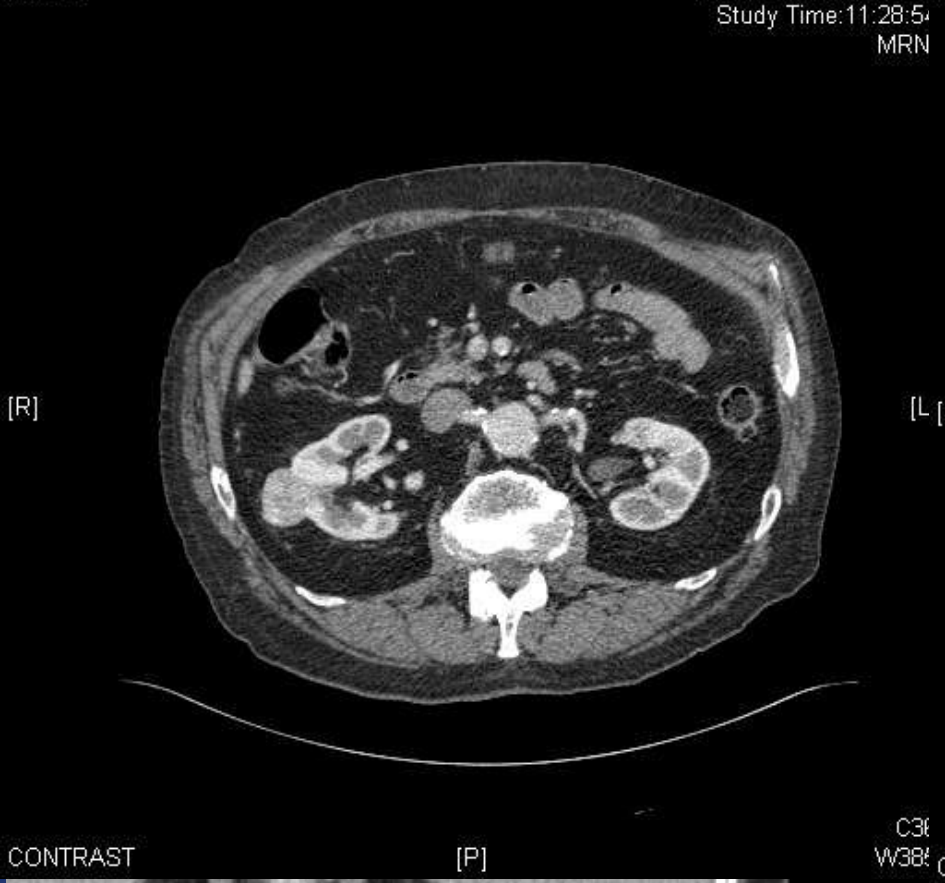
Renal biopsy is mandatory for every small renal mass

