

# 12<sup>th</sup> Annual Nephro-Urology Study Day

Dina Fouad

Stephen Griffin, Sengamalai Manoharan, Ewan Brownlee

Henrik Steinbrecher

Paediatric Urology Department

University Hospital Southampton

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# Case 1

## Background Hx:

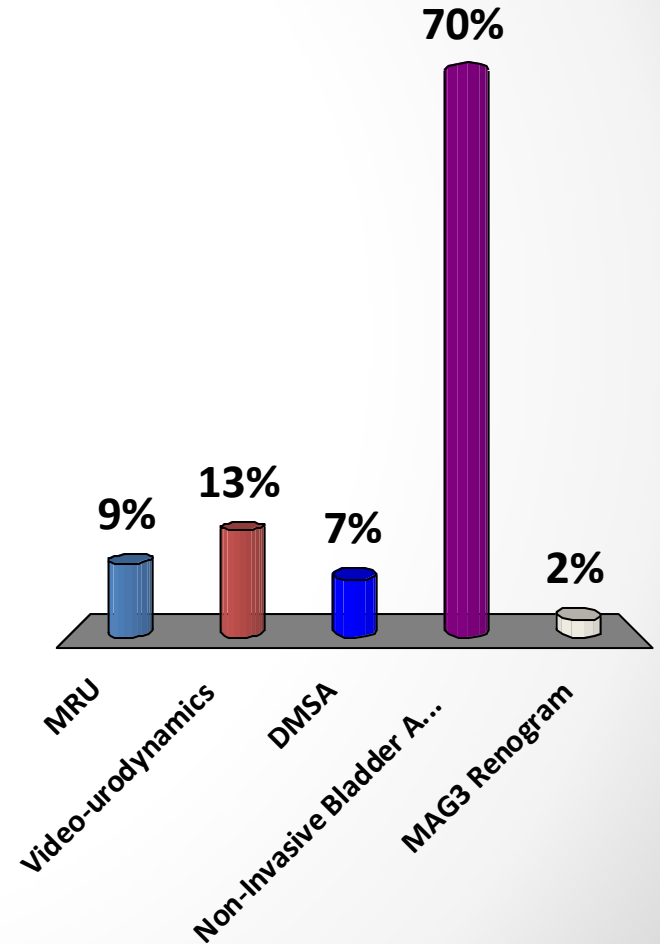
- Excision of lipoma & untethering of cord aged 18 months
- US - Single left kidney

## Referred aged 10y:

- Urgency & urge incontinence
- Wearing panty-liners all the time
- Wets through clothing 2-3 x per week
- Damp pyjamas at night but dry bed

# What would you do next?

- A. MRU
- B. Video-urodynamics
- C. DMSA
- D. Non-Invasive Bladder Assessment (F/V Chart)
- E. MAG3 Renogram



# Case 1

- Video urodynamics (Age 10y)
- No evidence of neuropathic bladder
- Normal study - symptoms thought to be secondary to vaginal reflux

