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37th European Congress of Pathology

6 – 10 September 2025
Vienna, Austria



Kidney Presentation

News in GU diseases: new
concepts, new approaches and
new/emerging entities

Prof. Matteo Brunelli

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aim of the presentation

- 1) new/emerging entities
- 2) new concepts
- 3) new approaches

enucleoresection



Martignoni et al.

partial nephrectomy



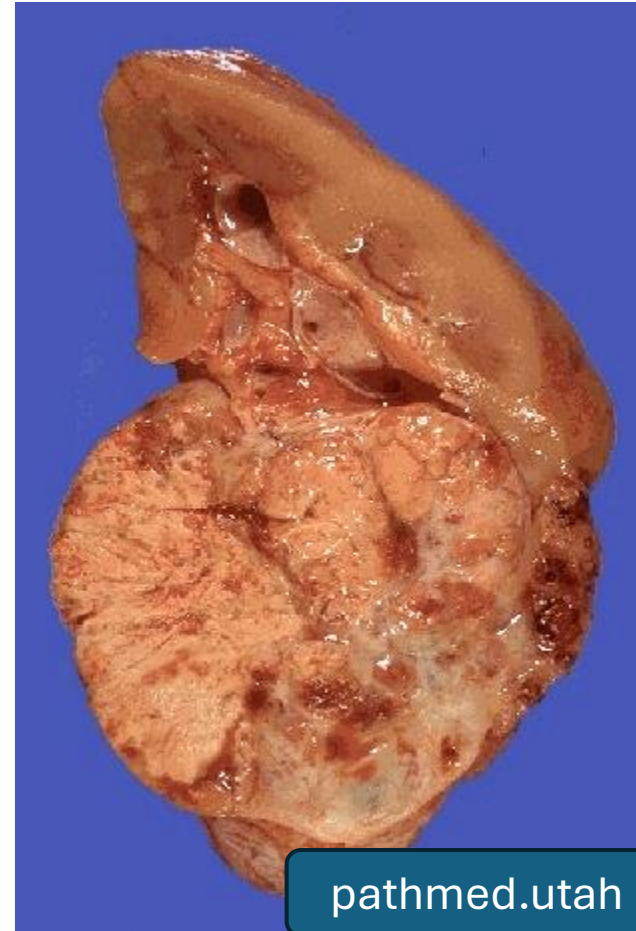
Lopez-Beltran et al.

nephrectomy



UW Medicine

yellowish tumor



pathmed.utah

brownish tumor



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oncocytic/eosinophilic renal tumors

clear cell renal tumors



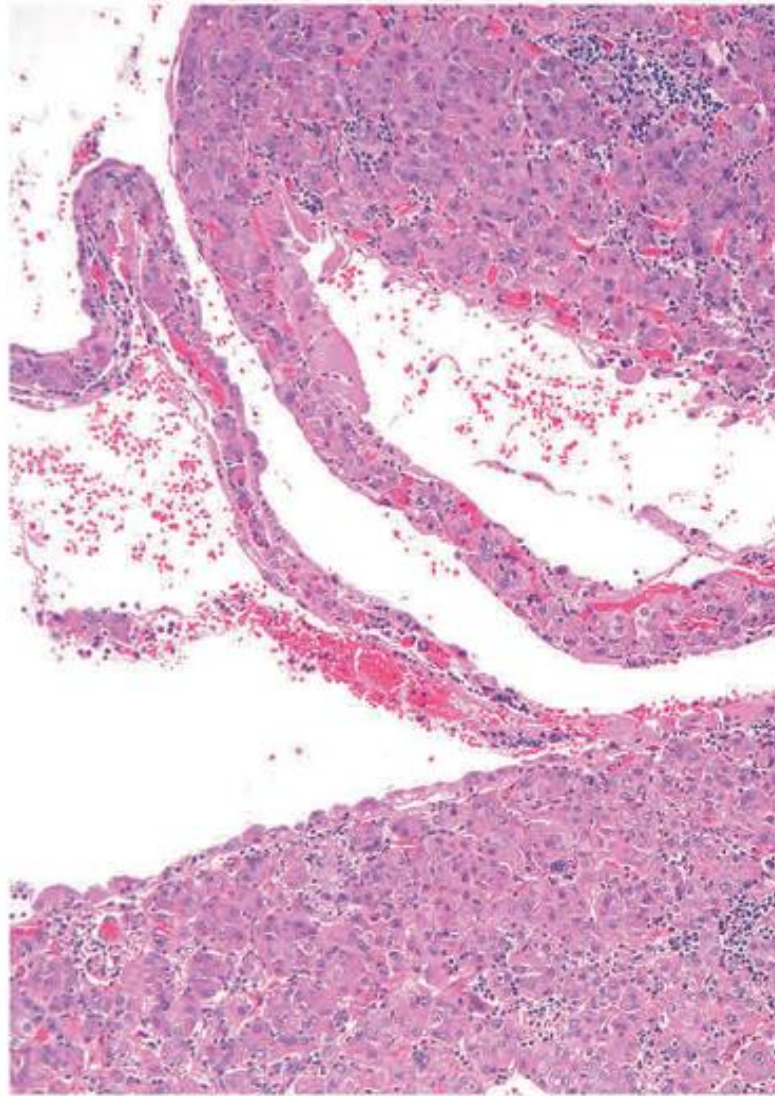
ARTICLE

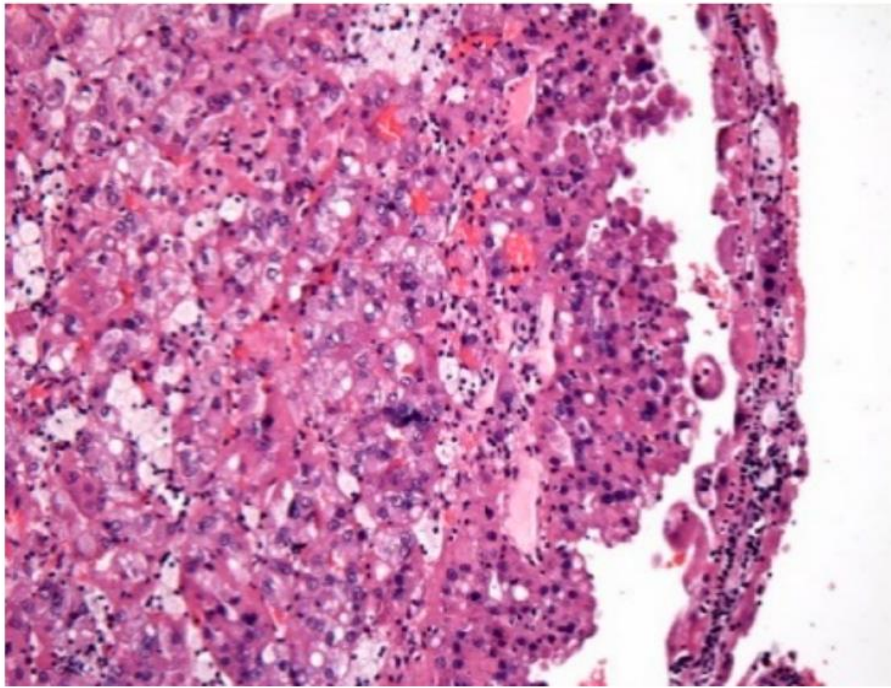


Novel, emerging and provisional renal entities: The Genitourinary Pathology Society (GUPS) update on renal neoplasia

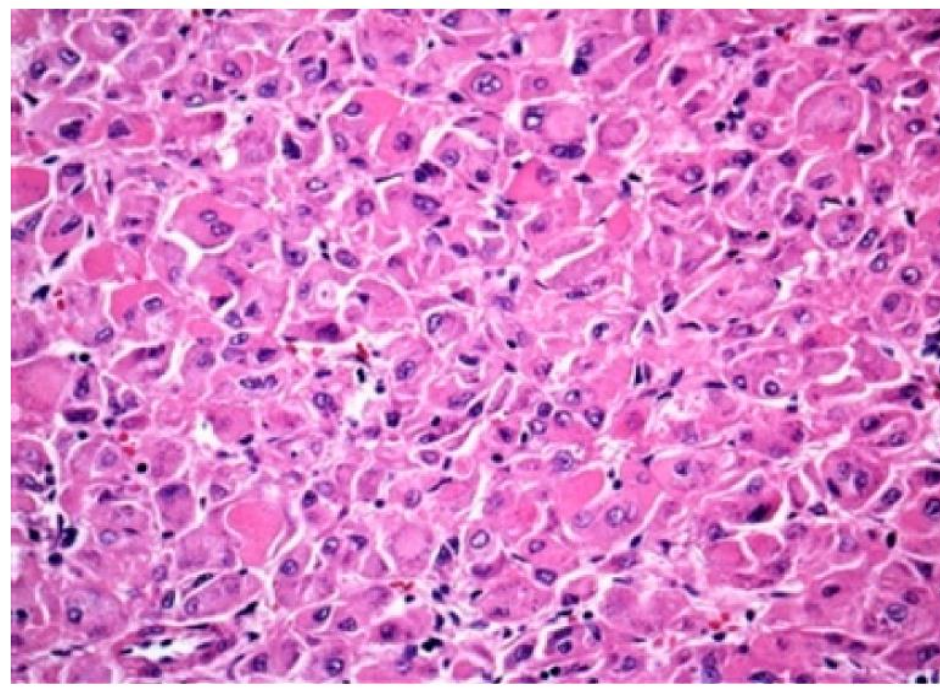
Kiril Trpkov¹  · Sean R. Williamson²  · Anthony J. Gill³ · Adebawale J. Adeniran⁴ · Abbas Agaimy⁵  · Reza Alaghebandan⁶ · Mahul B. Amin⁷ · Pedram Argani⁸ · Ying-Bei Chen⁹  · Liang Cheng¹⁰  · Jonathan I. Epstein¹¹ · John C. Cheville¹² · Eva Comperat¹³ · Isabela Werneck da Cunha¹⁴  · Jennifer B. Gordetsky¹⁵  · Sounak Gupta¹² · Huiying He¹⁶ · Michelle S. Hirsch¹⁷  · Peter A. Humphrey⁴ · Payal Kapur¹⁸ · Fumiyoshi Kojima¹⁹ · Jose I. Lopez²⁰  · Fiona Maclean^{21,22} · Cristina Magi-Galluzzi²³ · Jesse K. McKenney² · Rohit Mehra²⁴  · Santosh Menon²⁵ · George J. Netto²³  · Christopher G. Przybycin² · Priya Rao²⁶ · Qiu Rao²⁷ · Victor E. Reuter⁹ · Rola M. Saleeb²⁸ · Rajal B. Shah²⁹ · Steven C. Smith³⁰  · Satish Tickoo⁹ · Maria S. Tretiakova³¹  · Lawrence True³¹ · Virginie Verkarre³² · Sara E. Wobker³³ · Ming Zhou³⁴ · Ondrej Hes³⁵

eosinophilic solid and cystic renal cell carcinoma (ESC-RCC)

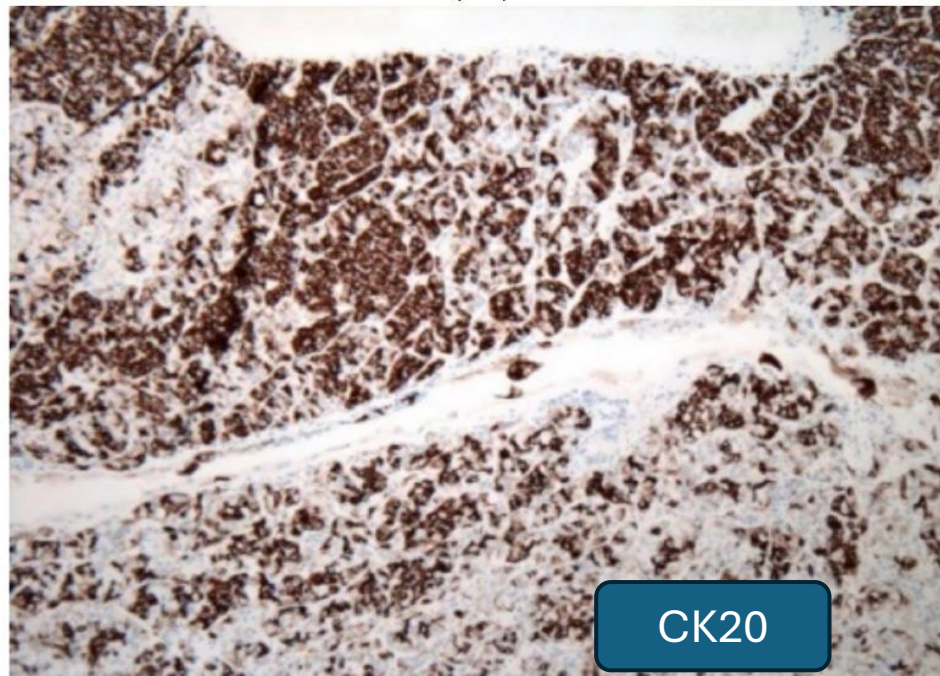
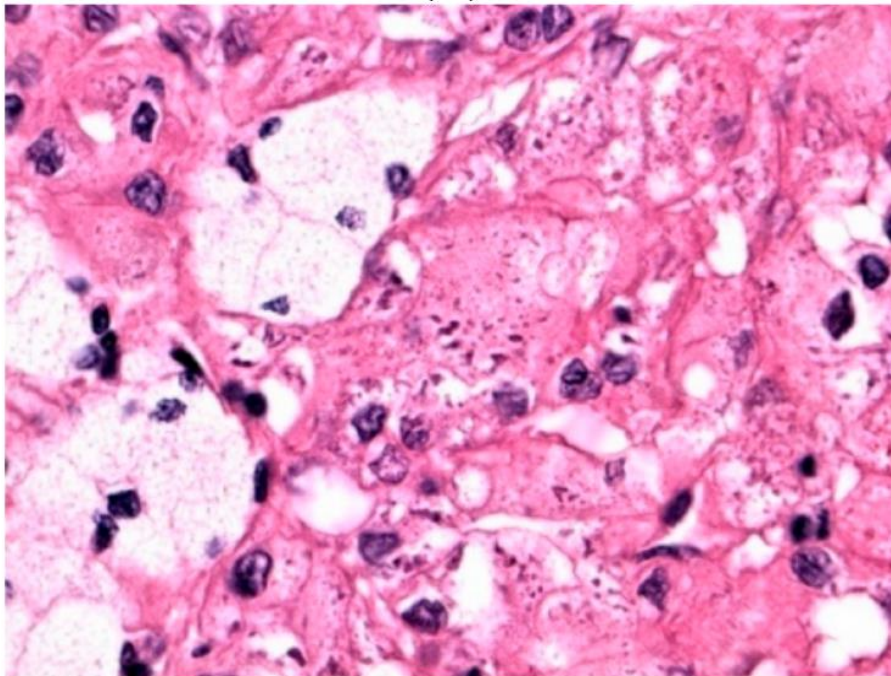




(C)



(D)



CK20

eosinophilic vacuolated tumor (ETV)

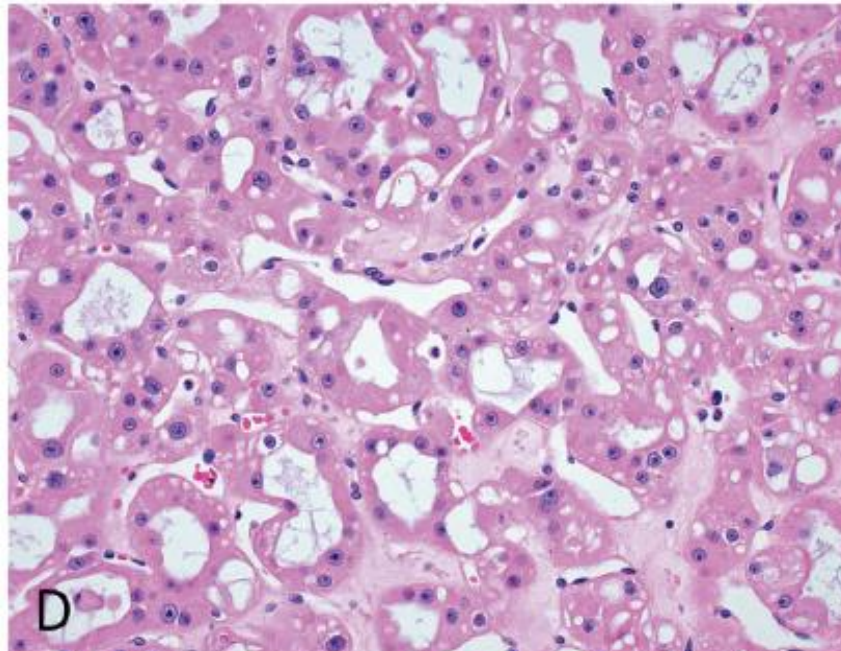
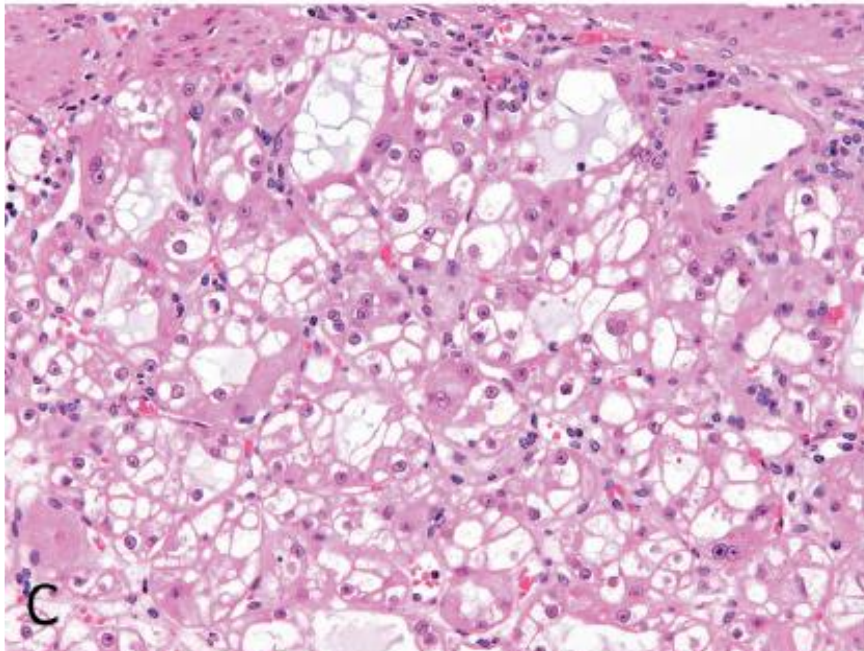
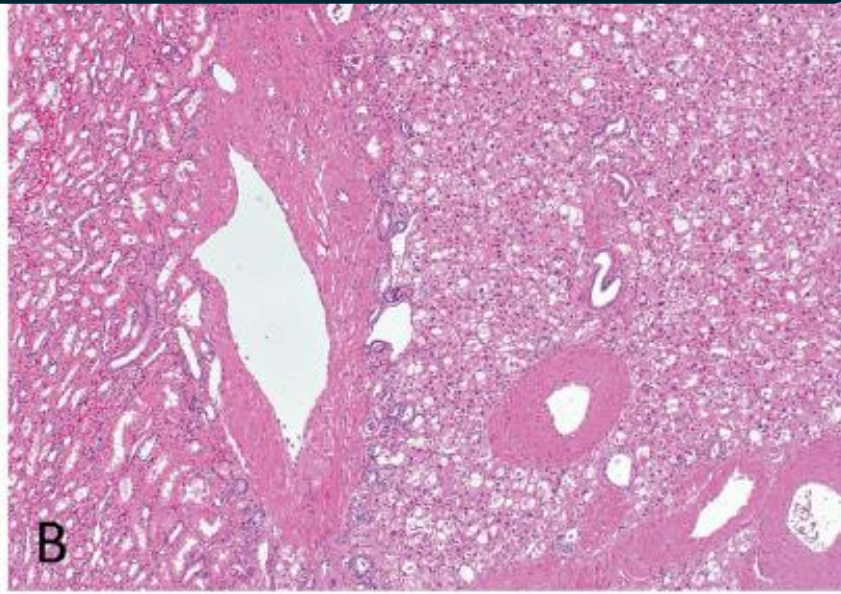
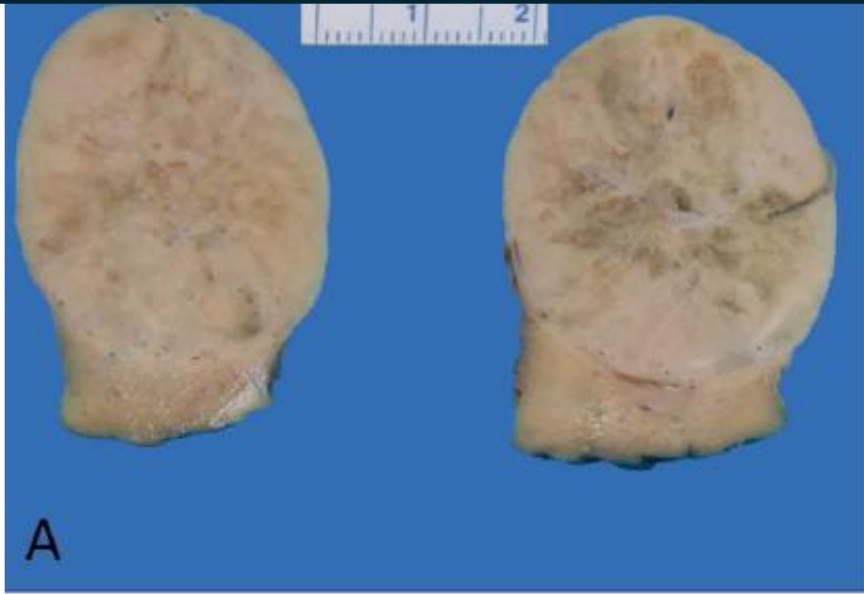


Table 2. Molecular-genetic findings: mutations in *TSC1*, *TSC2*, *MTOR*, and *RICTOR*, copy number variation in tested genes.

Case	TSC1	TSC2	MTOR	RICTOR	CNV
1 ^a	c.1997+1G>T; c.2278A>T	w.t.	w.t.	n/a	None
2	c.2374C>T	w.t.	w.t.	w.t.	None
3 ^a	n/a	c.5161-1G>T; c.1373_1393del21	n/a	n/a	None
4	n/a	c.1801_1802delinsT; c.911G>A	n/a	n/a	None
5	n/a	c.784delA	n/a	n/a	None
6	n/a	w.t.	c.7280T>G	n/a	None
7	w.t.	w.t.	c.7257_7259delinsTGT	c.910C>A	n/a
8	w.t.	w.t.	c.7280T>A	w.t.	None
9 ^a	w.t.	w.t.	c.5930C>A	w.t.	None
10	w.t.	w.t.	c.7280T>C	w.t.	None
11	c.2299C>T	w.t.	w.t.	w.t.	None
12	w.t.	w.t.	c.7280T>G	w.t.	None
13	w.t.	w.t.	c.4343_4363del	w.t.	None
14	c.1548_1550delinsTC; c.736A>G	w.t.	w.t.	w.t.	None
15	w.t.	c.953_959del; c.4650_4651del	w.t.	w.t.	None
16	w.t.	c.2384del	w.t.	w.t.	None
17	w.t.	w.t.	c.7280T>A	w.t.	None
18	w.t.	c.5227C>T	w.t.	w.t.	None
19	w.t.	c.4803dup; c.5238_5255del	w.t.	w.t.	None

w.t. wild type, n/a not analyzable/available.

^aPublished in Virchows Archives 2018.