Ben Challacombe
Consultant Urologist

The Urology Centre
Guy's and St. Thomas' Hospital NHS Foundation Trust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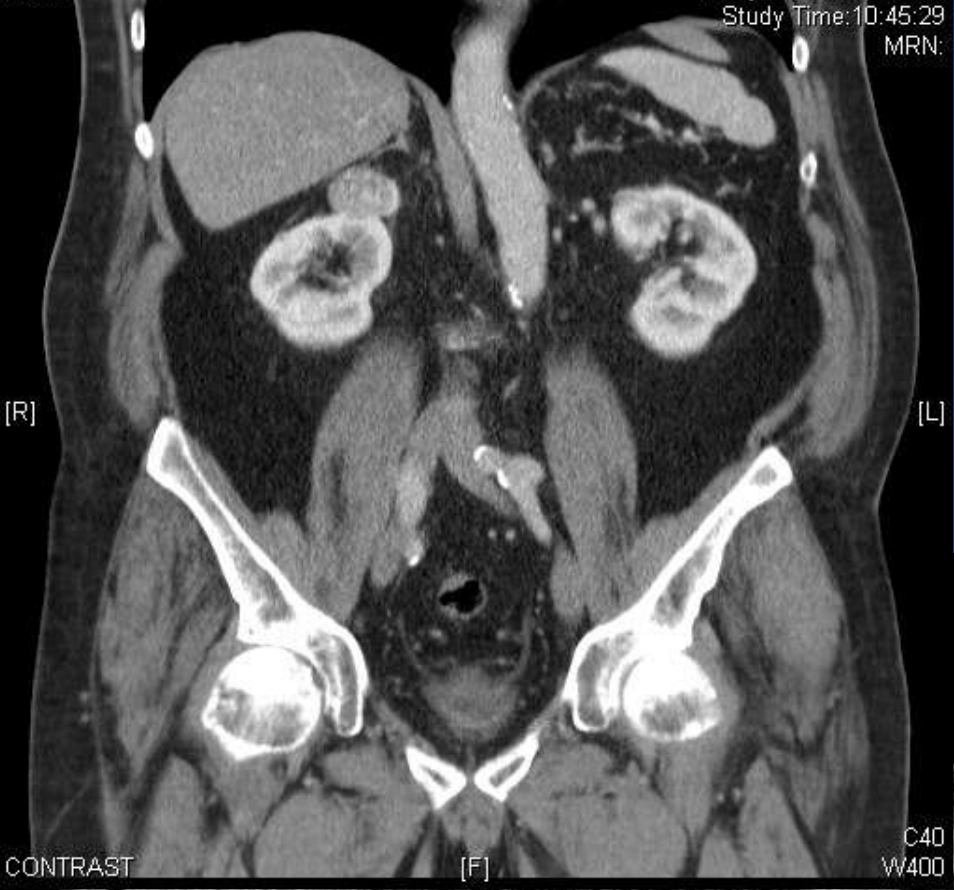
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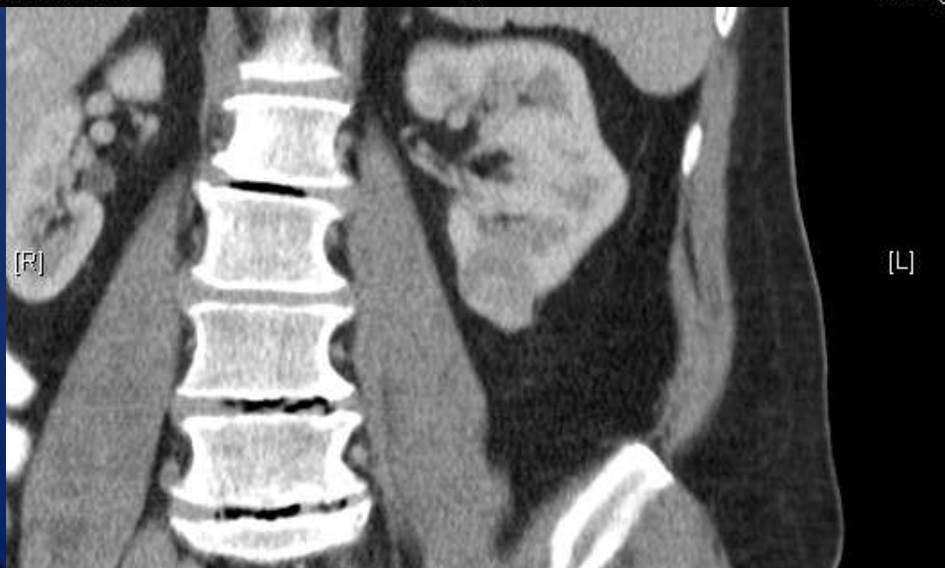
[R]
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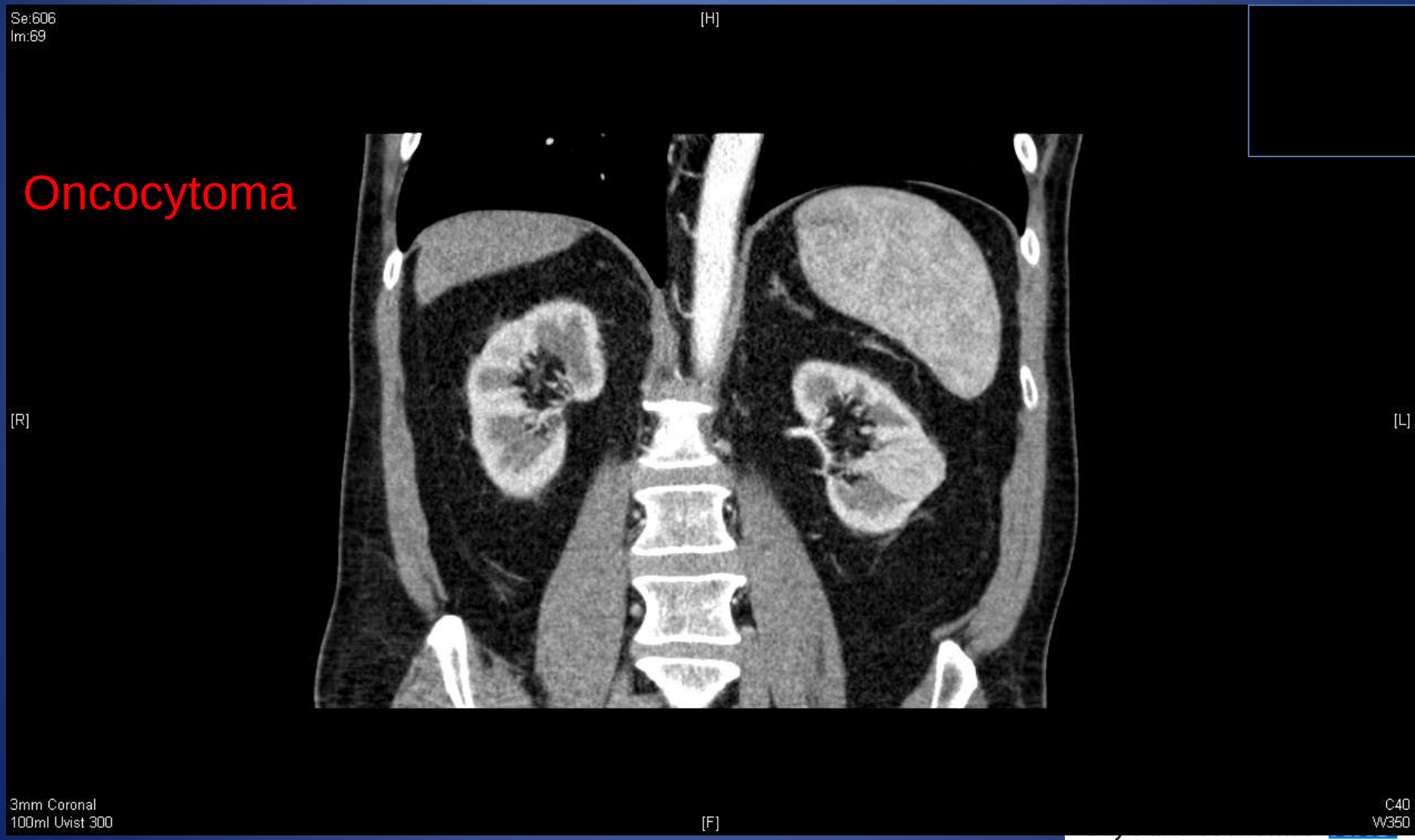
High Risk Partial converted to RN adherent fat++



- For things to reveal themselves to us, we need to abandon our views about them.

Thich Nhat Hanh

SRM The issue

- Increasing number of imaging Ix
- Downward stage migration and smaller size at Diagnosis
- SRM (T1a) very common (50%)
- Many elderly and co-morbid
- Most low malignant potential
- Slow growth rates 0.25cm/year

Mason RJ, Abdolell M, Trottier G, et al. Growth kinetics of renal masses: Analysis of a prospective cohort of patients undergoing active surveillance. Eur Urol. 2011;59:863–7.
Jewett, M. A. s. & Finelli, A. *Nat. Rev. Urol 2014*

Platinum Priority – Collaborative Review – Kidney Cancer
Editorial by Tobias Klatte on pp. 505–506 of this issue

Rationale for Percutaneous Biopsy and Histologic Characterisation of Renal Tumours

Alessandro Volpe[a,], Antonio Finelli[b], Inderbir S. Gill[c], Michael A.S. Jewett[b], Guido Martignoni[d], Thomas J. Polascik[e], Mesut Remzi[f], Robert G. Uzzo[g]*

Despite the increasing experience and indications, biopsies are still significantly underutilised.

