

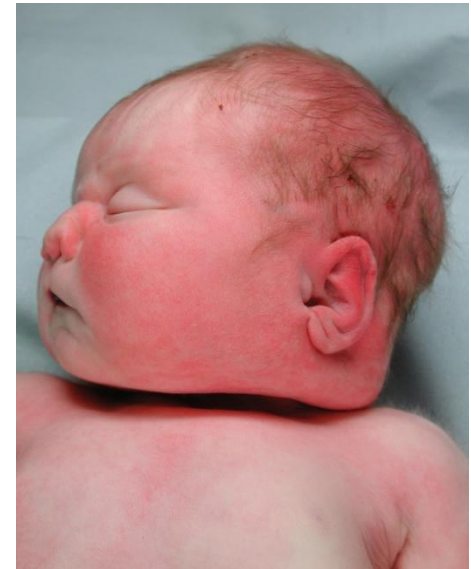
# Fetal Medicine and Nephrology

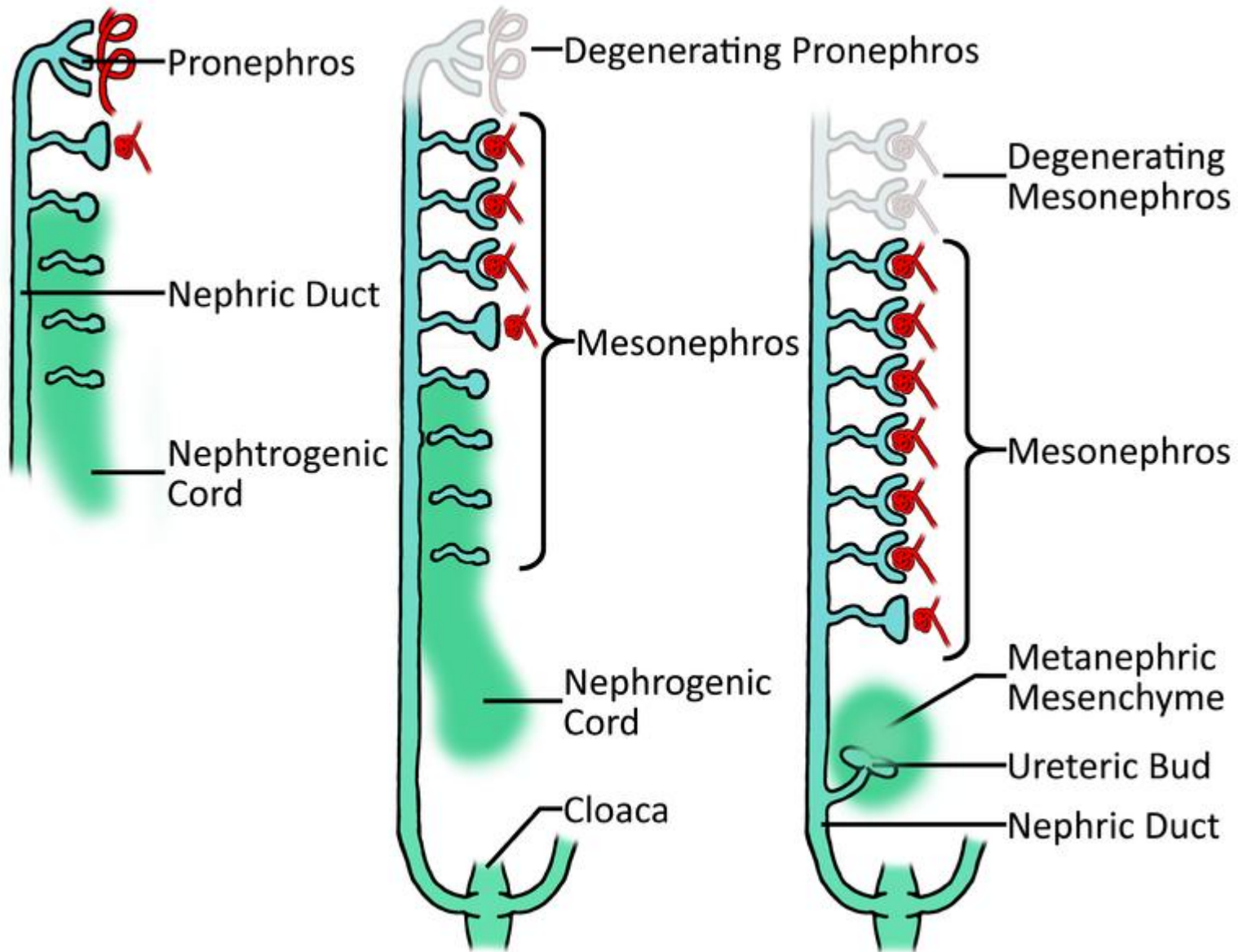
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Paediatric Nephrologist