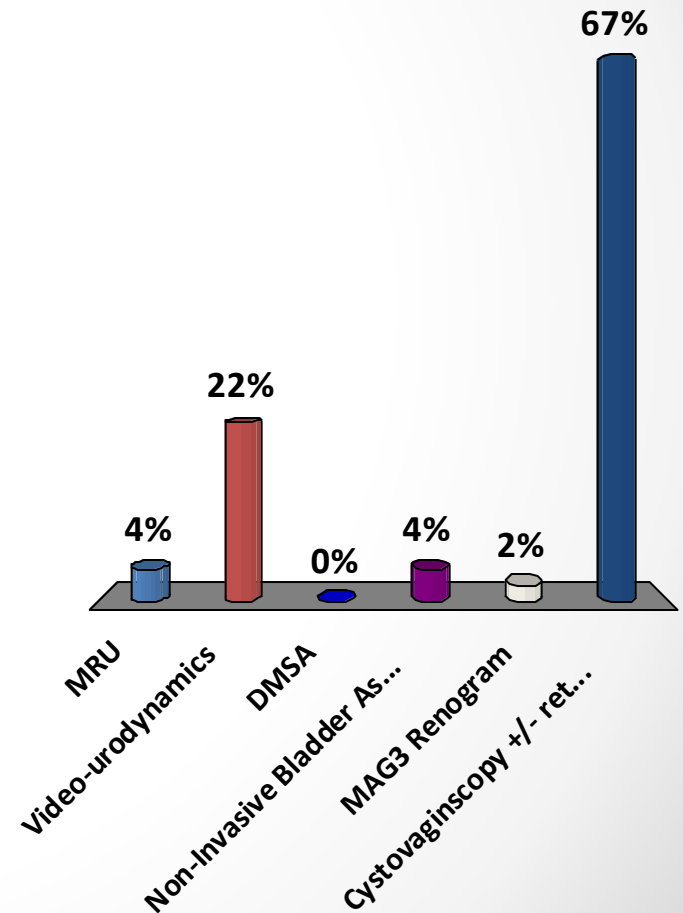


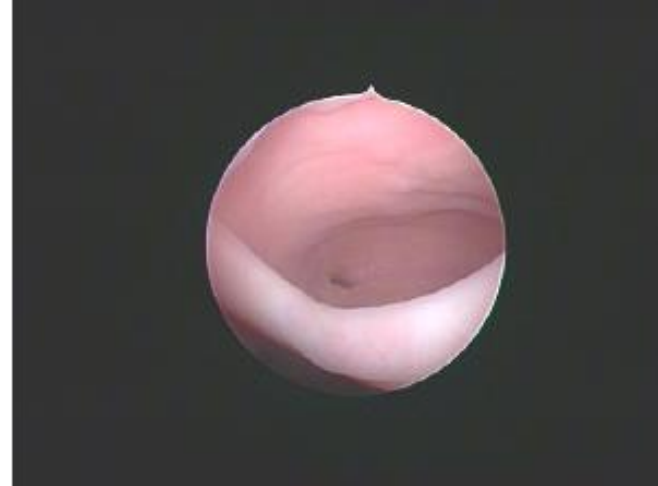
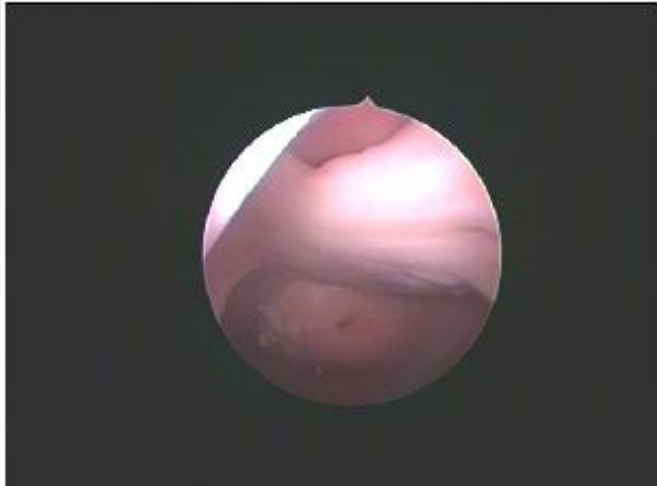
# Case 1

- Represented aged 15y
- “Continuous urinary dribbling”

# What is your next option?

- A. MRU
- B. Video-urodynamics
- C. DMSA
- D. Non-Invasive Bladder Assessment (F/V Chart)
- E. MAG3 Renogram
- F. Cystovaginscopy +/- retrograde pyelogram







R

NR 4

LIH 1

R 0°

W 100 L 50

25.11.2016

10:46:16

FLR

ABD

MAG 0

kV 64

mA 8.5

cGy cm<sup>2</sup>

15.66

min 0:03

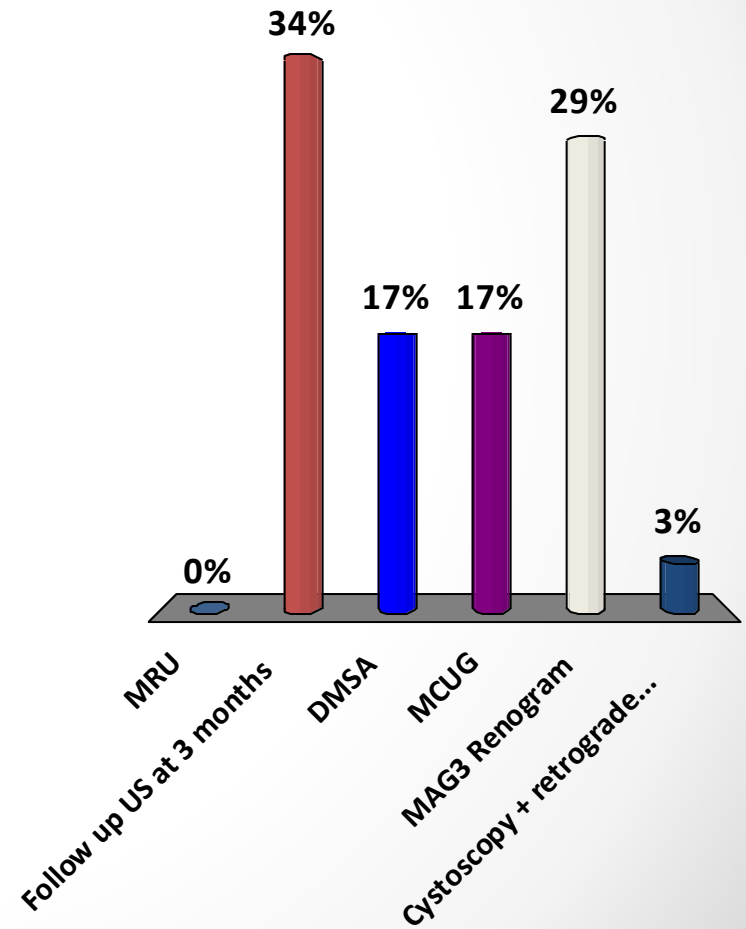


# Case 2

- 8 week old M
- Antenatal hydronephrosis
- 36 week scan left APD 20mm
- Post natal scan (aged 2 weeks) left APD 22mm
- No UTIs
- On prophylactic trimethoprim

# What is your next step?

- A. MRU
- B. Follow up US at 3 months
- C. DMSA
- D. MCUG
- E. MAG3 Renogram
- F. Cystoscopy + retrograde pyelogram



