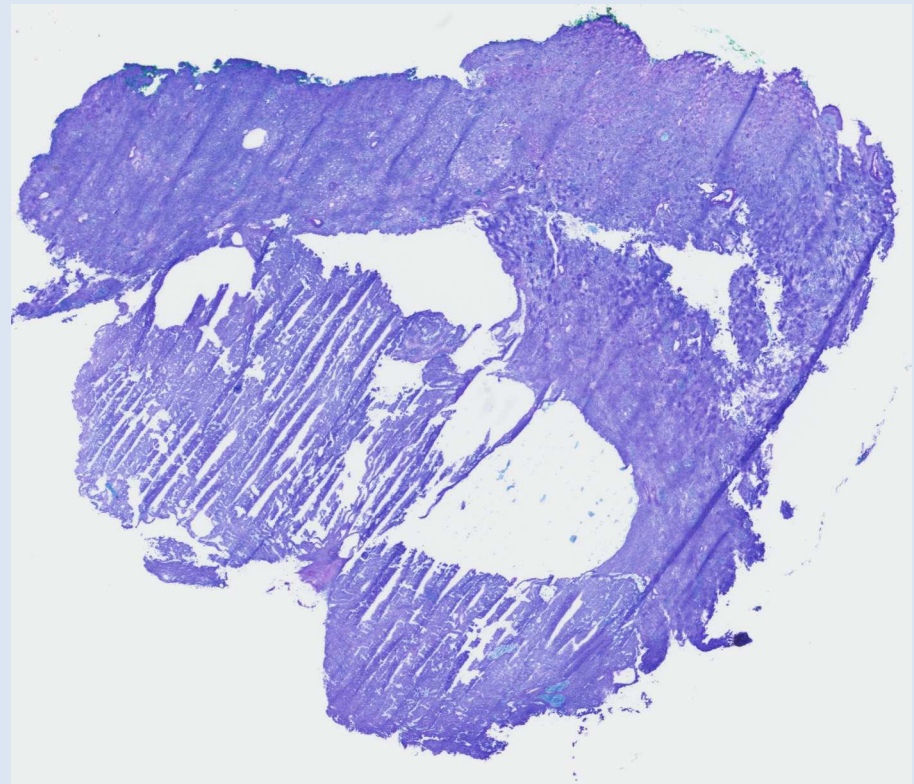
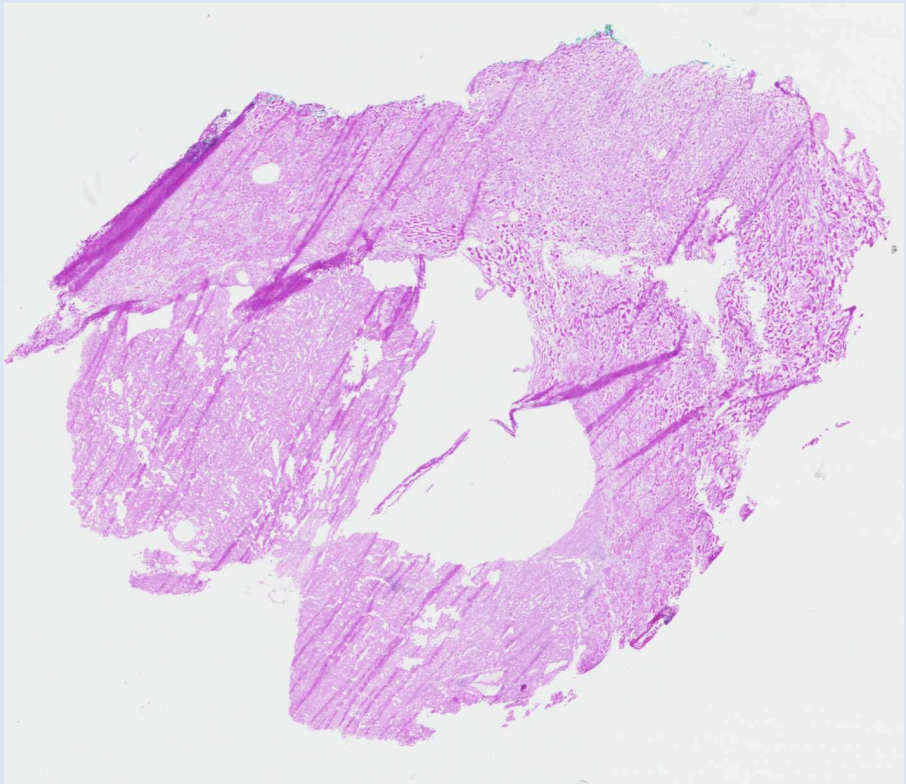