# Aims

- Embryology
- How to approach fetal ultrasound findings
- Examples of ultrasound findings
- Talk through some diagnostic challenges
- Discuss the 'Art of counselling'
- Some suggestions on management

- CAKUT: Congenital Anomalies of the Kidney and Urinary Tract – 20-30% of all prenatally detected abnormalities
- Kidneys visible between 12-15 week gestation
- Bladder visible between 13-16 week gestation
- Fetal urine produces > 90% of amniotic fluid by 20 weeks gestation





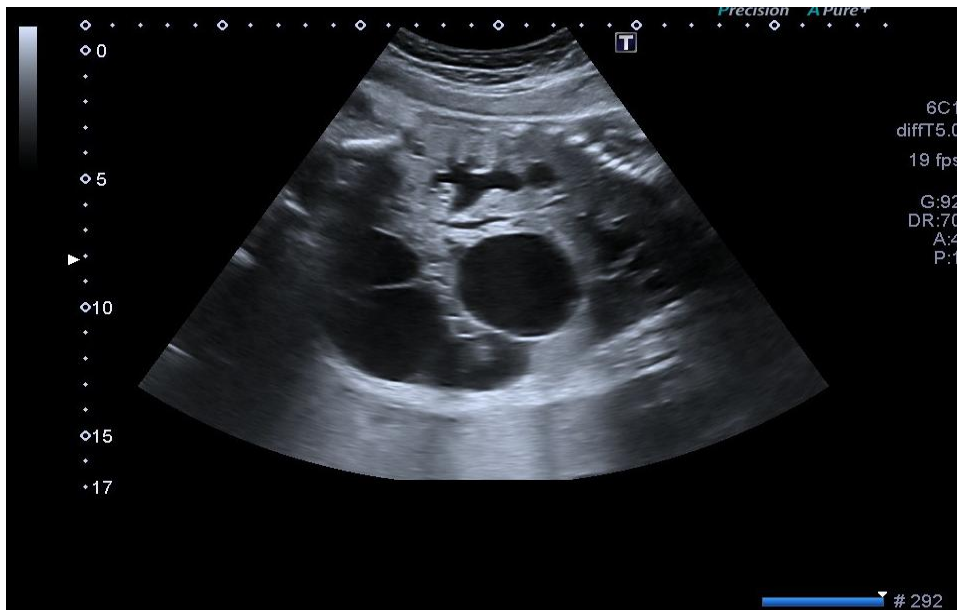
# How do we assess the kidney antenatally?