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Virchows Archiv (2023) 483:821–833

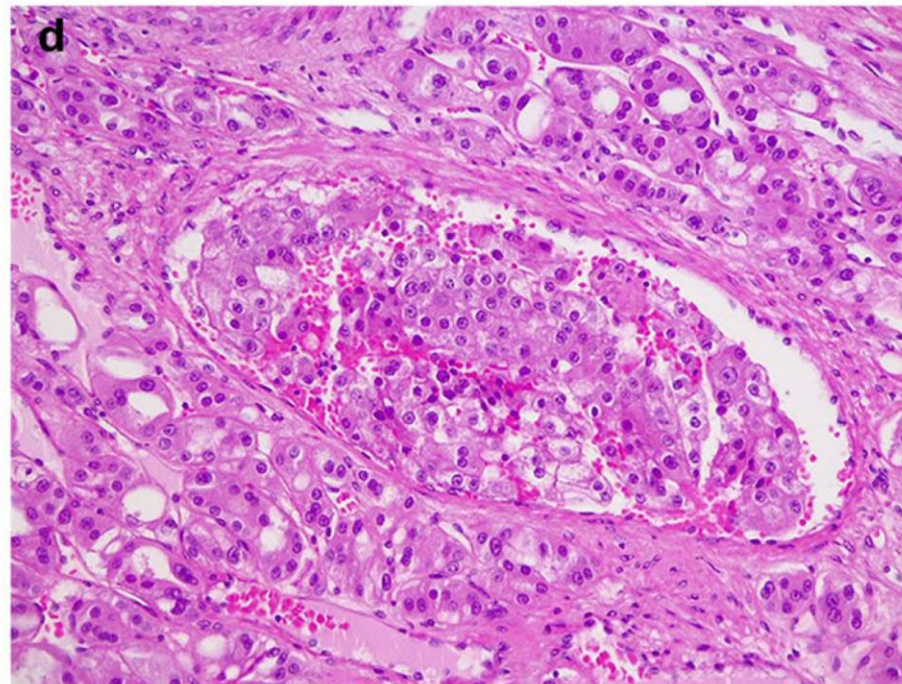
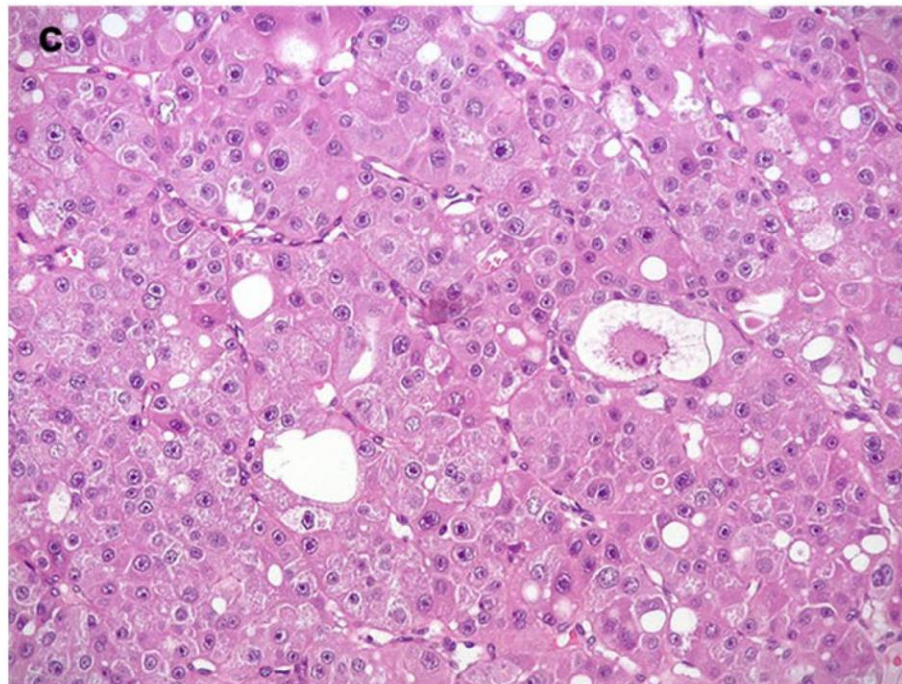
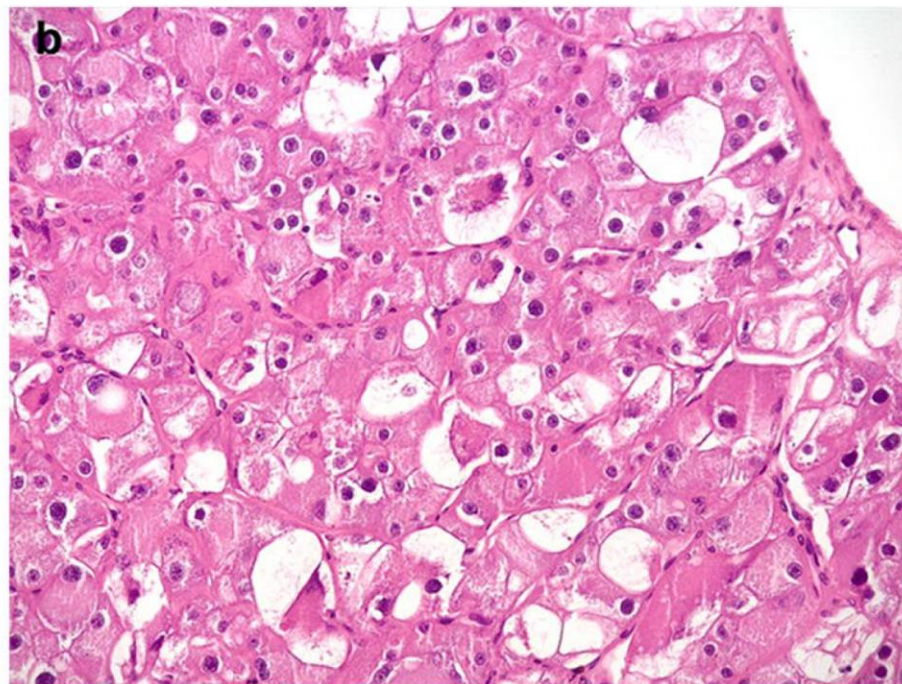
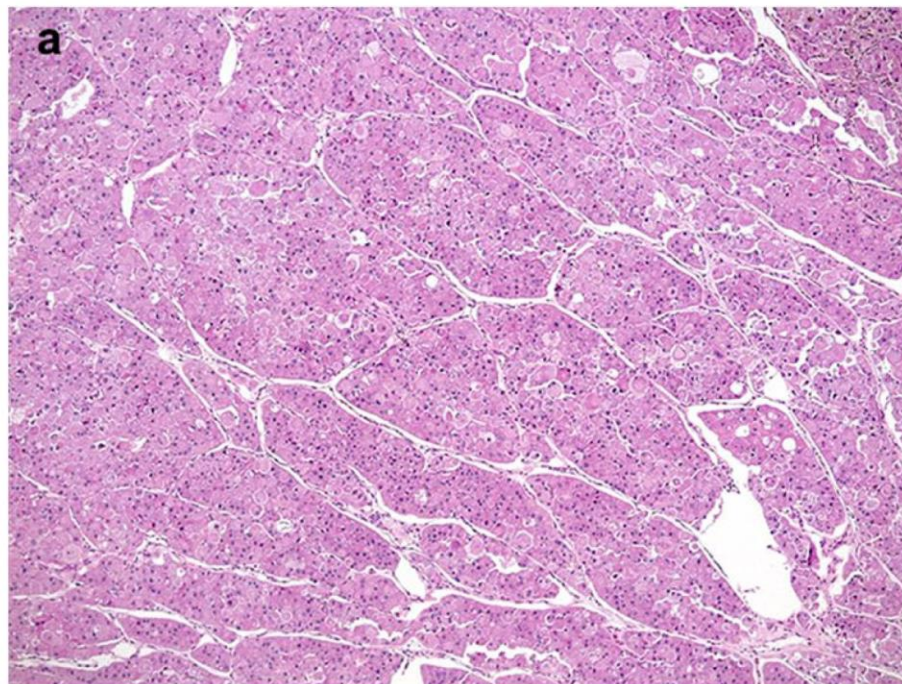
<https://doi.org/10.1007/s00428-023-03688-2>

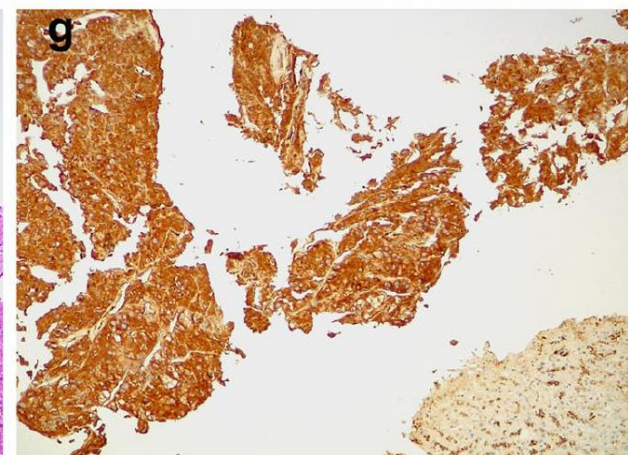
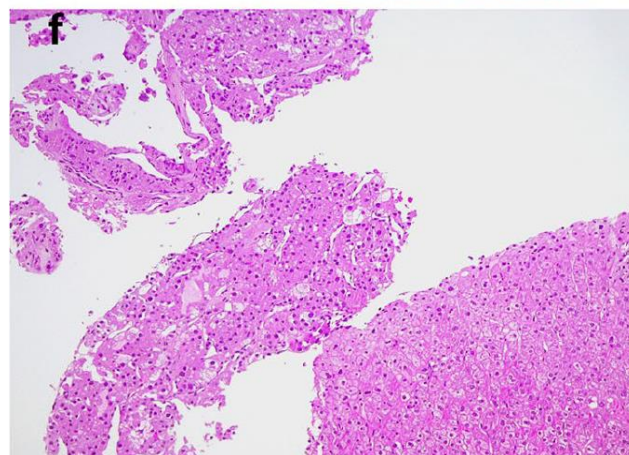
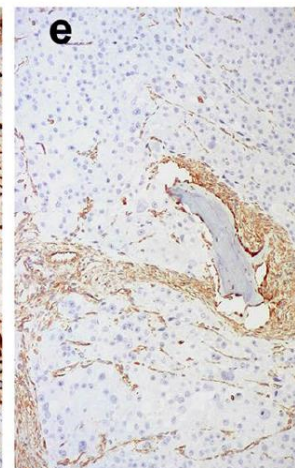
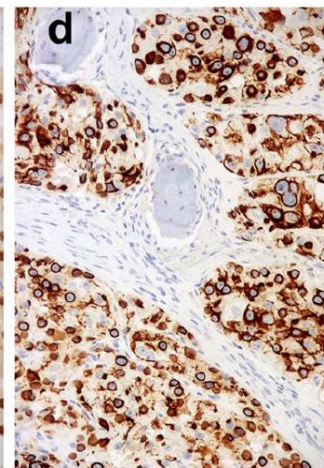
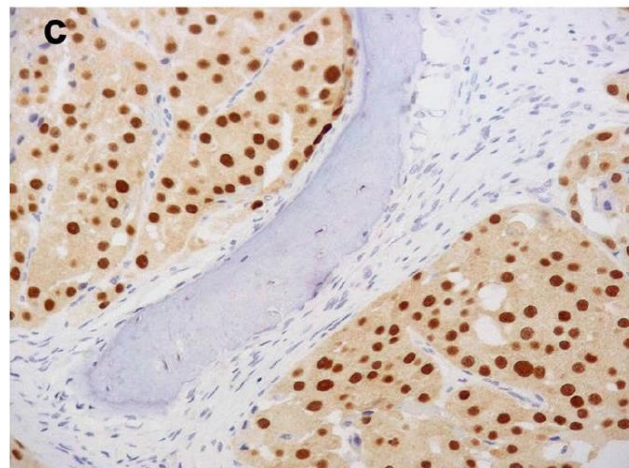
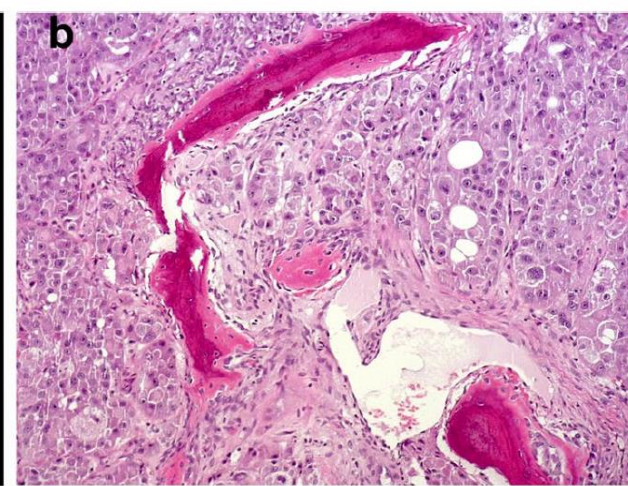
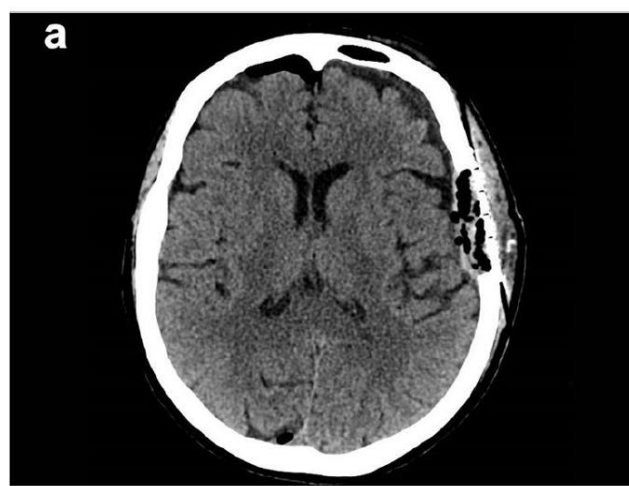
ORIGINAL ARTICLE



***mTOR* eosinophilic renal cell carcinoma: a distinctive tumor characterized by mTOR mutation, loss of chromosome 1, cathepsin-K expression, and response to target therapy**

Anna Calì¹ · Stefano Marletta^{1,2} · Giulio Settanni³ · Mimma Rizzo⁴ · Stefano Gobbo⁵ · Serena Pedron¹ · Lavinia Stefanizzi² · Enrico Munari⁶ · Matteo Brunelli¹ · Lisa Marcolini² · Anna Pesci³ · Stefano Fratoni⁷ · Francesco Pierconti⁸ · Maria Rosaria Raspollini⁹ · Antonio Marchetti¹⁰ · Claudio Doglioni¹¹ · Mahul B. Amin^{12,13} · Camillo Porta¹⁴ · Guido Martignoni^{1,2} 





mTOR mutation exon 53

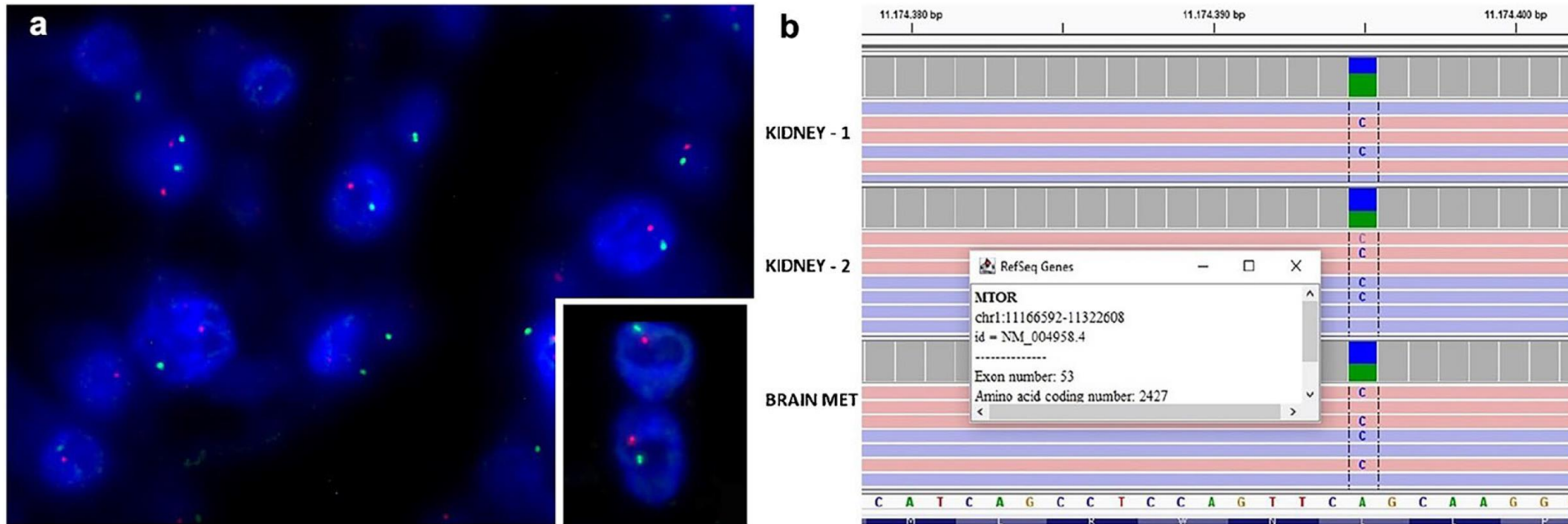


Fig. 3 Loss of chromosome 1 identified by FISH in tumors with *mTOR* gene mutation (a). Pathogenic *mTOR* alterations in both primary renal tumors and the skull metastasis involving the exon 53 (p.Leu2427Arg) (b)

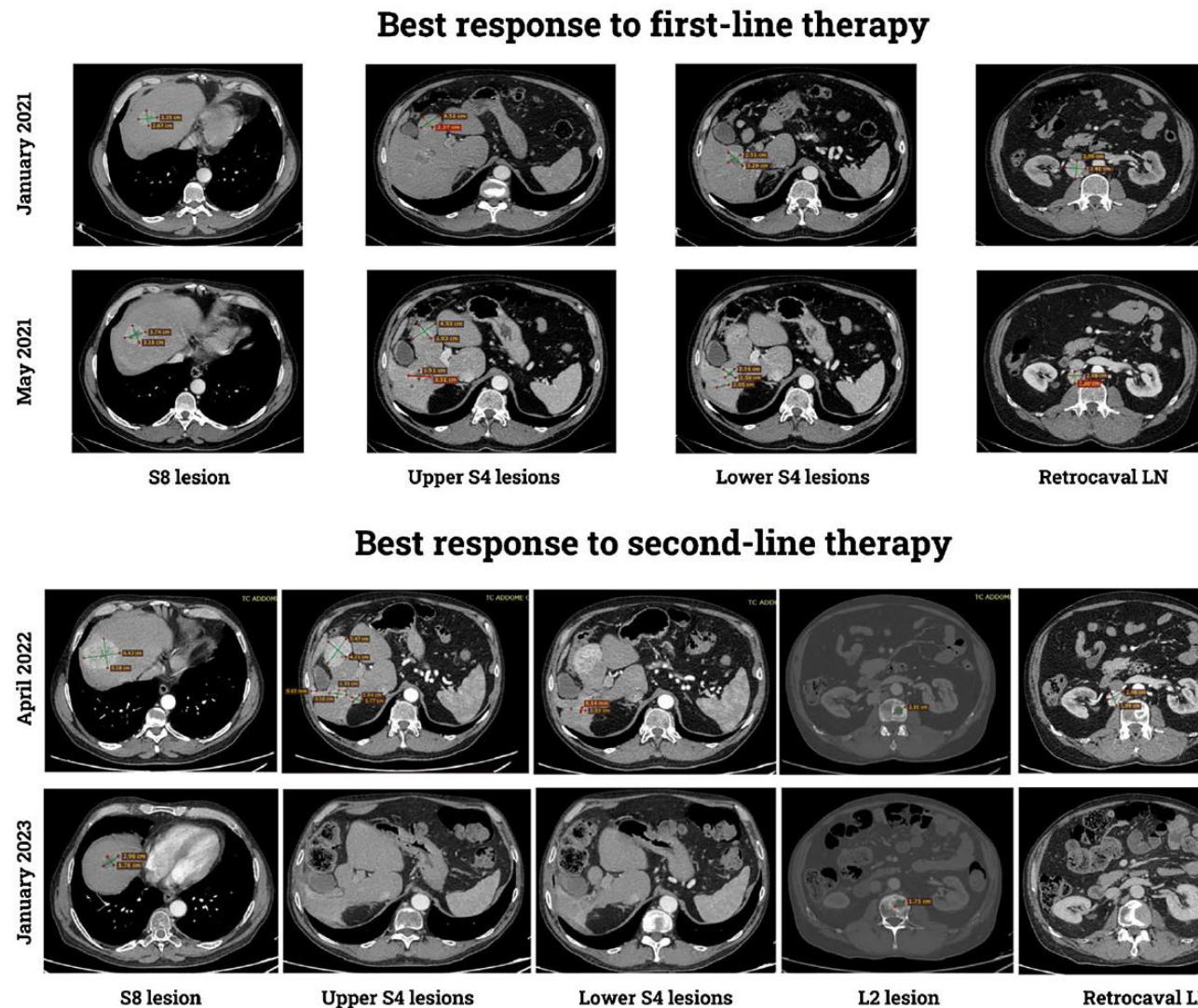


Fig. 4 Comparison between the baseline CT scan performed before the start of the first-line therapy with Pembrolizumab and Axitinib (January 2021), at the best response to the first-line therapy (May 2021), at the progression to the first-line therapy (April 2022), and after 9 months of the second-line therapy with Lenvatinib and Everolimus. Little to any tumor shrinkage was observed with Pem-

brolizumab and Axitinib. Conversely, following Lenvatinib and Everolimus, just a few hepatic lesions were detected, showing a decrease in size and vascularization. Disease stability for the osteolytic lesion in L2 was also recorded. All the images were taken in the arterial phase



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Virchows Archiv (2024) 485:829–840

<https://doi.org/10.1007/s00428-024-03909-2>

ORIGINAL ARTICLE



Acceptance of emerging renal oncocytic neoplasms: a survey of urologic pathologists

Sambit K. Mohanty · Anandi Lobo · www.nature.com/modpathol
details at the end of the article



REVIEW ARTICLE

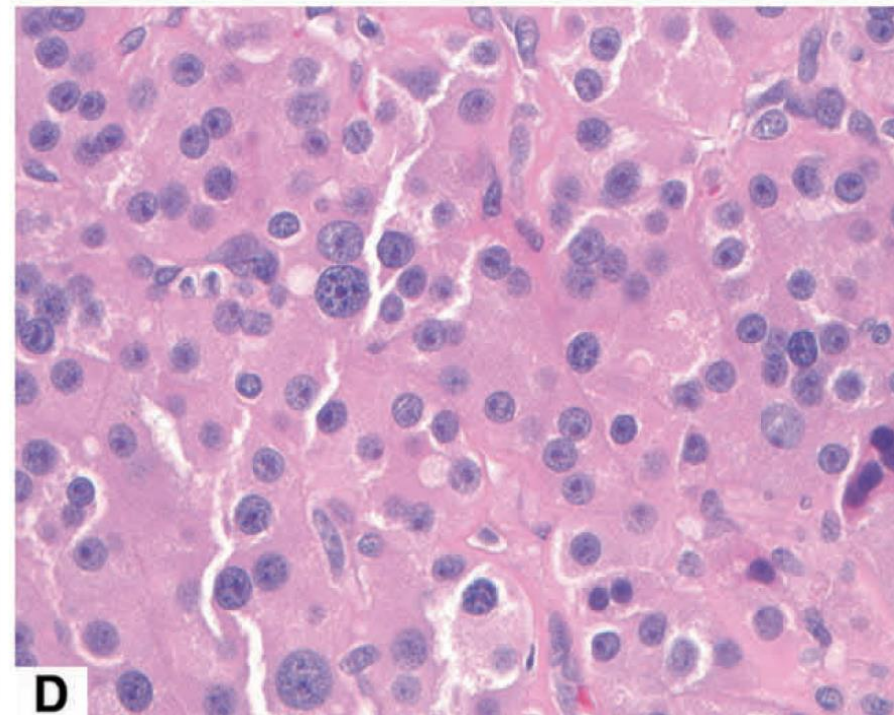
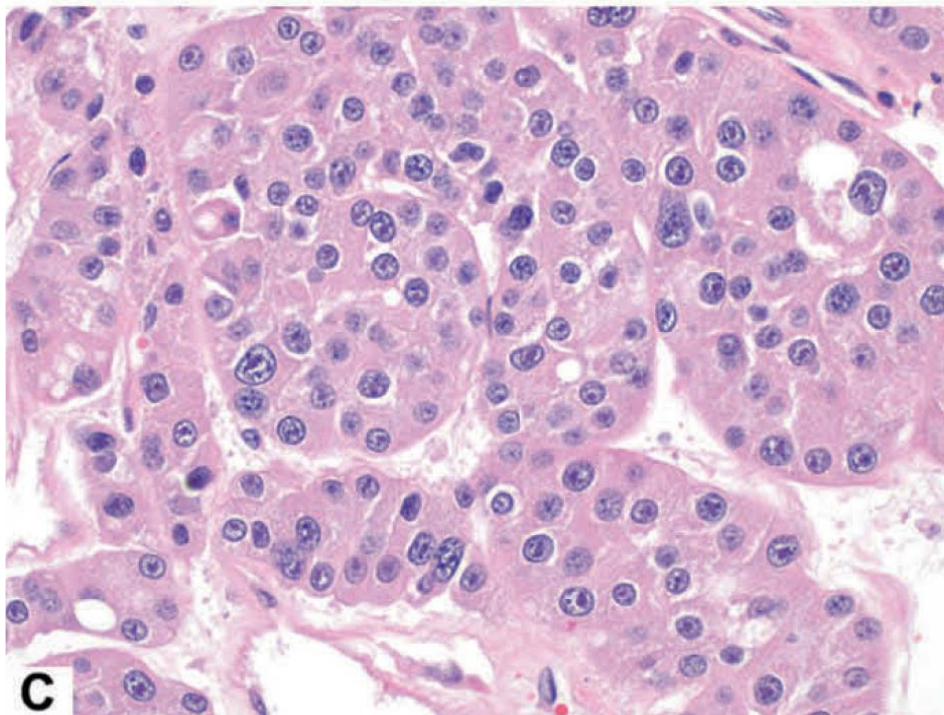
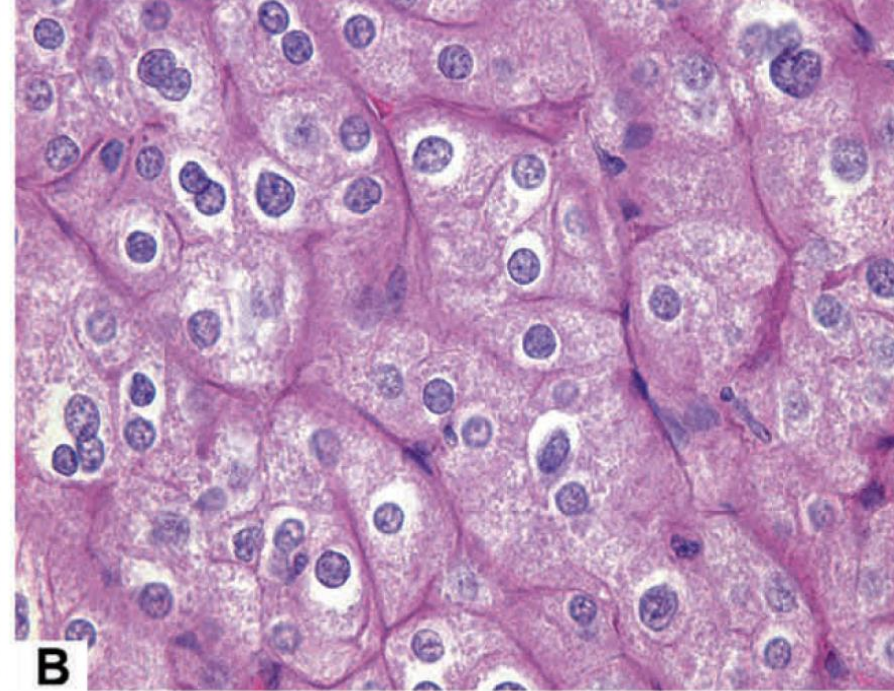
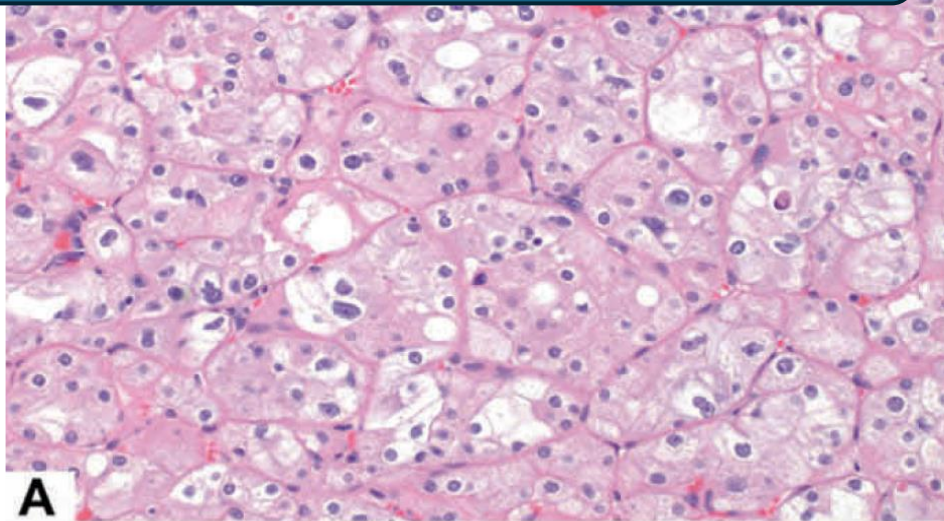