Table 3 – Current indications and contraindications of percutaneous renal tumour biopsies

Indications	• SRMs that are indeterminate on abdominal imaging (including selected indeterminate cystic lesions) • Renal masses that are suspicious for metastatic disease in the presence of a known extrarenal malignancy • Incidentally diagnosed SRMs in patients who are potentially candidates for active surveillance or minimally invasive ablative therapy to support treatment decisions • Renal tumours during follow-up of thermal ablation to confirm histologic success and monitor for recurrence • Primary renal tumours in the setting of metastatic disease to select the optimal biologic systemic therapy, particularly when a cytoreductive nephrectomy is not indicated or neoadjuvant systemic therapy is planned • Unresectable retroperitoneal renal tumours involving the kidney
Contraindications	Absolute: Uncorrected coagulopathy Relative: Patients with limited life expectancy or locally advanced or disseminated metastatic disease who are not candidates for any surgical, ablative, or medical treatment except palliation of symptoms

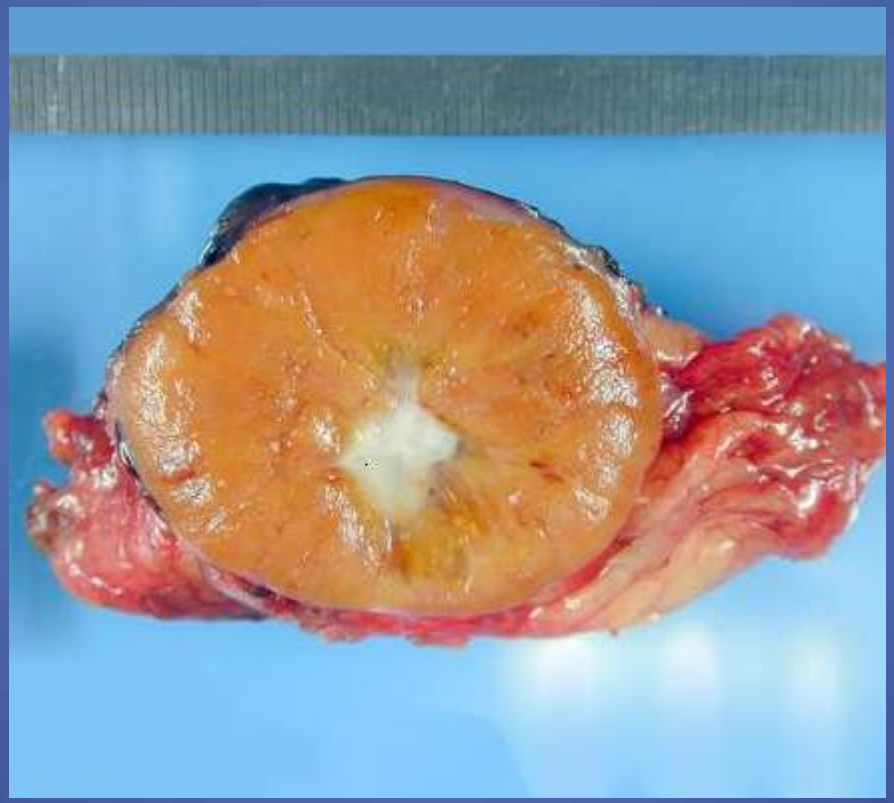
SRM = small renal mass.

2014 GSTT Urology Mantra

- No high risk partial nephrectomies for benign disease
- How do we achieve this? **Biopsy**
- 1,175 RPNs
  - 23% Benign, 29% AS, Rabhar et al 2014
  - 86% of patients classified as high surgical risk (ASA ≥3 and age ≥70) could have had biopsy- guided management.

Evaluation of Renal Mass Biopsy Risk Stratification Algorithm for Robotic Partial Nephrectomy—Could a Biopsy Have Guided Management?, J Urol 2014

Oncocytoma



“Active” Surveillance of SRMs

- >50% of Clear cell RCCs don’t grow over 3-5 years from diagnosis
- Metastases <2% if >4cm cutoff used.
- Men with prostate cancer routinely undergo multiple needle core biopsies to diagnose the disease, grade it and estimate prognosis.

- Why SRMs suspected of having RCC have a ≥20% risk of undergoing unnecessary surgery for benign disease and are denied an opportunity for full informed consent that might include a prediction that their tumour has a very small risk of growing or metastasizing?
- BAUS PN: 8% Clavien III, 8% +ve margin

Comparisons to other major tumours

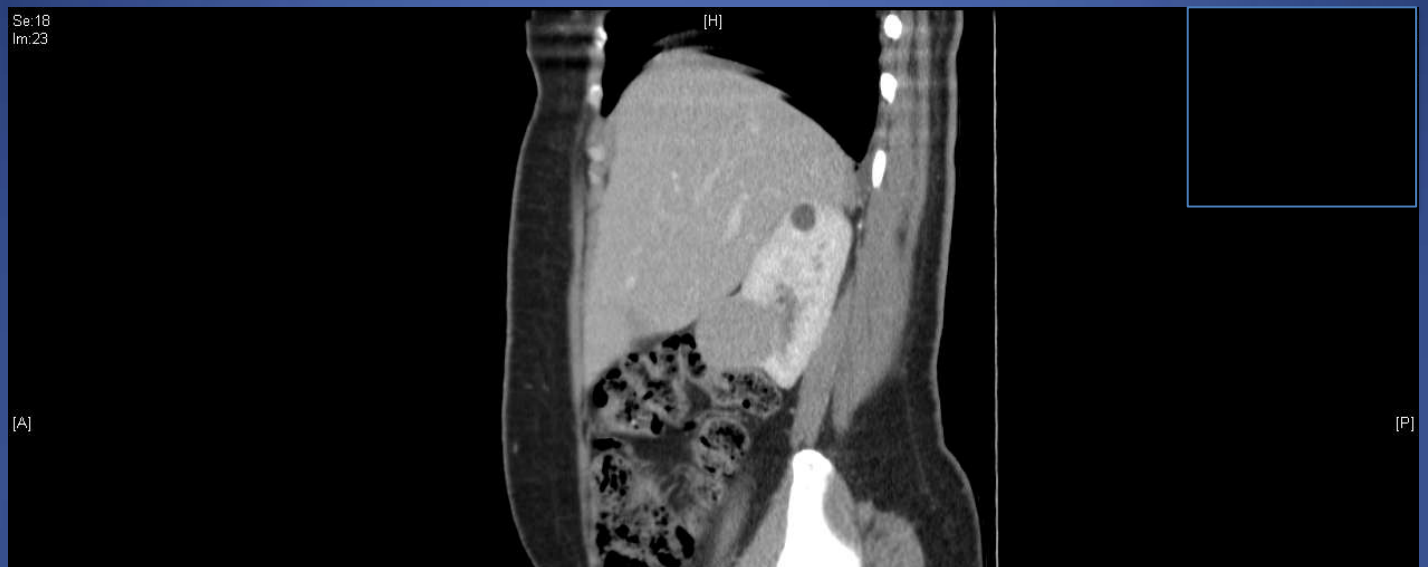
- Breast: always do FNA pre surgery
- Colorectal: colonsocopy and biopsy
- Prostate: TRUS/TP biopsy mandatory
- Lung: bronchoscopy and biopsy, EBUS + Bx

