Abdominal and Renal

Introduction

Abdominal US difficult

Anatomical complexity/variation

POCUS = suboptimal patient preparation

Accoustically challenging (gas!)

BUT very useful diagnostically and therapeutically

This is not FAST scanning

FAMUS Abdominal

7-point abdominal scan with specific rule-in or rule out questions

Abdominal and renal ultrasound focused scan			
Right kidney identified?	Yes ☐	No ☐	
Morison's pouch identified?	Yes ☐	No ☐	Fluid present ☐
Left kidney identified?	Yes ☐	No ☐	
Splenorenal recess identified?	Yes ☐	No ☐	Fluid present ☐
Liver including hemidiaphragm identified?	Yes ☐	No ☐	
Spleen including hemidiaphragm identified?	Yes ☐	No ☐	
Bladder identified? Distended?	Yes ☐ Yes ☐	No ☐ No ☐	
Free fluid identified around bladder inc Pouch of Douglas?	Yes ☐	No ☐	
Any evidence of hydronephrosis? Degree of hydronephrosis if present	Yes ☐ Mild ☐	No ☐ Moderate ☐	Severe ☐
Site identified for ascitic tap/drain if required?	Yes ☐	No ☐	
Comments/further details and conclusion of the scan:			
Mentor/Supervisor comments:			

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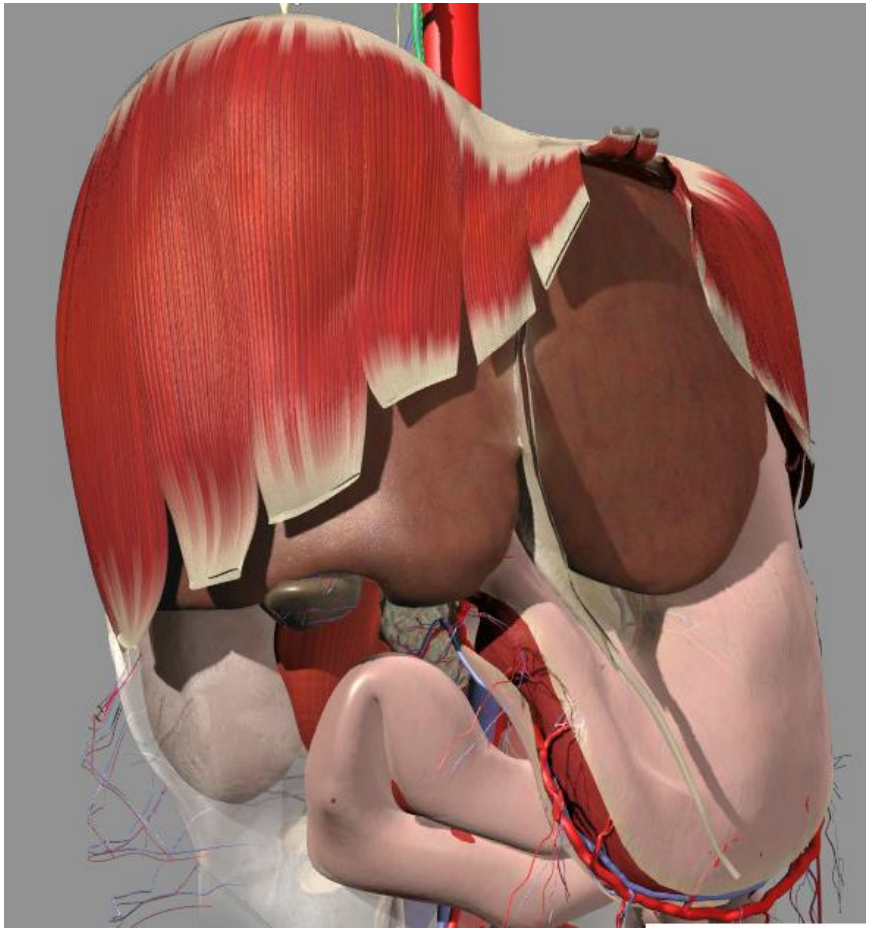
FAMUS Abdomen Objectives

- Assessment for the presence and/or degree of peritoneal free fluid [ascites]

- Assessment of kidneys and bladder to rule in/rule out urinary tract obstruction