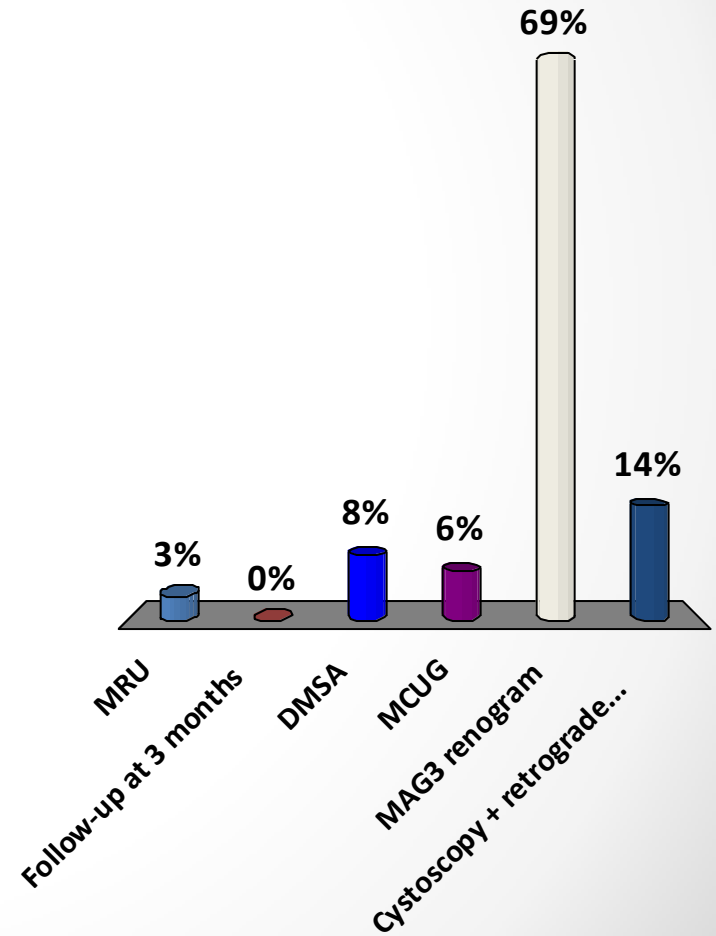
# Case 2

## US scan aged 3 months

- Left AP 28mm (prev 22mm)
- Ongoing calyceal dilatation
- No hydroureter

# What is your next step?

- A. MRU
- B. Follow-up at 3 months
- C. DMSA
- D. MCUG
- E. MAG3 renogram
- F. Cystoscopy + retrograde pyelogram



**PHILIPS**

1023

344

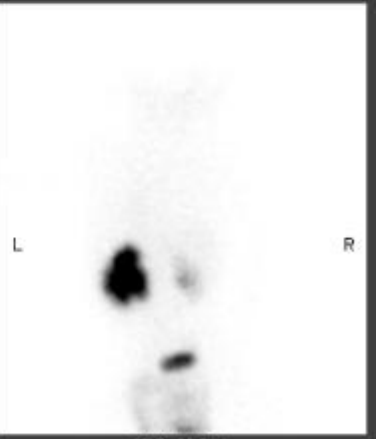
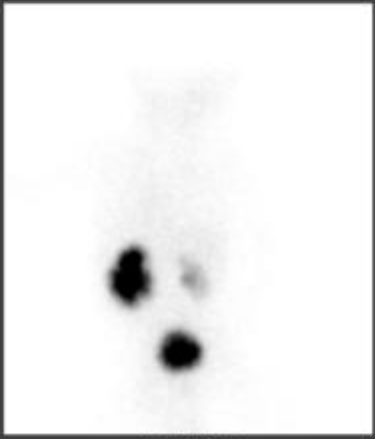
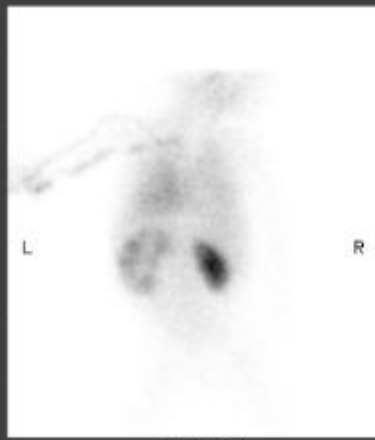
0

Color: Grey

Intensity: linear

On/Off

Calculations | Splash | Static images | Composites | Leaks | Split | Duplex | Final | Input | Curves | Regions

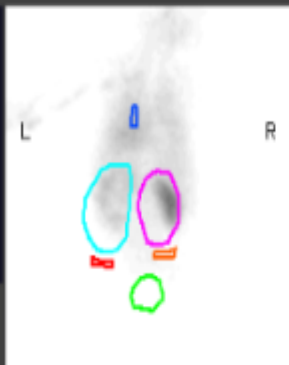




Post-Void

**Legend**

- Left Kidney
- Right Kidney
- Bladder



	Left	Right
Time to Maximum [min]	29.7	3.0
Time to 1/2 Max [min]	---	9.1
Contribution of Total	49	51
Residual at 20 min [%]	89.2	24.5
Residual at 30 min [%]	****	21.2

Integral Range [min] From : 2.0 To : 3.0

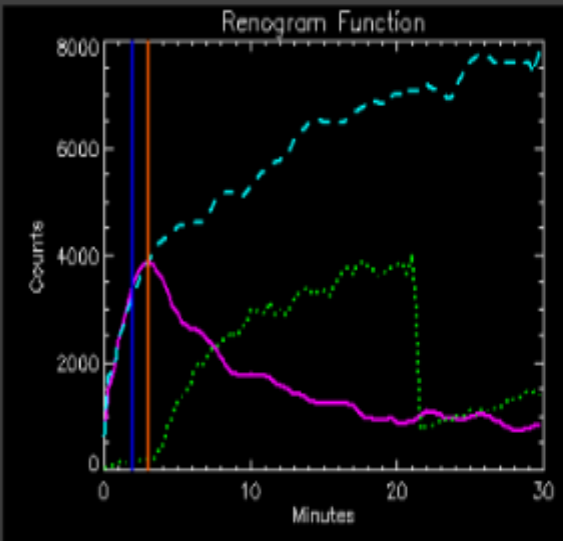
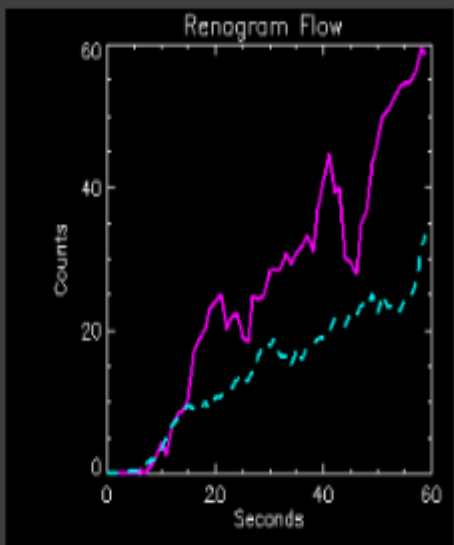
T1/2 from T0, Maximum start