Controversies in Pathology

Low grade oncocytic tumors of the kidney: a clinically relevant approach for the workup and accurate diagnosis

Mahul B. Amin¹✉, Jesse K. McKenney², Guido Martignoni^{3,4} , Steven C. Campbell⁵, Sumanta Pal⁶  and Satish K. Tickoo⁷ 

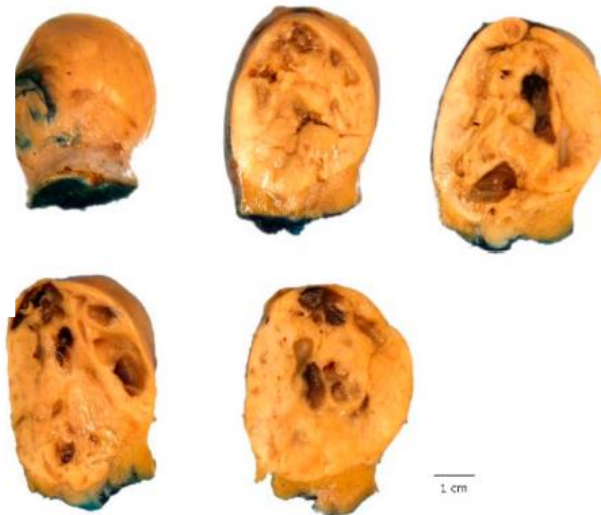
Chromophobe renal carcinoma



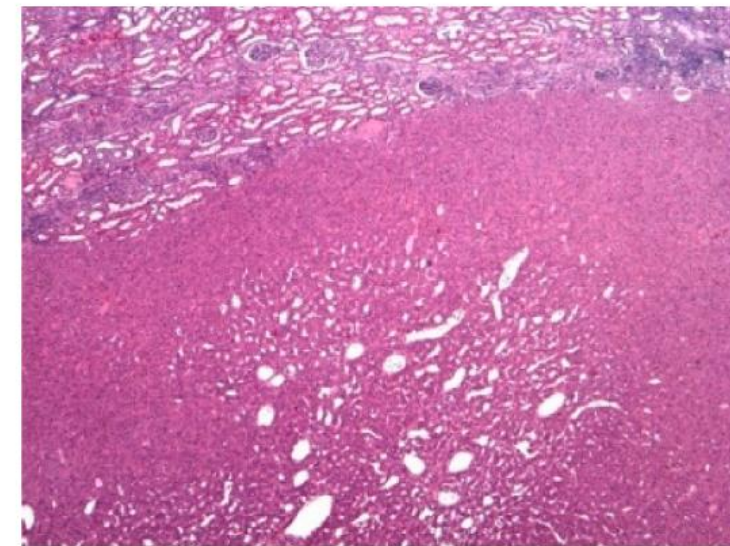
Review

ESC, ALK, HOT and LOT: Three Letter Acronyms of Emerging Renal Entities Knocking on the Door of the WHO Classification

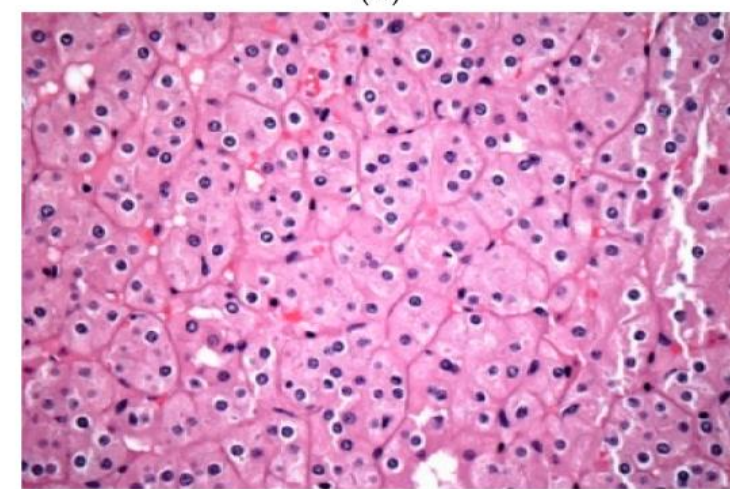
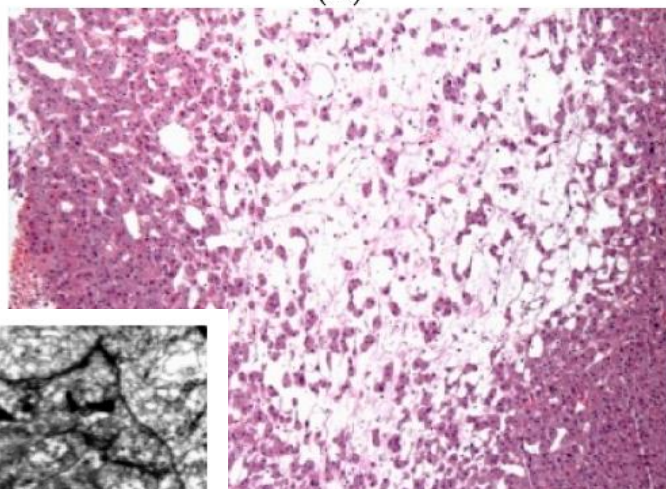
Farshid Siadat and Kiril Trpkov * 



(A)

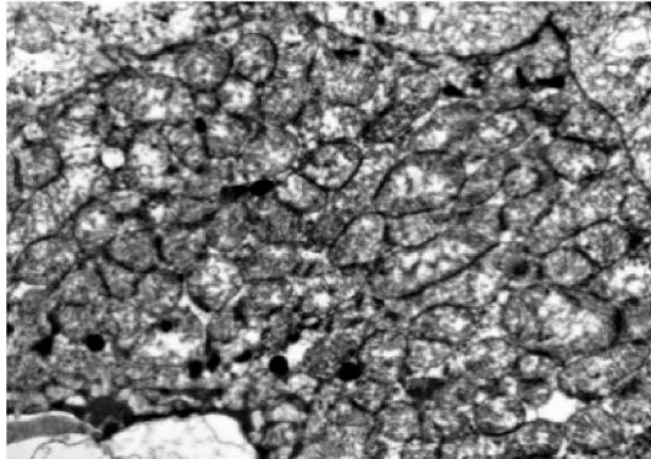
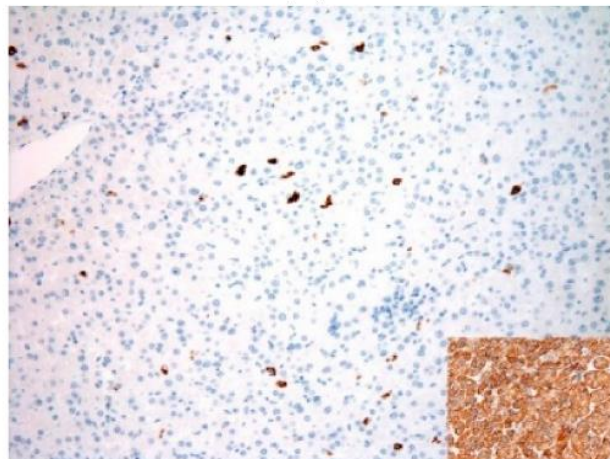


(B)

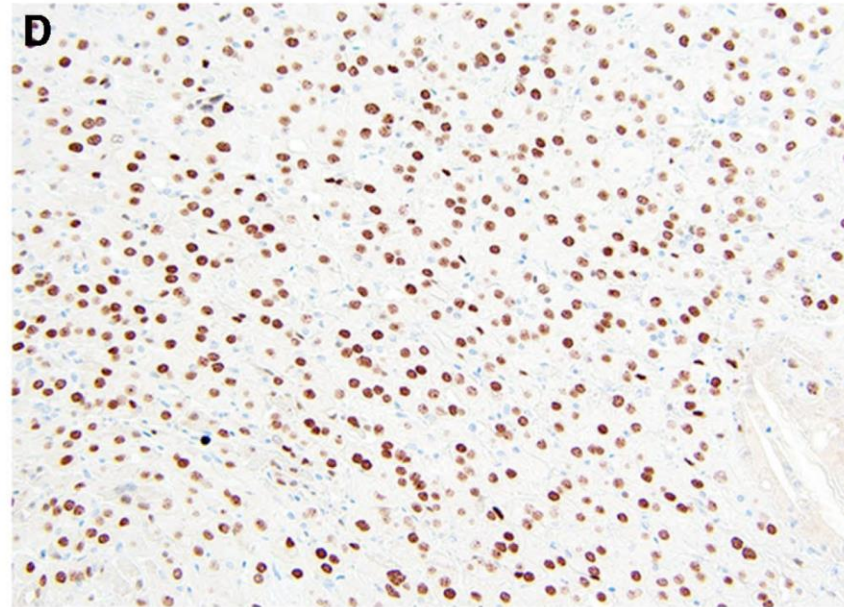
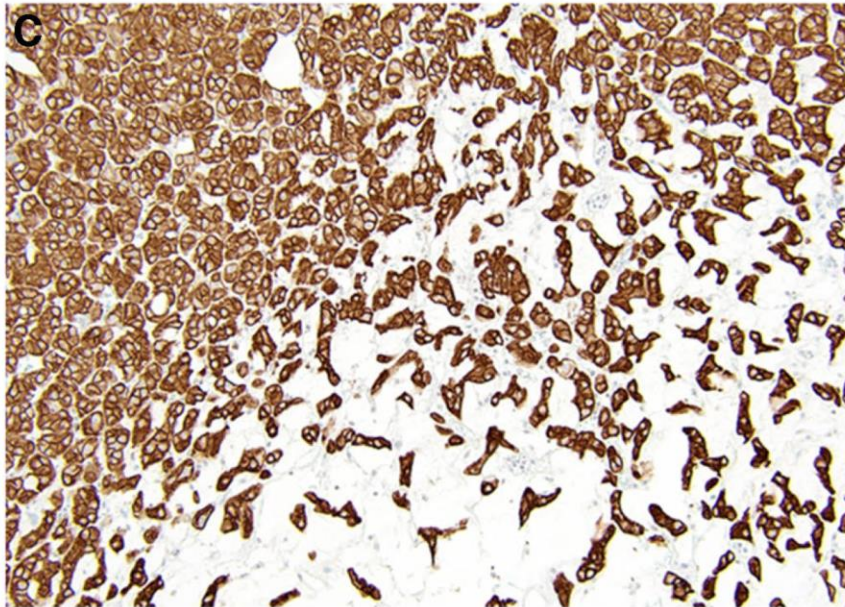
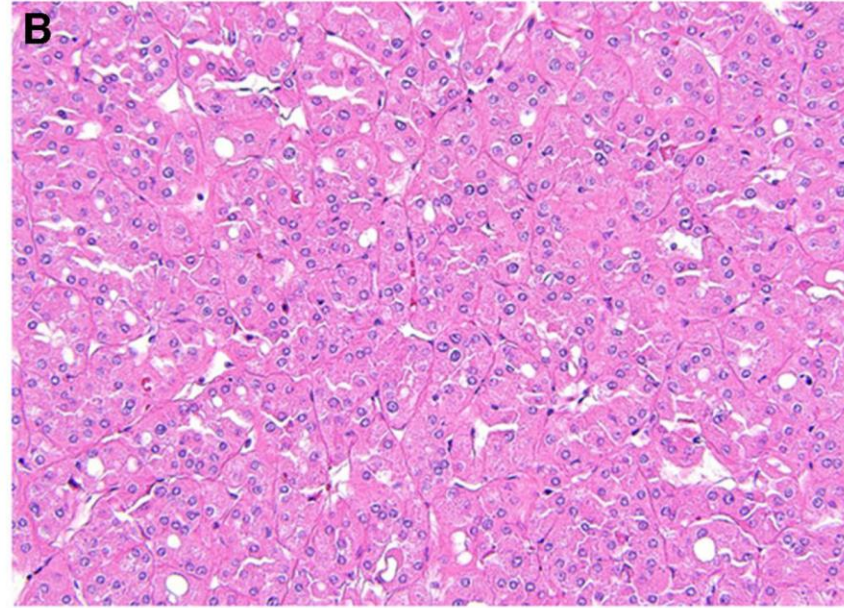
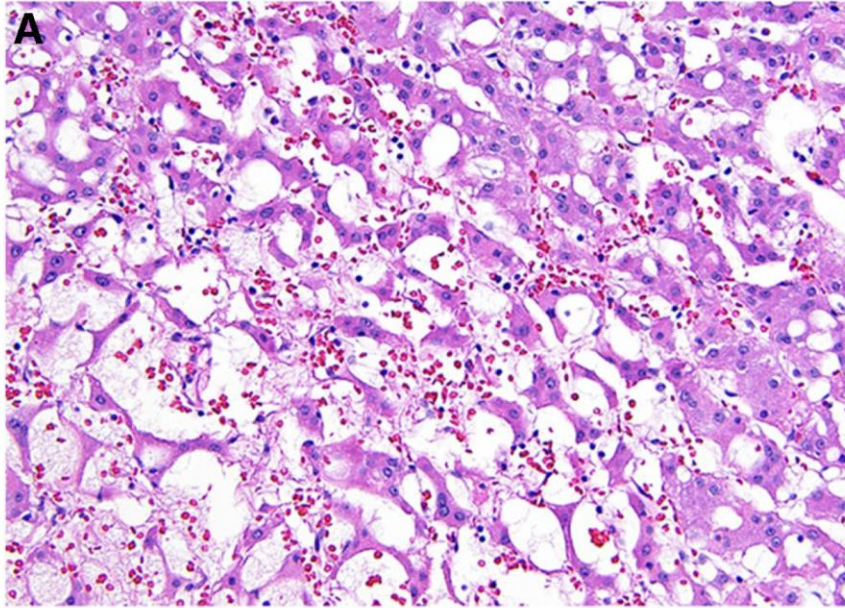


(C)

(D)



low-grade oncocytic tumor (LOT)





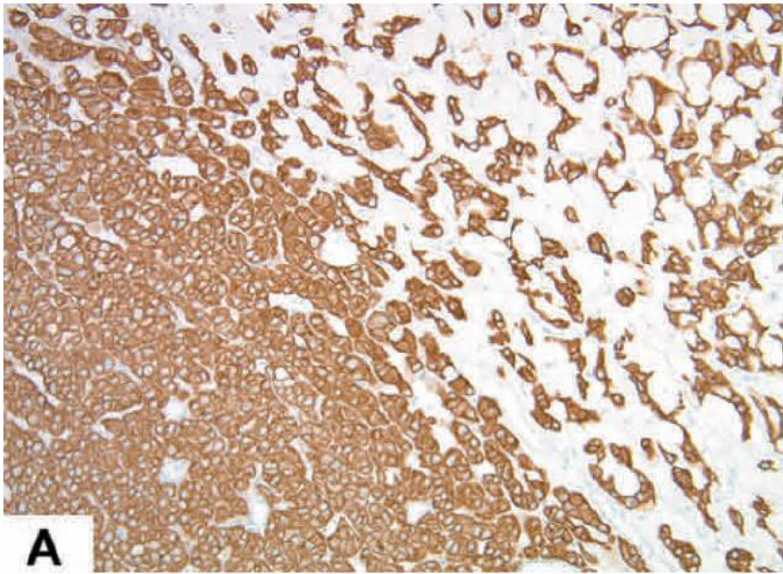
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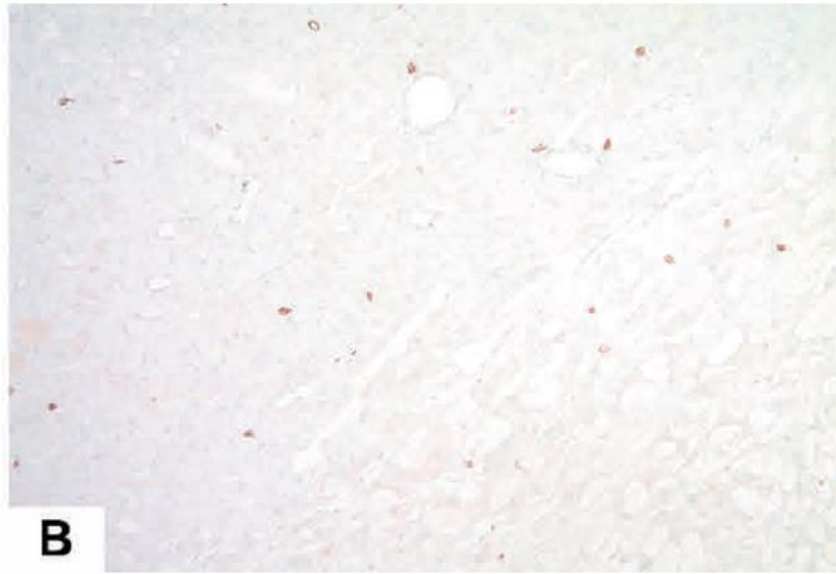
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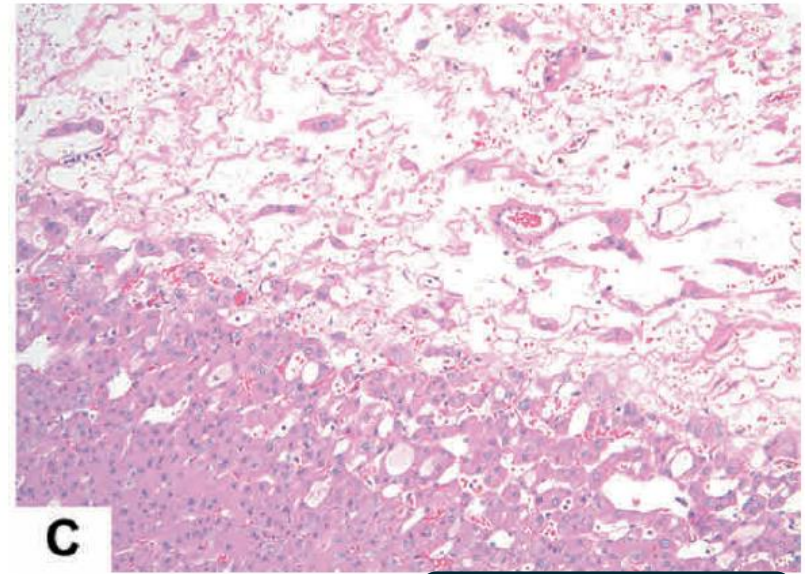
IHC and LOT