Organs you need to identify for FAMUS abdomen

- Liver
- Kidneys
- Diaphragm
- Spleen
- Bladder



What FAMUS will not teach you

- Biliary tree
- Pancreas
- Gallbladder
- Aorta/IVC
- Appendix

Detailed abdominal organ imaging / vessel doppler

Focal lesions / stones

Peritoneal free fluid

- Accumulates dependently in potential spaces
- Good transmitter / low acoustic impedance so ECHO POOR = BLACK
- Acoustic enhancement of underlying structures = appear bright

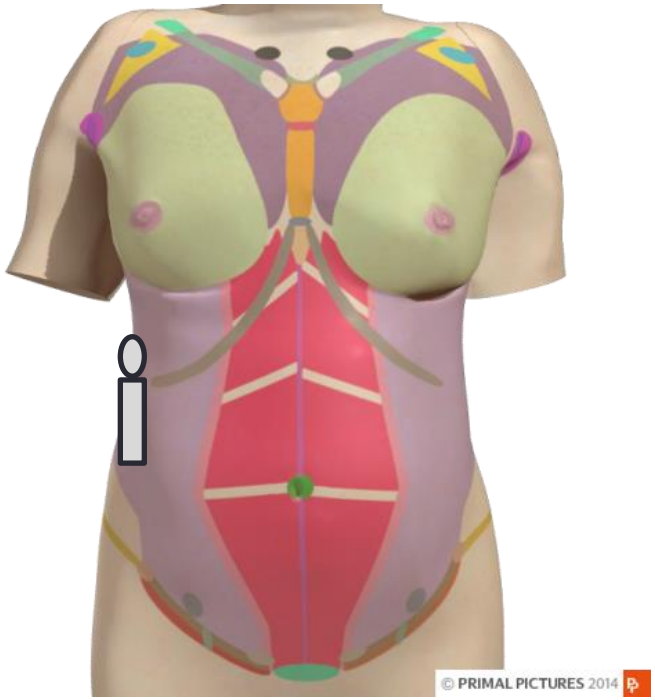
Peritoneal free fluid

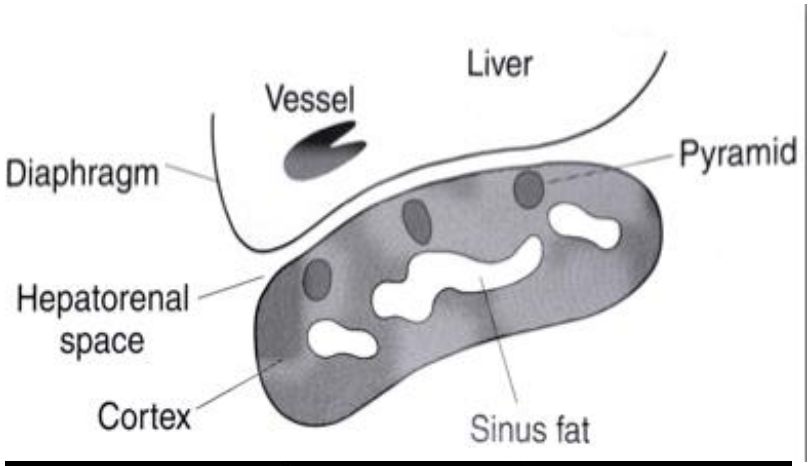
Patient position: Supine

Probe positions:
1) RUQ coronal
2) LUQ coronal
3) Suprapubic

If free fluid present assess RIF / LIF (lateral /oblique) for depth in paracolic gutters.