Color: Grey

Intensity: linear

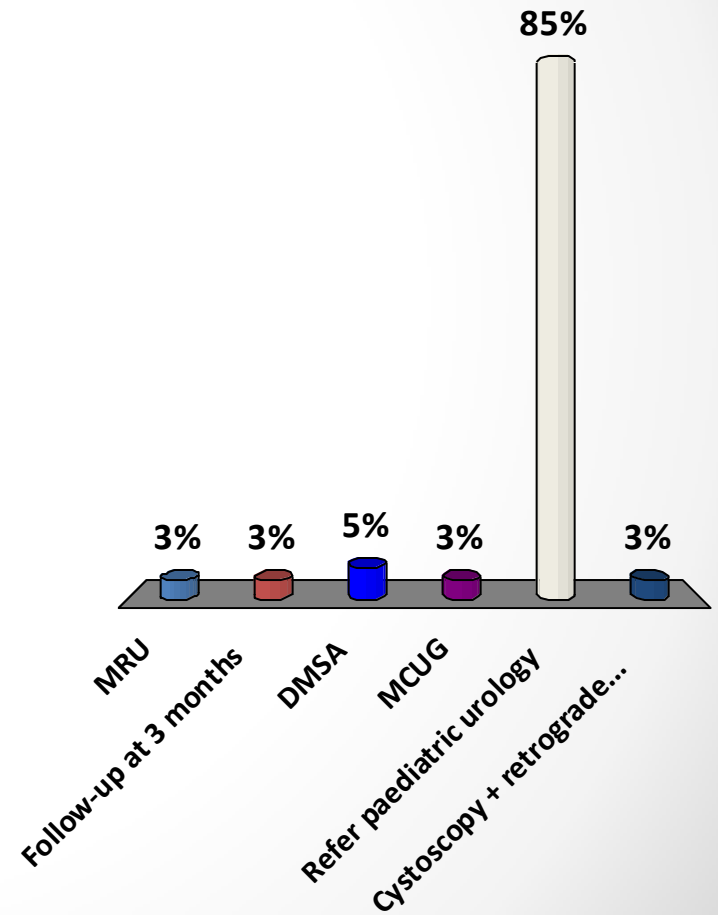
On/Off

Calculations | Splash | Static Images | Composites

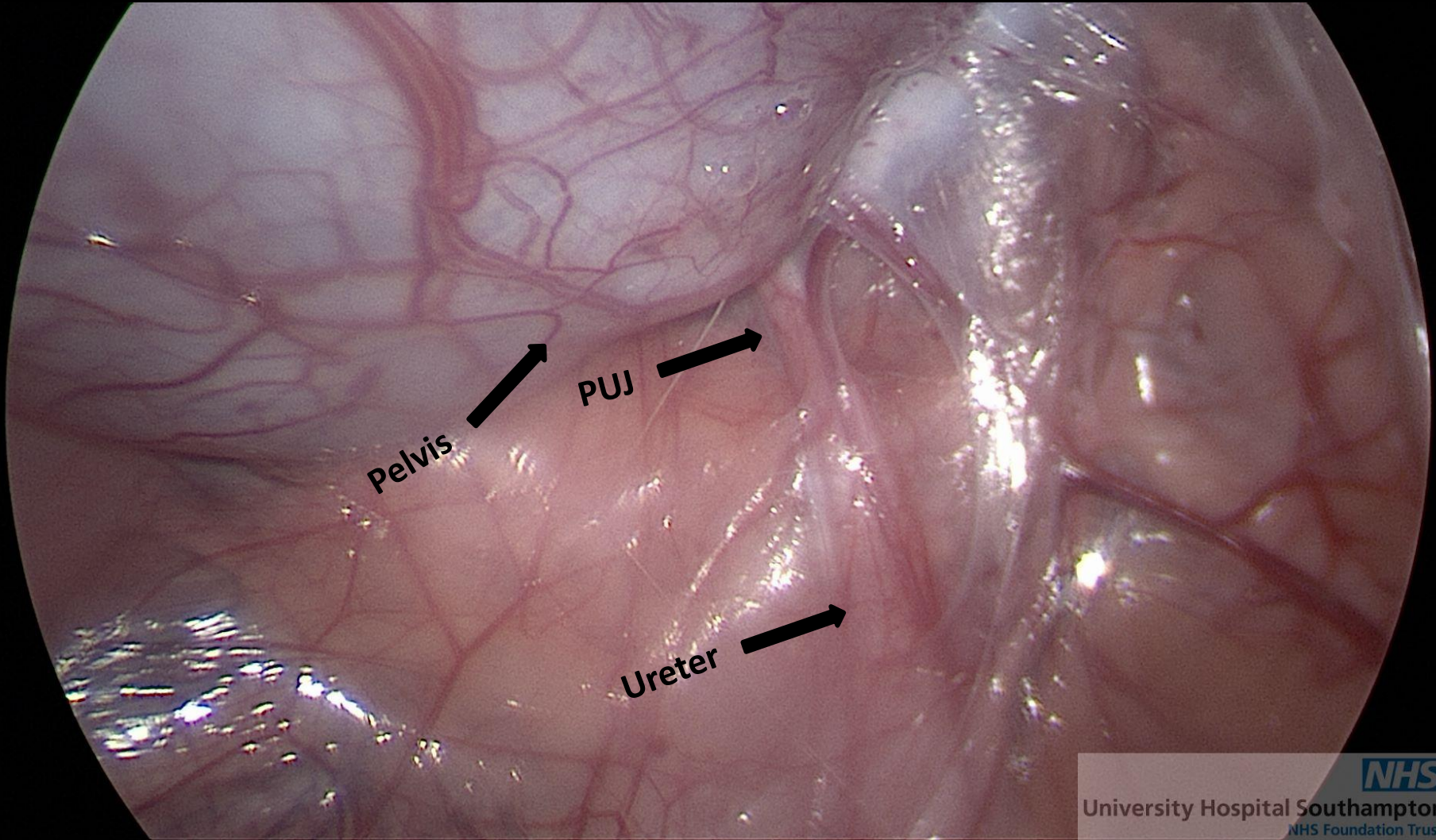


# What is your next step?

- A. MRU
- B. Follow-up at 3 months
- C. DMSA
- D. MCUG
- E. Refer paediatric urology
- F. Cystoscopy + retrograde pyelogram