CK7+



C-kit neg



oncocytic cells

Amin et al . Mod Pathol 2022



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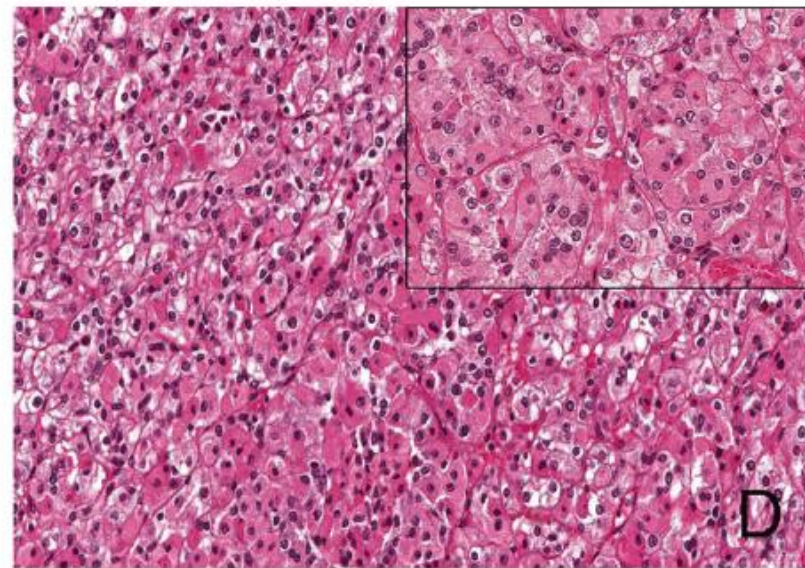
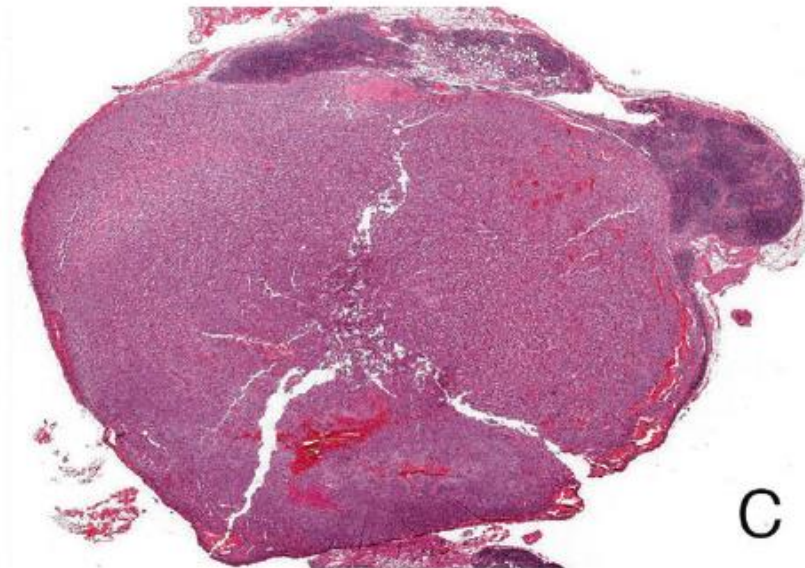
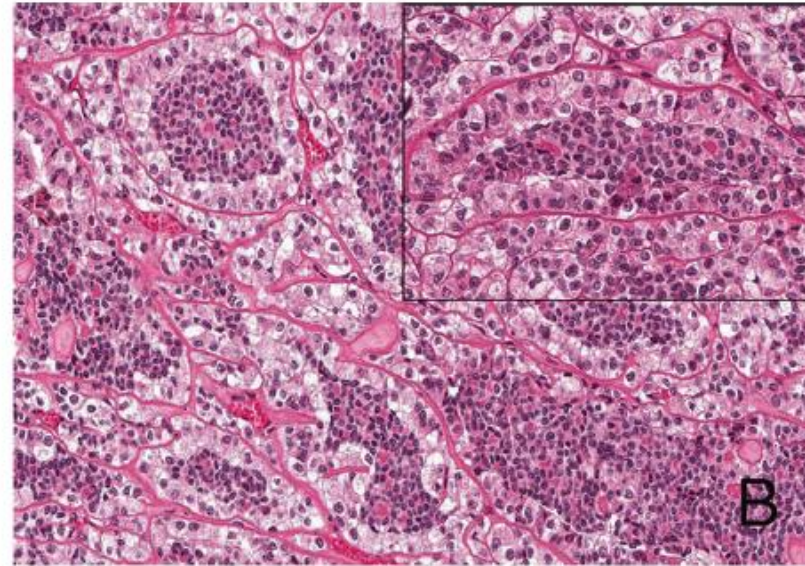
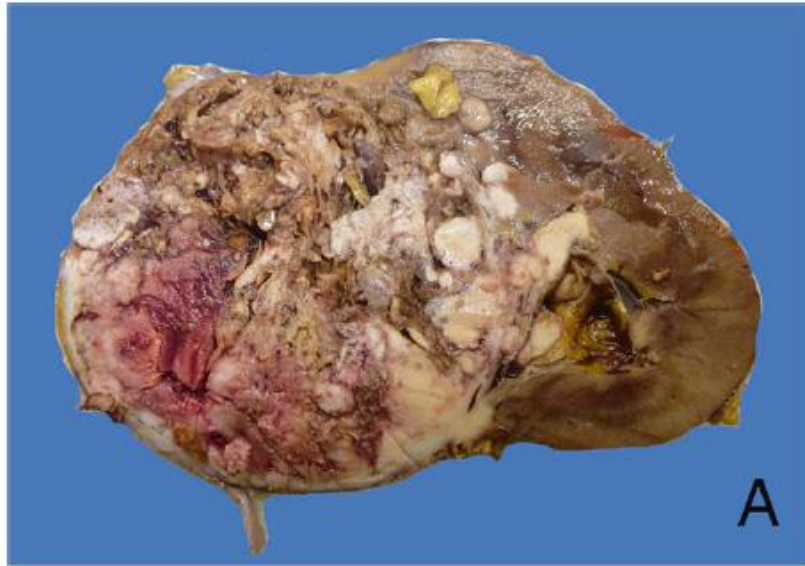
European
Society of
Pathology

biological profiling

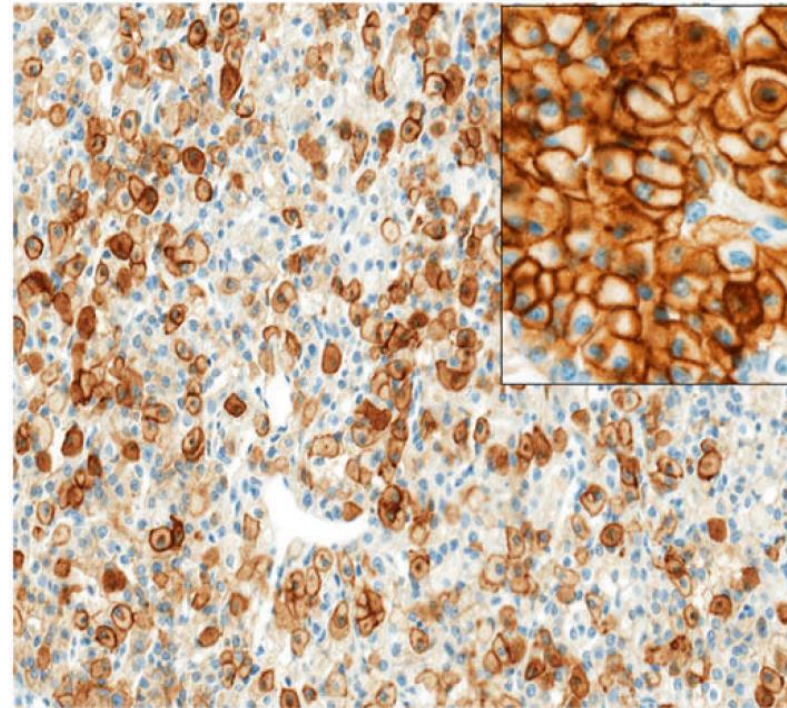
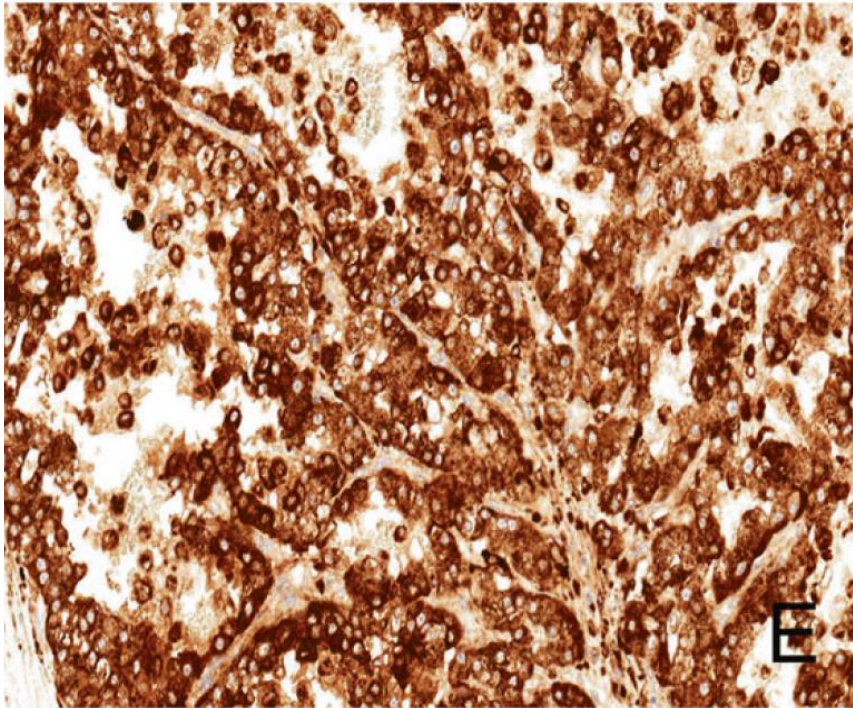
clinical relevance

histotype naming

TFEB-altered renal cell carcinoma



cathepsin-k and PD-L1



Modern Pathology (2021) 34:842–850
<https://doi.org/10.1038/s41379-020-00713-6>



ARTICLE



***TFEB* rearranged renal cell carcinoma. A clinicopathologic and molecular study of 13 cases. Tumors harboring *MALAT1-TFEB*, *ACTB-TFEB*, and the novel *NEAT1-TFEB* translocations constantly express PDL1**

Anna Calì¹ · Shuko Harada² · Matteo Brunelli¹ · Serena Pedron¹ · Diego Segala³ · Sofia Canete Portillo² · Cristina Magi-Galluzzi² · George J. Netto² · Alexander C. Mackinnon² · Guido Martignoni^{1,4}

prognosis

Table 3 Review of the literature of not-MALAT1 *TFEB* rearranged renal cell carcinomas.

Case	References	Gene Fusion	Age	Gender	Size	Cathepsin K	HMB45	Melan -A	Follow-up
1	Durinck et al. [13]	CTLC	68	F	n.a.	n.a.	n.a.	n.a.	n.a.
2	Gupta et al. [26] TGCA-A3-3313-01 Malouf et al. [11]	KHDRBS2	59	M	4.5 cm	n.a.	n.a.	n.a.	no metastasis
3	Gupta et al. [26] TGCA-B9-A69E-01	CADM2	71	M	8 cm	n.a.	n.a.	n.a.	no metastasis
4	Gupta et al. [26] TGCA-BQ-7048	COL21A1	64	M	11 cm	n.a.	n.a.	n.a.	metastasis
5	Xia et al. [12]	ACTB	26	M	2 cm	n.a.	n.a.	n.a.	NED 66 months
6	Xia et al. [12]	CTLC	42	M	7 cm	n.a.	n.a.	n.a.	NED 62 months
7	Xia et al. [12]	ACTB	20	F	4 cm	n.a.	n.a.	n.a.	NED 68 months
8	Xia et al. [12]	EWSR1	28	M	6 cm	n.a.	n.a.	n.a.	NED 10 months
9	Xia et al. [12]	PPP1R10 ^a	20	M	5 cm	n.a.	n.a.	n.a.	NED 46 months
10	Present case	NEAT1	55	M	3 cm	100% +	<5% +	80% +	NED 78 months
11	Present case	ACTB	81	F	6.5 cm	5% +	20% +	10% +	NED 12 months

n.a. not available, *NED* not evidence of disease.

^aPotential *TFEB* fusion partner.



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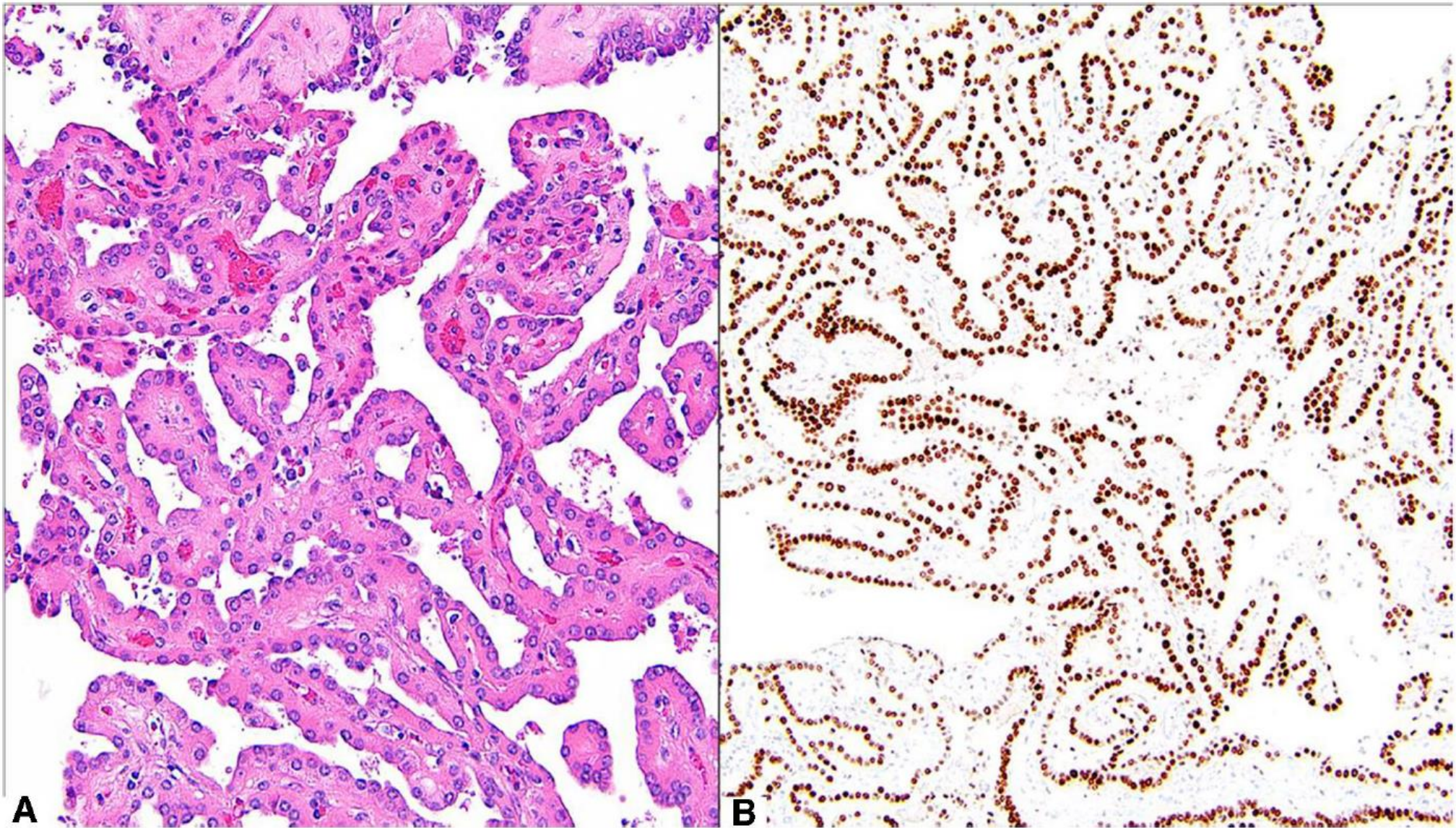


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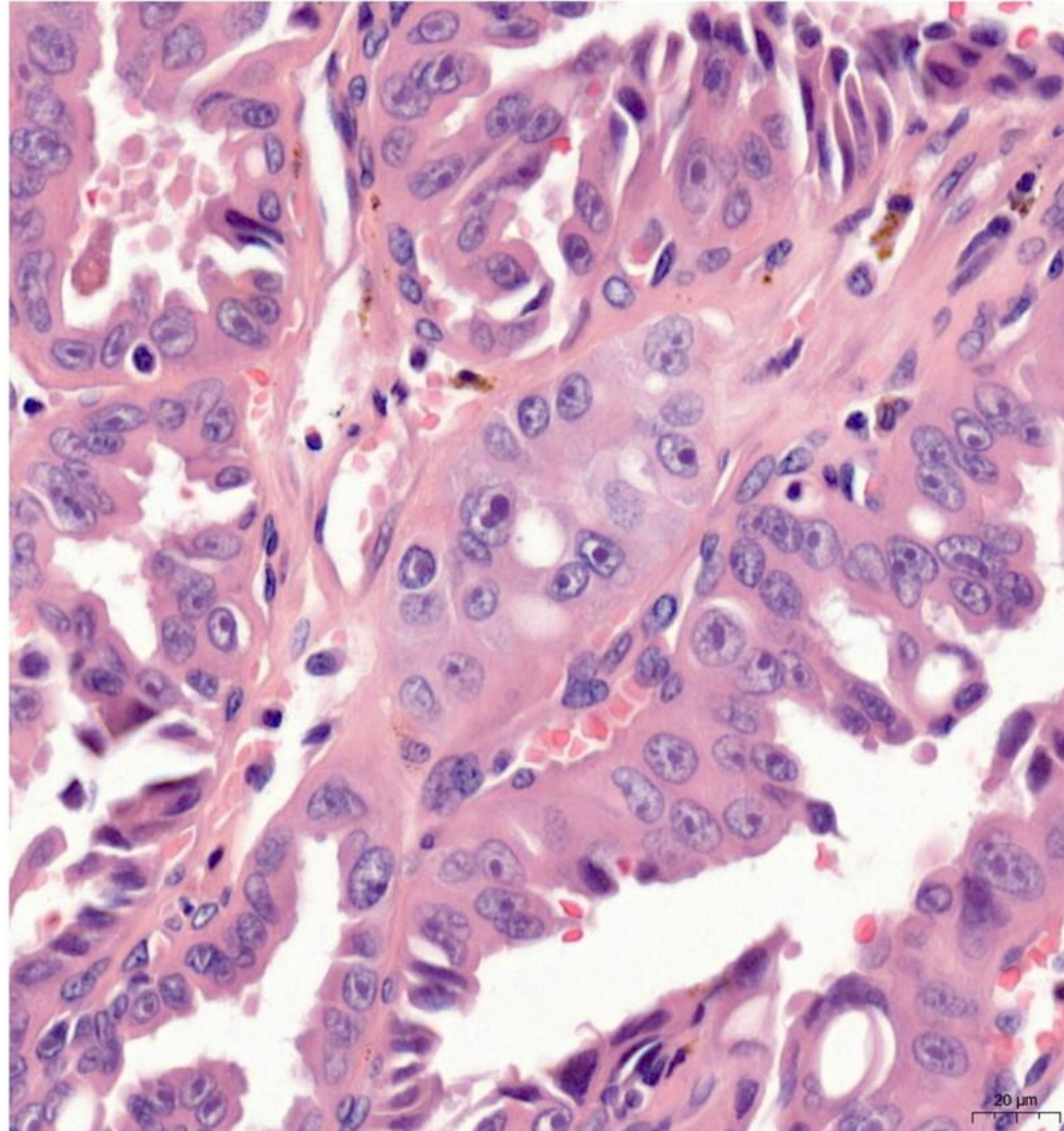
gross aspects and morphology
enucleoresection vs nephrectomy



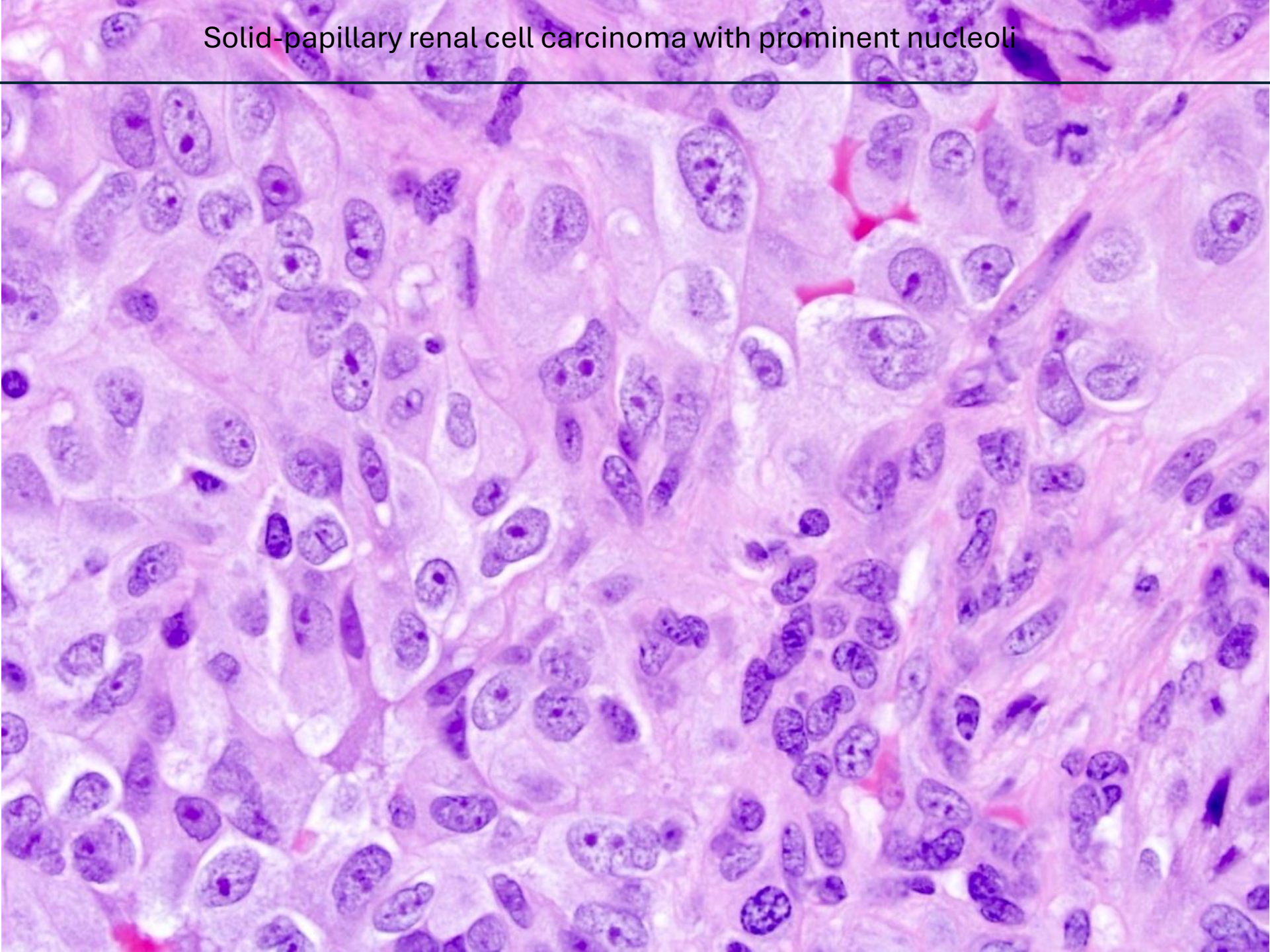


papillary renal cell carcinoma with reverse polarity

fumarate-hydratases renal cell carcinoma



Solid-papillary renal cell carcinoma with prominent nucleoli



Review

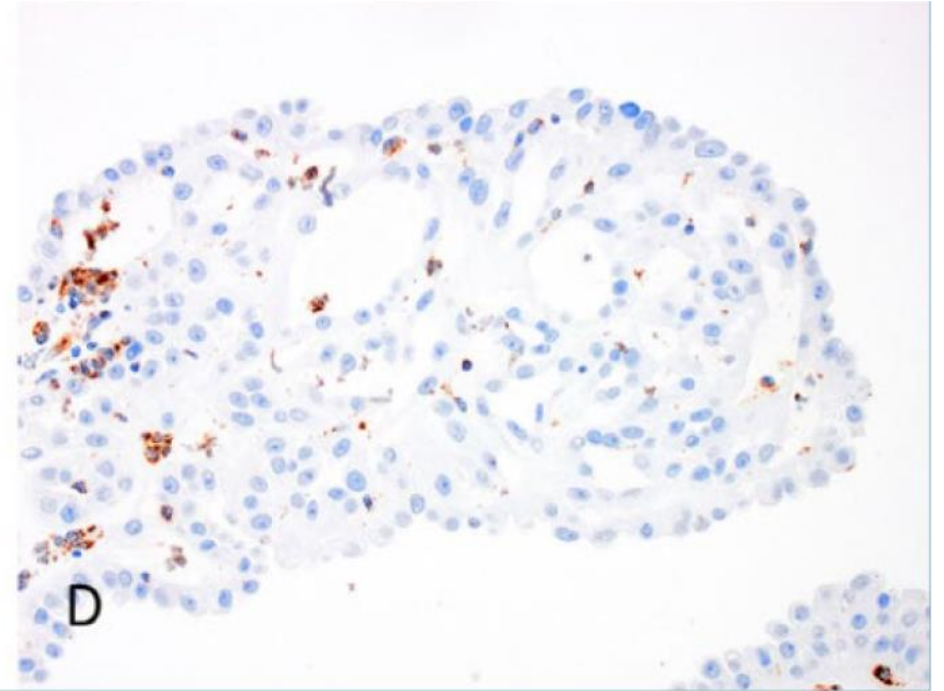
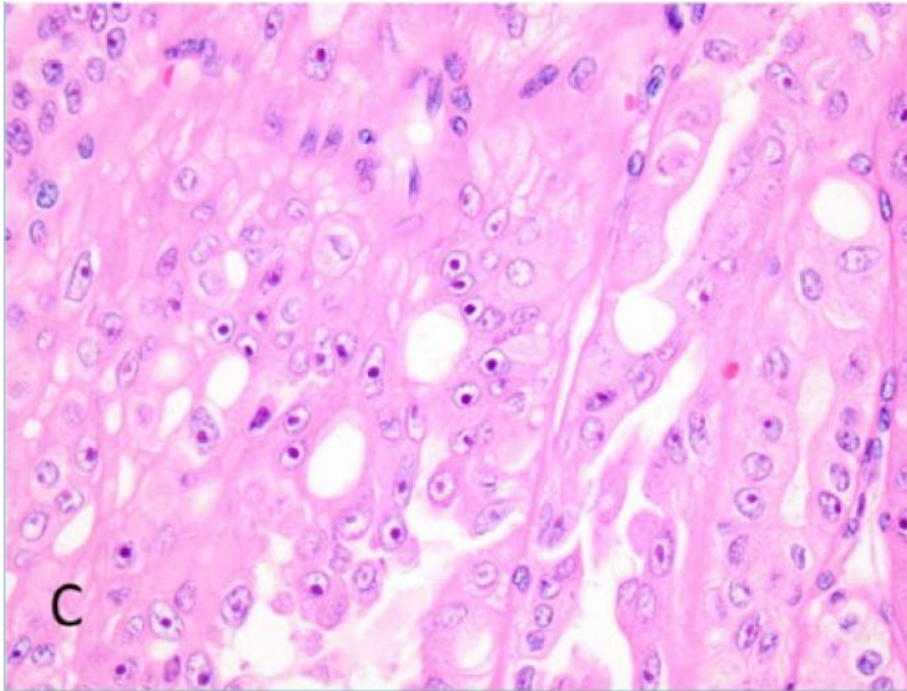
What's new in the WHO 2022 classification of kidney tumours?