Free fluid (1) – RUQ coronal view

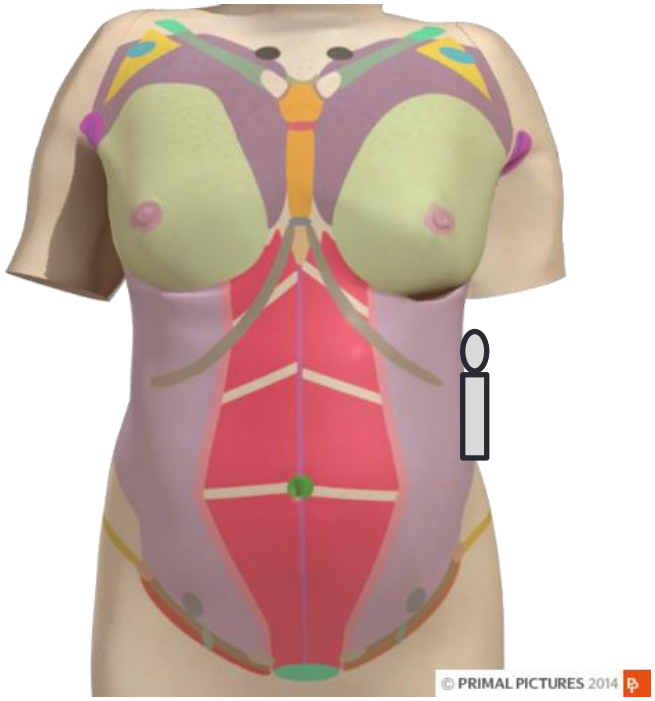


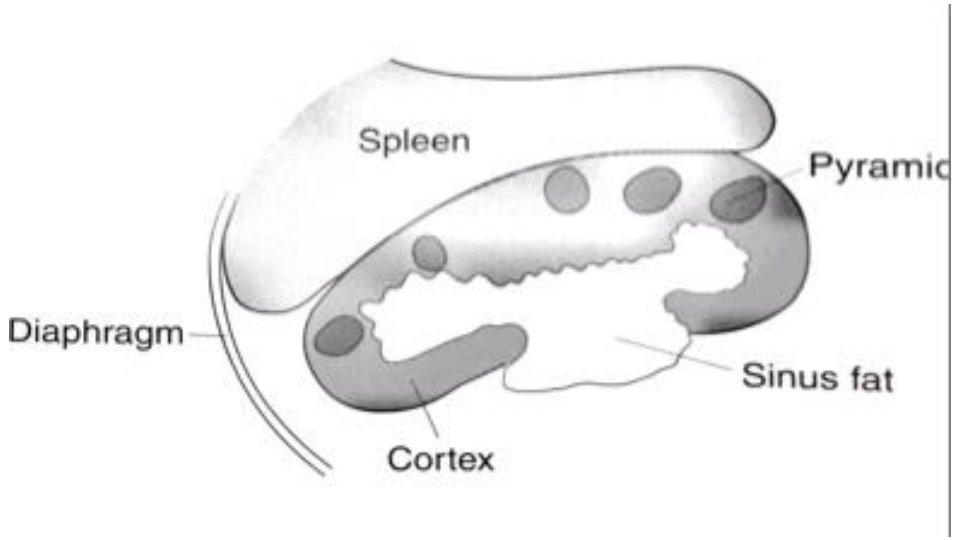


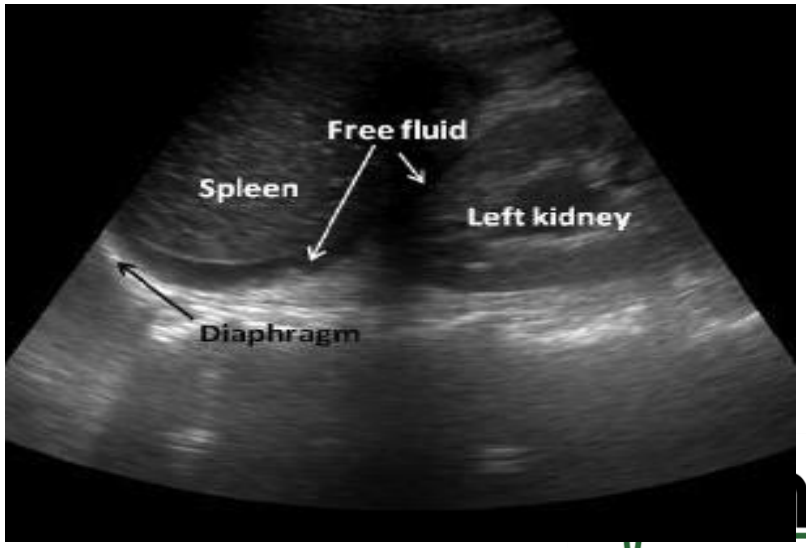
Identify diaphragm, liver and right kidney

Look for peri-hepatic fluid and in hepatorenal recess (Morrison's pouch)