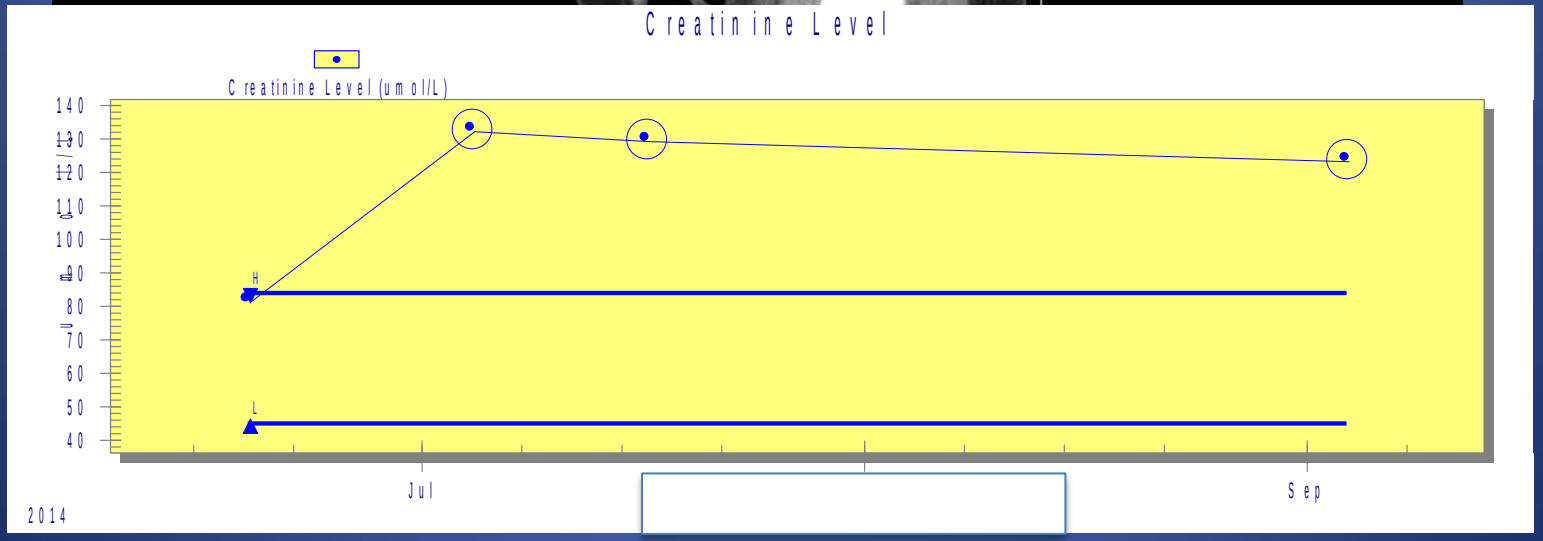
- “But the kidney is different”

Difficult to access/vascular organs

- Brain: biopsy pre surgery/DXT/Chemo
- Liver Primary Tumour or Metastasis
  - Always percutaneously biopsy pre surgery
- Pancreas
  - ERCP or percutaneously biopsy
- Enlarged Retroperitoneal lymph nodes
  - Percutaneous biopsy

AML





Why wouldn't you do a renal biopsy?

- Incorrect result: false negative
- Peri-renal bleeding → difficult surgery
- Tract seeding
- Hassle: 2WW pathway
- Cost: cheaper than PN

Lets Dispel some myths

- Biopsy isn't accurate: 90% initial diagnosis
- Biopsy causes bleeding → NO
- Biopsy seeds tumour → No
- Repeat Biopsy isn't worth it → No 10/12 diagnostic, 8 malignant
- 345 Biopsies: Grade 1 complications were experienced in 10.1% of cases, with no major bleeding and no seeding of the biopsy tract. There was one grade 3a complication (0.3%).

Eur Urol. 2011 Sep;60(3):578-84. doi: 10.1016/j.eururo.2011.06.021. Epub 2011 Jun 24.
Outcomes of small renal mass needle core biopsy, nondiagnostic percutaneous biopsy, and the role of repeat biopsy. Leveridge MJ

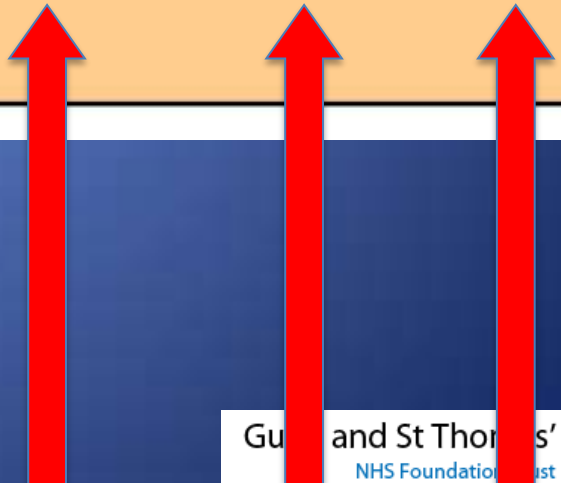
Table 1 – Complications of needle core biopsies of renal masses in recent series

