Urology
An introduction to cut up

DR J R GOEPEL

Overview

- Principles
- Individual organs
  - Small pieces
  - Partial resections
  - Whole organs
- Data recording and data sets

Principles

- You are working for the patient
  - Immediate or future management
  - Prognosis
  - Family information
- You are collecting data for analysis
  - Hospital activity
  - Cancer or similar registry
  - Comparative outcome data

Principles

- Know your anatomy
  - Distortion by disease?
- Know your pathology
  - Are there particular aspects to be aware of?
- Follow expert guidance intelligently
- Use prompts
- ASK FOR HELP: DON'T MAKE IT UP

Be purposeful when dissecting

- Know why you are making every cut
  - Don't compromise what comes next
- Know why you are taking every block

THINK AHead

Kidney

- Tell me 3 disorders that might result in nephrectomy
- Tell me the commonest tumour of
  - Renal cortex
  - Renal pelvis
- Tell me something characteristic of the behaviour of renal cortex tumours
- Do we get tumour biopsies before resection?
- Open specimens to allow to fix

Kidney

- Cysts: only if suspected malignancy
  - Polycystic
- Hydronephrosis
  - Pelvi-ureteric junction
- Stones
  - Xanthogranulomatous pyelonephritis
- Tumours
- Trauma, end stage failure, other surgery

Kidney: Cysts

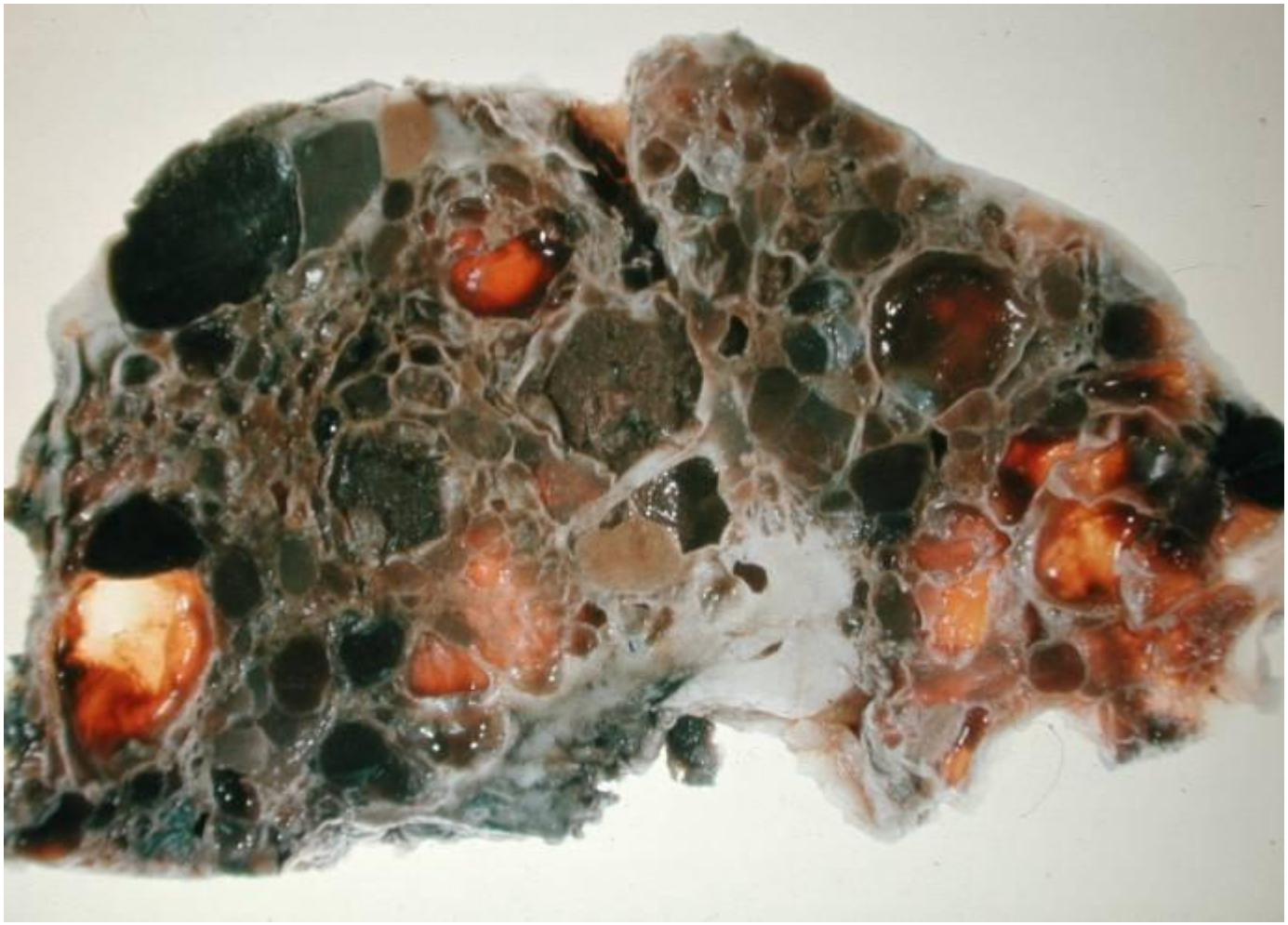
- Simple single or multiple
- Bosnaik system: risk of tumour
  - Eg. Bosniak 3
- Polycystic – may have a tumour too