Free fluid (2) – LUQ coronal view





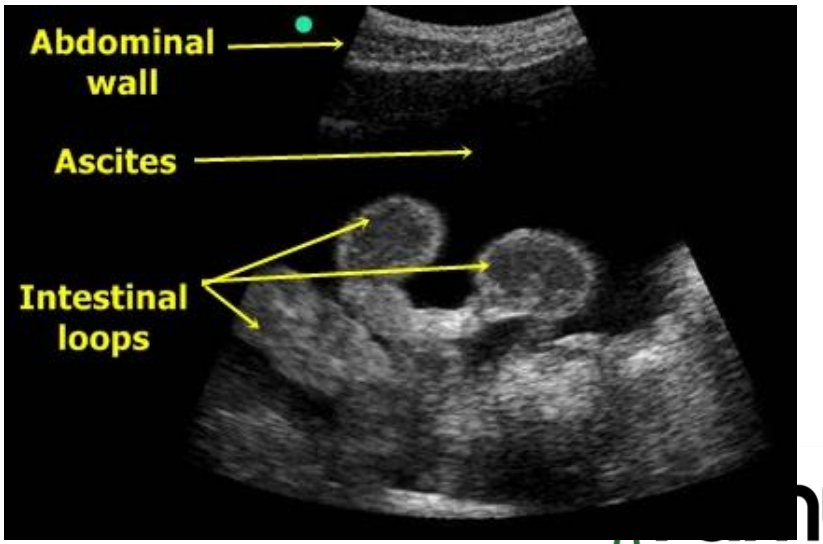


Identify diaphragm, spleen and left kidney

Look for peri-splenic fluid or in splenorenal recess

Assessment for paracentesis

- Assess right and left iliac fossae (oblique views) in supine position
- Find deepest pocket
- Measure depth using callipers and mark



Kidneys

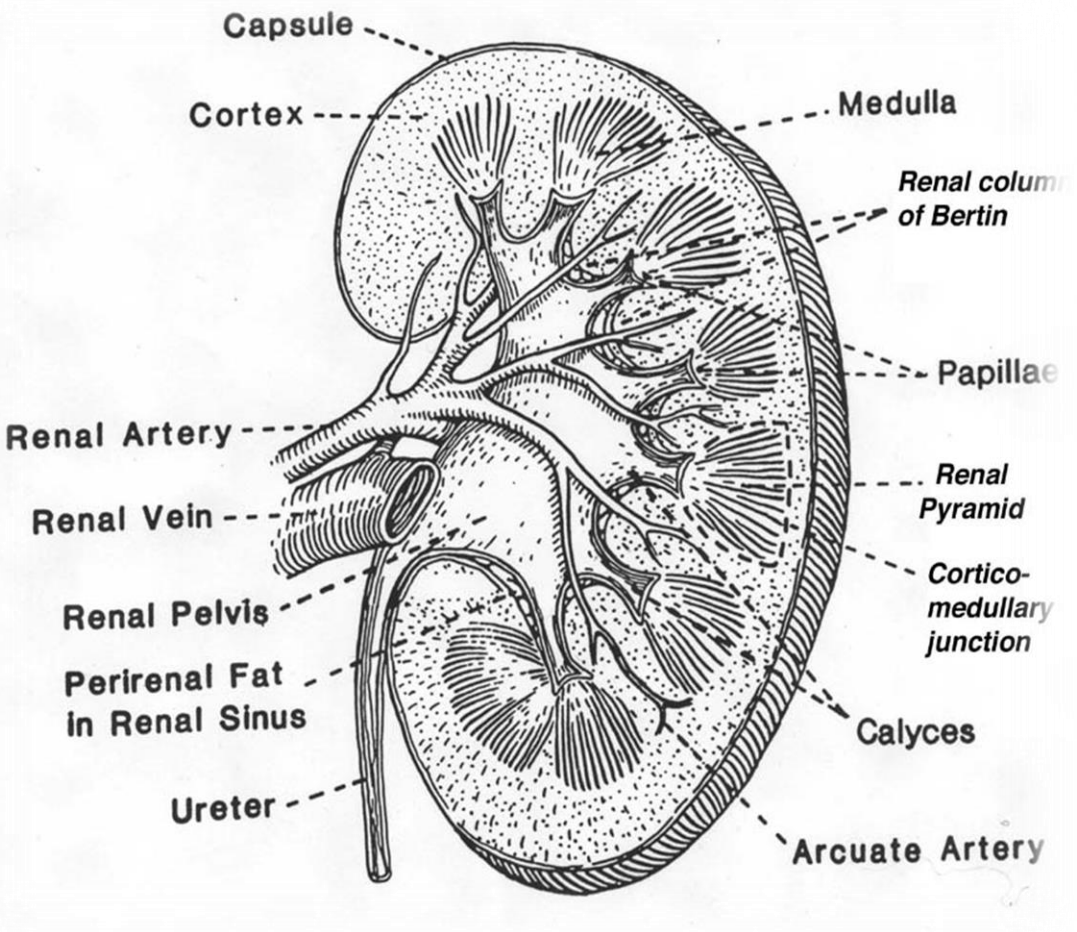
Position:	Supine / Lateral
Probe position:	Lateral RUQ – Oblique and Transverse
Technique:	Sweep through whole structure
	Liver/ spleen as windows
	Patient breathe and hold