Frozen sections (FS) for
Nephron Sparing Surgery (NSS) (Partial
Nephrectomies (PN)) and Cystectomy (CT)



Frozen section

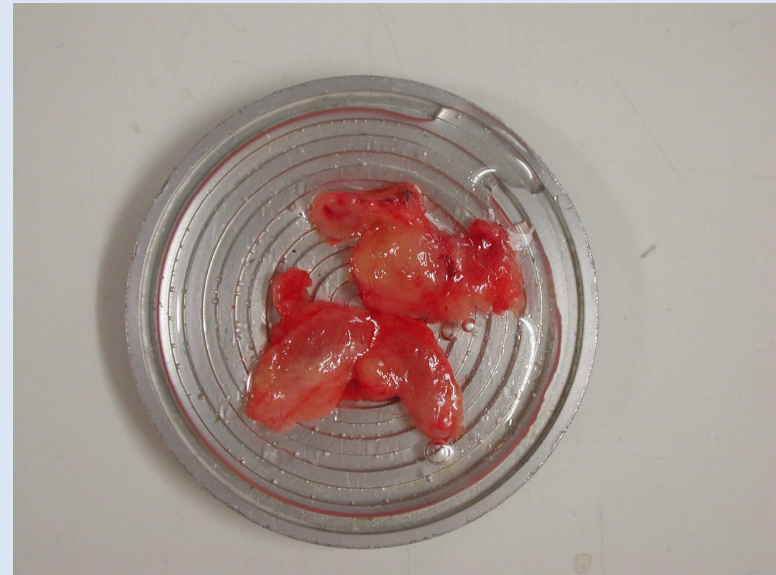


Mean
15 minutes

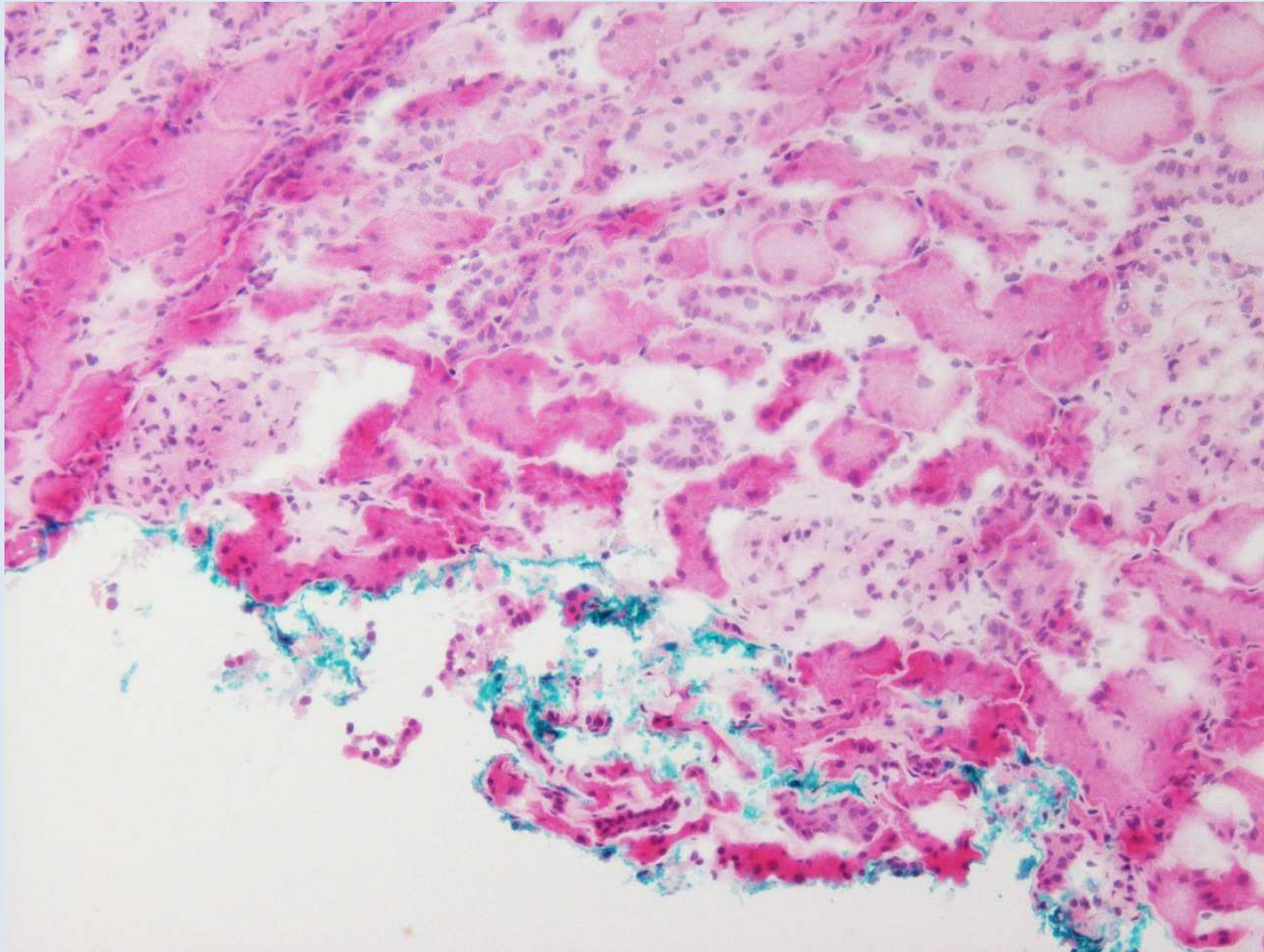


What is Frozen section ?

- Basic non exhaustive histologic examination
- No special or complementary stains
- For immediate and unplanned surgical implications



FS and margins



NSS : Reported R+ do not exceed 7.5%

Table 1 Positive margin rates in selected open and laparoscopic partial-nephrectomy series for cancer.

Series	Number of patients	Tumor size (mean [range] cm)	Number of positive margins (%)
Open partial nephrectomy			
Gill <i>et al.</i> (2007) ²¹	858	3.3 (0.13–9)	10 (1)
Kwon <i>et al.</i> (2007) ³⁹	770	2.6 ^a (2.2–3.5)	57 (7.4)
Patard <i>et al.</i> (2007) ¹⁶	542	3.4 ± 2.1 ^b	8 (1.5)
Porpiglia <i>et al.</i> (2005) ¹⁹	30	3.14 ^a (1.3–4.8)	1 (3.3)
Thompson <i>et al.</i> (2005) ⁶⁶	480	3.6 ± 2.2 ^b	4 (0.8)
Gill <i>et al.</i> (2003) ¹⁷	100	3.3 (3–4)	0 (0)
Sutherland <i>et al.</i> (2002) ²²	44	3.22 (1.3–10)	3 (6.8)
Lee <i>et al.</i> (2000) ⁶⁷	79	2.5 (0.9–4)	1 (1.3)
Laparoscopic partial nephrectomy			
Gill <i>et al.</i> (2007) ²¹	556	2.6 (0.4–8)	12 (1.6)
Breda <i>et al.</i> (2007) ⁴⁰	808	2.7 (2–4)	21 (2.4)