- Visual shape and size
- Oligohydramnios: most reliable predictor of poor renal function
- Urine tests (fetal bladder tap) Na and beta 2 microglobulin measured
- Genetic testing amniocentesis

- Amniotic fluid:
  - Kidney function
  - Difficulty in obstruction
  - Lung development
  - Window between 17-24 weeks

- What management options do we have?
  - Counselling
  - Fetal surgery
  - Amnio-infusions
  - Termination

- Fetal hydronephrosis:
  - How severe is the hydronephrosis?
  - When was it first noticed
  - Did/does it persevere through the pregnancy
  - Is it uni- or bilateral?
  - Are there abnormalities of the renal parenchyma?
  - Is the bladder large and keyhole? Thick-walled?
  - Is there a ureterocele?
  - Is there normal amniotic fluid?
  - Is there a urinoma/urinary ascites
  - Is the umbilical cord 2 or 3 vessels?
  - Are there other congenital abnormalities



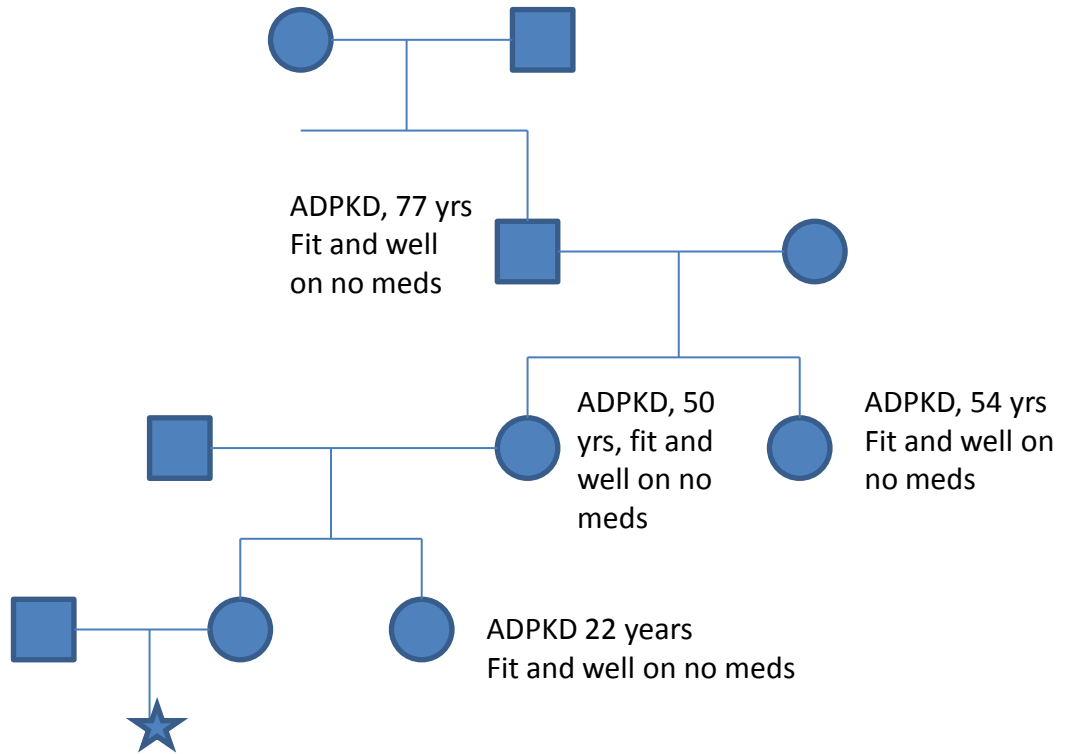
- Oligohydramnios 22 weeks
- Anhydramnios 28 weeks
- Left dysplastic
- Right significant hydronephrosis/hydronephrosis and enlarged tense bladder
- Joined counselling as lung as well as kidney condition