Kidneys – Anatomy / Appearance

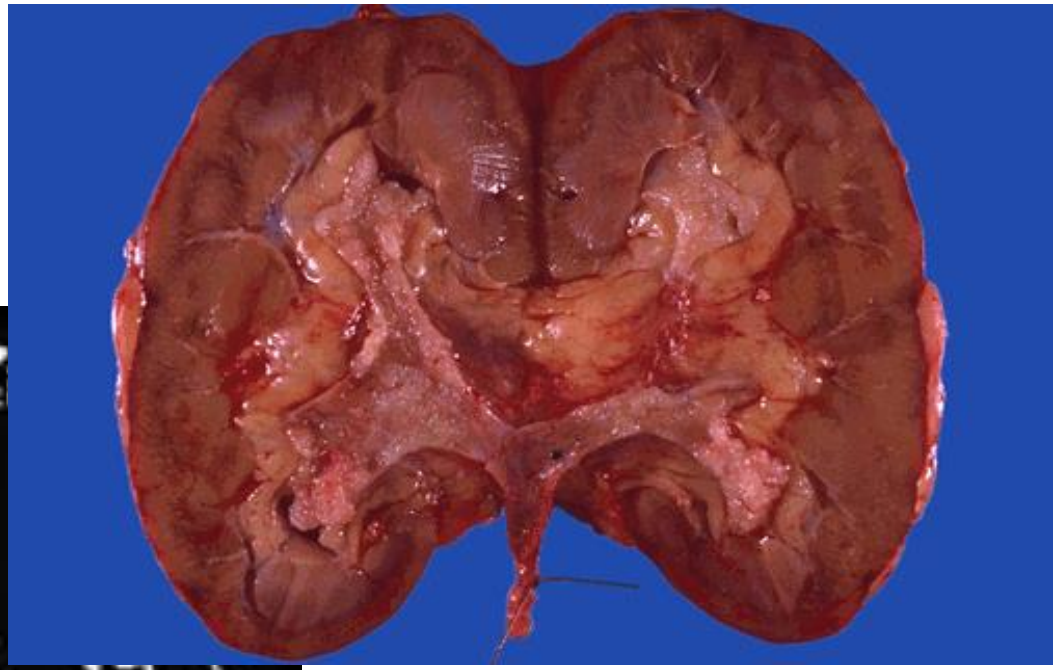
Echo bright fat in renal sinus versus darker cortex