Multiple Renal Cysts

Bosniak 3 cyst

Multilocular Cystic RCC

Polycystic Kidney

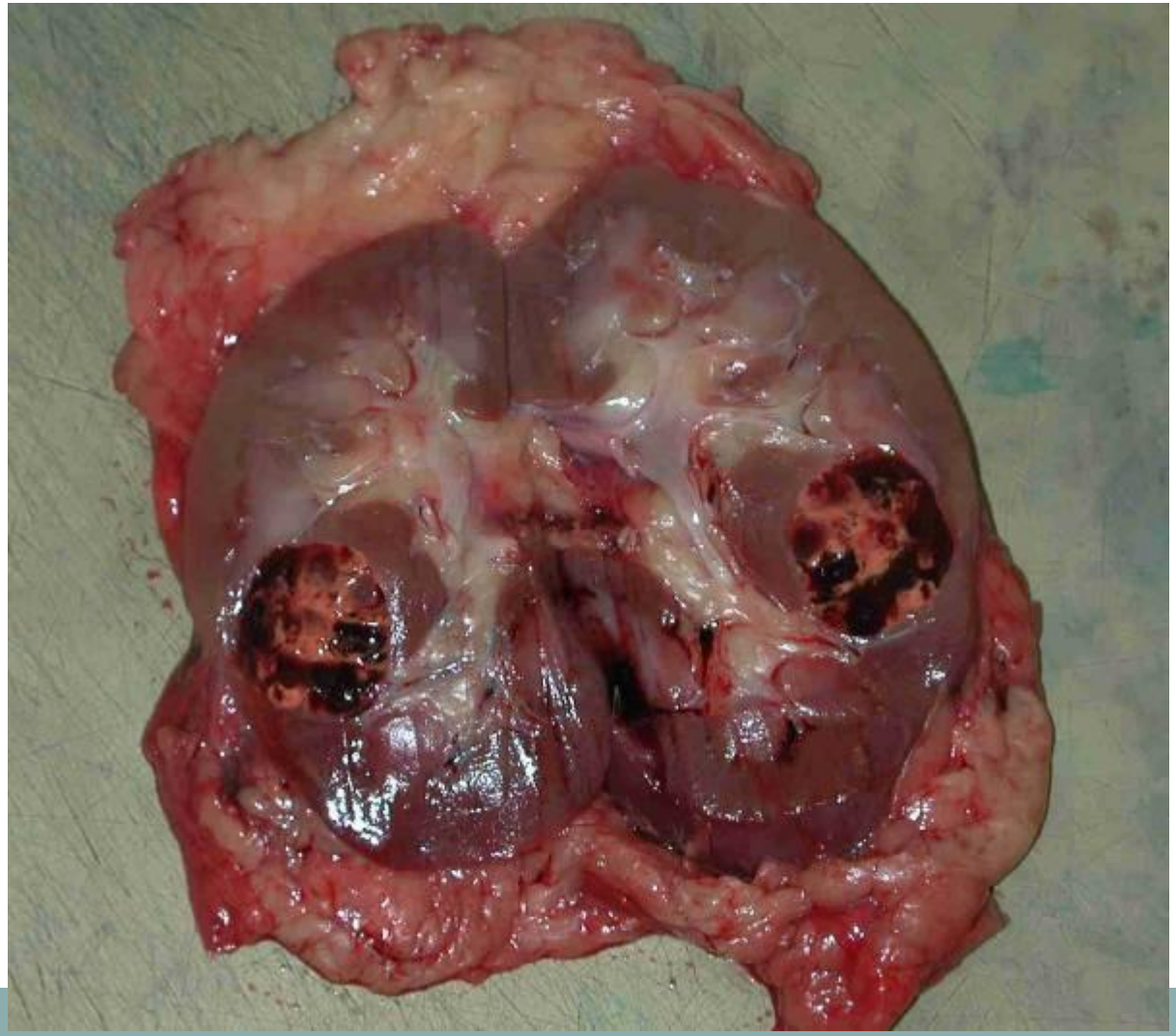


Hydronephrosis

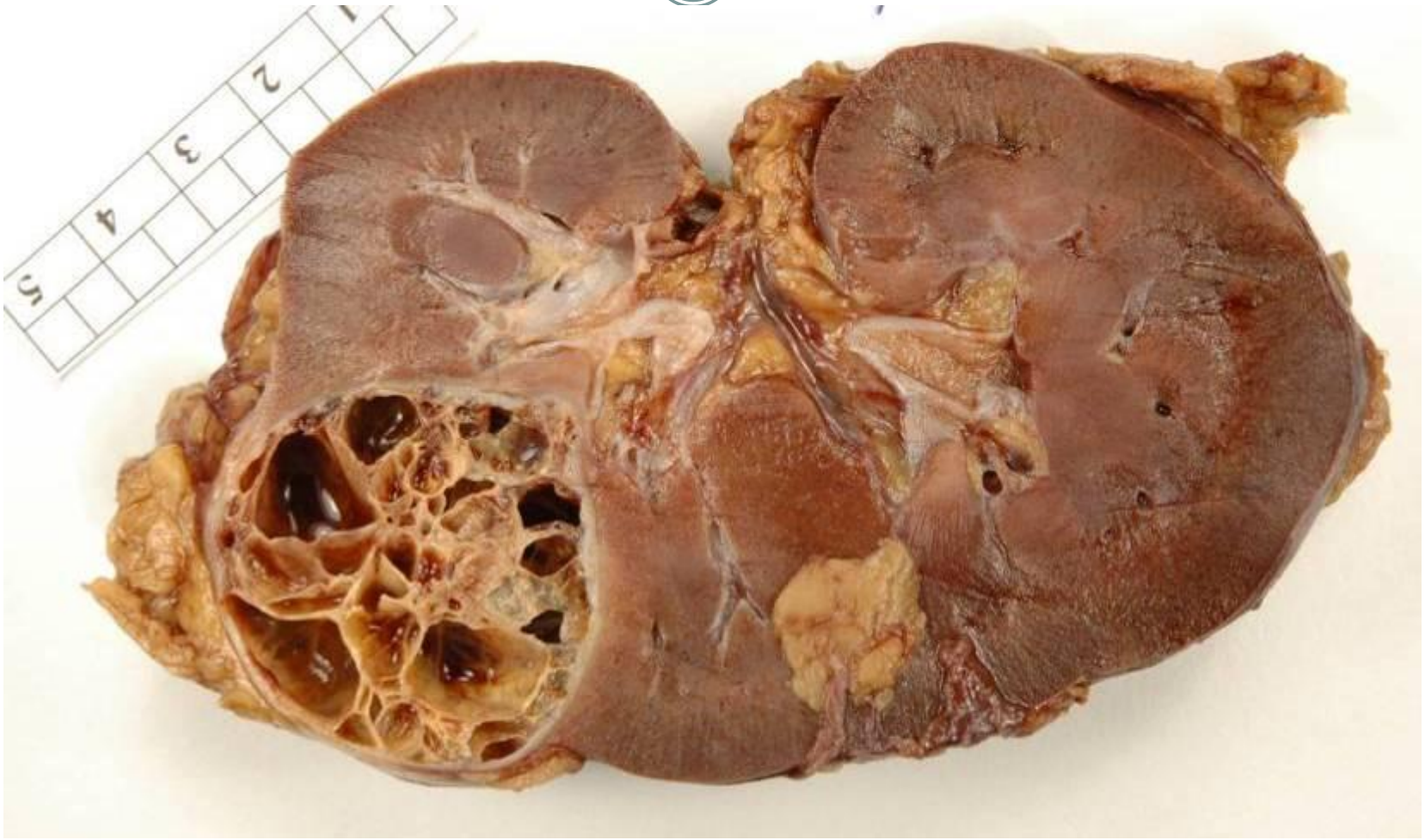
Pelvi-ureteric Junction Obstruction

Staghorn Calculus

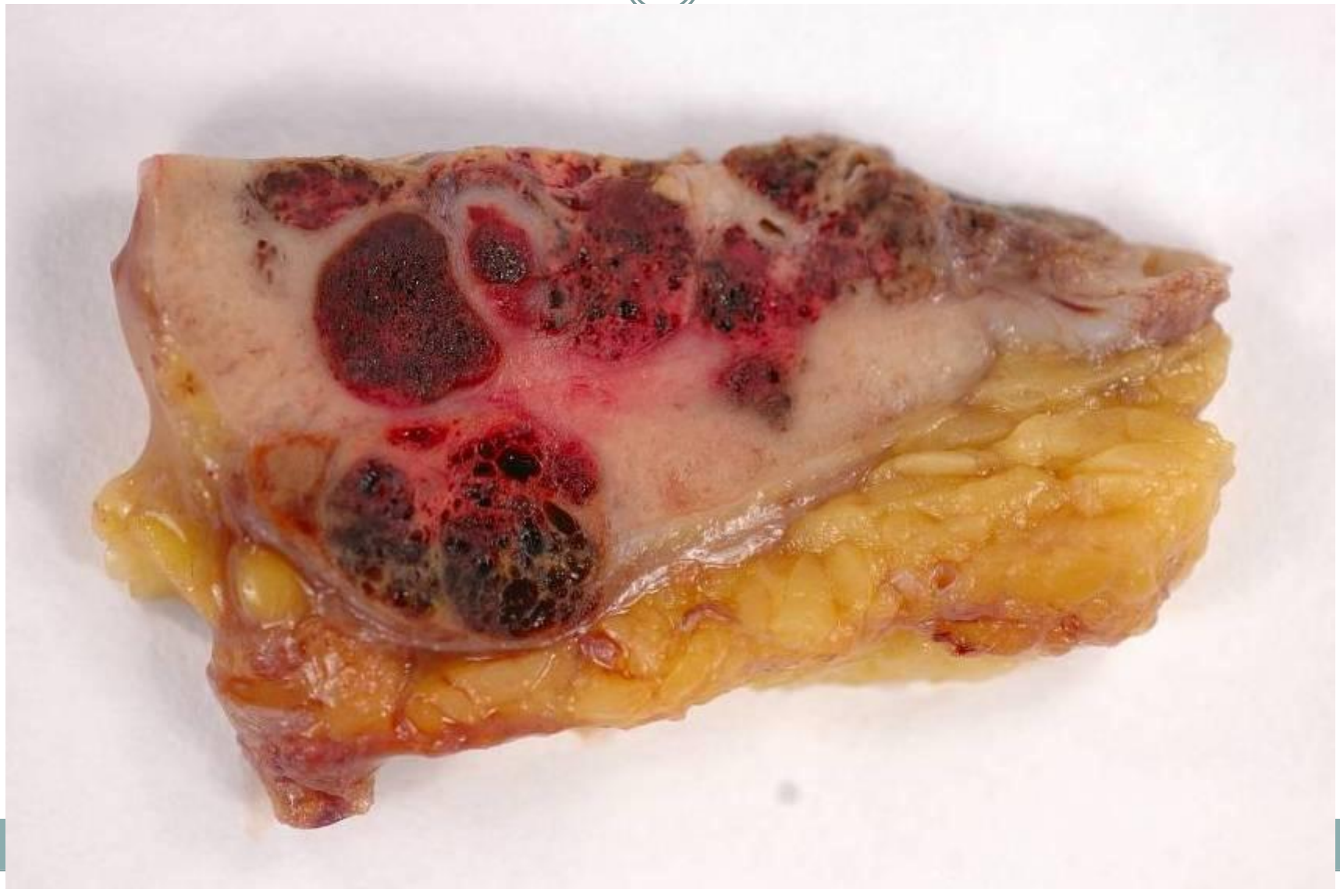
Renal Cell Carcinoma



Renal Cell Carcinoma



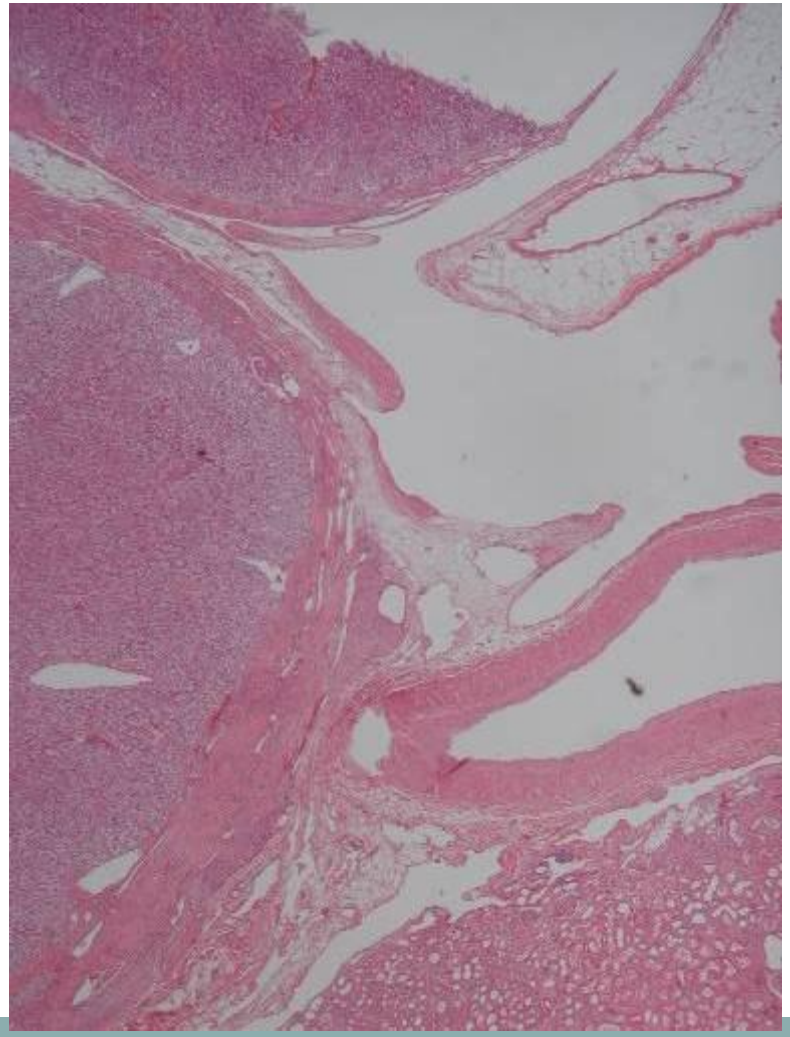
2nd Cut Perpendicular to 1st

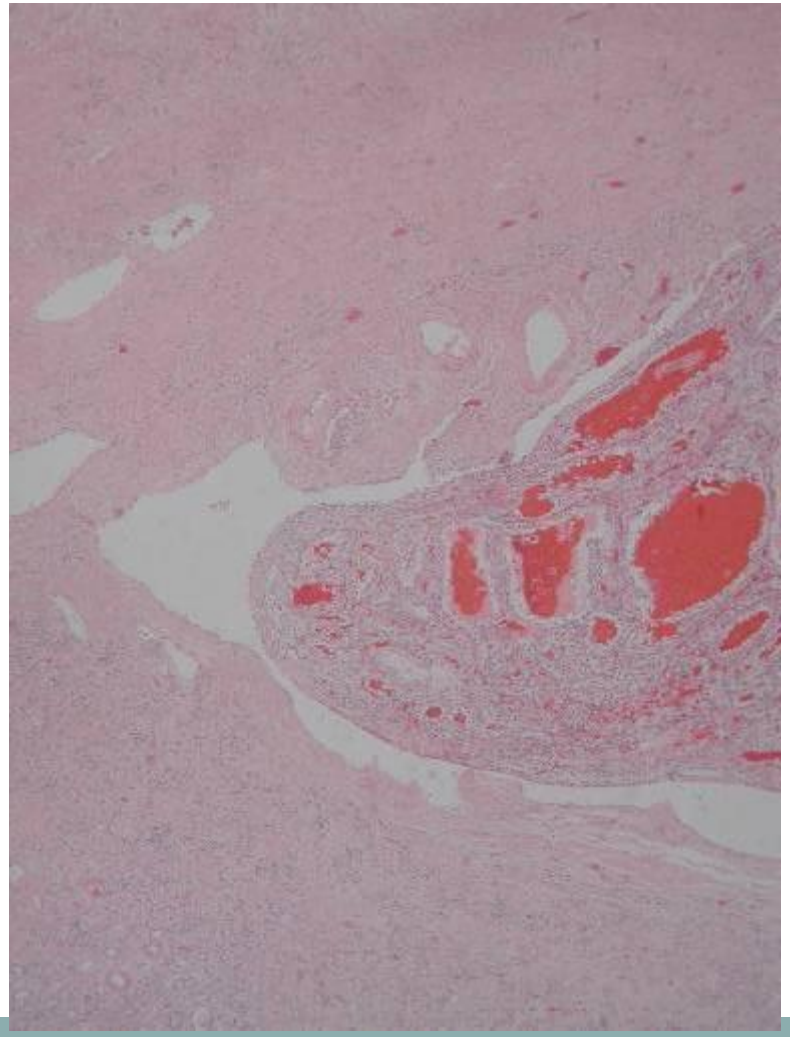


RCC Segmental Vein Invasion

RCC Hilar Renal Vein to IVC

Renal Sinus Vessels – Invasion





Partial Nephrectomy for RCC

Bladder

- Tell me 3 disorders of the bladder which might give rise to a histology specimen.

Bladder

- Tell me 3 disorders of the bladder which might give rise to a histology specimen.
- Haematuria
- Tumours
- Interstitial cystitis
- Fistula
- Ketamine abuse

Bladder tumours

- What is the common tumour?
  - Do you know any of its variants?
  - What are examples of other bladder tumours?
- Do you know the T stages?
- The common tumours have two different main patterns of growth; what are they?

Bladder tumours

- Urothelial carcinoma (previously TCC)
  - Micropapillay, nested, small cell, sarcomatoid
  - Adenca, squamous ca, sarcoma
- Ta no invasion. T1 lamina propria.
  T2 muscularis propria. T3 beyond bladder
  T4 into prostate or other organs
- Papillary non-invasive vs Infiltrating

Bladder specimens

- Biopsies
  - Process all, cut levels as routine
  - What is the diagnosis?
- Transurethral resections
  - Process all new tumour, or sample recurrence
  - Levels x3 if only one block
  - Tumour type and stage