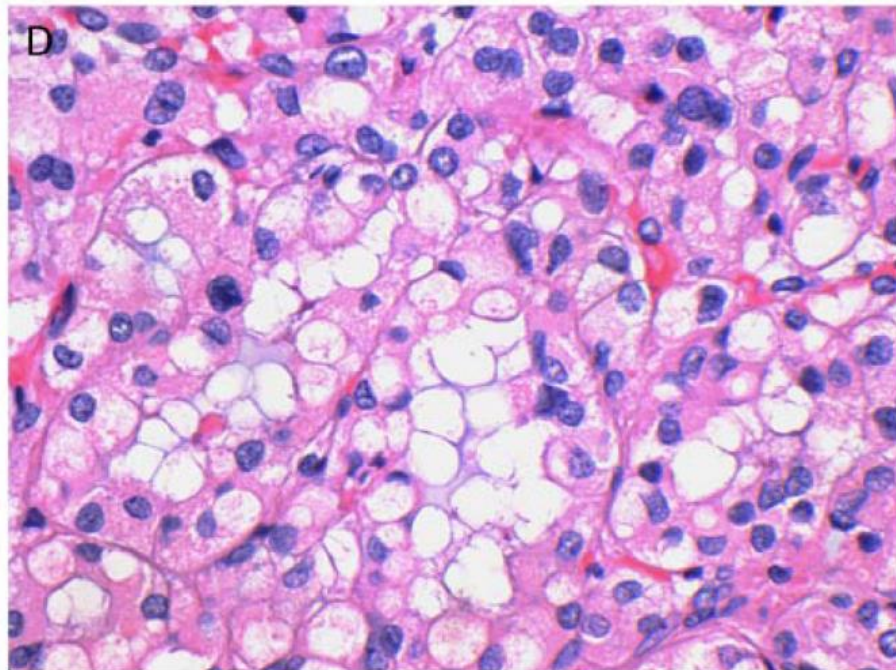
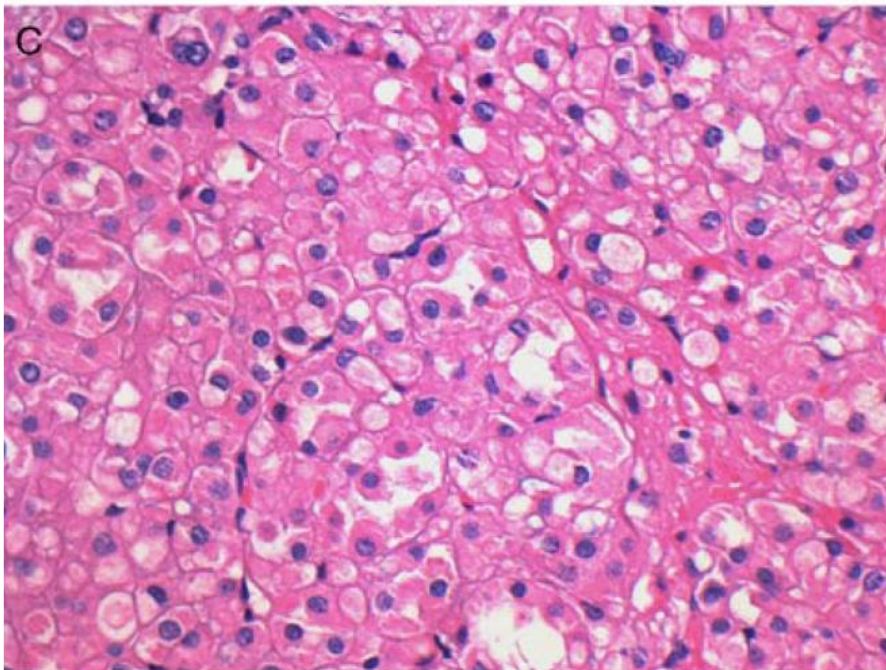
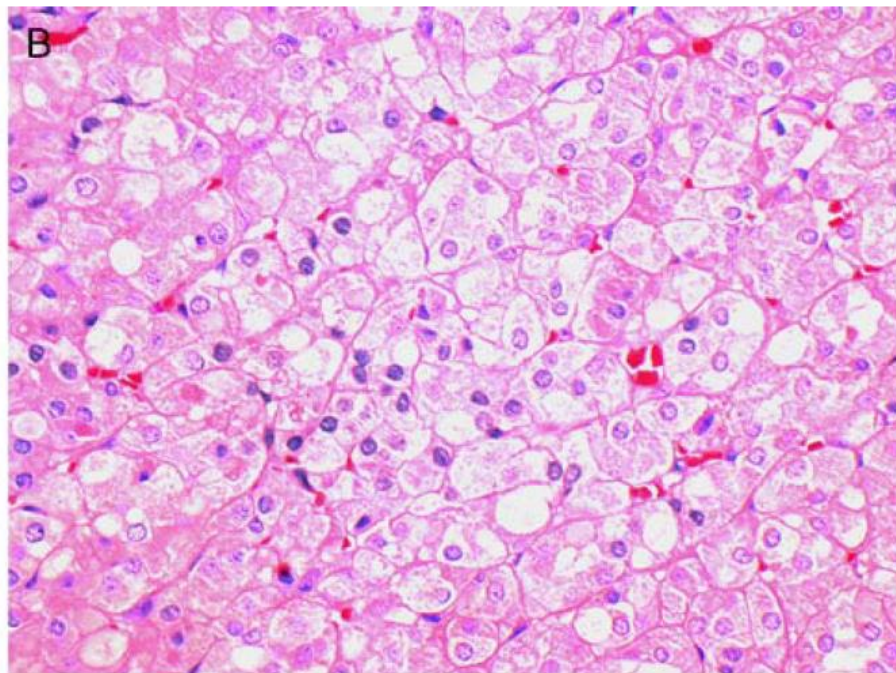
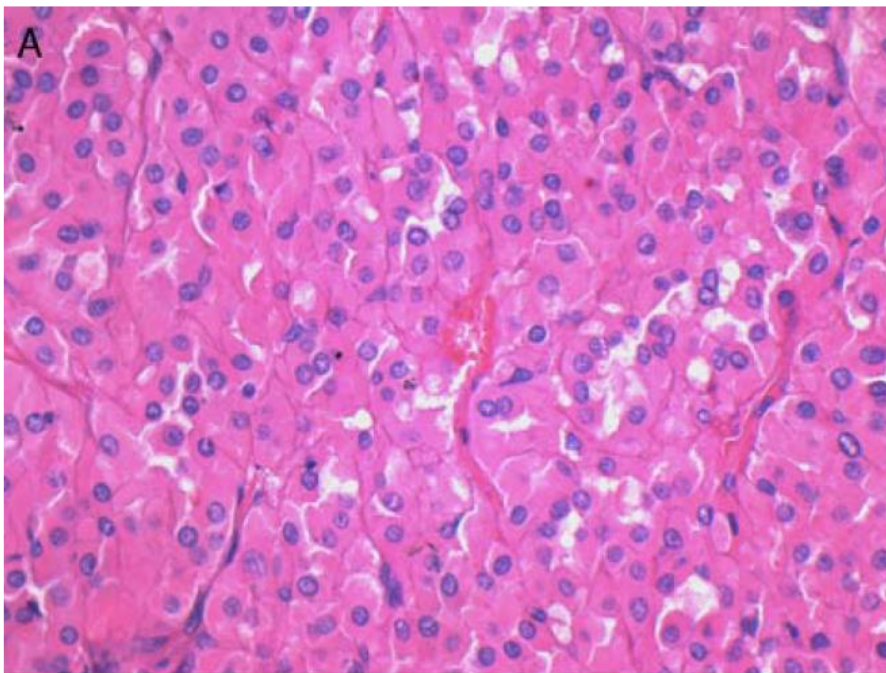
Reza Alaghebandan¹, Farshid Siadat², Kiril Trpkov²

¹Robert J. Tomsich Pathology and Laboratory Medicine Institute, Cleveland Clinic, Cleveland, OH, USA;

²Cumming School of Medicine, University of Calgary and Alberta Precision Laboratories, Calgary, AB, Canada

FH-deficient RCC





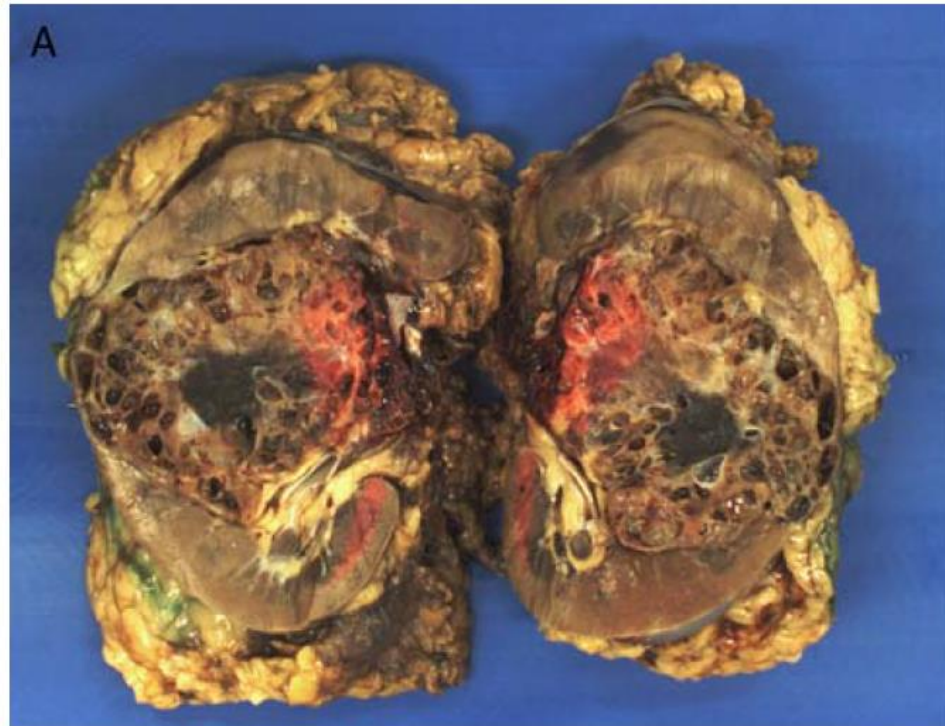
Succinate Dehydrogenase (SDH)-deficient Renal Carcinoma: A Morphologically Distinct Entity

A Clinicopathologic Series of 36 Tumors From 27 Patients

Anthony J. Gill, MD, FRCPA,†‡ Ondrej Hes, MD,§ Thomas Papathomas, MD,||
Monika Šedivcová, MSc,§ Puay Hoon Tan, MD,¶ Abbas Agaimy, MD,#*

Am J Surg Pathol • Volume 38, Number 12, December 2014

SDH-deficient Renal Carcinoma



SDHB-renal cell carcinoma and prognosis

TABLE 2. Clinical, Molecular, and IHC Details of Previously Published Patients With Material Available for Pathologic Review

	Prev. Pub.	Location	Age	Sex	Size (mm)	Surgery	Stage	ISUP Grade	Necrosis	Follow-up (mo)	Status
15	16	Bilateral	27	M	41	Biopsy of met only	Stage 4	3	Yes	30	DOD
16	4,12	Right	21	F	22	Wedge	1 (T1ANO)	2	No	84	ANED
17	4,12	Left	28	M	29	Nephrectomy	1 (T1A)	2	No	48	ANED
18	4,12	Left	22	M	100	Nephrectomy	Stage 4	4	Yes	12	DOD
19	4,37,42	Left	58	F	78	Nephrectomy	2 (T2AN0)	2	No	24	ANED
20	17	Right	22	F	65	Nephrectomy	1 (T1BN0)	2	No	160	ANED
21	41			M		Nephrectomy			No		
		Left	25		90	Nephrectomy	2 (T2AN0)	2	No	72	ANED
		Left	25		28	Nephrectomy	1 (T1AN0)	3	No	72	ANED
		Right	31		13	Radio-frequency ablation	1 (T1AN0)	2	No	0	ANED
22	41	Right	23	M	25	Nephrectomy	1 (T1AN0)	2	No	60	ANED
23	41	Left	36	M	130	Nephrectomy	2 (T2BN0)	3	No	132	AWD Spleen met 66 mo, liver met 10mo
24	43		40	M			4	3	No		Adrenal metastasis
25	43		35	M				3	Yes		Retroperitoneal node metastasis
26	43		44	M			4	3	No		Adrenal metastasis
27	43	Right	59	F	70		2 (T2AN0)	2	No		AUNDS

ANED indicates alive with no evidence of disease; AUNDS, alive with unknown disease status; AWD, alive with disease; DOD, dead of disease.



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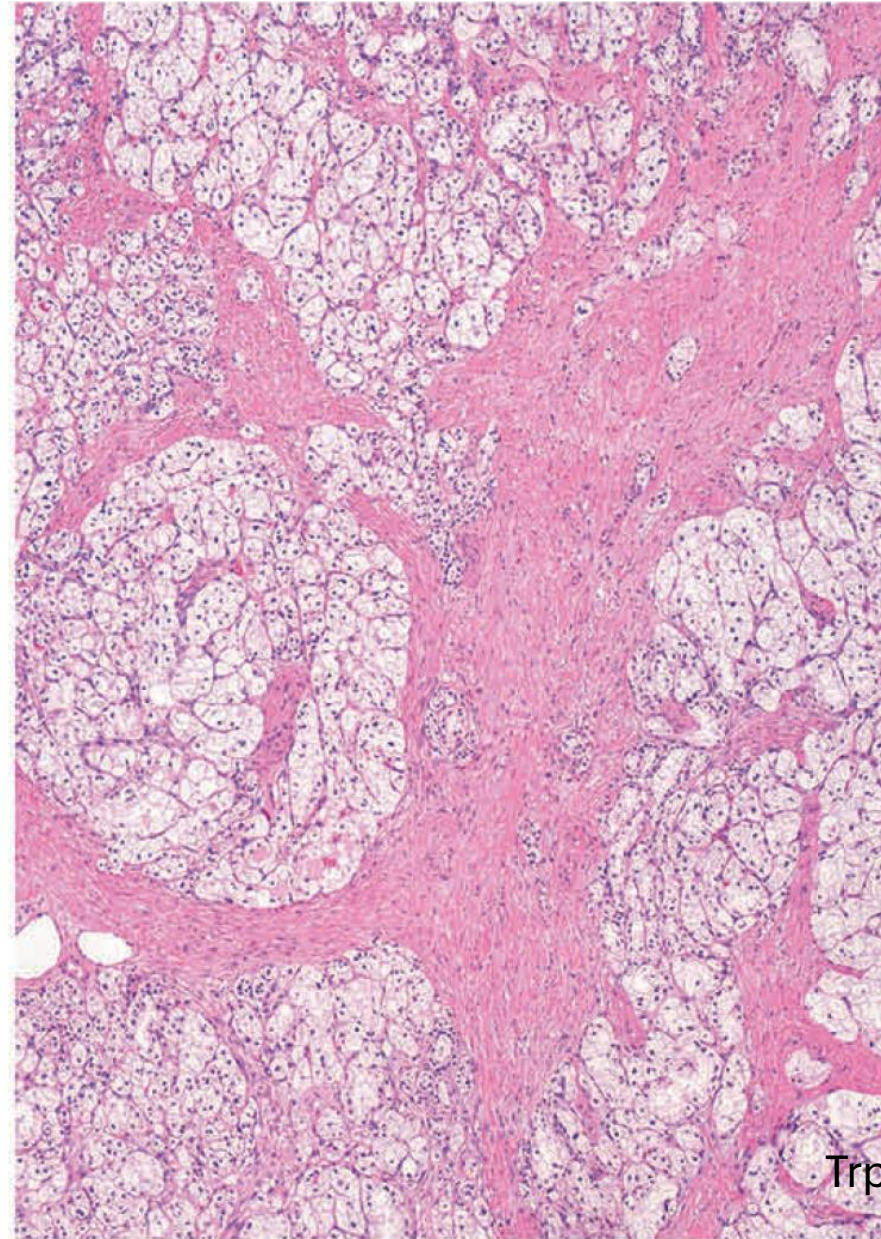
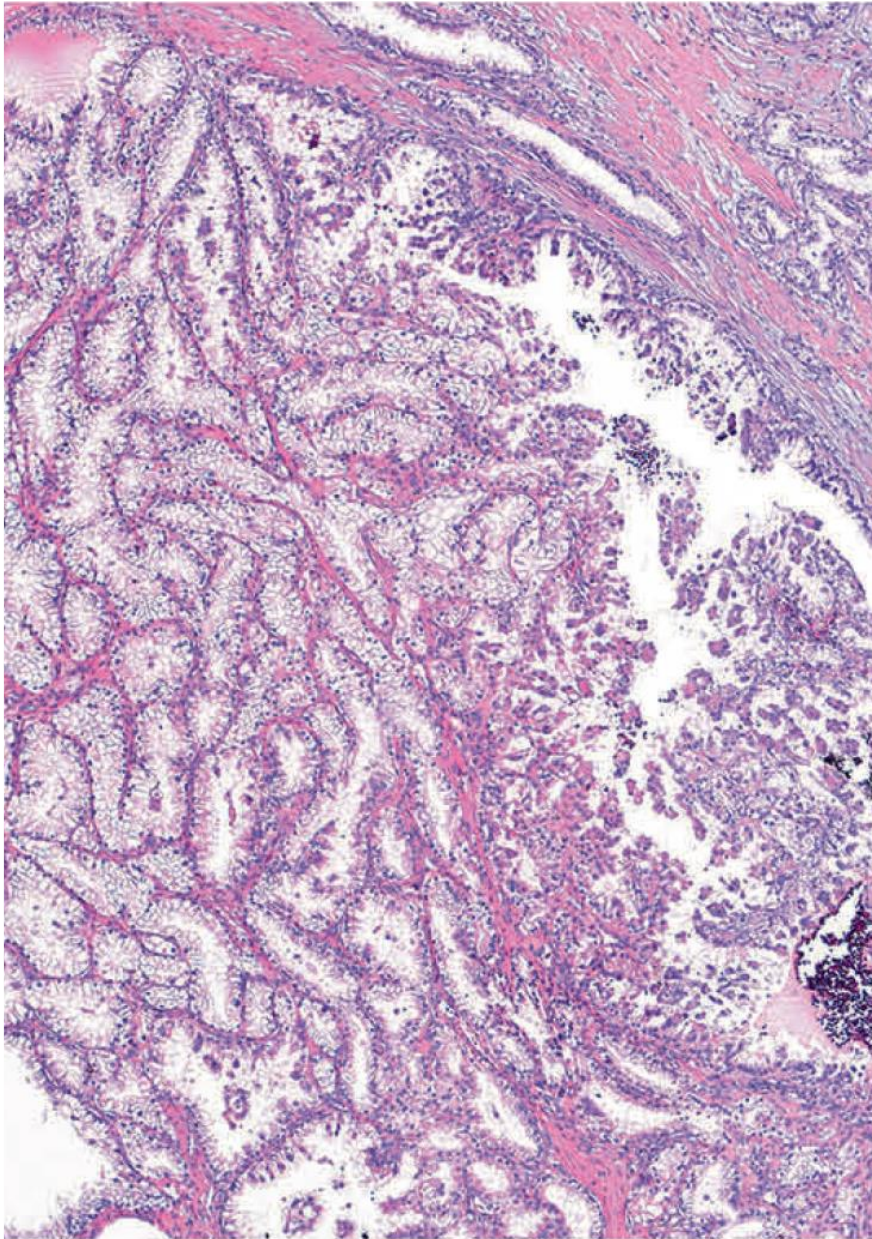
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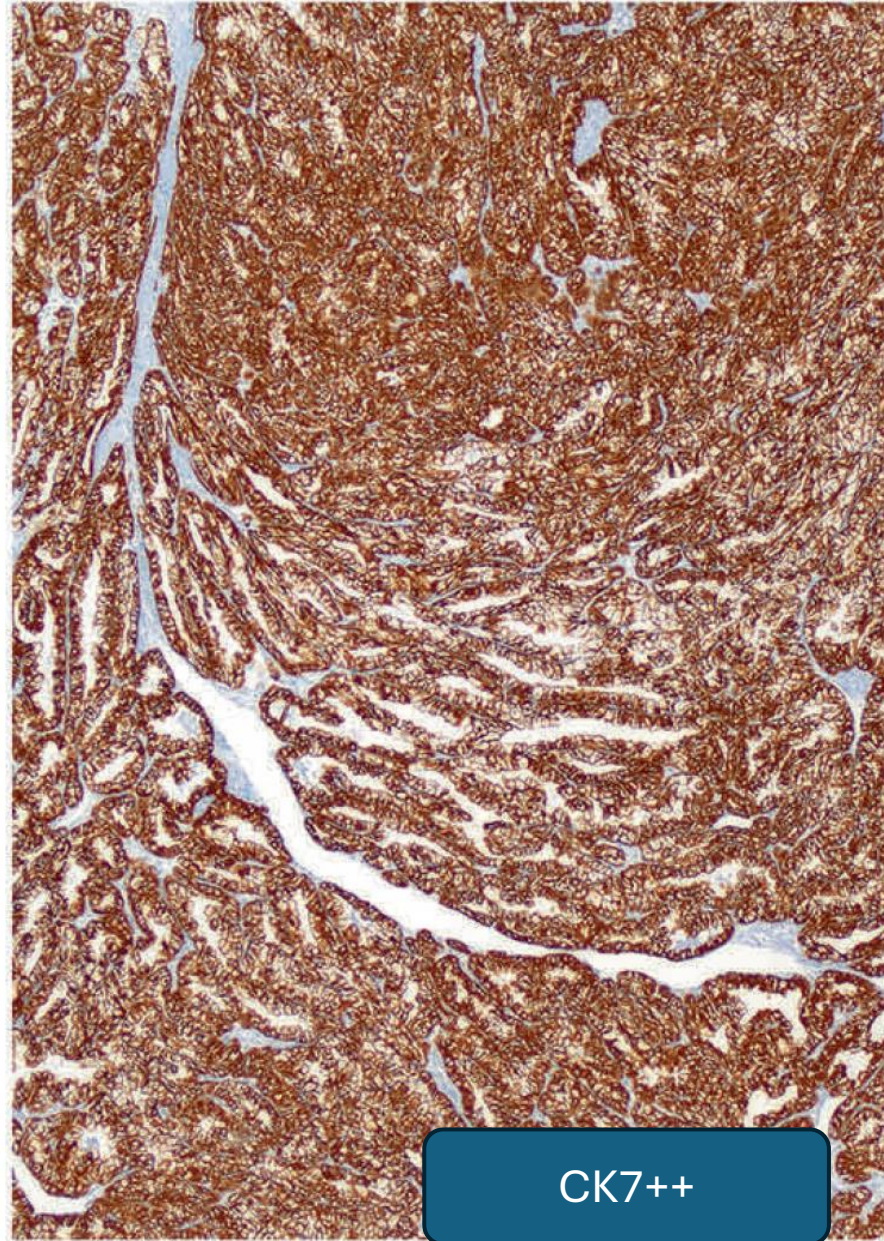
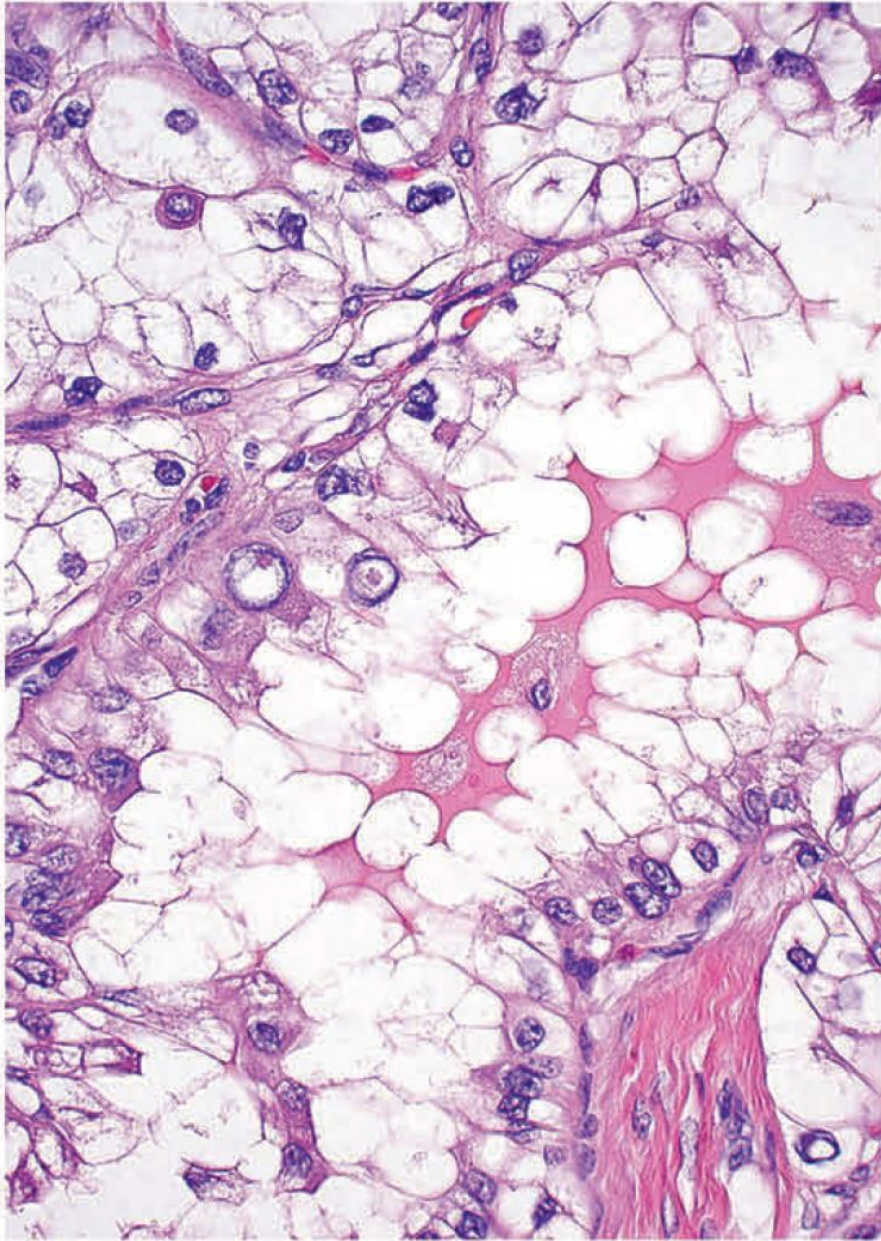