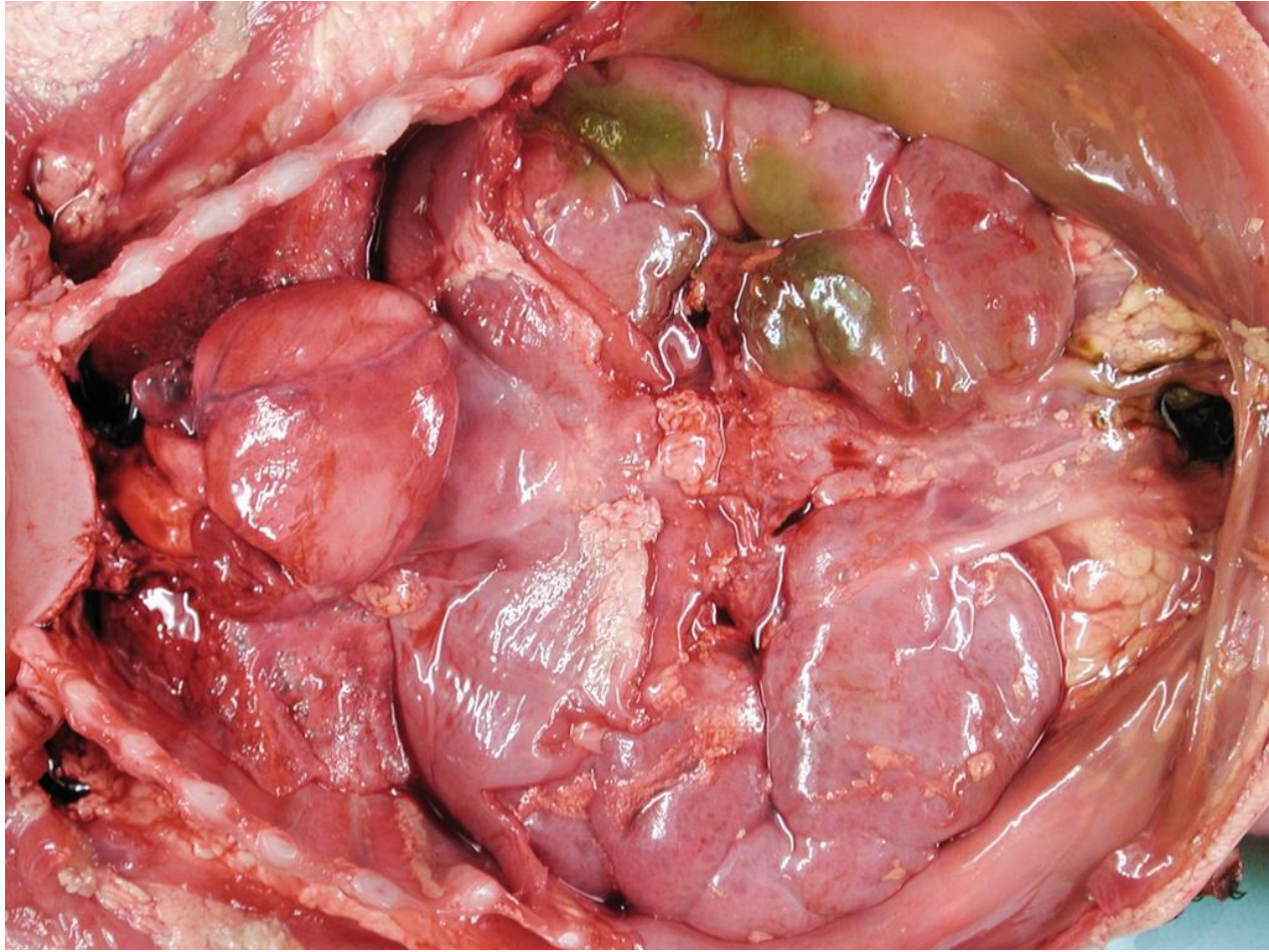


- 24 weeks pregnant
- No FMH of renal disease
- Normal amniotic fluid



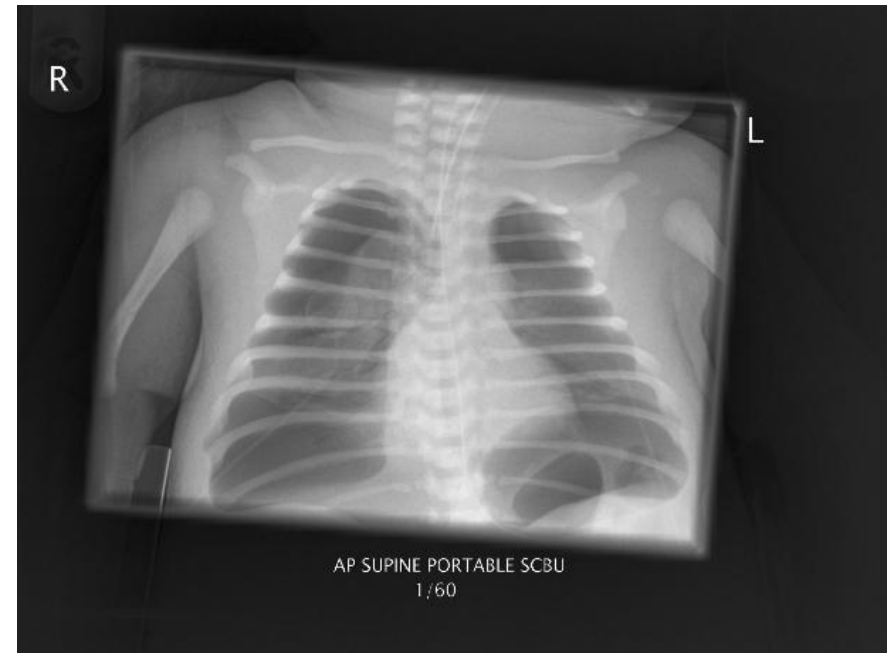
ADPKD  
Dialysis mid 70-ies  
Died heart attack in 80-ies