Bladder TUR

Bladder TUR

Bladder specimens

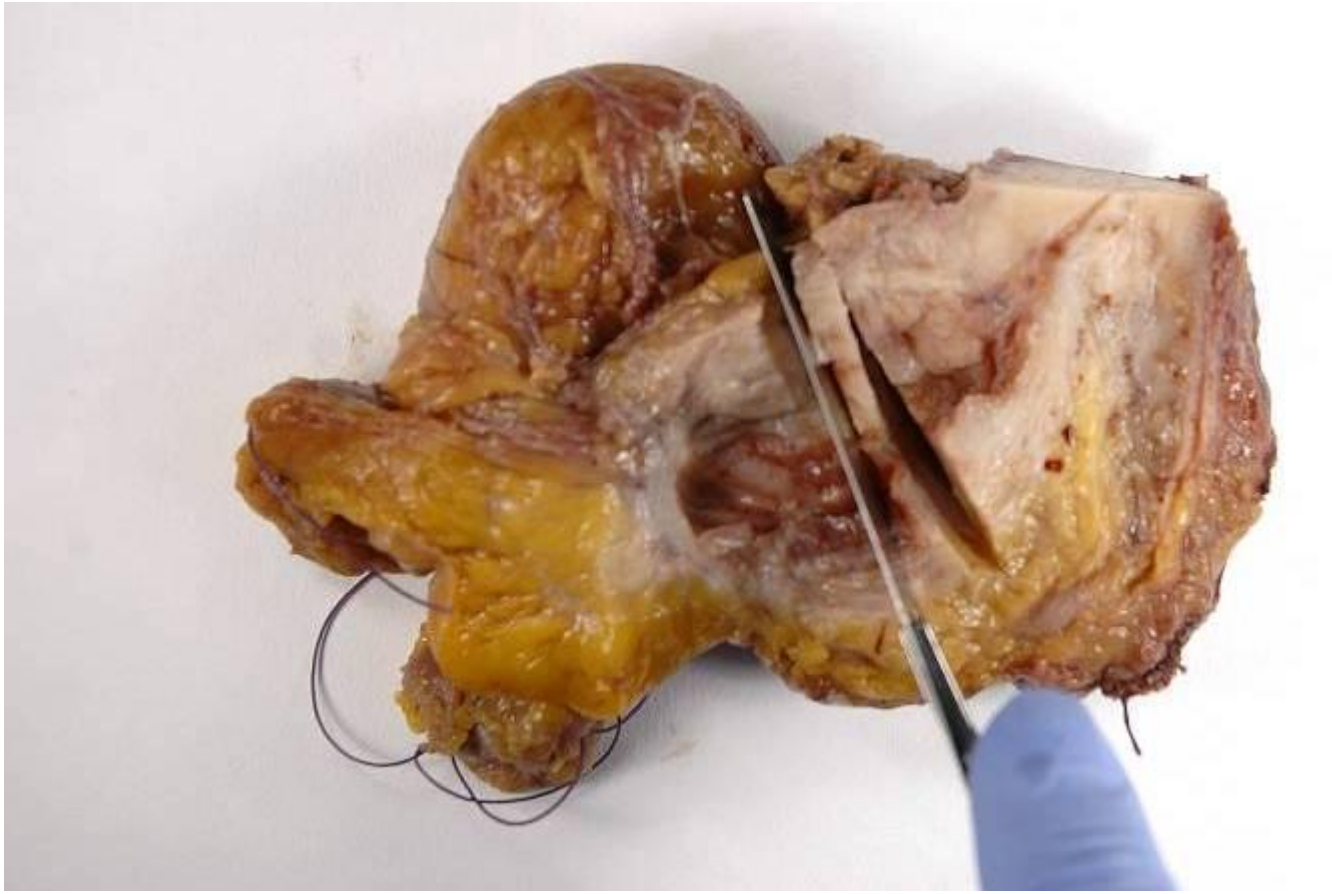
- Cystectomy for tumour
  - Inflate with formalin or open to fix
  - Protocol dissection and sampling
  - Tumour type and extent
  - Margins
  - Anything else (prostate cancer?)

Cystectomy

Cystectomy

Cystectomy

Cystectomy



Cystectomy

Bladder specimens

- Cystectomy for non-cancer
  - Often limited sampling

Prostate

- Tell me 2 common diseases of prostate
- Tell me 3 types of specimen

Prostate

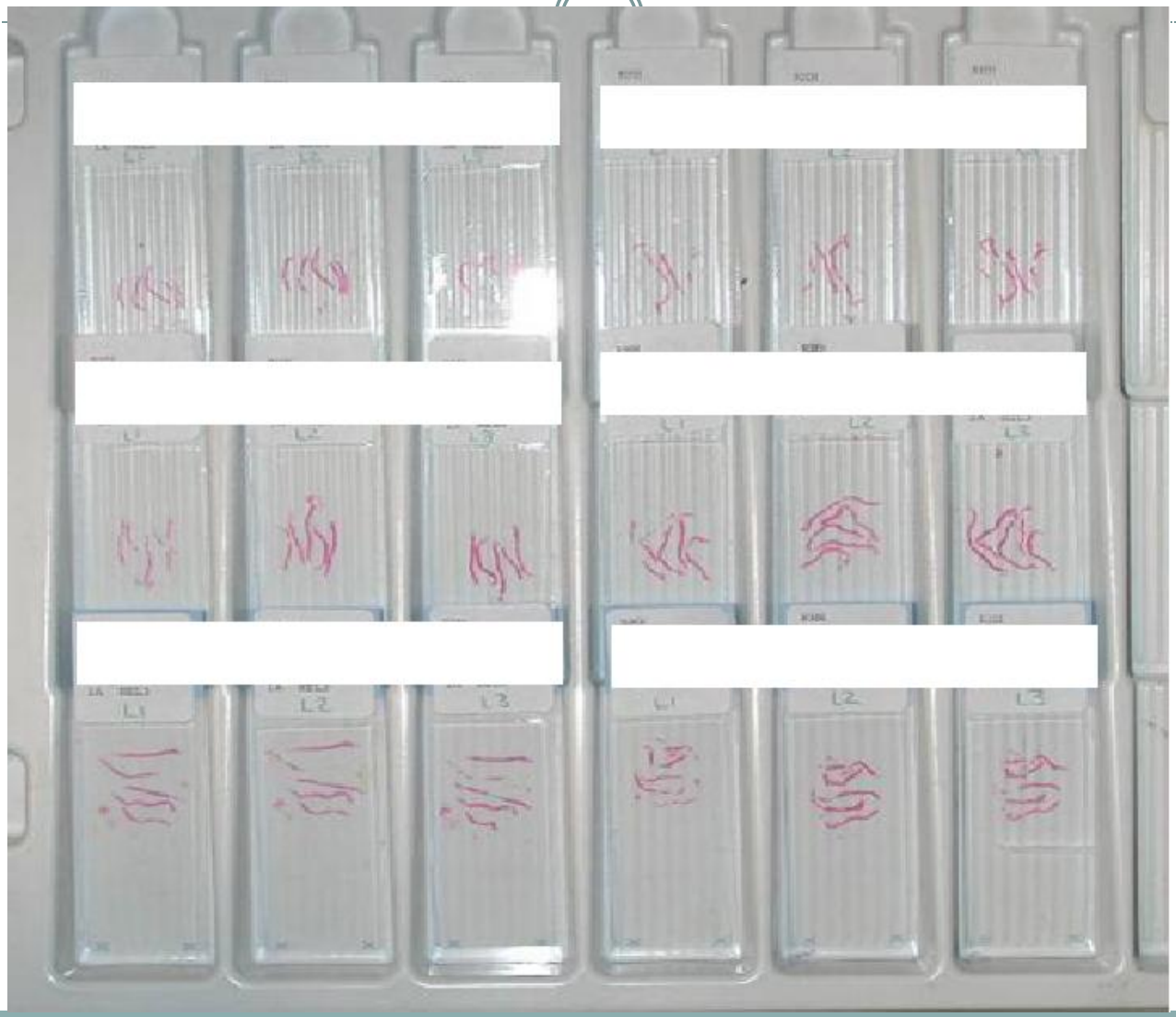
- Tell me 2 common diseases of prostate
  - Hyperplasia
  - Adenocarcinoma
- Tell me 3 types of specimen
  - Core biopsy usually transrectal, ultrasound
  - TURP chippings
  - Retropubic
  - Radical prostatectomy