Permpongkosol <i>et al.</i> (2006) ⁴³	511	2.8 ± 0.9 ^b	9 (1.8)
Porpiglia <i>et al.</i> (2005) ¹⁹	34	3.2 ^a (1.8–4.1)	1 (2.9)
Venkatesh <i>et al.</i> (2005) ⁴¹	123	2.6 (1–9)	3 (2.5)
Gill <i>et al.</i> (2003) ¹⁷	100	2.8 (2–4)	3 (3)
^a Median tumor size. ^b Mean tumor size ± 1 SD.			

Frozen section (FS) Nephron Sparing Surgery (NSS)

- Kwon et al., BJU 2006 770 cases : Recurrence rare
 - 4% if R+ (2),
 - 0.5% if R- (3) ,
- Patard et al., Eur Urol 2007 1048 cases : no difference on margins and cancer specific survival

FS and NSS

Peycelon et al. J Urol 2008

Survival associated with NSS (uni and multivariate analysis)

- Fuhrman grade (p= 0.004)
- pTStage (p= 0.001)
- Positivity of margins did not play a role in survival nor relapse

FS and NSS

- Kubinski et al., Urology 2004 76 cases FS
 - recurrence 1 case (1.9%)
 - FS R-, definitive report R-
- FS unnecessary expense without reliable meaningful information

FS and NSS

- Breda et al., J Urol 2007
- Duvdevani et al. J Urol 2005

301 PN : 2 cases R+ in FS Nephrectomy without residual tumor, 4 cases R+ in final report (FS R-)

FS results are Not definitive in guiding the optimal surgical treatment

FS and Cystectomy

Tollefson J Urol 2010 1397 patients

positive initial margins 12,7%

4.9% upperurinary tract (UUT) recurrence (median 3.1 years).

