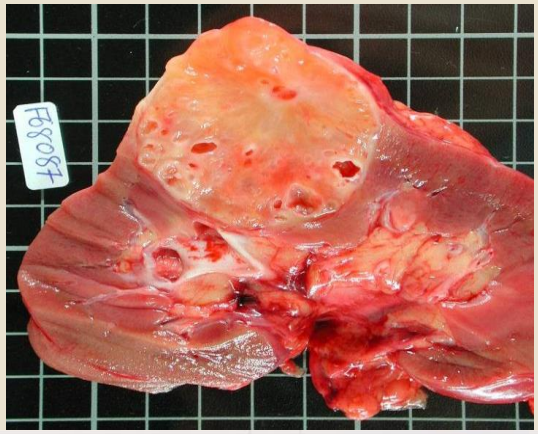
ER+, PR+, CD10+





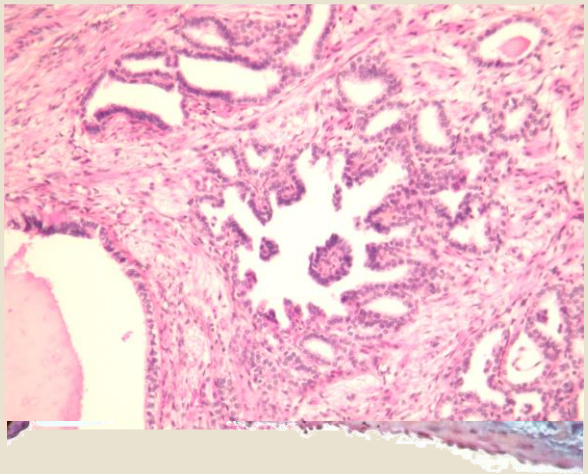
Mixed epithelial and stromal tumours

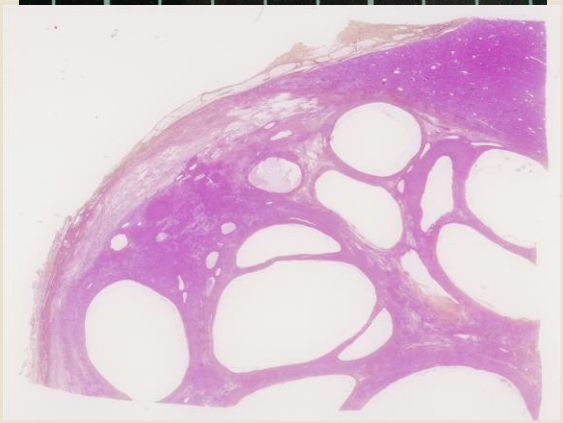
Female predominance



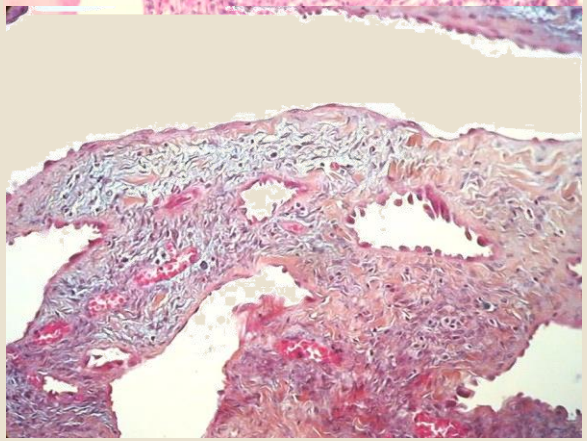
Solid +/- small cysts

Unistratified cubic or flat epithelium with hobnail and phylloid like patterns





Ovarian like stroma residual renal tubules



Vimentine+,

Actine+, Desmine+

ER+, PR+, CD10+

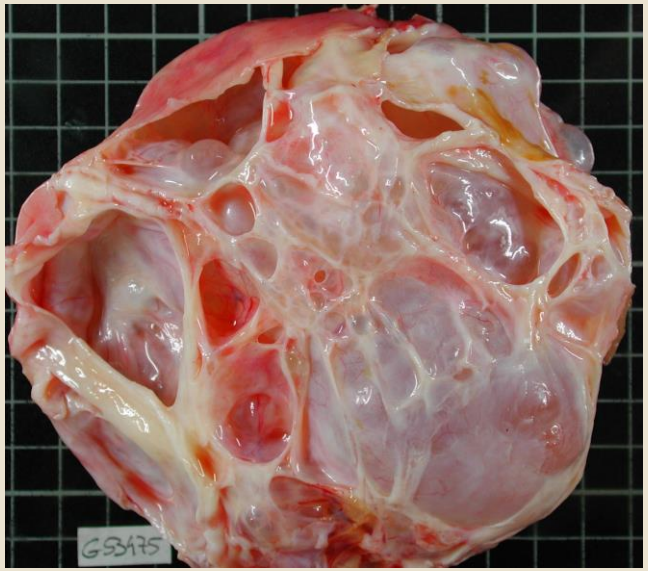
Stromal cells inhibine +

REST

Cystic Nephroma and Mixed Epithelial and Stromal Tumor of Kidney: A Detailed Clinicopathologic Analysis of 34 Cases and Proposal for Renal Epithelial and Stromal Tumor (REST) as a Unifying Term