	No. of tumours biopsied	Image guidance	Needle size, gauge	No. of biopsies taken	No. of significant complications* (%)	No. of seeding (%)	No. of significant bleeding** (%)
Neuzillet et al. [8]	88	CT	18	≥2	0	0	0
Shannon et al. [9]	235	CT/US	18	1–4	2 (0.9)	0	2 (0.9)
Schmidbauer et al. [10]	78	CT	18	2–3	1 (1.3)	0	0
Lebret et al. [11]	119	CT/US	18	1–4	0	0	0
Maturen et al. [12]	152	CT/US	18	2–4	2 (1.3)	0	2 (1.3)
Volpe et al. [13]	100	CT/US	18	≥2	1 (1)	0	0
Wang et al. [14]	110	CT/US	18	≥2	2 (1.8)	0	1 (0.9)
Veltri et al. [15]	150	US	18	1–2	0	0	0
Leveridge et al. [16]	345	CT/US	18	≥2	1 (0.3)	0	1 (0.3)

CT = computed tomography; US = ultrasound.

* Complications requiring active treatment or hospital admission.

** Bleeding requiring active treatment, including transfusions or hospital admission.



It makes the surgery more difficult

Why do a renal biopsy?

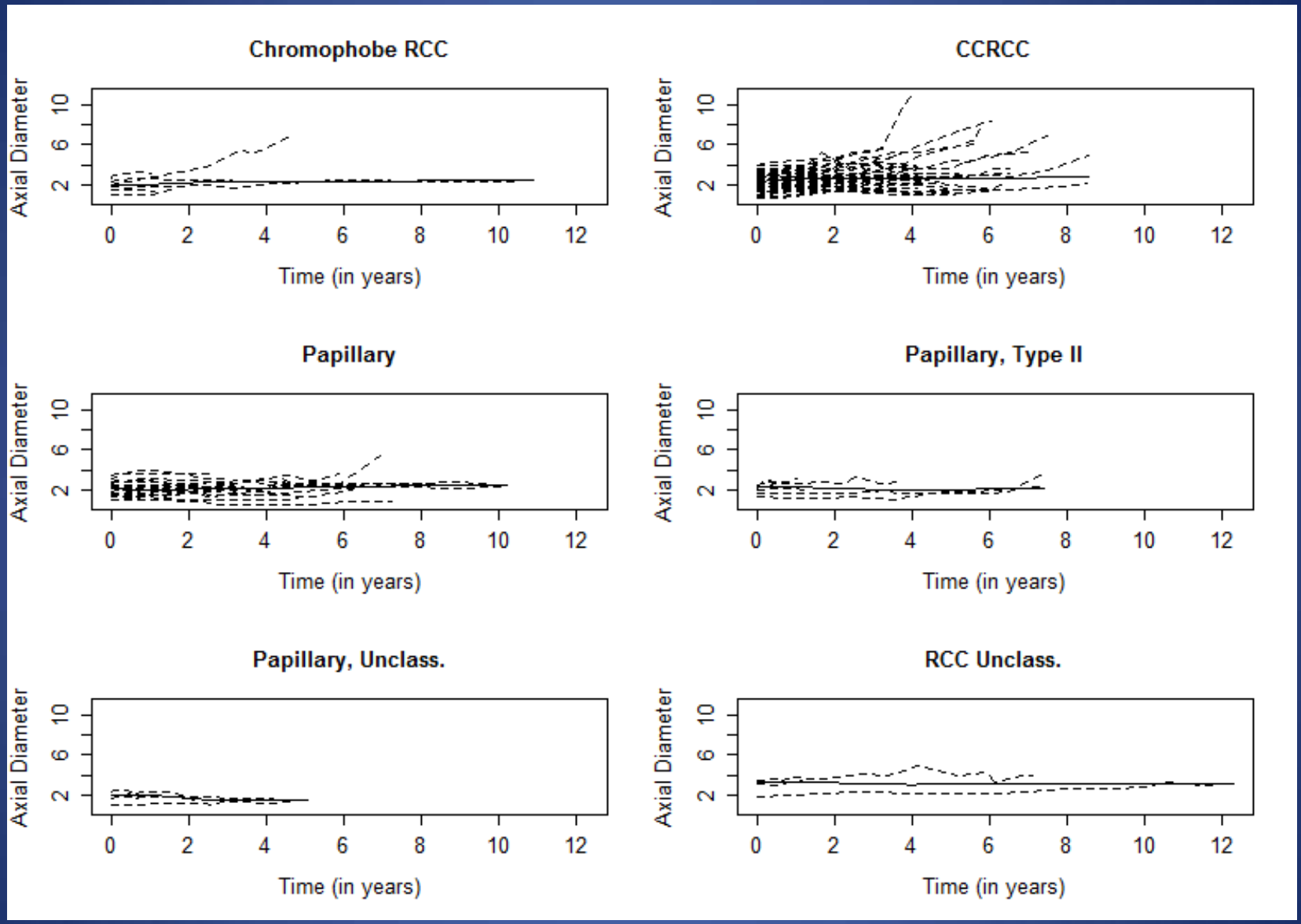
- Get a tissue diagnosis prior to operation
  - Many low grade and slow growing
- Rule out benign causes: >20%
- Even if malignant result may hugely influence practice
  - Grade 1 vs. Grade 3
  - Chromophobe vs. Papillary I vs. Clear Cell

Jewett et al. 2014

- 207 masses
- 603 days
- 0.12cm/ year growth
- Age, symptoms at diagnosis, tumour consistency and maximum diameter of the renal mass were not predictors of growth.