Positive initial margin status and final margin status associated with UUT recurrences ($p < 0.001$).

Associations of margin status with OS and DSS not statistically significant

FS and Cystectomy

Gakis World J Urol 2011 218 patients

FS sensitivity 73% and specificity 99% (1 false +)

Positive margins : increased risk of UUT
recurrences

Negative final margin was impossible to obtain in
66% of positive FS margins

Tumor multifocality is correlated with UUT-R

FS and Cystectomy

Reder Ann Diagn Pathol 2015 (364 patients)

Moschini Urol Oncol 2016 (1447 consecutive cystectomy)

Positive FS margin did not affect OS or DFS

Do not support the routine use of intraoperative frozen section

Subgroups at high risk (CIS multifocal) may benefit from intraoperative frozen section evaluation.

So ?

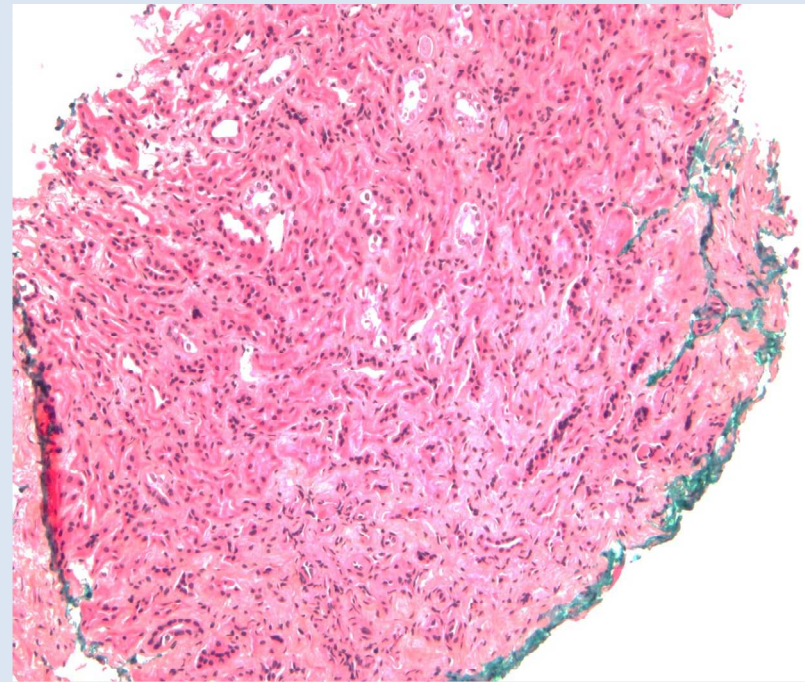
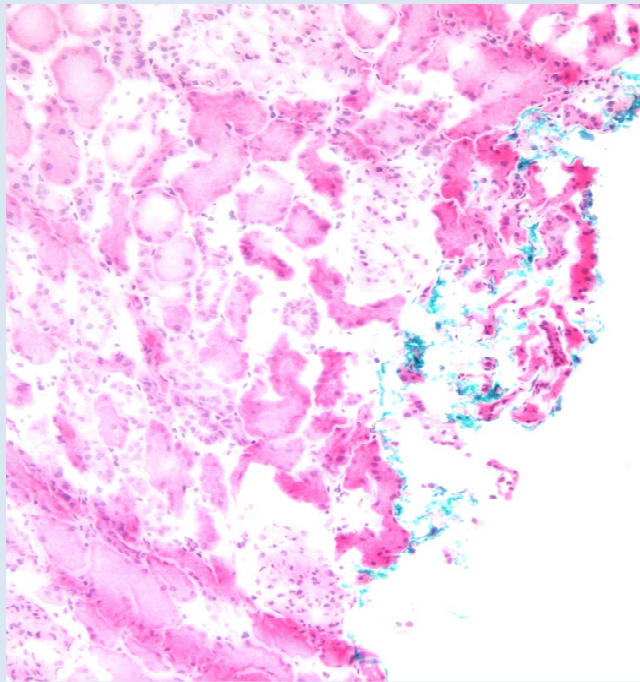
- Recurrence rate NSS similar to recurrence rate after Radical nephrectomy
- Not all R+ lead to local recurrence
- R+ do not necessarily indicate residual disease