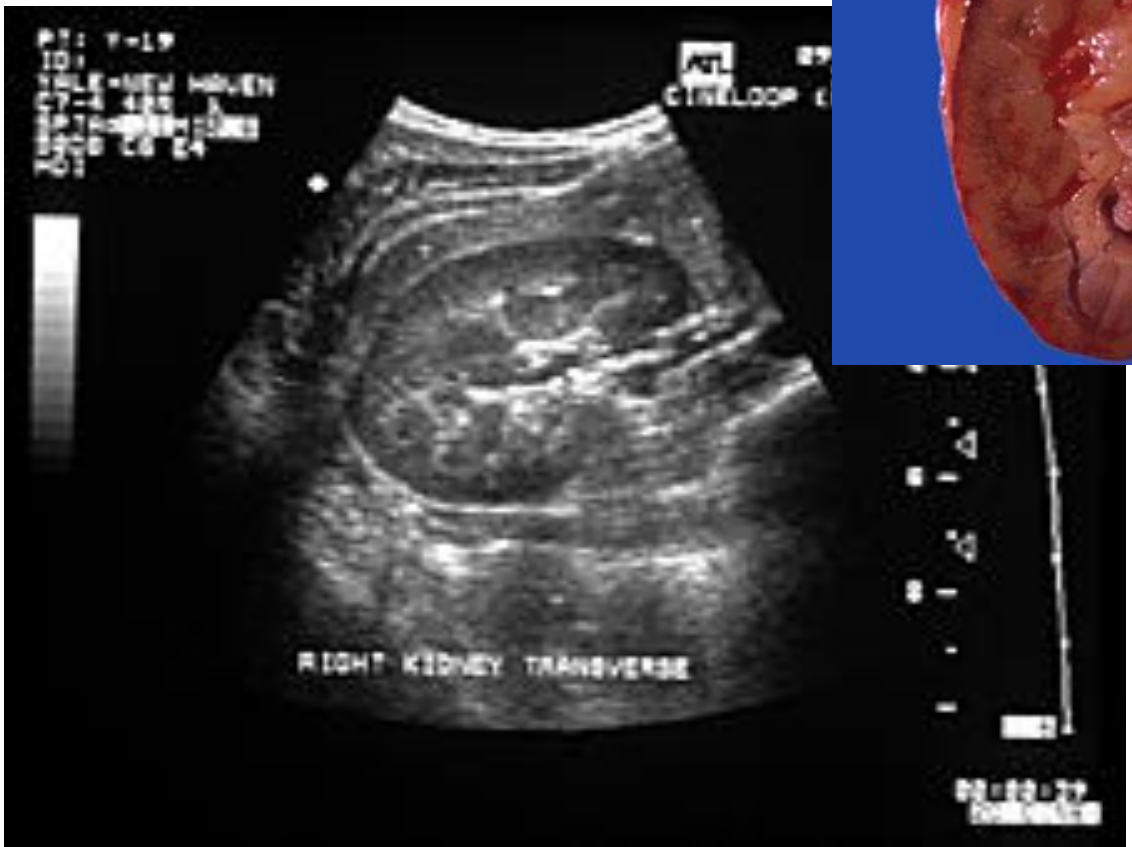
Regularly spaced echo poor triangles between cortex and pelvis – medullary pyramids