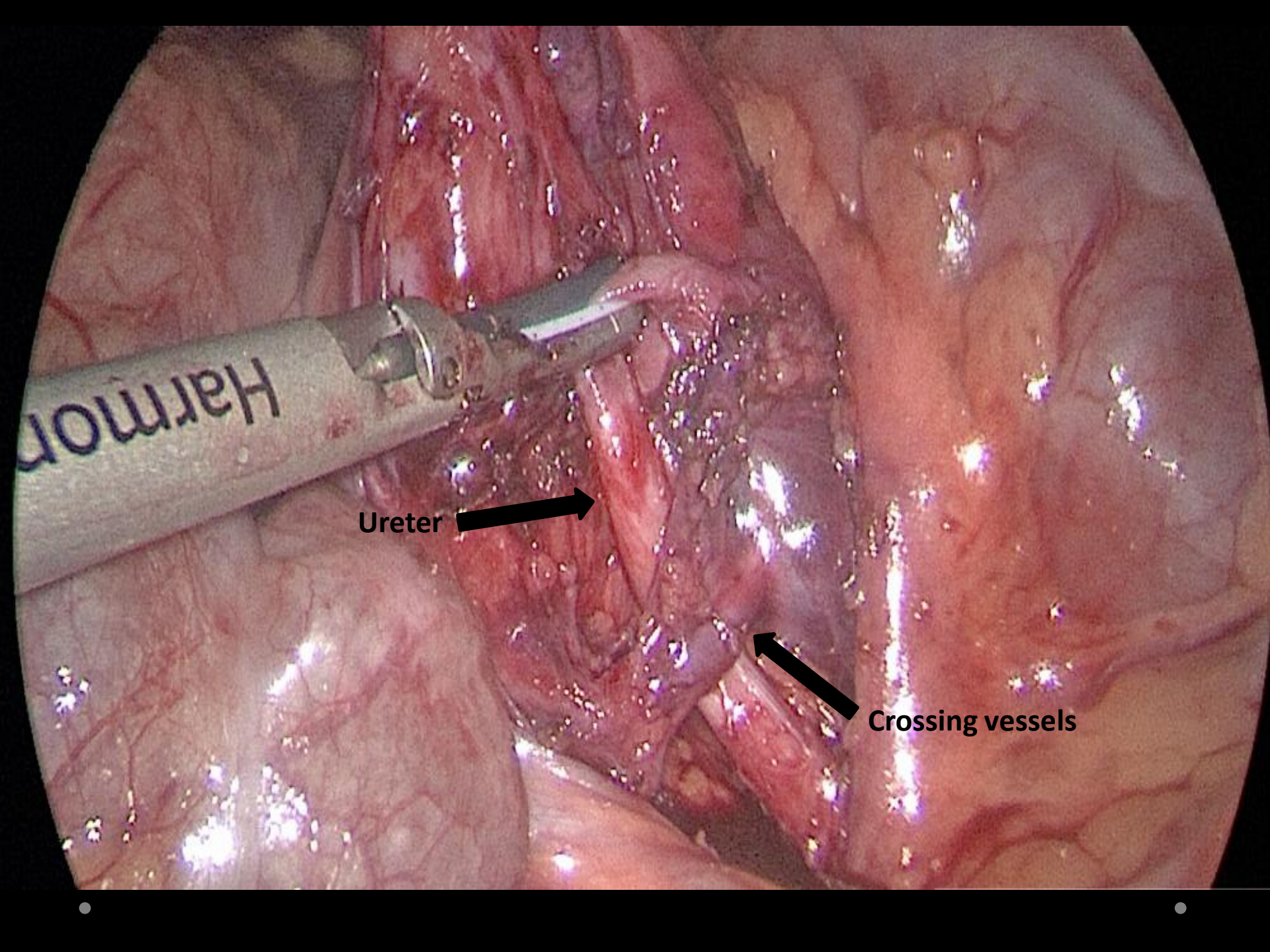


Pelvis

PUJ

Ureter





Harmon

Ureter