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clear cell morphology

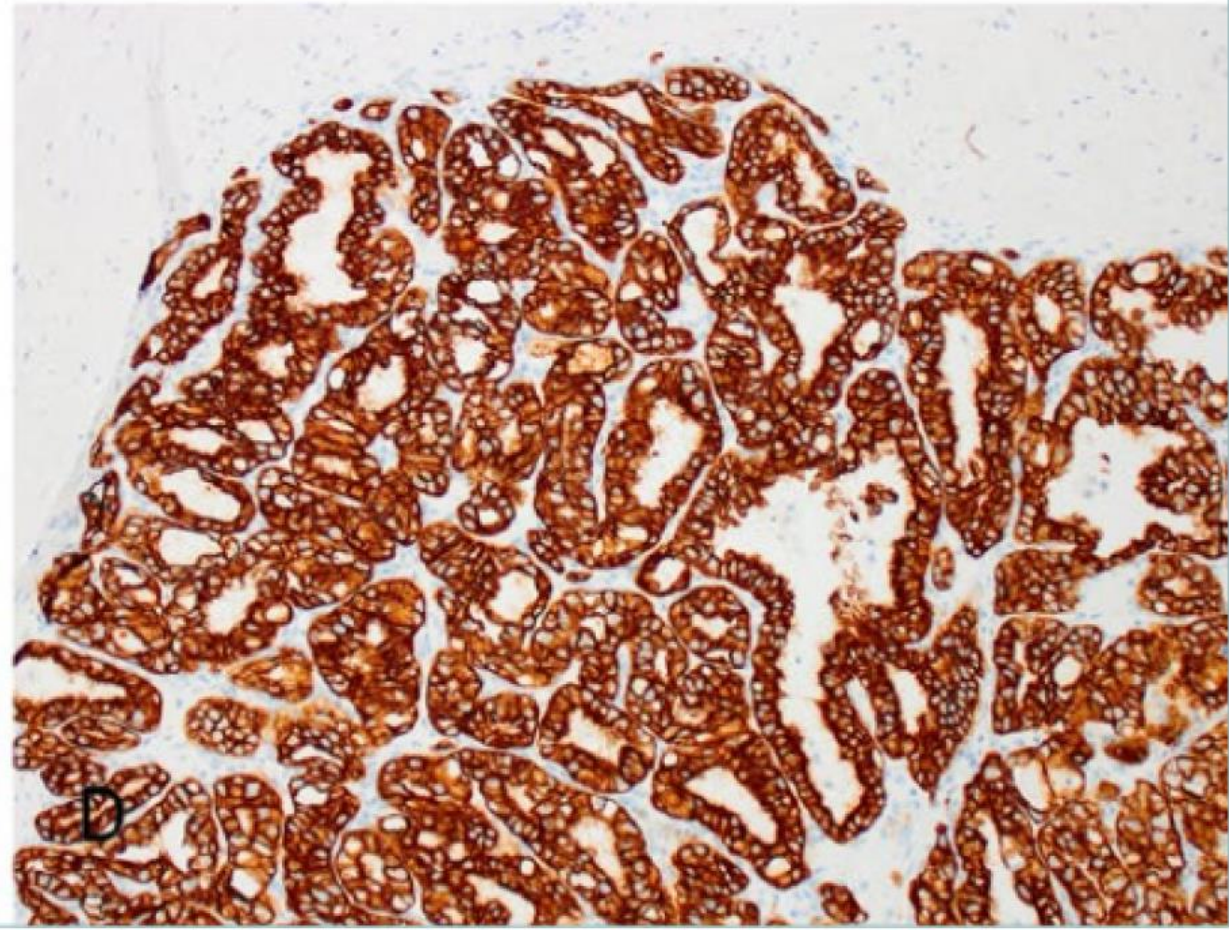
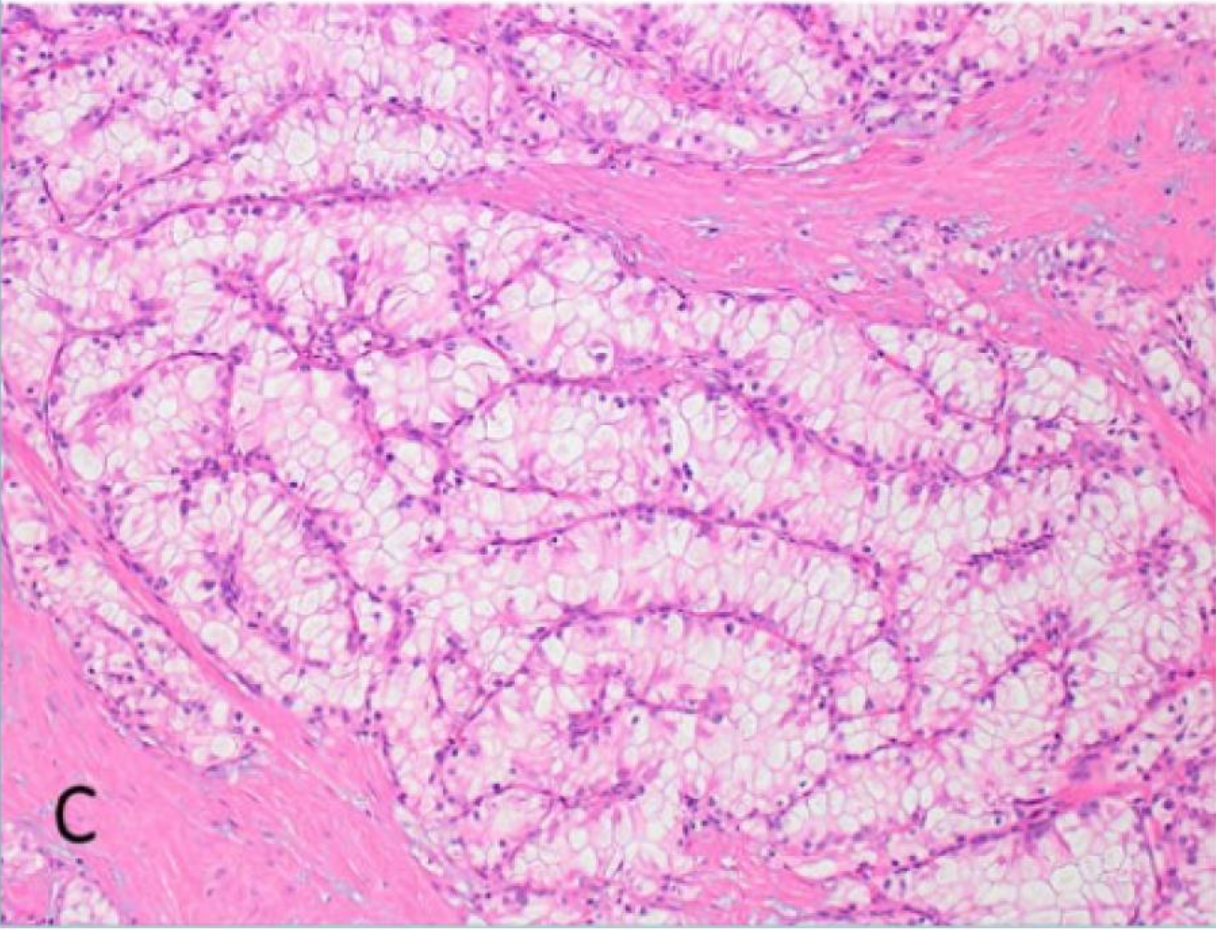
RCC with fibromyomatous stroma



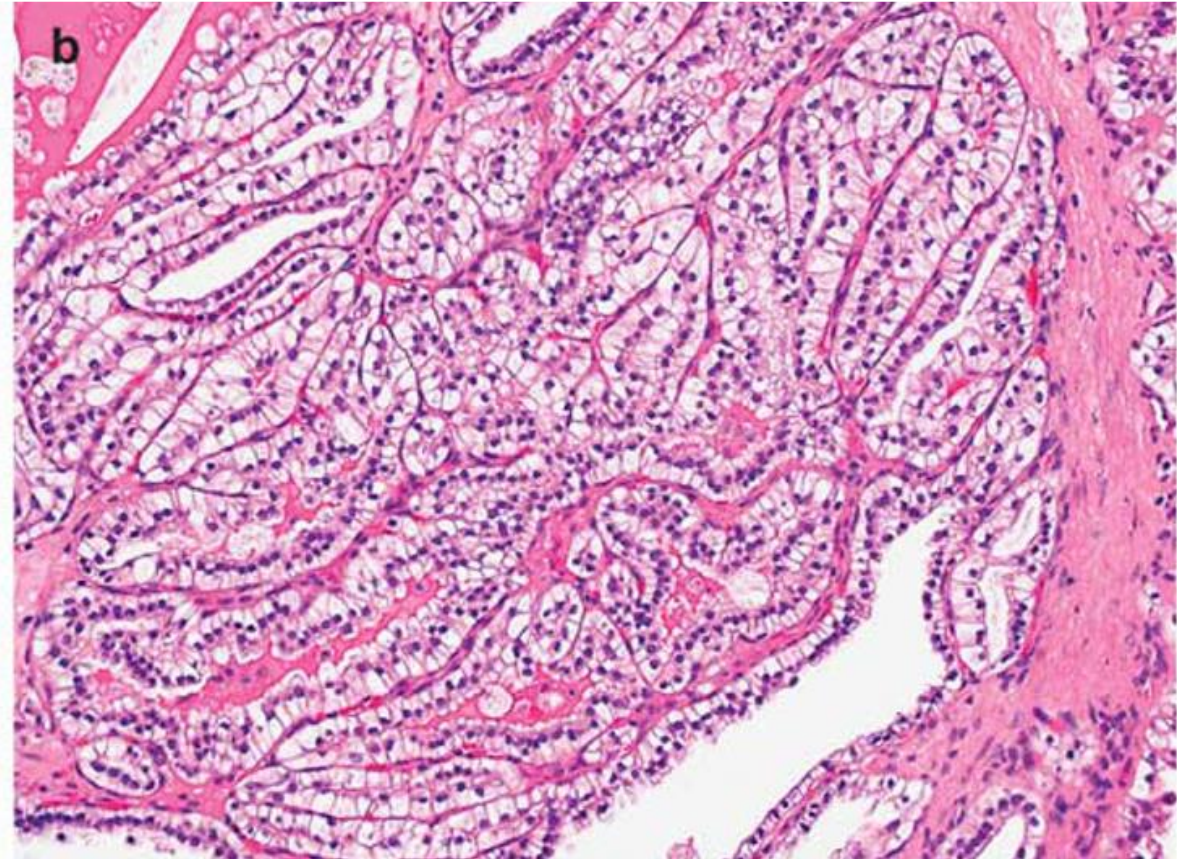
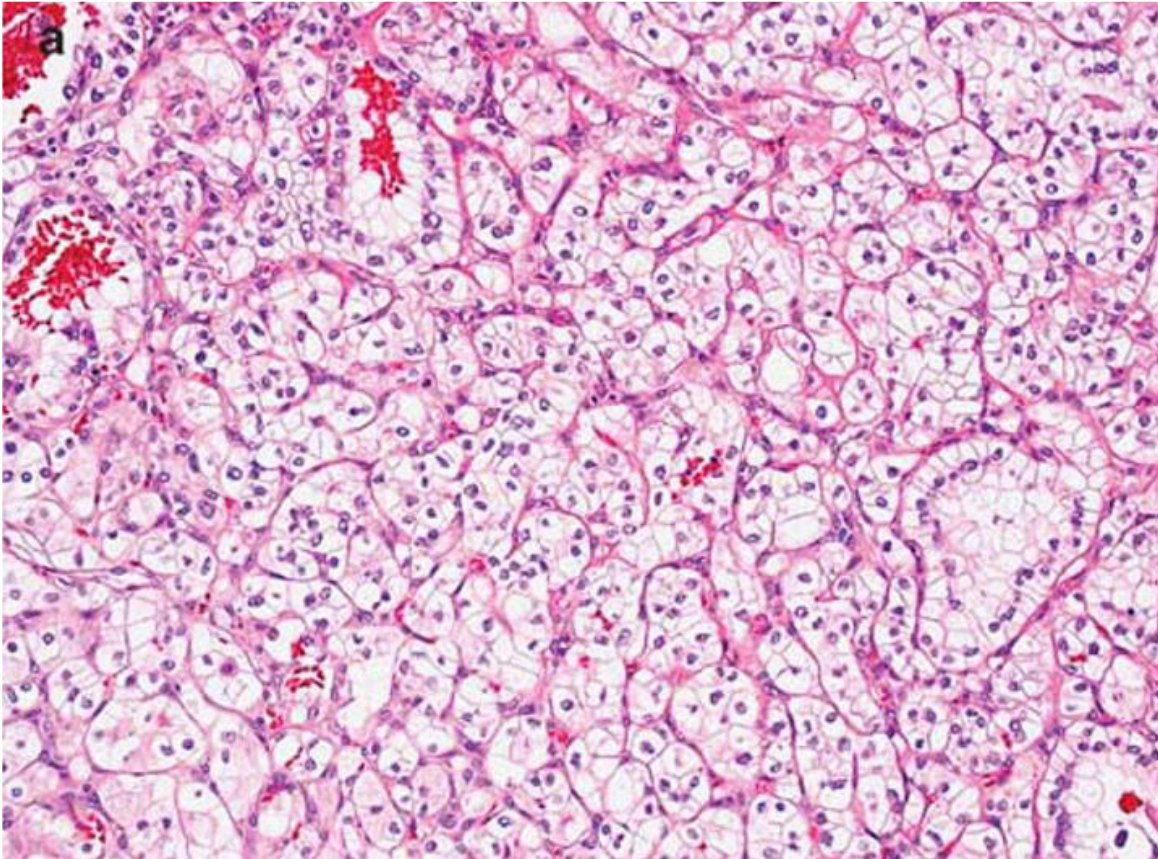


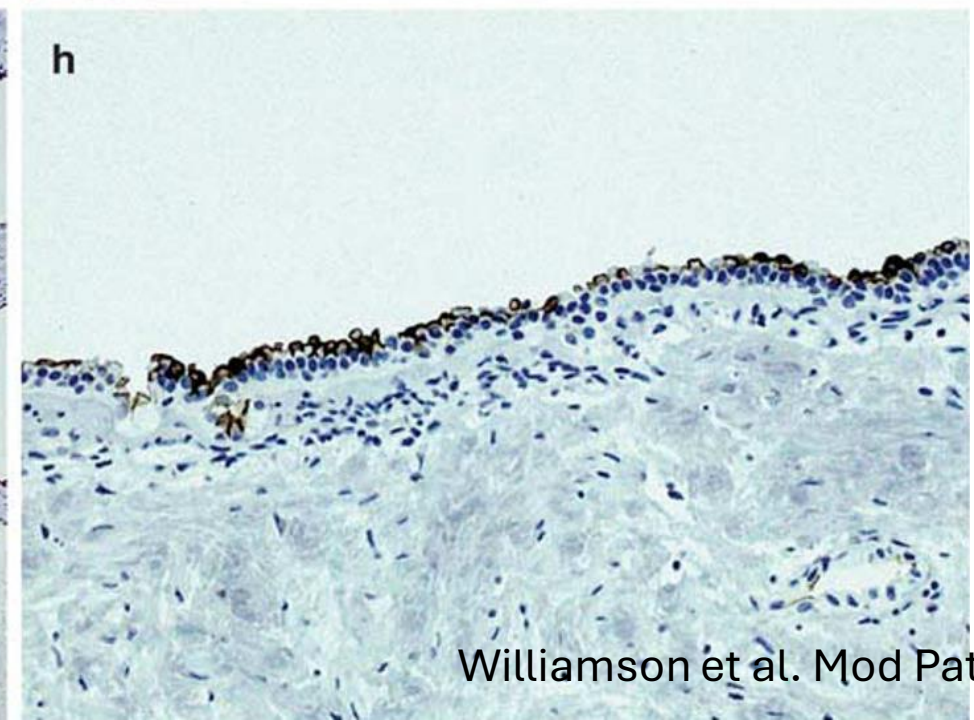
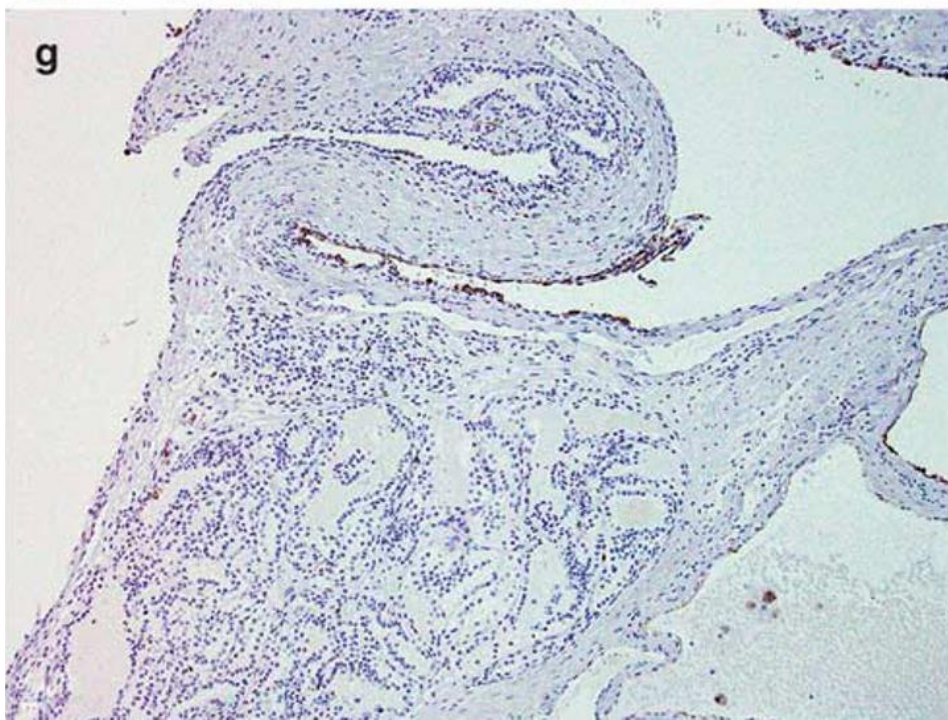
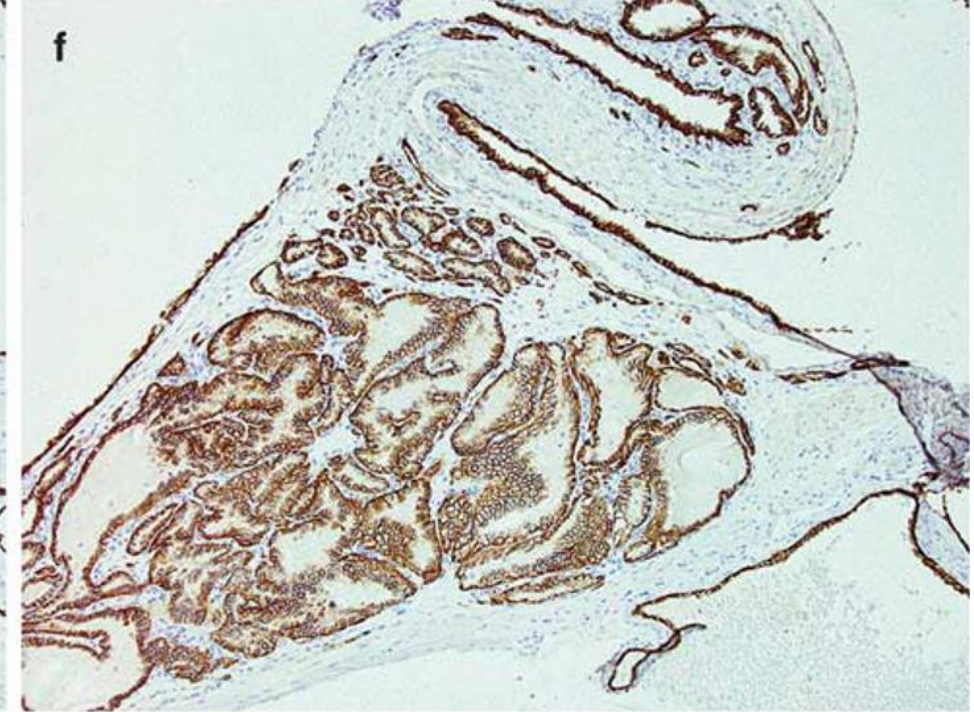
CK7++

ELOC (formerly TCEB-1) mutated RCC



differential diagnosis clear cell papillary tumor







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Pathol. Oncol. Res. (2018) 24:447–456
DOI 10.1007/s12253-017-0271-x



CrossMark

REVIEW

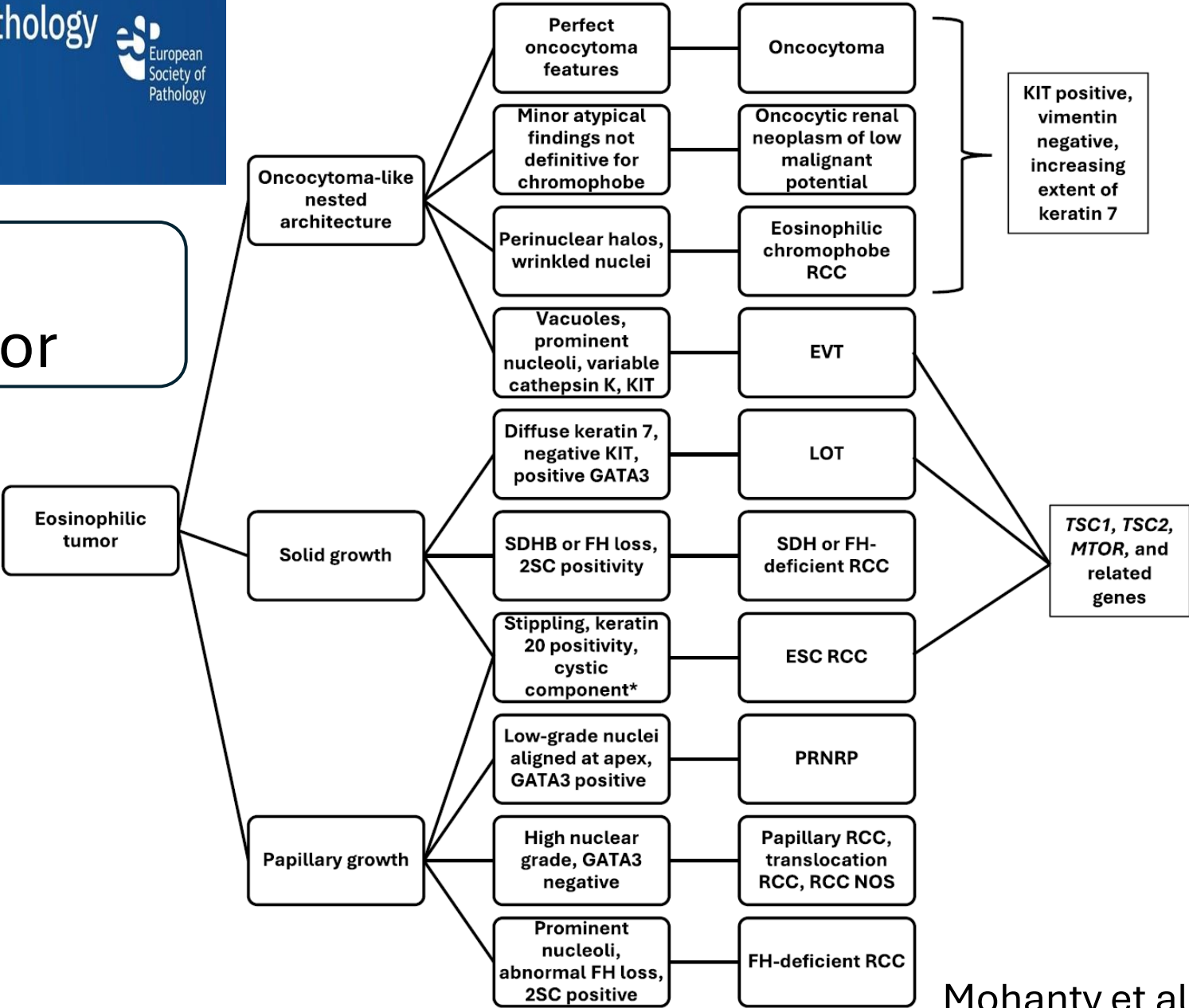
The Tumor Entity Denominated “*clear cell-papillary renal cell carcinoma*” According to the WHO 2016 new Classification, have the Clinical Characters of a Renal Cell Adenoma as does Harbor a Benign Outcome