Prostate

- Biopsies
  - Count and measure
  - Embed with care
  - Cut at 3 levels, keeping spares in case
- Is there cancer?
  - Type
  - Gleason grade
  - Extent

Prostate Biopsies

Prostate Biopsies



Prostate

- TURP
  - Sample according to protocol
  - Usually hyperplasia, but you are looking for cancer
  - Increase sample if small amount ca found
- Retropubic
  - Conservative sampling: not too much

Prostate: TURP and Retropubic

Prostate

- Radical prostatectomy
  - Inject formalin to aid fixing
  - Ink margin and embed all of it
  - Standard or jumbo cassettes
- Protocol report
  - Cancer type
  - Number of tumours
  - Grade
  - Extent and margins

Radical Prostatectomy

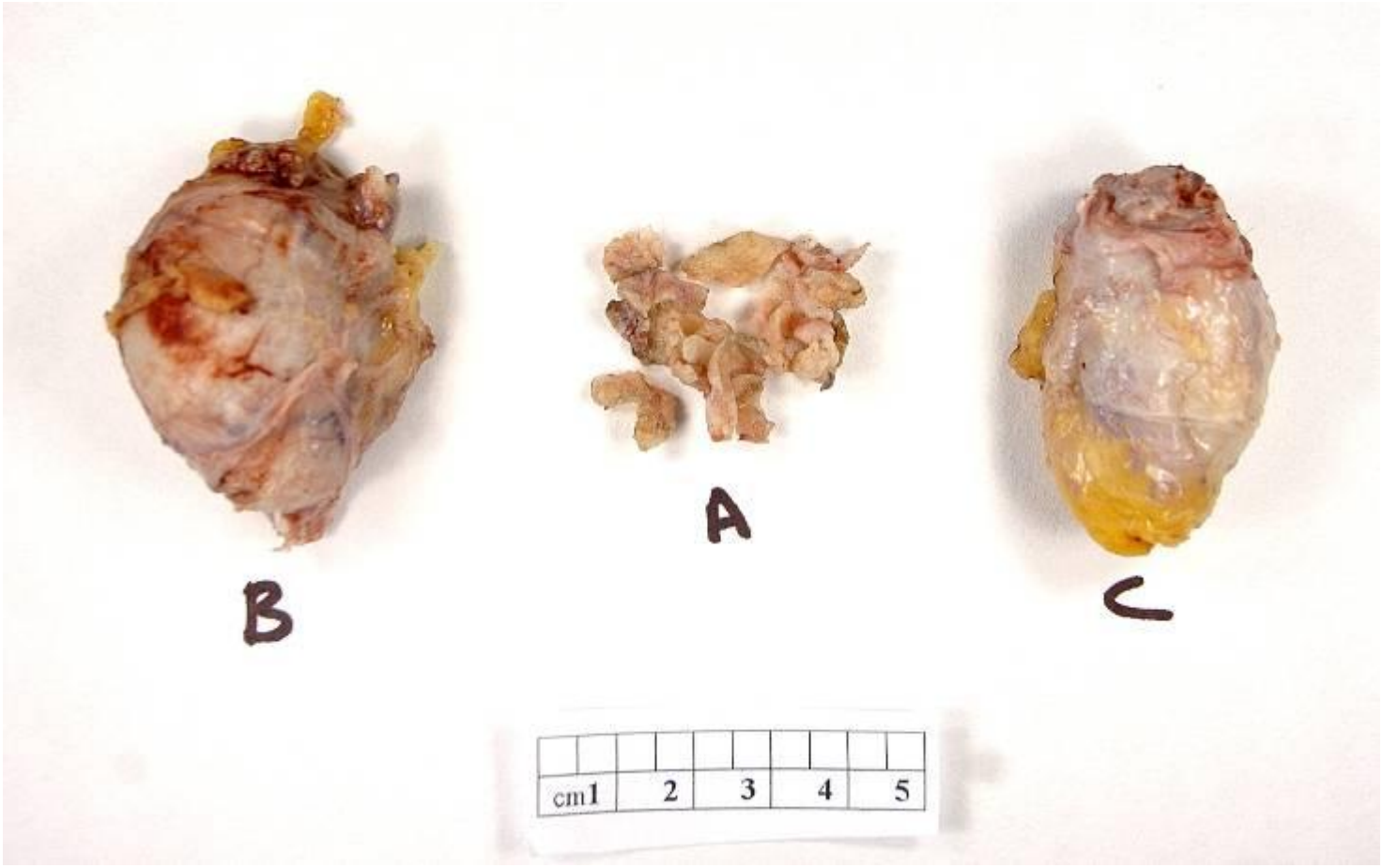
Testis

- Tell me 3 reasons why there might be an orchidectomy

Testis

- Tell me 3 reasons why there might be an orchidectomy
  - Tumour
  - Torsion or other cause of infarction
  - Infections
  - Problem hydrocoeles
  - Hernia repair
  - Androgen deprivation in prostate cancer
- Open testis to allow it to fix

What is going on here?