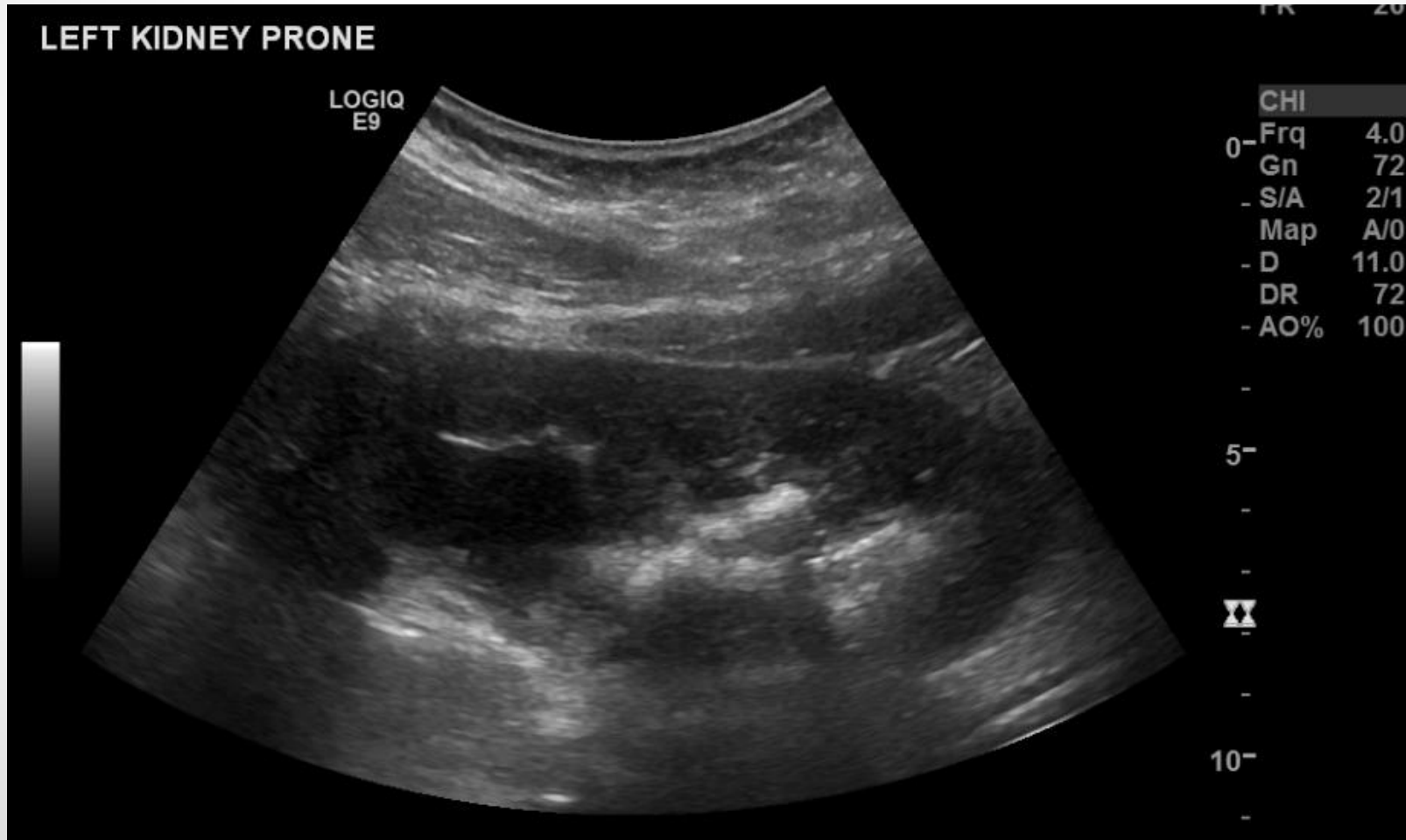


Crossing vessels



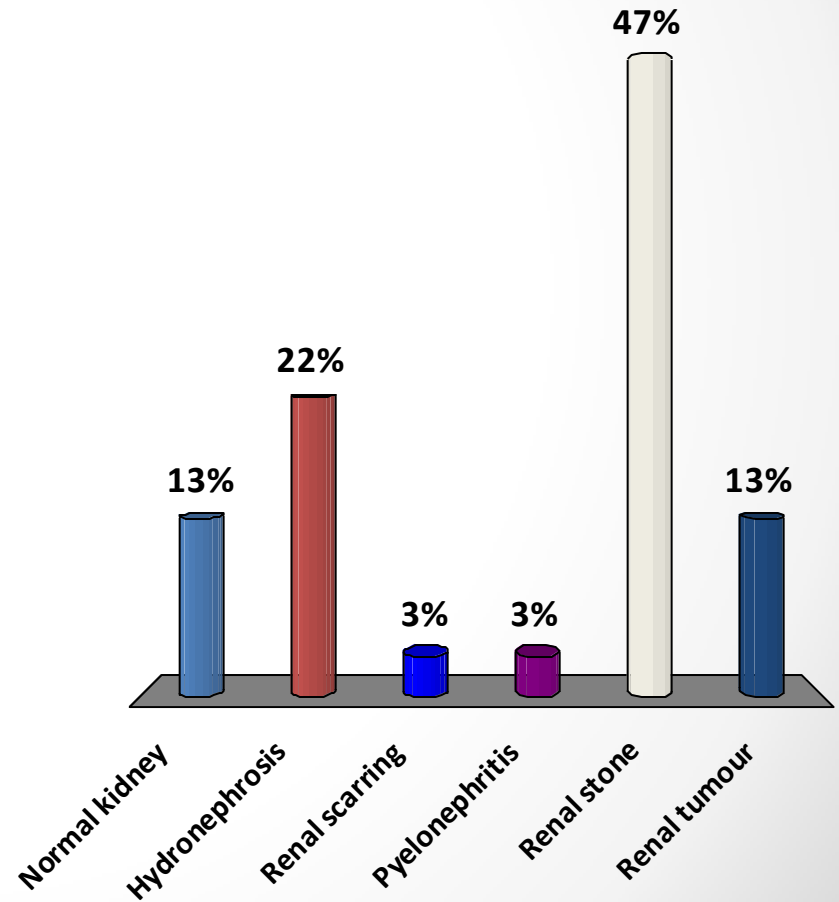