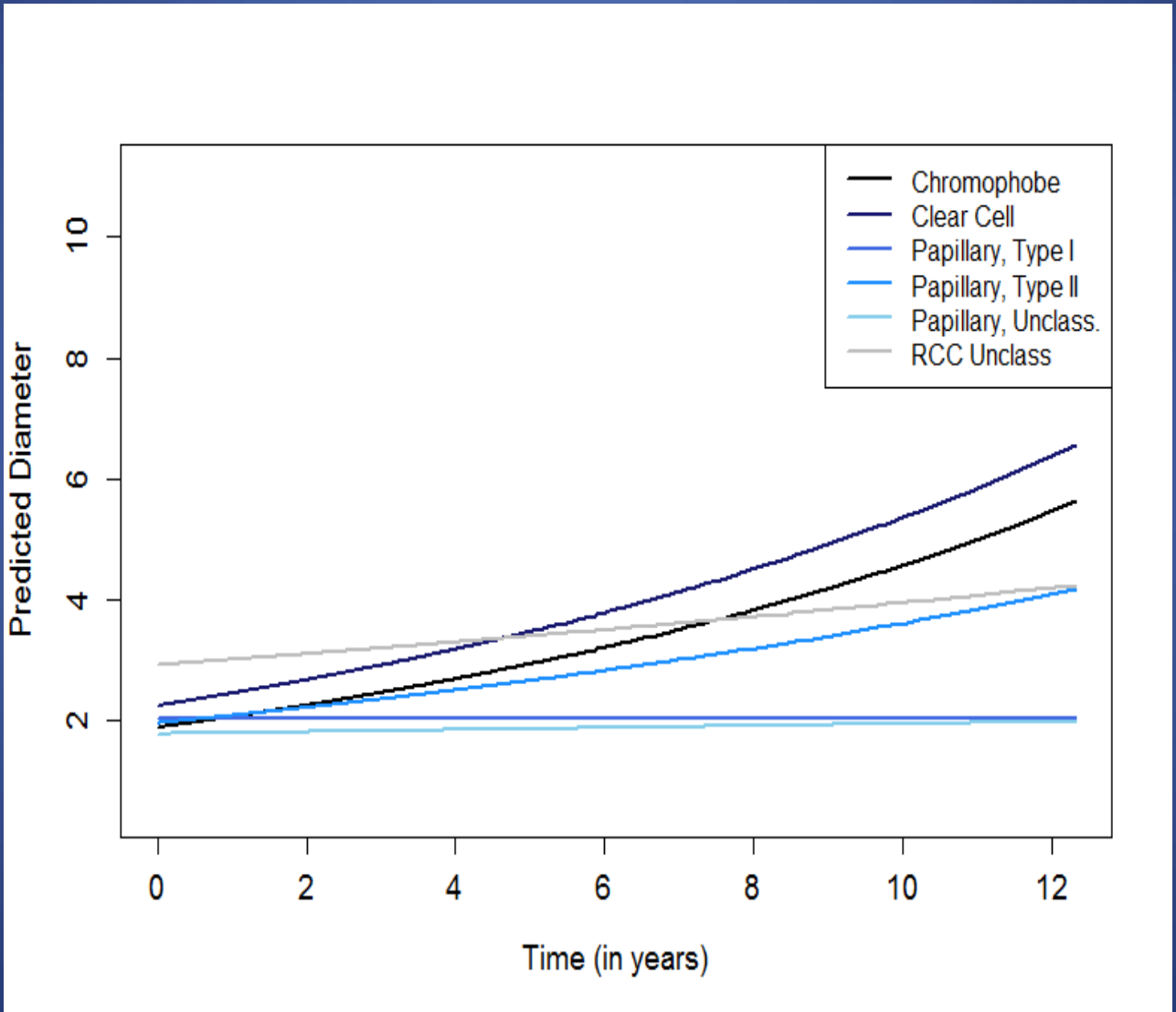
Growth kinetics of small renal masses: A prospective analysis from the Renal Cell Carcinoma Consortium of Canada. Can Urol Assoc J. 2014

No. patients	169	—
No. masses	207	—
Imaging studies/mass (median)	5	Range (2–14)
Age (mean)	72.5	Range (52–91)
Symptomatic (%)	8.4	—
Asymptomatic (%)	91.6	—
Tumour characteristics		
Size (median)	2.15 cm	SD (0.79)
Growth rate (median)	0.12 cm/year	SD (0.016)