Julia Turbiner, MD, Mahul B. Amin, MD,† Peter A. Humphrey, MD,‡ John R. Srigley, MD,§ Laurence De Leval, MD,‖ Anuradha Radhakrishnan, MD,† and Esther Oliva, MD**

Am J Surg Pathol 2007



- Benign tumours
- Sex ratio : 1:6 Mean age 50 y
- Well circumscribed
- Epithelial and stromal components of variable importance
- Stroma actine +, ER +et PR+

Cystic Nephroma and Mixed Epithelial and Stromal Tumour of the Kidney: Opposite Ends of the Spectrum of the Same Entity?

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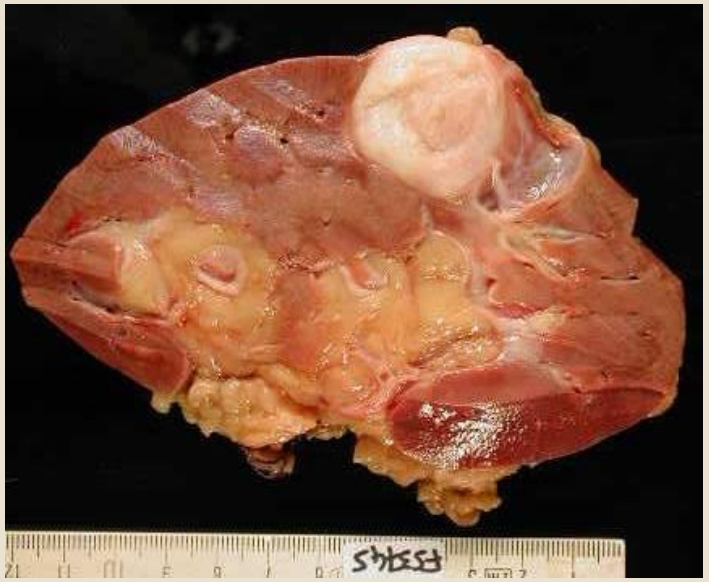
Eur Urol 2007