# Case 3

- 15y F, Abdominal pain



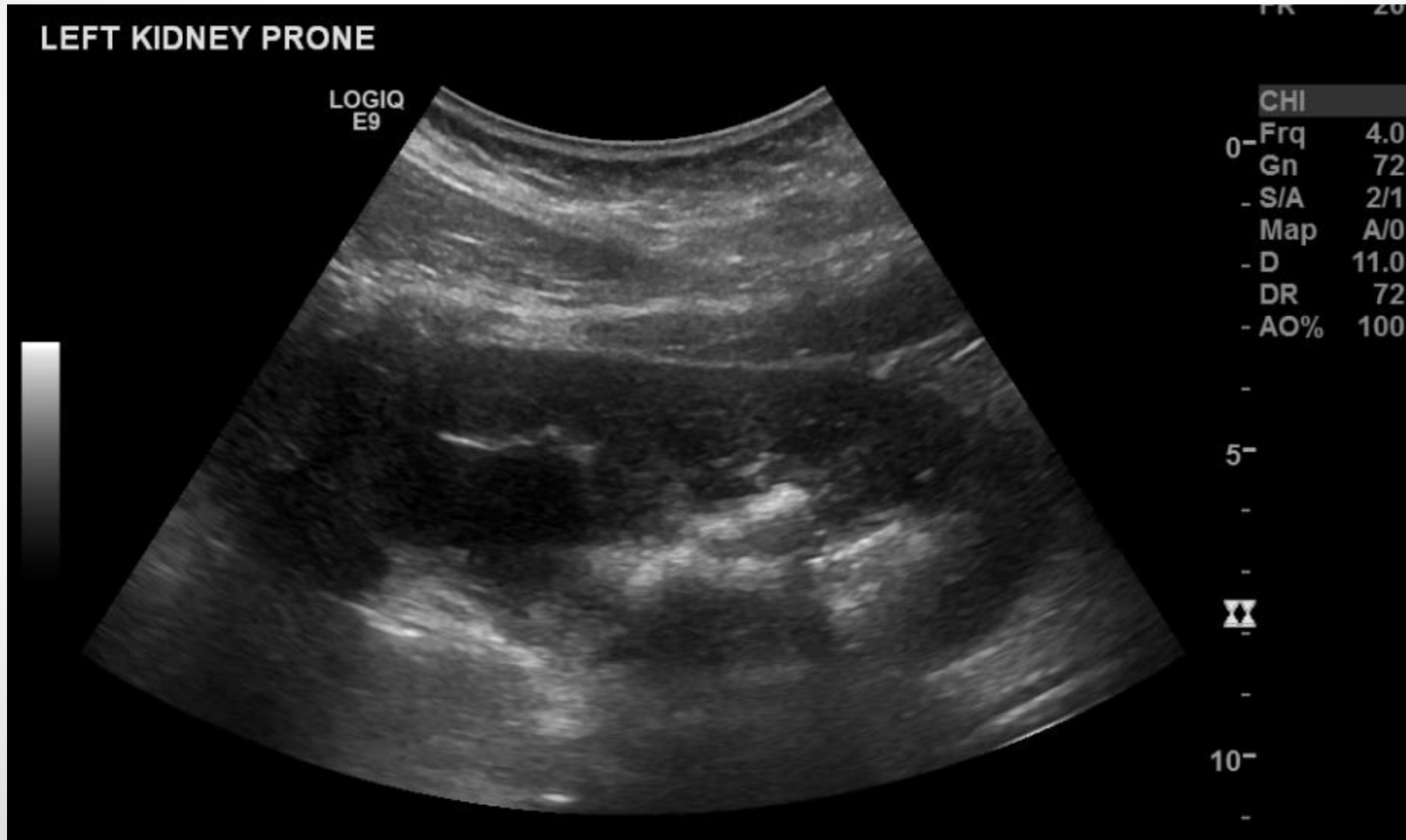
# What does this image show?