Patient has prostate cancer

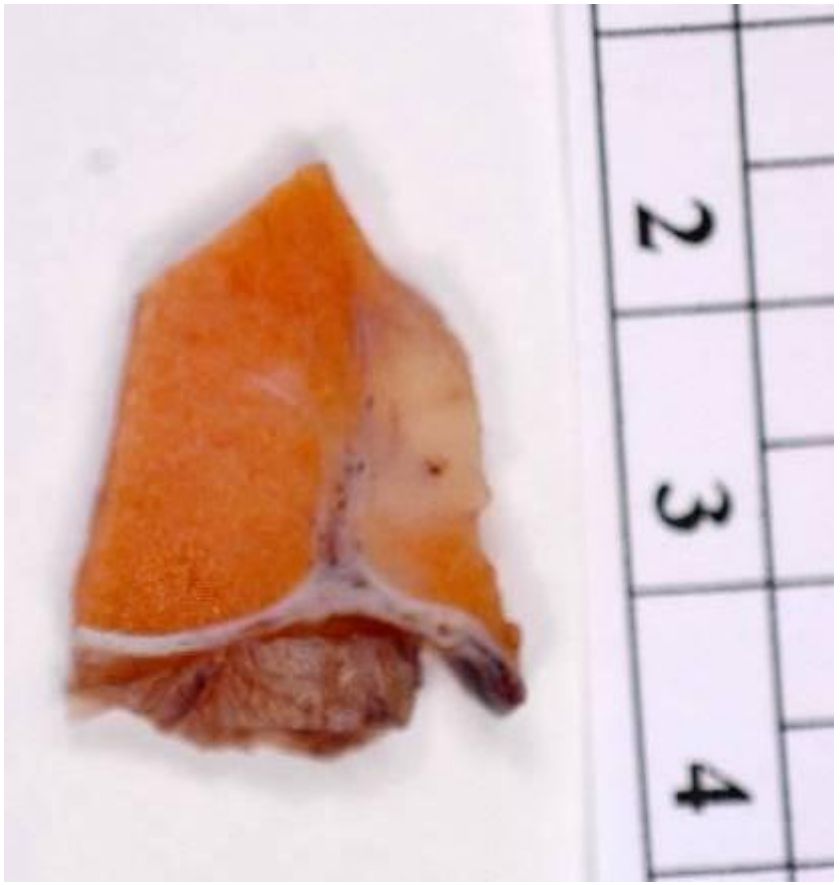
- Channel TURP to relieve obstruction
- Bilateral simple orchidectomy for androgen deprivation treatment

Testis

- Tumour
  - Sample widely, particularly if varied macro appearance
  - Sample haemorrhagic areas
  - Look for rete invasion
  - Sample for vascular invasion

Testis: Germ Cell Tumour

Seminoma: No Rete Invasion



Testis

- Non-tumour
  - Get a good description
  - Sampling may be limited

Testis: Traumatic Rupture

Testis: Torsion

Chronic Hydrocoele

Epididymectomy

Data Sets

- RCPath has published Data Sets for all common tumour sites
  - Guidance documents, but content is being defined in Cancer Registry requirements
- Look out for proformas, prompt sheets and similar: use current documents only
- Requirements for each lab should be defined in SOP

PROFORMA FOR RENAL PELVIS OR URETER TCC

Lab Ref: ..... **Name:** .....

MACROSCOPY

Operation specimen
Right /Left Radical nephrectomy / Nephro-ureterectomy

Dimensions
Kidney ..... x ..... x .....mm, ureter ..... mm

Tumour site and appearance:
(*Describe TCC if present in pelvis or ureter, including location, size and extent of invasion eg into renal parenchyma or beyond ureter)*

Surgical margin(s)
Ureteric distal margin: ..... mm *(ureteric tumours only)*
(Describe other distance to margins if appropriate)

Renal pelvis and background renal parenchyma:
Pelvicalyceal epithelium appearance is normal

Renal parenchyma appears normal / has a cyst / cysts up to .....mm diam.
(If abnormalities describe)

Adrenal gland:
Not present / Present and appears normal / contains a deposit of tumour *(describe tumour or other abnormality of adrenal)*

Lymph nodes:
None identified
(If present, state location, number and if they contain macroscopic tumour give the number of involved nodes and size of largest node)

Nephrectomy for carcinoma the renal pelvis or ureter

One block from cut end of ureter	
Blocks at intervals along the length of the ureter	
Blocks from primary tumour	
Blocks from tumour-renal interface	
One or two blocks from background renal pelvis	
One or two blocks from background kidney	
Blocks from any other renal abnormality	
One block from adrenal	
Blocks from all lymph nodes	

PROFORMA FOR RENAL CELL TUMOURS

Lab Ref: ..... **Name: .....**

MACROSCOPY

Operation Specimen:
Right/Left Partial nephrectomy/Radical nephrectomy/Nephro-ureterectomy

Dimensions:
Kidney: ..... x ..... x ..... mm, ureter ..... mm

Tumour site and appearance:
Upper/Lower/Unknown pole/Midpoint cortical/Other (state)
Site not stated (e.g., for partial nephrectomies)

Description of tumour:

Tumour size: ..... x ..... x ..... mm

Other tumours (specify, describe and measure)

Surgical margin(s)
The surgical margin is .....mm / involved *(add description as necessary)*

Invasion by tumour:
Perinephric or sinus fat invasion is not present / uncertain / present but not beyond Gerota's fascia / present and beyond Gerota's fascia / present with contiguous extension into adrenal gland.