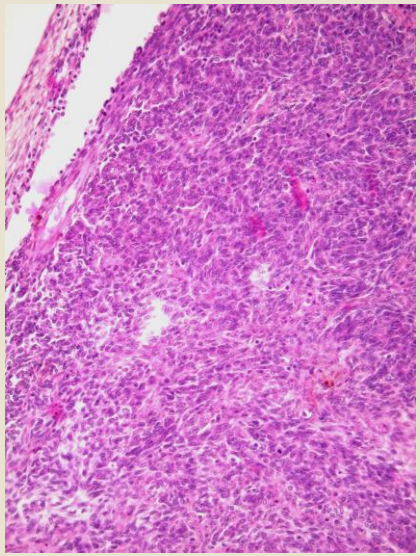
Differencial diagnoses of REST

Solid tumours with cystic areas

Synovialosarcoma atypia, mitoses
CD99 + , BCl2 +, actine -, desmine -, translocation t (X;18)

Angiomyolipoma with epithelial cysts

Oncocytomas

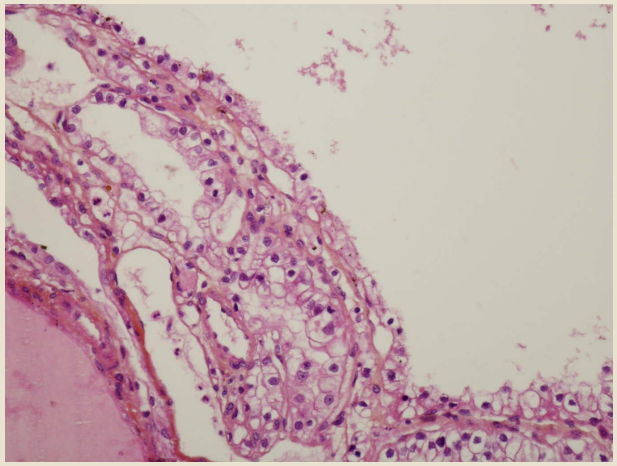


Cystic tumours

Multilocular (cystic) carcinoma

Cystic nephroblastoma (theorical <2 y)

Tubulo cystoc carcinomas



	Histochimie	IHC	cytogenetique	Molecular biology
CCC		**EMA + RCC + CAIX + CD10 + vimentine + CK7 +/-, racémase -/+ CD117 -**	**Délétion 3p-**	**Mutation *VHL* (3p25-26) dans les formes familiales et dans plus de la moitié des cas des formes sporadiques**
Ca pap		**CK7 +, CD10 + racémase + vimentine + EMA + RCC + CAIX – CD117-**	**Types 1 & 2 : Trisomies 7, 17, perte de l'Y, amplification 8q**	**- Type 1 : mutation de *c-met* (7q31-32) (formes familiales et sporadiques) - Type 2 : mutation de *FH* en 1q42 (forme familiale) ou amplification de *Myc* en 8q (forme sporadique)**
Ca chromo	**Hale diffus microvésiculaire**	**CK7 + en cadre CD10 +/- racémase - EMA + vimentine - CD117 + CaIX-**	**Monosomie chromosomique - 3p, -5q, -17p, -17q**	
onco	**Hale apical**	**CK7 – ou focal CD10 +/- EMA + vimentine -**	**Délétion 1, 3, 7, 14, X, Y, ou pas d'anomalies**	

	Colo spe	IHC	cytogenetique
Carcinome avec translocation TFE3 ou TFEB		CK7-, CD10 + racémase + vimentine + RCC + **TFE3 + ou** **TFEB +**	t(X;1)(p11.2;q21) : gène de fusion PRCC-TFE3 t(X;17)(p11.2;q25) : gène de fusion ASPL-TFE3 t(6 ;1)(p21;q12) : translocation alpha-TFEB
Carcinome tubulo-mucineux	Bleu Alcian	CK7+, CD10 – racémase +/-vimentine + RCC +	Anomalies variées : gains ou pertes chromosomiques
Carcinome des tubes collecteurs		CK7 -, KL1 + EMA+ vimentine + Ulex + CK20 +	
Tumeur mixte épithéliale et stromale		Cellules stroma : vimentine +, actine et desmine +, RO et RP + dans 75% des cas	

Renal papillary unclassified represent 5% of renal tumors
Other lesions at nor rare

They are exceptionnal…