Thanks and acknowledgment Prof Michael Jewett

Predicted growth curves, by histology



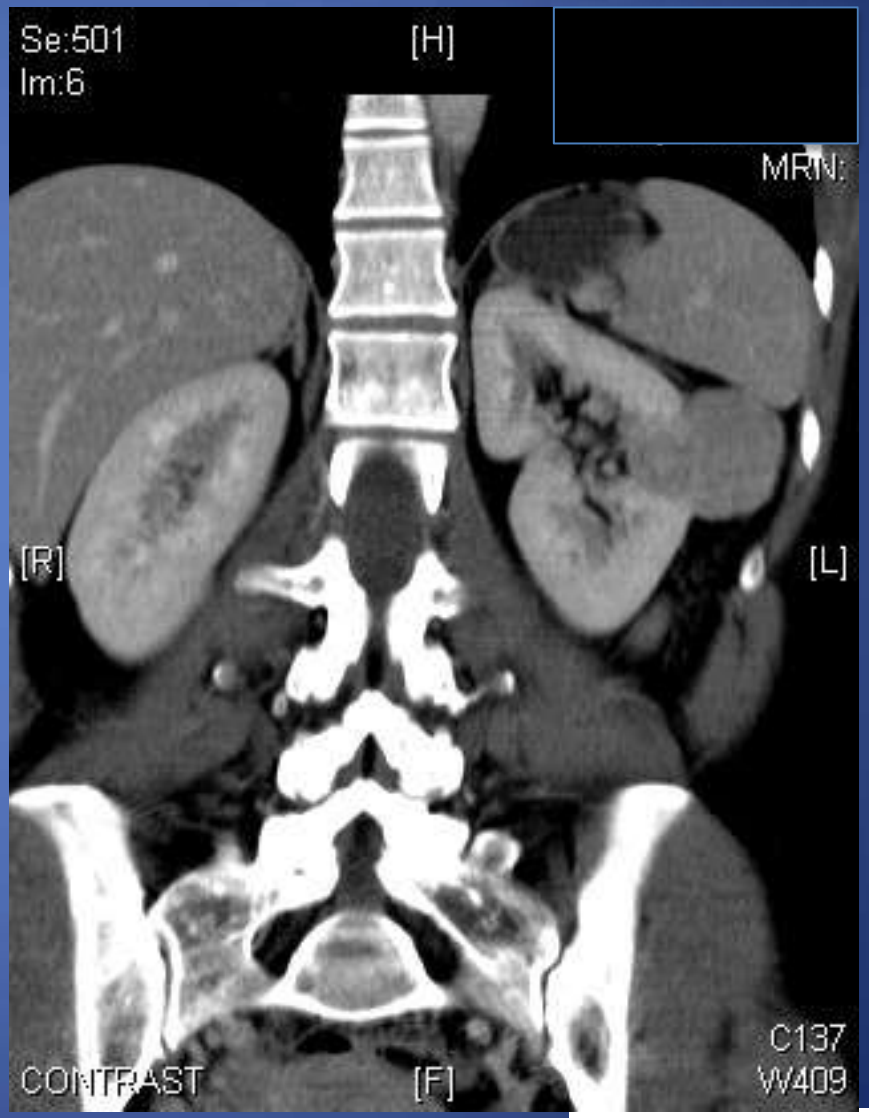
Growth Rates

Table 9: Estimated growth rates by progression

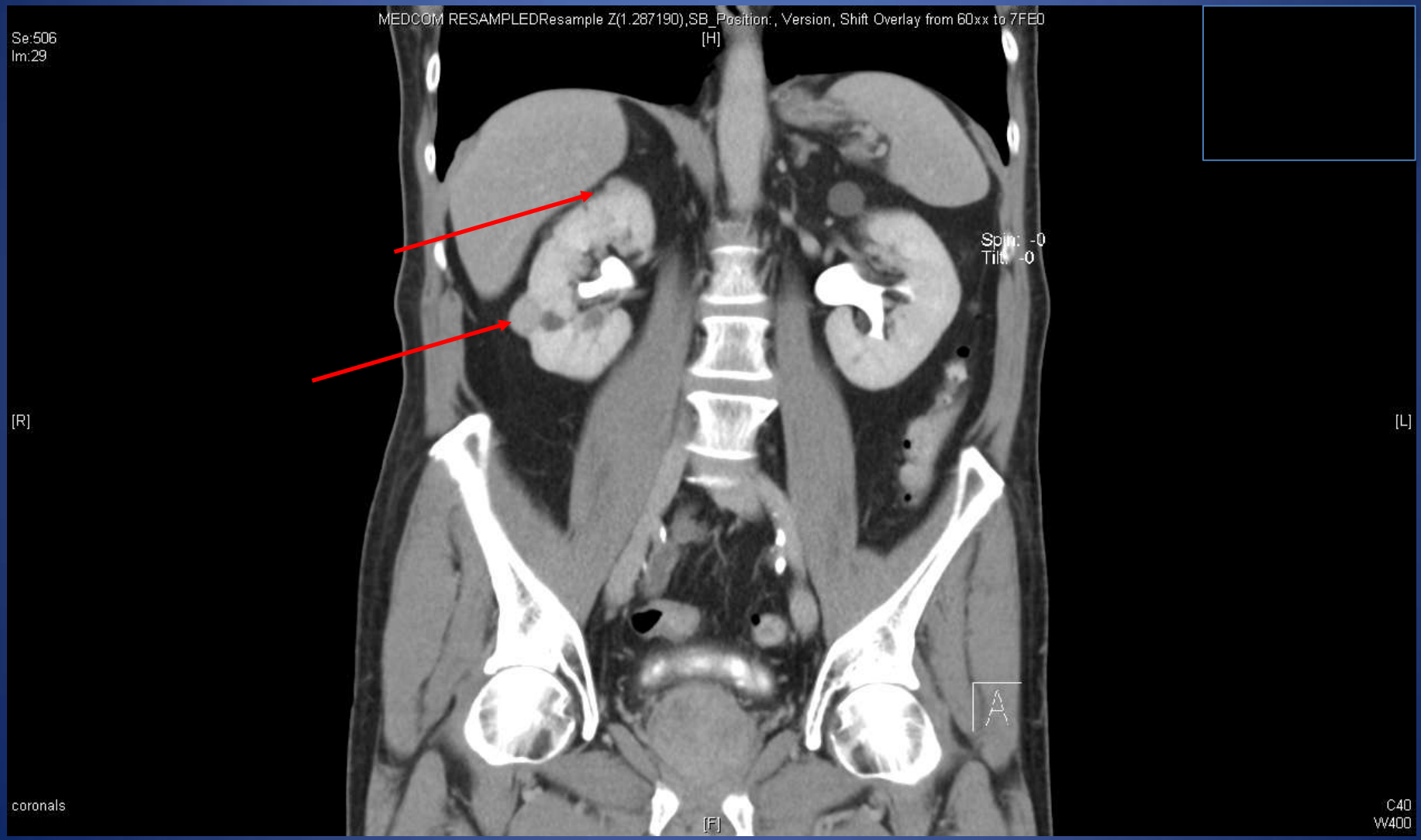
Time period	Average growth, Non-progressors	Average growth, Progressors
First image to one year	0.052	0.27
One year to second year	0.053	0.30
Second year to third year	0.054	0.34
Third year to fourth year	0.056	0.39
Fourth year to fifth year	0.057	0.44
Fifth year to fourth year	0.058	0.49
Average/yr over the 12 years	0.71	6.9