- A. Normal kidney
- B. Hydronephrosis
- C. Renal scarring
- D. Pyelonephritis
- E. Renal stone
- F. Renal tumour



# Case 3

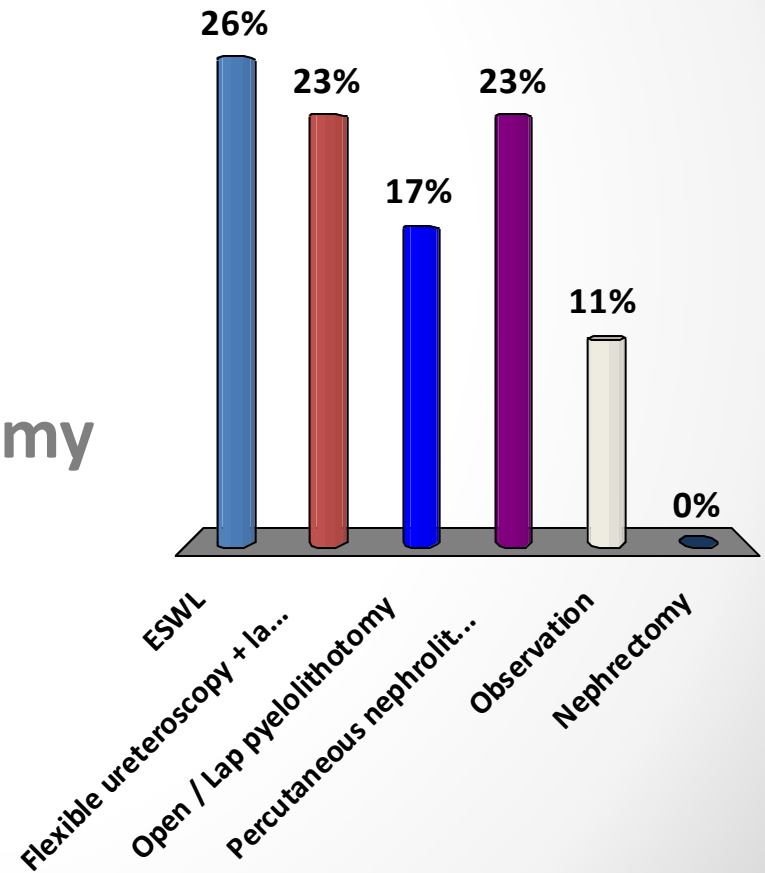
- 4cm left renal stone





# Parents ask re management – which of the following is most likely?

- A. ESWL
- B. Flexible ureteroscopy + lasertripsy
- C. Open / Lap pyelolithotomy
- D. Percutaneous nephrolithotomy
- E. Observation
- F. Nephrectomy



How do you investigate  
for metabolic aetiology?

## NEPHROLITHIASIS & NEPHROCALCINOSIS GUIDELINE

### INDICATIONS FOR USE OF GUIDELINE

Diagnosis of nephrolithiasis or nephrocalcinosis on USS  
Strong suspicion of renal stone based on symptoms

### SYMPTOMS

Flank/Abdominal pain  
Haematuria (macroscopic/microscopic)  
Recurrent UTIs

### RISK FACTORS

Prematurity  
Drugs – Diuretics,  
Topiramate

Ketogenic diets  
Family history

### INVESTIGATIONS

- Urine**
- Dipstick (blood & protein)
  - Calcium:Creat ratio
  - Urate:Creat ratio
  - Oxalate:Creat ratio
  - Citrate:Creat ratio
  - Spot Cystine (to UHS)
  - pH (Fresh urine)
- Blood**
- Renal profile
  - Phosphate
  - Bicarbonate
  - Bone Profile
  - Magnesium
  - Urate
  - Alkaline Phosphatase
  - PTH
  - FBC

**Radiology**

- USS renal tract +/- XR KUB

If stone passed to send to UHS for analysis by Fourier Transform Infrared spectroscopy

### NORMAL VALUES FOR INTERPRETATION

	1m – 1y	1y – 2y	2y – 3y	3y – 5y	5y – 7y	7y – 10y	10y – 17y
<b>Calcium</b> <small>(IN SERUM OR URINE)</small>	0.09 – 2.2	0.07 – 1.5	0.06 – 1.4	0.05 – 1.1	0.04 – 0.8	0.04 – 0.7	
<b>Urate</b> <small>(IN SERUM OR URINE)</small>	0.7 – 1.5	0.5 – 1.4	0.47 – 1.3	0.4 – 1.1	0.3 – 0.8	0.26 – 0.56	0.2 – 0.44
<b>Oxalate</b> <small>(IN SERUM OR URINE)</small>	0.06 – 0.17	0.05 – 0.13	0.04 – 0.1	0.03 – 0.08	0.03 – 0.07	0.02 – 0.06	
<b>Citrate</b> <small>(IN SERUM OR URINE)</small>	>0.15						
<b>Cystine</b>	Interpreted by UHS laboratory as part of urine amino acid profile						
<b>pH</b>	5.3 – 7.07						

### MANAGEMENT AND REFERRAL

- Routine hydration advice – [www.nutrition.org.uk/healthy/living/hydration/hydration-for-children](http://www.nutrition.org.uk/healthy/living/hydration/hydration-for-children)
- Analgesia and anti-emetics as required. NICE guidelines on this to be released in late 2018.
- Passed stones and nephrocalcinosis do not require urology referral. Nephrology referral as below if evidence of metabolic stone disease
- Confirmed stones (non-obstructing) should be referred via routine outpatients to Mr Stephen Griffin, Consultant Paediatric Urologist, UHS.
- Obstructing stones should be referred urgently to Paediatric urology, UHS, for consideration of JJ stent or nephrostomy.
- Outpatient referral to Dr Shuman Haq, Paediatric Nephrologist, **only** if investigations reveal evidence of metabolic stone disease

Dr T. Hodgkinson, Dr J. Edelman, Dr S. Haq, Mr. S. Griffin, Dr Paul Cooke  
April 2018



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# Renal and ureteric stones: assessment and management

NICE guideline [NG118] Published date: January 2019



# Thank You

Antenatal Hydronephrosis – SFU consensus  
and grading



[ANH Society of Fetal Urology consensus and grading](#)

*Contact details:* [uhs.paediatricurology@nhs.net](mailto:uhs.paediatricurology@nhs.net)