n.b. Echo-bright arcuate arteries

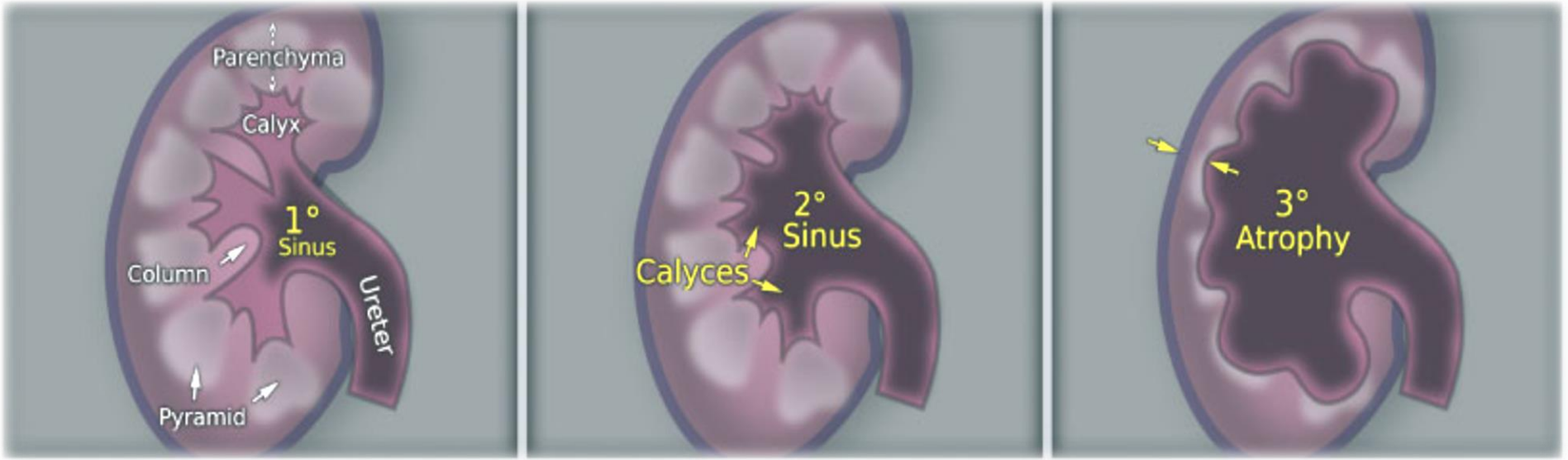


Kidneys – Anatomy / Appearance





Hydronephrosis



- **Mild (Grade 1)** Renal pelvis dilatation; no calyceal dilatation; no parenchymal atrophy
- **Moderate (Grade 2)** Moderate pelvis and calyceal dilatation; early parenchymal atrophy may be present
- **Severe (Grade 3)** Gross pelvic and calyceal dilatation; loss of normal architecture; cortical atrophy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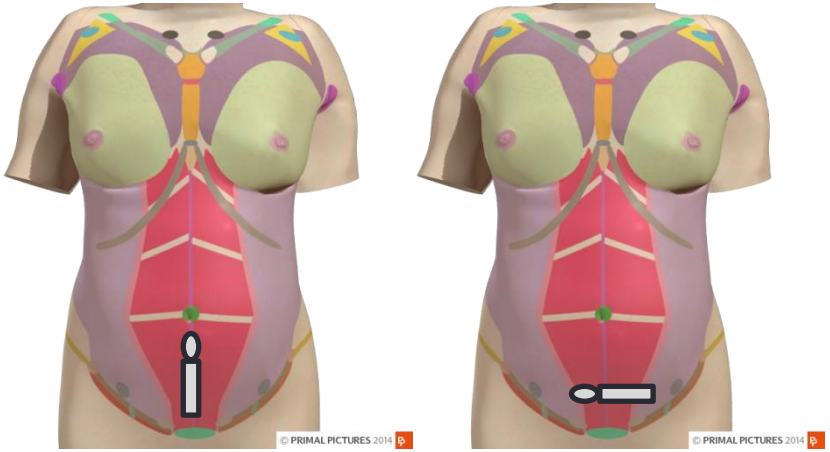
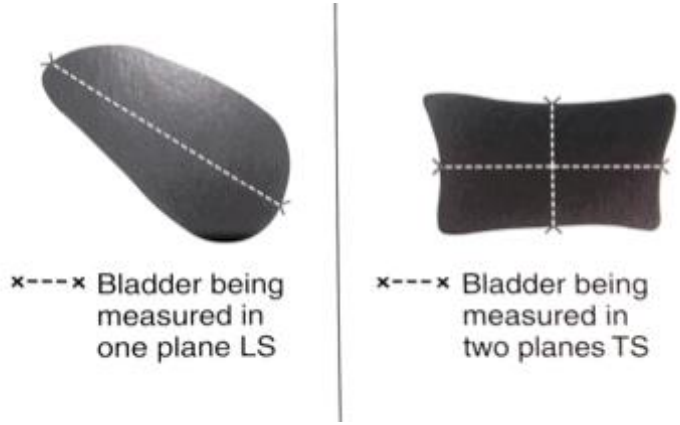
Bladder

Patient position: Supine

Probe position: Superior to symphysis pubis
Transverse and Longtitudinal

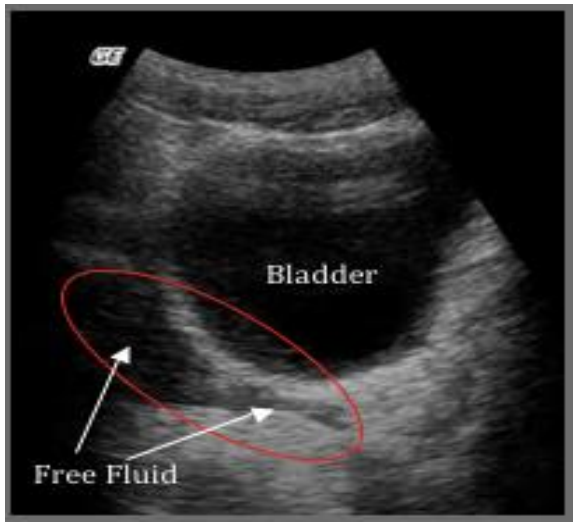




Bladder

- LS: probe in the midline with heel of transducer just above the symphysis pubis – sweeping probe left and right
- TS: rotate probe in the midline – slide upwards towards the umbilicus and then down below symphysis
- Thin walled, anechoic midline structure
- Assess bladder volume

[Consider measurement (e.g. PRV)]



- Assess for retro-vesicular free fluid i.e. pouch of Douglas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Summary

Focus of FAMUS abdominal is free fluid and K+B

Need to identify other organs but not detailed scanning or measurements

Challenges eg bowel gas / obesity demand setting optimisation and positioning/techniques

Does not replace thorough departmental AUSS where indicated

Questions?

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