No venous invasion is seen grossly. Venous invasion is uncertain grossly.
There is invasion of segmental muscular veins in the renal sinus, without / with invasion of the hilar renal vein / and invasion into the vena cava.

Renal pelvis and background renal parenchyma:
Pelvicalyceal epithelium appearance is normal *(or if TCC if present in pelvis use different proforma)*
Tumour / possibly / invades into the renal pelvis.

Renal parenchyma appears normal / has a cyst / cysts up to ..... mm diameter.
(If abnormalities describe)

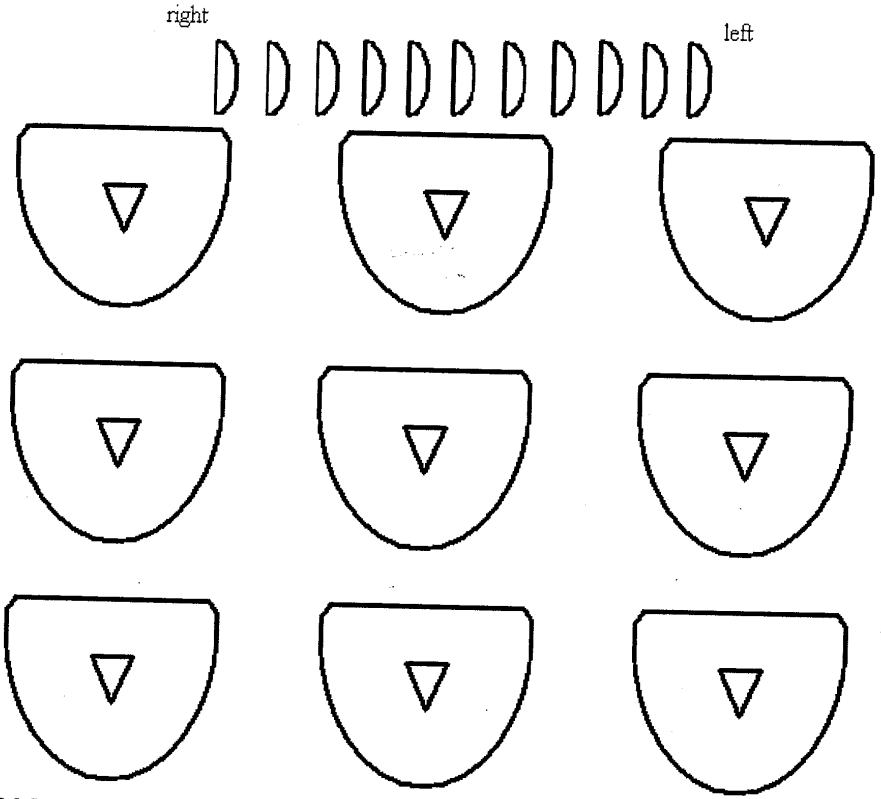
Radical Prostatectomy Macrocroscopy and Block Key

Name: …… Lab Number: …….. Part……

Prostate weighing ……g, measuring ……..mm SI x …….mm AP x …….mm transversely, with right seminal vesicle measuring…….mm and left seminal vesicle measuring…….mm MD. The capsule seems intact……

Routine inking – Left Blue Right Green (Indicate if different)

APEX



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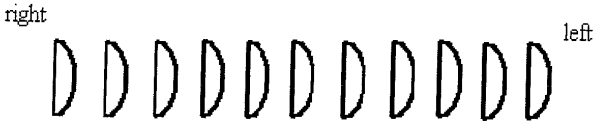

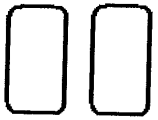

Approver: Dr B Perunovic

Radical Prostatectomy Histology

Lab ref: ..... Patient's name: .....

Part: .....

Is carcinoma present	Yes, adenocarcinoma is present
Tumour features	
Tumour type:	Microacinar / Other (state)
Gleason grades and score:	+ =
	Tertiary score not applicable
Urothelium:	Not neoplastic
Number of tumours:	One / Multiple
Dominant tumour: site	Anterior & posterior base & posterior apex & posterior left & posterior right
	This is not a transition zone tumour
Size:	..... mm x .....mm x .....mm (slides): est vol .....ml
Comments:	
Second tumour: site	Anterior & posterior base & posterior apex & posterior left & posterior right
	This is not a transition zone tumour
Size:	..... mm x .....mm x .....mm (slides):est vol .....ml
Comments:	
Third tumour: site	Anterior & posterior base & posterior apex & posterior left & posterior right
	This is not a transition zone tumour
Size:	..... mm x .....mm x .....mm (slides): est vol .....ml
Comments:	
Other tumours	..... other smaller tumours are also present
Total tumour volume:	..... ml
Other features	
High grade PIN	Seen / Not seen
Extraprostatic perineural invasion	Seen / Not seen
Vascular invasion	Seen / Not seen
Extraprostatic spread	Focal / Established / Not seen
Margins	
Apex margin	Positive / Clear
Base margin	Positive / Clear
Extraprostatic circumferential surgical margin	Positive / Clear / Not applicable
Intraprostatic circumferential surgical margin	Positive / Clear / Not applicable
Staging	
Invasion though capsule	Yes / No / Not assessed
Involvement of seminal vesicles	Yes / No / Not assessed
Involvement of lymph nodes	No nodes submitted
	The ..... nodes submitted as specimen & ..... nodes as specimen are not involved
	Specimen ..... has .... out of .... nodes positive for tumour
	Specimen ..... has .... out of .... nodes positive for tumour
Pathological stage (TNM 7 Ed)	pT pN
pT2 qualifier if applicable	Not applicable / pT2+

T-92000 Sign and date

M-81403 TMN7 (UICC 2009) pT2 confined to prostate pT2+ intraprostatic + or invaded capsule is ink margin pT3a through capsule, extraprostatic pT3b seminal vesicle pT4 invades adjacent e.g. bladder.

Thank you