Francesco Massari¹ • Chiara Ciccarese² • Ondrej Hes³ • Michal Michal³ • Anna Calì⁴ •
Michelangelo Fiorentino⁵ • Francesca Giunchi⁵ • Alessandro D’Amuri⁶ •
Francesca Sanguedolce⁷ • Roberto Sabbatini⁸ • Annalisa Guida⁸ • Andrea Ardizzoni¹ •
Camillo Porta⁹ • Roberto Iacovelli² • Giampaolo Tortora² • Luca Cima⁴ •
Cinzia Ortega¹⁰ • Alberto Lapini¹¹ • Guido Martignoni^{4,12} • Matteo Brunelli⁴

new approaches in GU tumor

- using flow-charts (similar to old and new lymphoma classifications)
 - extended immunoprofiling based on tumor aggregation and characters of cytoplasms
- increase use of FISH and mutational analysis

flow-chart for eosinophilic tumor



The new WHO 2022 category of molecularly defined renal carcinomas

Accessible to practicing pathologists

Steven Christopher Smith, MD, PhD¹,, Sara E. Wobker, MD, MPH²,

¹Departments of Pathology, Surgery, and Massey Comprehensive Cancer Center, VCU School of Medicine, and Richmond Veterans Affairs Medical Center, Richmond, VA, US; ²Department of Pathology and Laboratory Medicine, University of North Carolina, Chapel Hill, NC, US

Contemporary Characterization and Recategorization of Adult Unclassified Renal Cell Carcinoma

Regina Kwon, MD, MPH, Pedram Argani, MD,*† Jonathan I. Epstein, MD,*†‡
Kara A. Lombardo, BS,‡ Xiaoming Wang, PhD,§ Phillip M. Pierorazio, MD,†‡
Rohit Mehra, MD,§ and Andres Matoso, MD*†‡*

TABLE 4. Characteristics of Cases With Death Due to RCC

Age (y)/sex	52/male	66/male	37/male	64/female	84/female	60/male	64/male
Survival* (mo)	5	7	11	17	18	54	56
Grade	4	4	3	4	3	4	4
Size (cm)	6.5	12	14	9	10	5.8	5
Stage	pT3	pT4	pT3	pT3	pT2	pT1	pT3
Dominant pattern	Papillary	Papillary	Clear cell	Rhabdoid	Oncocytic	Rhabdoid	Other
LVI	Yes	Yes	Yes	No	Yes	No	No
Metastases	Lung	Liver, bone	Pleura	Bone	Liver, lung, spleen	Unknown	Liver, lung, bone
Reclassified	No	ESC	No	No	ESC	No	No
IHC							
ALK	–	–	–	–	–	NA	–
CAIX	Focal +	Focal +	–	–	–	NA	–
Cathepsin-K	–	–	–	+	+	NA	+
c-kit	–	–	–	–	+	NA	–
CK7	+	–	–	–	–	NA	–
CK20	–	+	–	+	+	NA	–
FH	Retained	Retained	Retained	Retained	Retained	NA	Retained
PAX8	–	–	–	–	–	NA	–
Racemase	+	–	+	+	+	NA	–
SDHB	Retained	Retained	Retained	Retained	Retained	NA	Retained
TFE3	–	–	+	–	–	NA	+
TFEB	–	–	–	–	–	NA	–

immunoprofiling

CAIX and cathepsin-k

CAIX, CK7, 34BetaE12

CK7, c-kit and CK20,
parvalbumin, SDHB

FISH TFE3/TFEB

mTOR/TSC

CAIX, GNPMB

CAIX, HMB-45, cathepsin-k

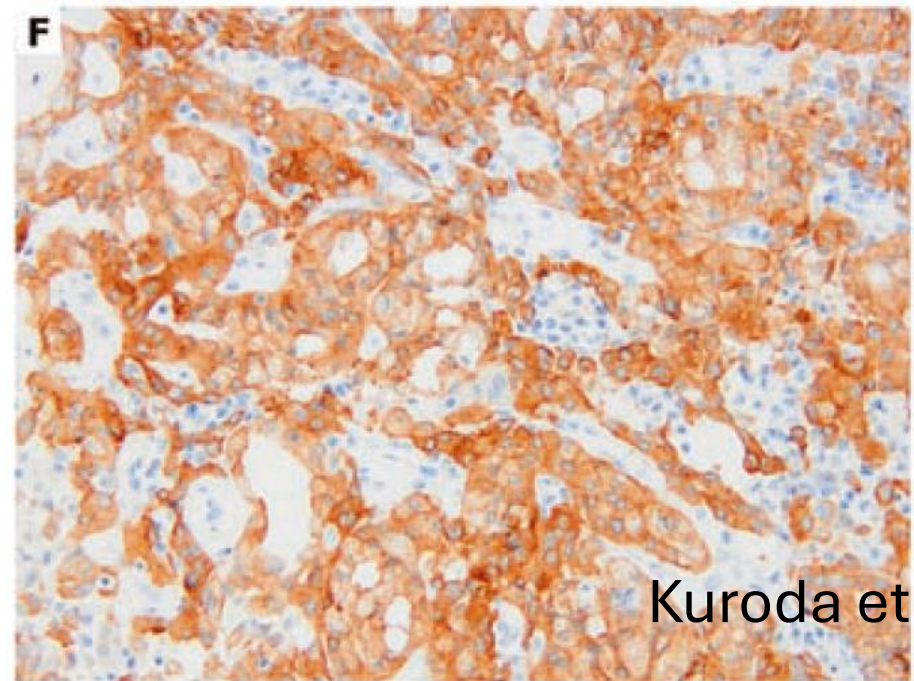
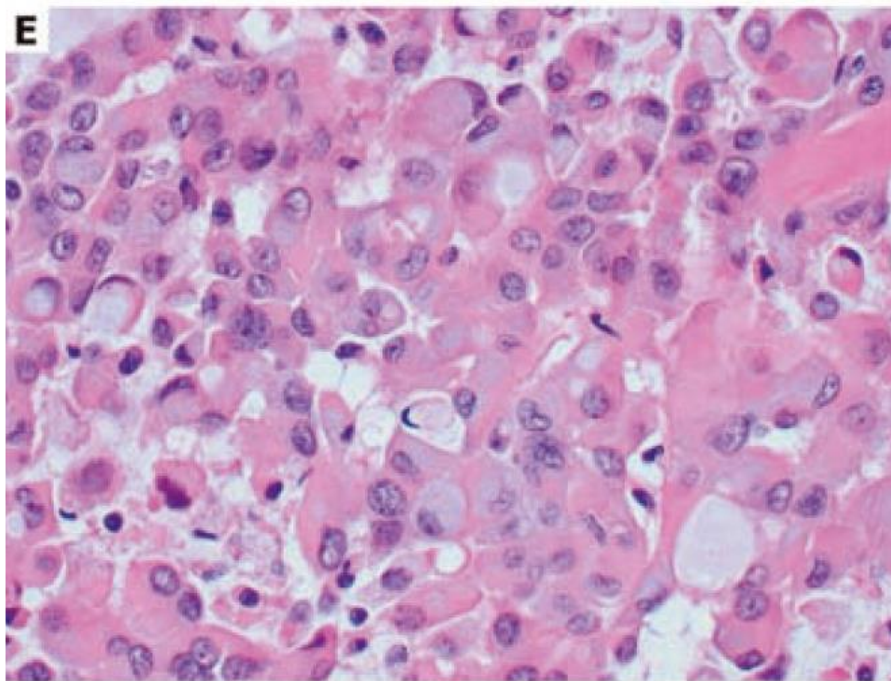
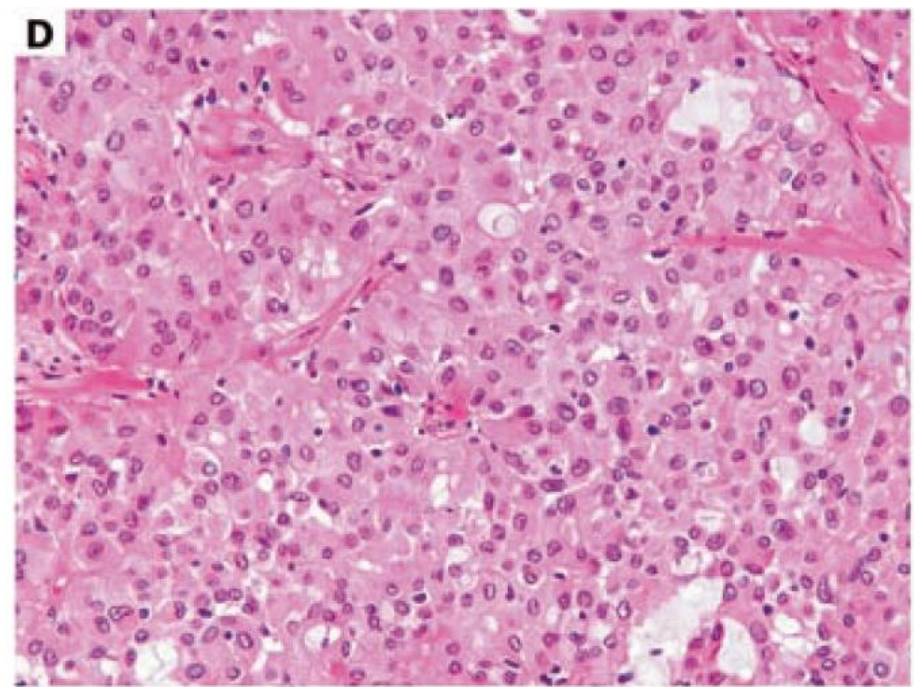
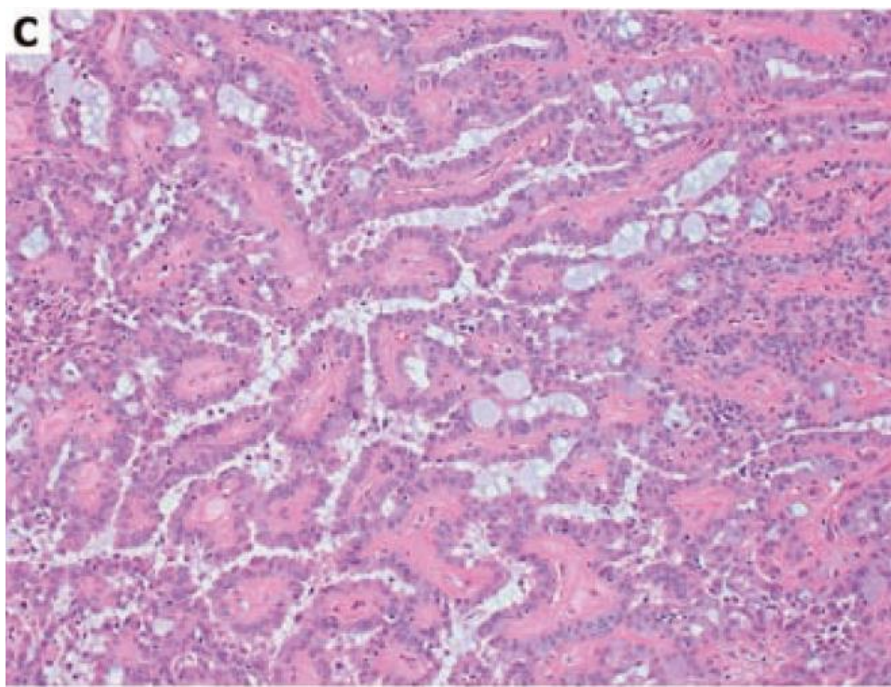
CAIX, CK7, AMACR,
FISH TFE3/TFEB
FH

ARTICLE

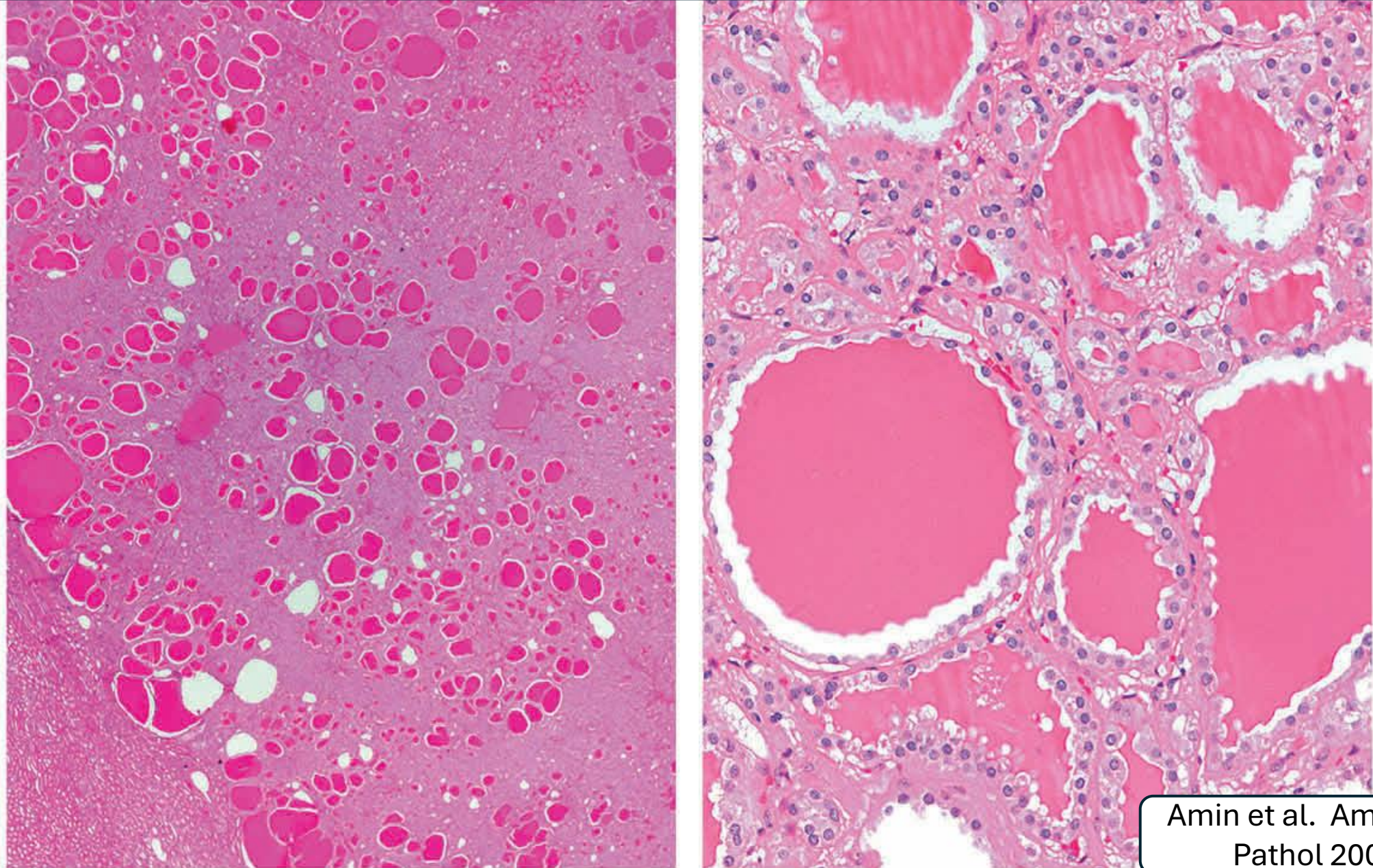


ALK rearranged renal cell carcinoma (ALK-RCC): a multi-institutional study of twelve cases with identification of novel partner genes *CLIP1*, *KIF5B* and *KIAA1217*

Naoto Kuroda¹ • Kiril Trpkov ² • Yuan Gao² • Maria Tretiakova³ • Yajuan J. Liu³ • Monika Ulamec⁴ • Kengo Takeuchi ⁵ • Abbas Agaimy⁶ • Christopher Przybycin⁷ • Cristina Magi-Galluzzi⁸ • Soichiro Fushimi⁹ • Fumiyoshi Kojima¹⁰ • Malthide Sibony¹¹ • Jen-Fan Hang ¹² • Chin-Chen Pan¹² • Asli Yilmaz² • Farshid Siadat² • Emiko Sugawara¹³ • Pierre-Alexandre Just¹¹ • Nikola Ptakova ^{14,15} • Ondrej Hes¹⁵

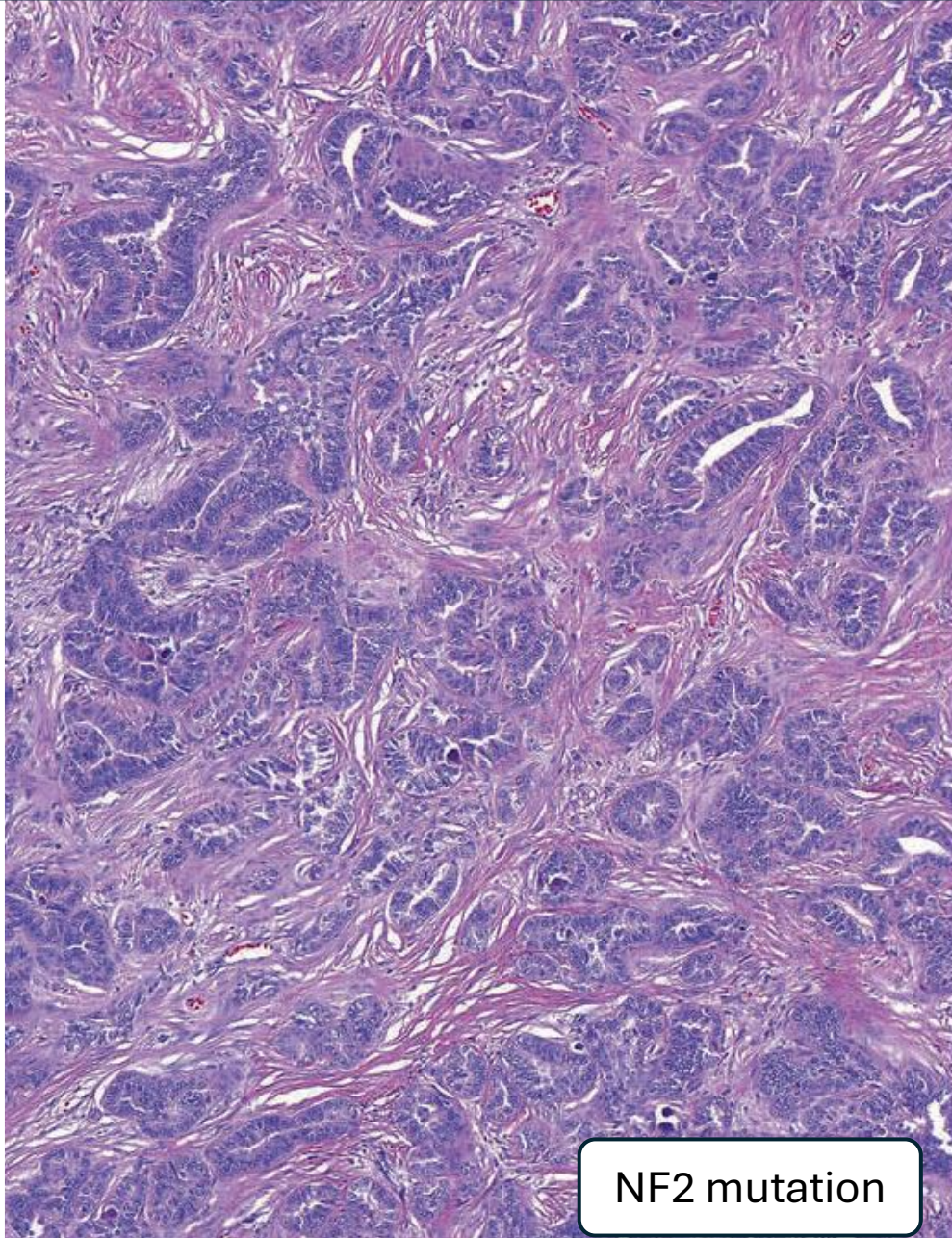


Thyroid-like follicular RCC

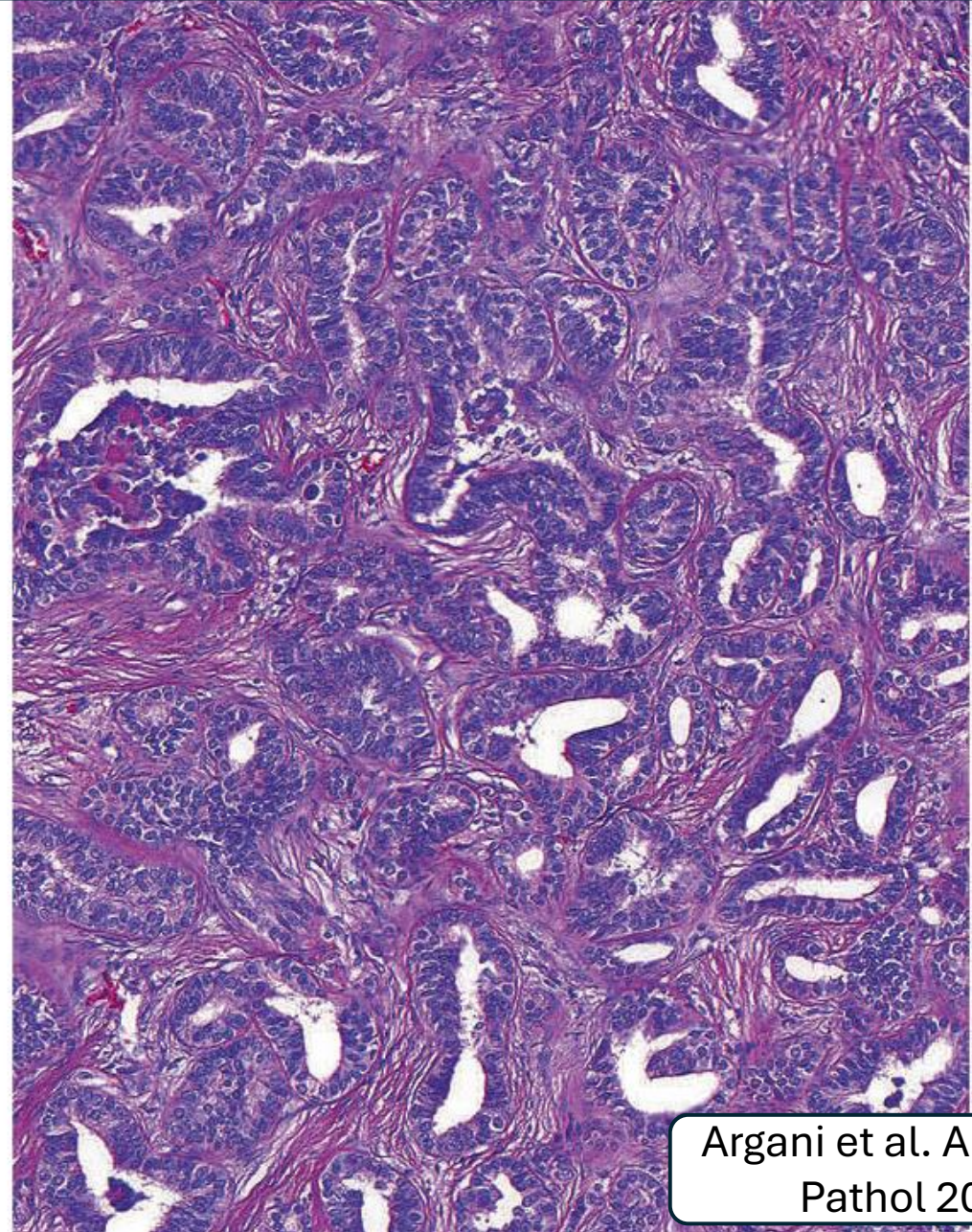


Amin et al. Am J Surg
Pathol 2009

byphasic hyalinizing psammomatous RCC



NF2 mutation



Argani et al. Am J Surg
Pathol 2020

Article

Validation of a Novel Three-Dimensional (3D Fusion) Gross Sampling Protocol for Clear Cell Renal Cell Carcinoma to Overcome Intratumoral Heterogeneity: The Meet-Uro 18 Study