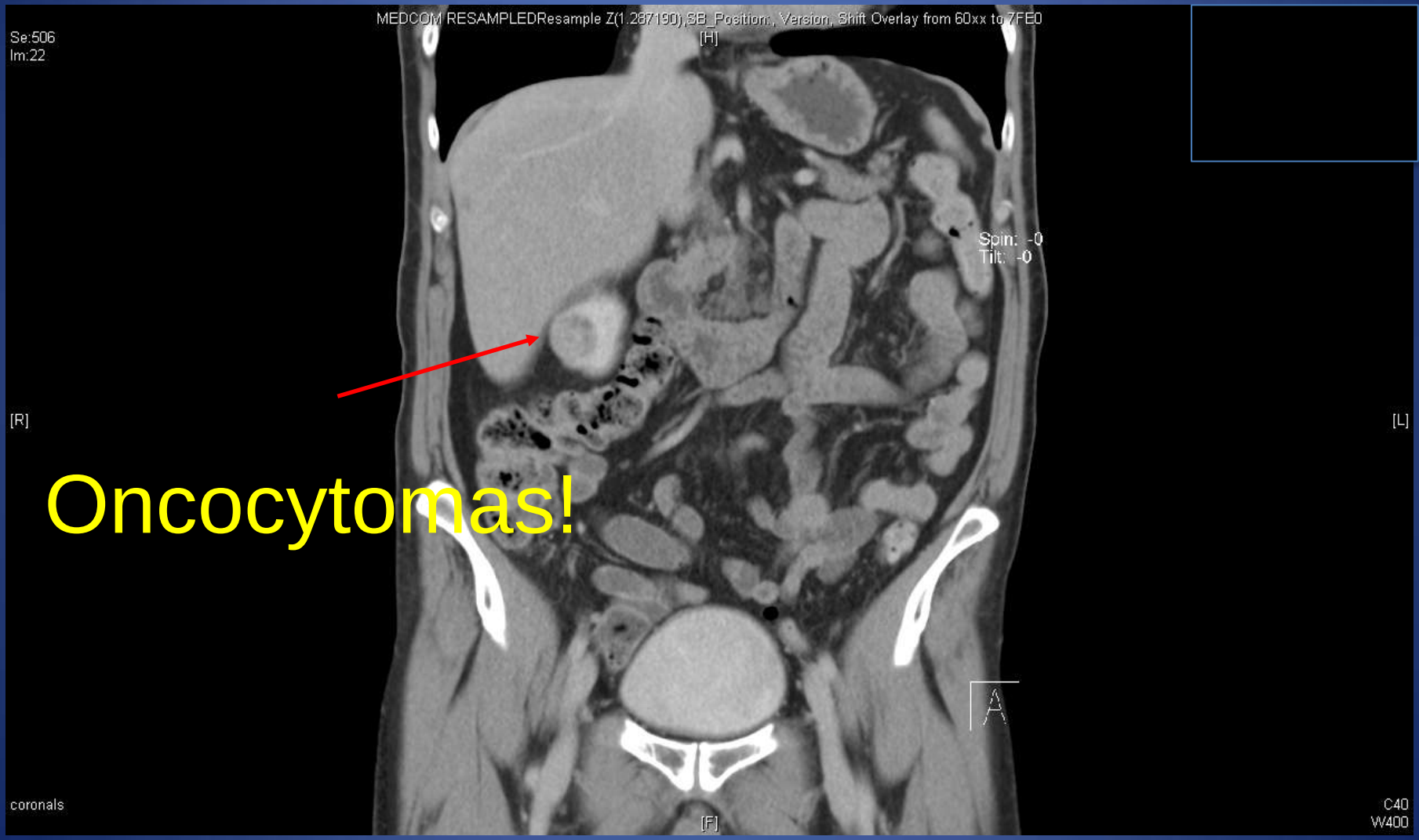
AML

- 46years old
- 4 x 4 cm

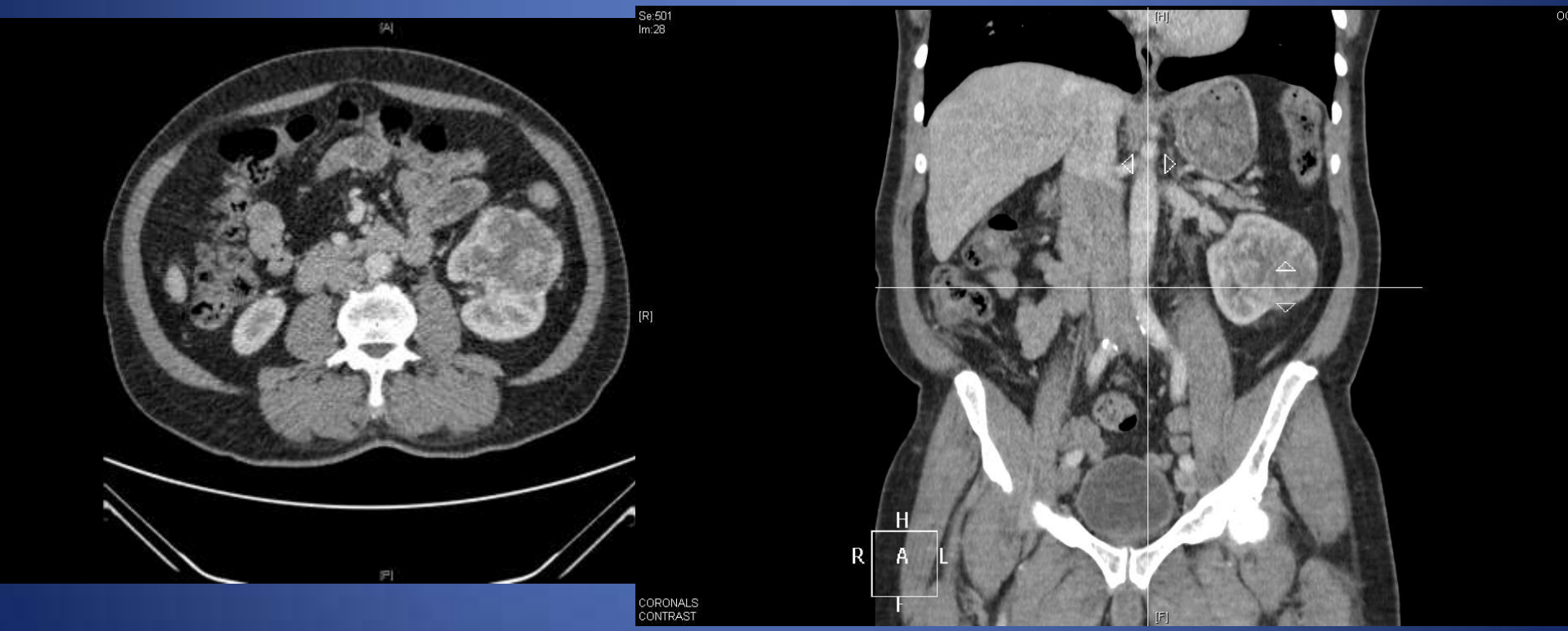


What about if there are >1 SRM?





Expect the unexpected



Oncocytoma


KNOWLEDGE
POWER

omas' NHS
NHS Foundation Trust

Conclusions

- SRMs have a ≥20% risk of undergoing unnecessary surgery for benign disease
- Our patients are denied an opportunity for full informed consent:
  - This might include a prediction that their tumour has a very small risk of growing or metastasizing
- Biopsy them all
- The era of the unbiopsied SRM has passed