- Prior CIS location of tumor and volume/multifocality are good predictors of recurrence
- Positive FS margins is not associated with OS and DFS

Reasons for Discrepancy between FS and Final Report

- Technical reasons
 - Small tumor
 - Problems of orientation
 - Gross examination difficult
 - Drying artefacts
 - Limited availability of special stains
- Pathologist error

Reasons for Discrepancy between FS and Final Report



Philipps et al., J Urol 2008

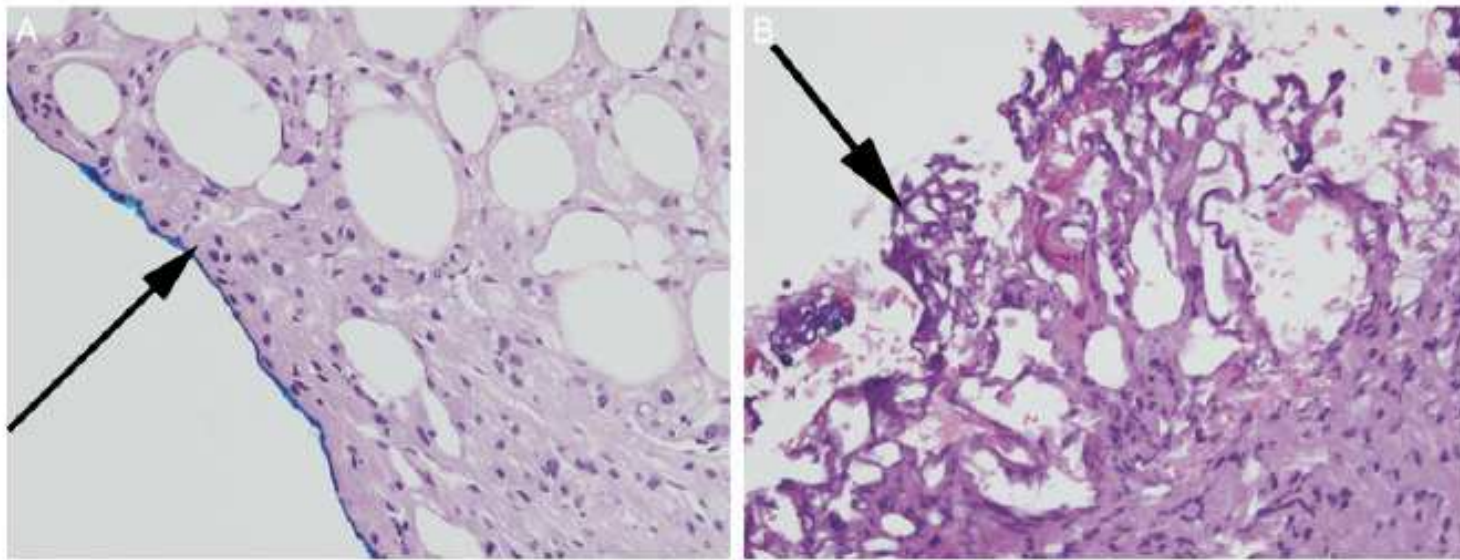


FIG. 2. Positive margins using each energy based cutting method. Note clear depiction of tumor cells approaching inked margin. Cold cutting resulted in no positive margins. *A*, harmonic shears and angiomyolipoma. *B*, bipolar cutting, and benign mixed epithelial and stromal tumor. Reduced from $\times 40$.

Frozen Sections

- Misunderstanding between pathologists and surgeons
- FS results are NEVER definitive results
- More Important is
 - tumor type, stage, grade
 - and margin **IN FINAL REPORT**

Conclusion FS

- Personal experience 2015 (private practice)
- 476 PR ; 0 FS
- 197 nephrectomies (1/2 NSS), 1 FS (presence of tumor ?)
- 85 cystectomies : 2 FS ureteral (margins)
- 35 orchidectomies : 0 FS

FS should be discussed prior to surgery

Should be an exception

A microscopic image of tissue, likely a histological section, showing a dense population of cells. The cells are stained with a blue counterstain (likely hematoxylin) and a pink/red stain (likely eosin). The tissue appears to be composed of many small, rounded cells with prominent nuclei, possibly representing a glandular or epithelial tissue. The overall appearance is that of a well-organized, cellular structure.

Thank you for your attention