Matteo Brunelli ^{1,2,†}, Guido Martignoni ^{1,3,†}, Giorgio Malpeli ^{4,*} , Alessandro Volpe ⁵, Luca Cima ⁶ , Maria Rosaria Raspollini ⁷ , Mattia Barbareschi ⁶, Alessandro Tafuri ⁸, Giulia Masi ⁹, Luisa Barzon ⁹ , Serena Ammendola ¹ , Manuela Villanova ¹, Maria Angela Cerruto ⁸, Michele Milella ¹⁰, Sebastiano Buti ¹¹ , Melissa Bersanelli ¹¹ , Giuseppe Fornarini ¹² , Sara Elena Rebuzzi ¹² , Valerio Gaetano Vellone ¹³ , Gabriele Gaggero ¹³, Giuseppe Procopio ¹⁴, Elena Verzoni ¹⁴, Sergio Bracarda ¹⁵, Martina Fanelli ¹⁶ , Roberto Sabbatini ¹⁶ , Rodolfo Passalacqua ¹⁷, Bruno Perrucci ¹⁷, Maria Olga Giganti ¹⁷, Maddalena Donini ¹⁷, Stefano Panni ¹⁷, Marcello Tucci ¹⁸, Veronica Prati ¹⁹, Cinzia Ortega ¹⁹, Anna Calì ^{1,2}, Albino Eccher ¹ , Filippo Alongi ²⁰ , Giovanni Pappagallo ²¹, Roberto Iacovelli ²², Alessandra Mosca ²³, Paolo Umari ⁷, Ilaria Montagnani ⁷, Stefano Gobbo ²⁴ , Francesco Atzori ²⁵ , Enrico Munari ²⁶, Marco Maruzzo ²⁷, Umberto Basso ²⁷ , Francesco Pierconti ²⁸, Carlo Patriarca ²⁹, Piergiuseppe Colombo ³⁰, Alberto Lapini ³¹, Giario Conti ³², Roberto Salvioni ³³, Enrico Bollito ³⁴, Andrea Cossarizza ³⁵ , Francesco Massari ³⁶, Mimma Rizzo ³⁷, Renato Franco ³⁸, Federica Zito-Marino ³⁸, Yoseba Aberasturi Plata ³⁹, Francesca Galuppini ⁴⁰ , Marta Sbaraglia ⁴⁰, Matteo Fassan ⁴⁰ , Angelo Paolo Dei Tos ⁴⁰, Maurizio Colecchia ⁴¹ , Holger Moch ⁴² , Maurizio Scaltriti ⁴³, Camillo Porta ^{44,45} , Brett Delahunt ⁴⁶, Gianluca Giannarini ⁴⁷, Roberto Bortolus ⁴⁸, Pasquale Rescigno ⁴⁹ , Giuseppe Luigi Banna ⁴⁹, Alessio Signori ⁵⁰ , Miguel Angel Llaja Obispo ⁵¹, Roberto Perris ⁵² and Alessandro Antonelli ⁸

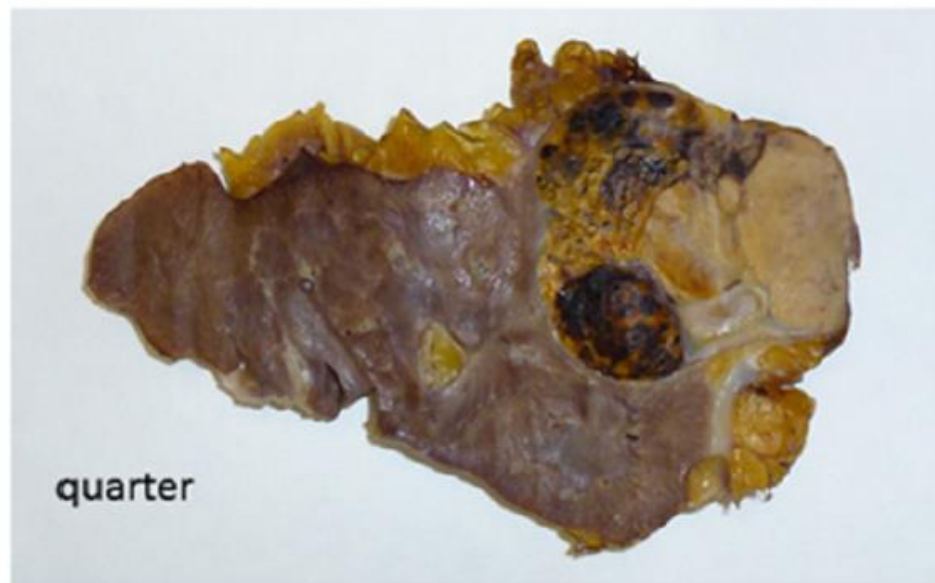
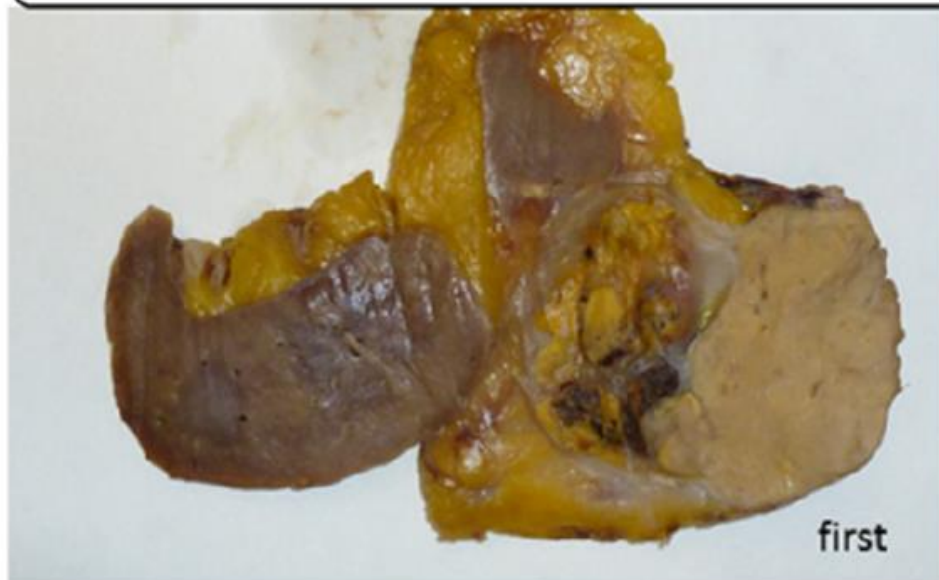


Citation: Brunelli, M.; Martignoni, G.; Malpeli, G.; Volpe, A.; Cima, L.; Raspollini, M.R.; Barbareschi, M.; Tafuri, A.; Masi, G.; Barzon, L.; et al. Validation of a Novel Three-

A

Step 1

in toto sectioning of RCC tumor at gross room

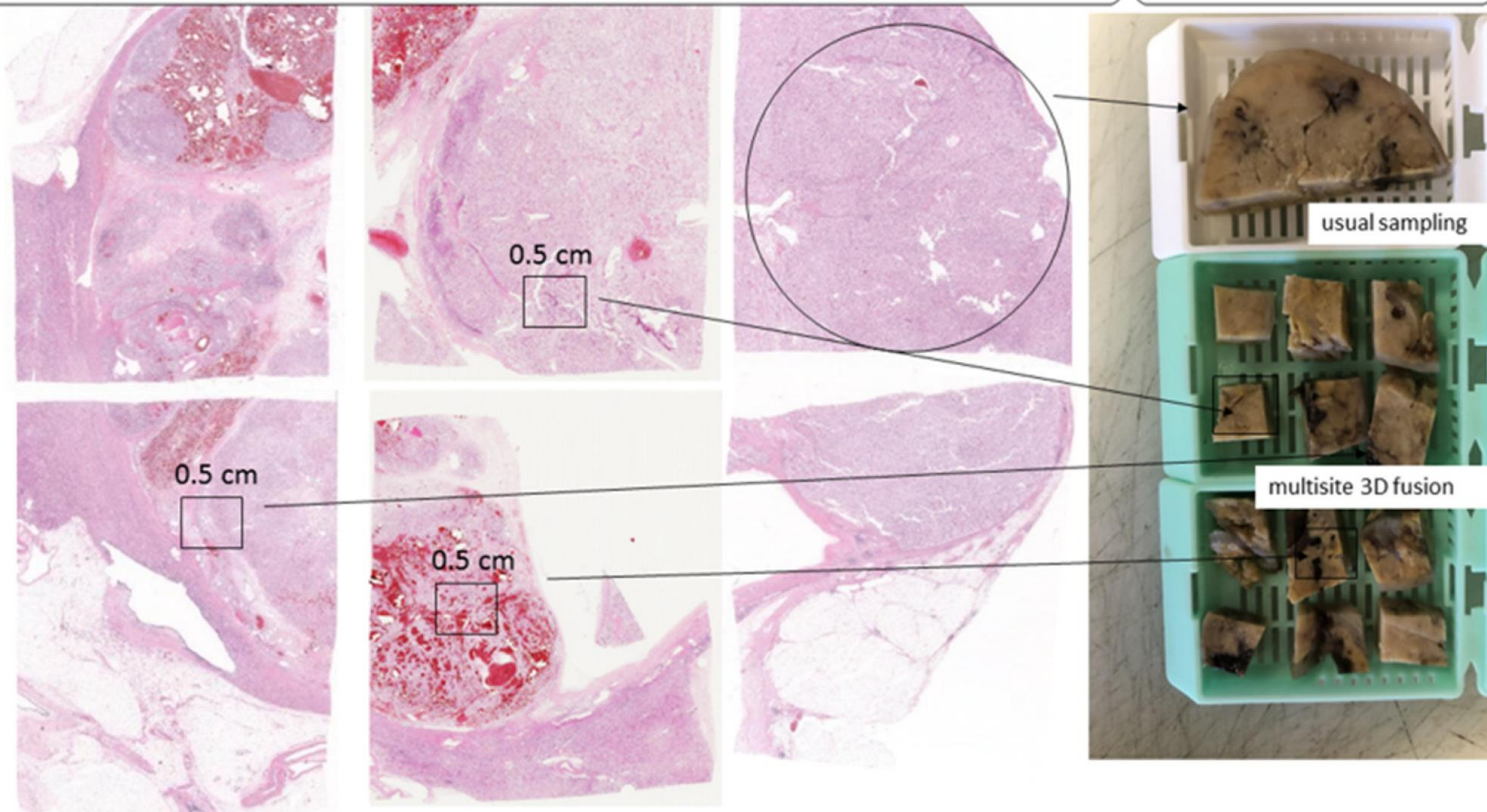


Step 2

re-building RCC mass with usual and multisite tumor sampling

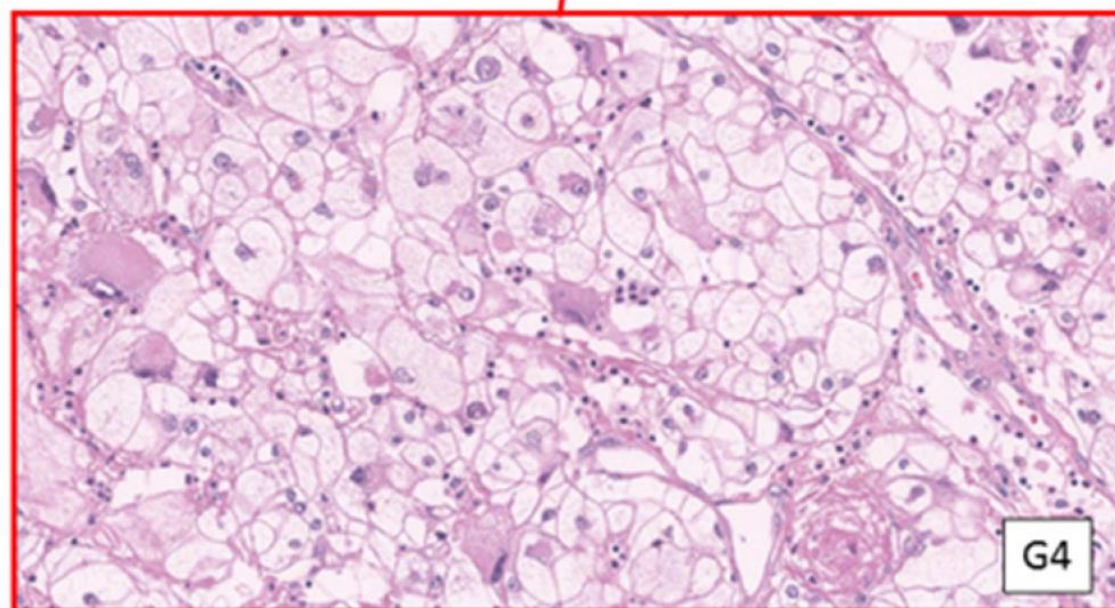
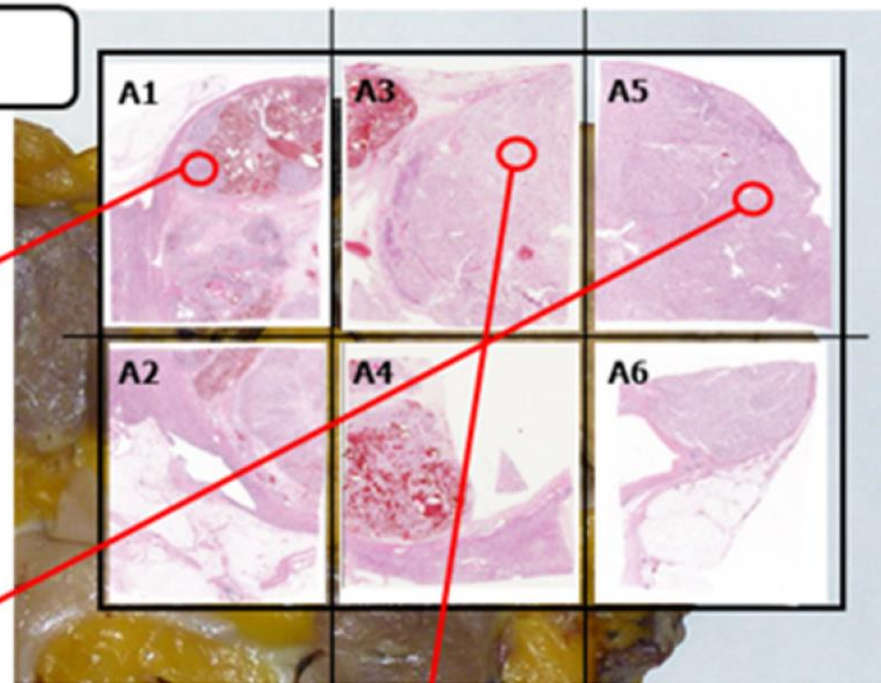
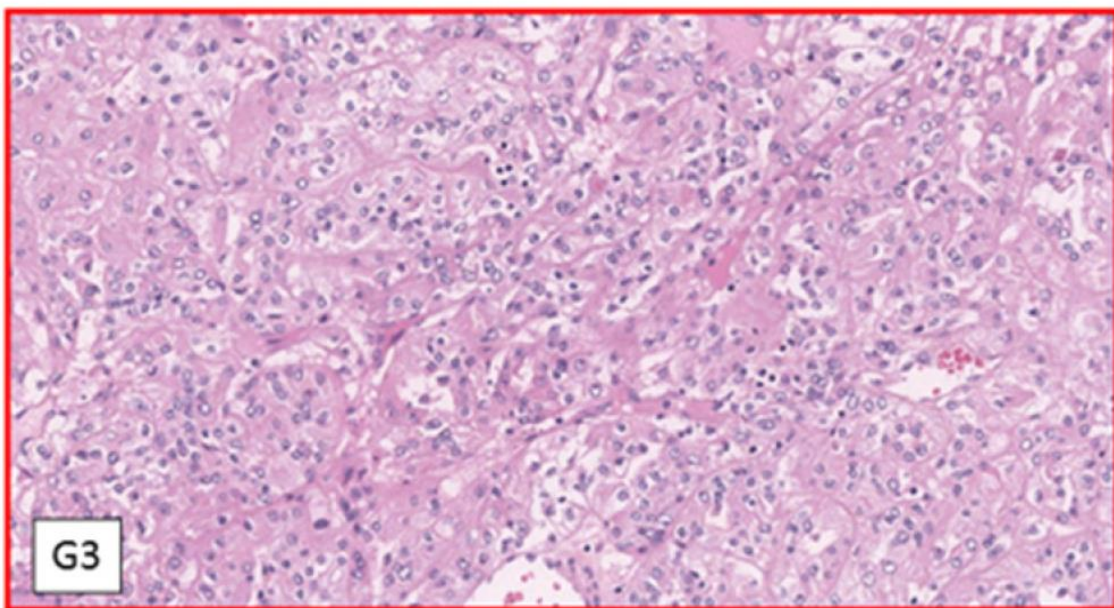
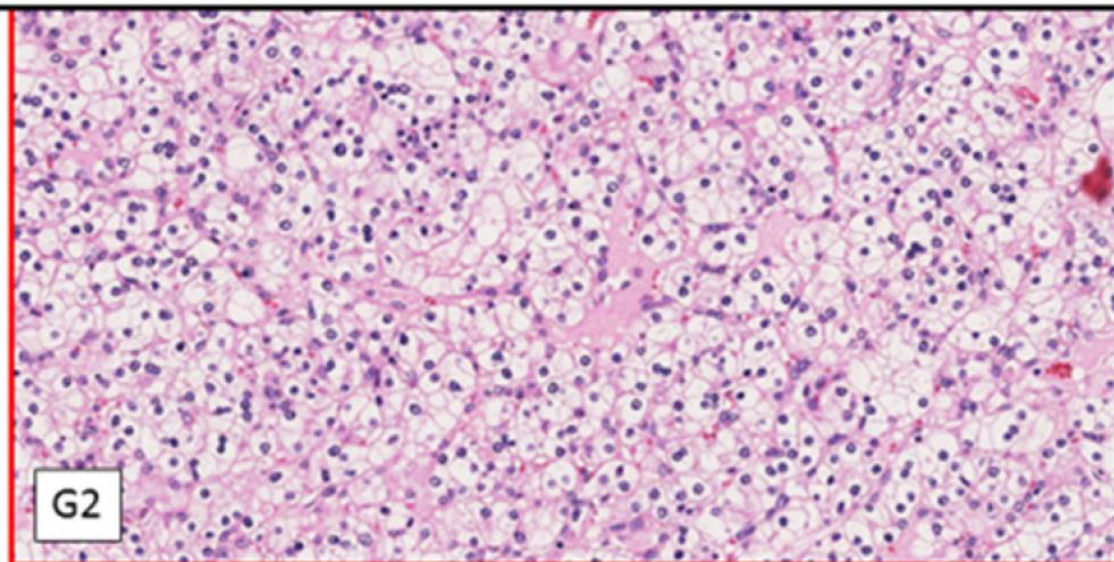
cassettes

B



Step 3 grading at multisite tumor sampling

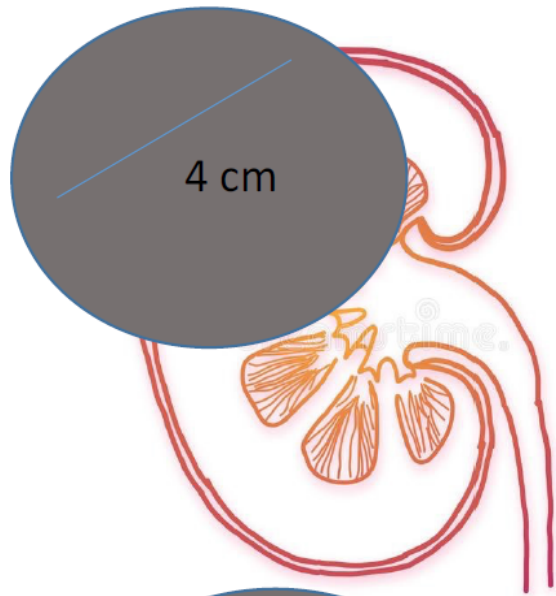
C



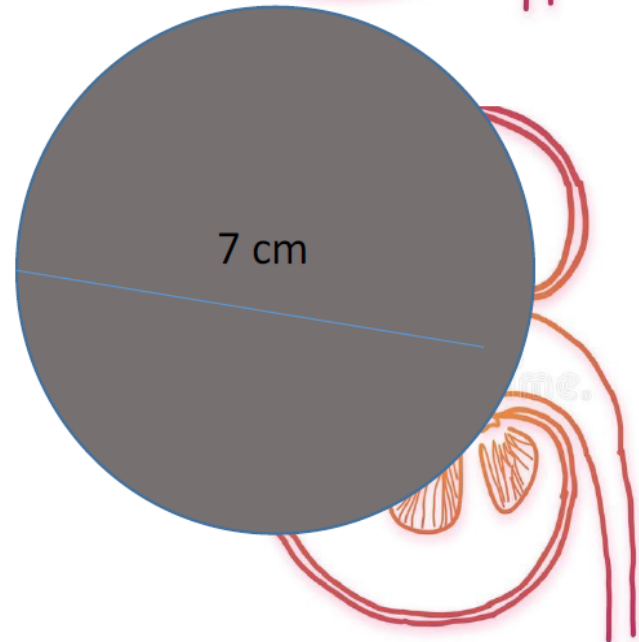
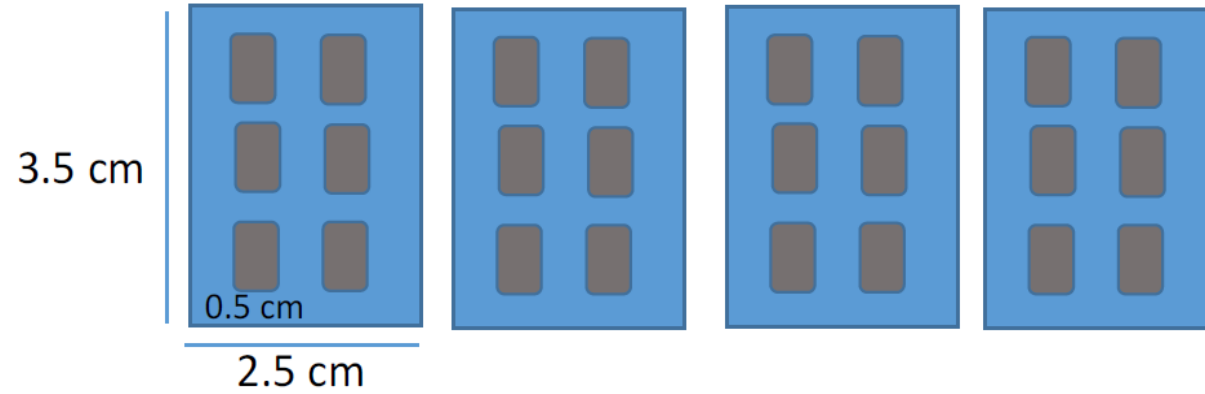
gross sampling and cancer reporting

- the 3D fusion method increases assessment of advanced-stage patients after sampling (more G4 and more sarcomatoid/rhabdoid morphological characters with clinical relevance)
- a significant proportion of cases increased the grading (26% from G3 to G4) and presence of necrosis (additional 11%).
- 22% of cases were set to intermediate to high risk of clinical relevance by using 3D fusion compared to standard methods

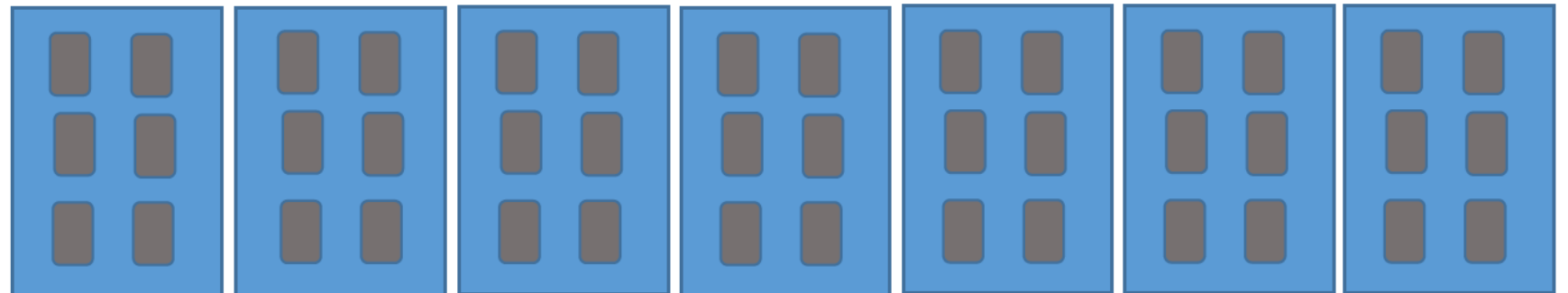
multisite 3D fusion sampling to overcome intratumoral heterogeneity



4 cassettes with 6 multisite 0.5 cm pieces of tissue



7 cassettes with 6 multisite 0.5 cm pieces of tissue





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Take home messages

- news in GU: means new emerging biological entities
- new concepts is related to categorization by clinical relevance
- new approaches encounter IHC/FISH/RNAscope and mutational profiling by flow-charts
- improving gross sampling for cancer reporting and adjuvant therapies
- new molecularly defined renal carcinoma



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Kidney Presentation

News in GU diseases: new
concepts, new approaches and
new/emerging entities

Prof. Matteo Brunelli

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