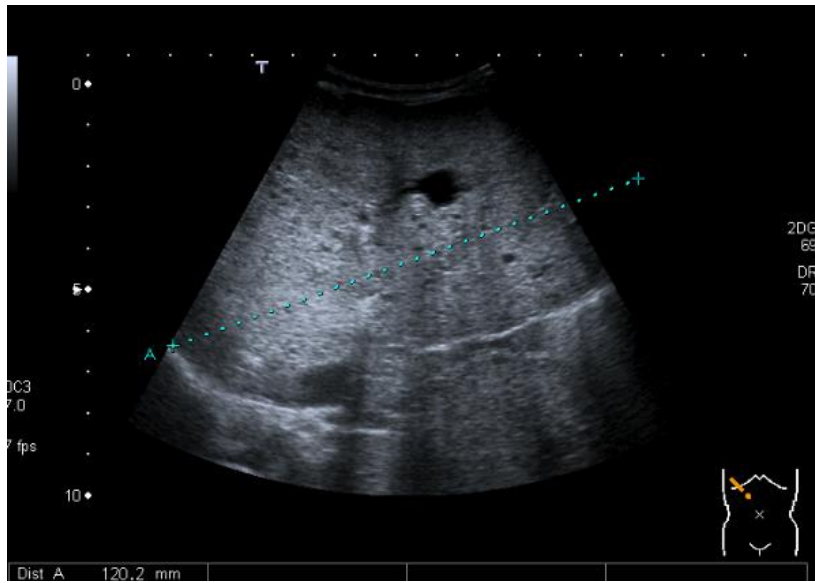


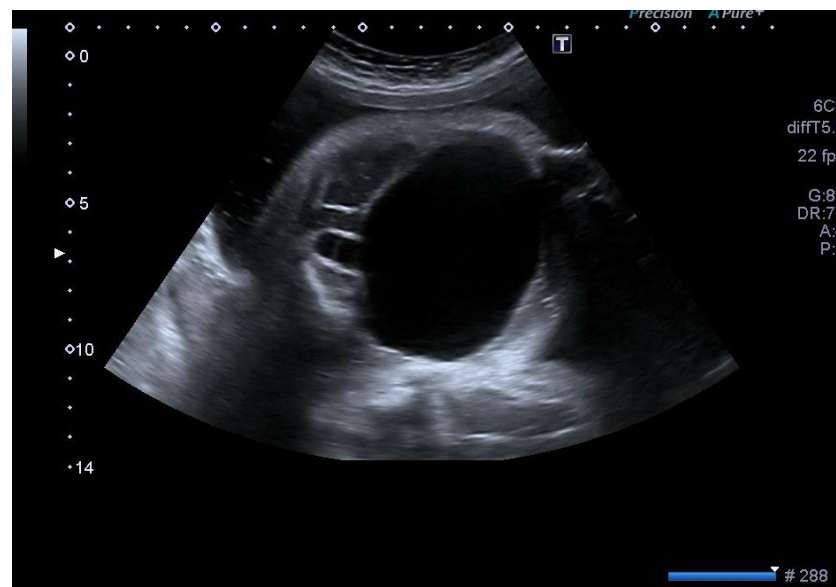
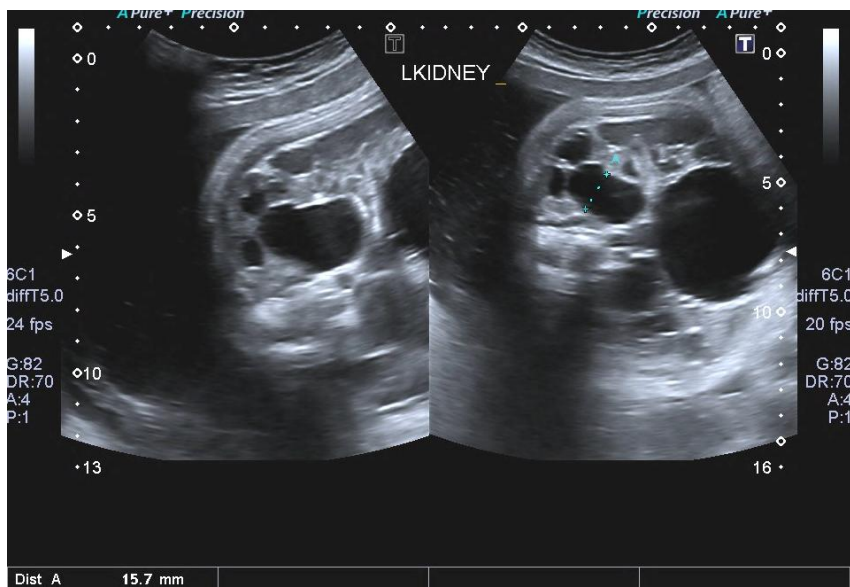


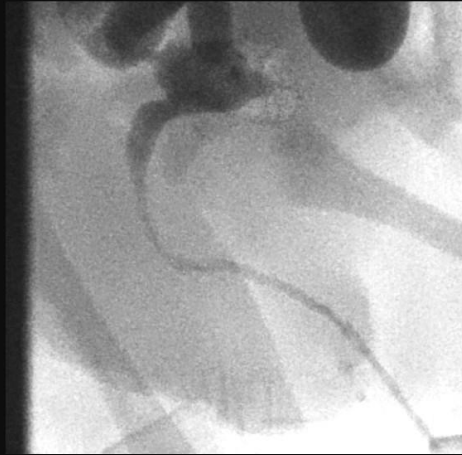
- Lungs

- Most important reason for non survival
- Window of development: 17-24 weeks amniotic fluid presence
- Lung hypoplasia/dysplasia, leading to pneumothorax and/or to pulmonary hypertension
- Counselling has to cover spectrum of disease









# Counselling

- Bilateral disease or disease in a single kidney:
  - Amniotic fluid
  - Varied outcomes
  - Always give a spectrum of disease
  - We can get it wrong!
- Unilateral disease:
  - Unilateral hydronephrosis
  - Unilateral ureterocele
  - MCDK
  - Dysplastic kidney
  - Single kidney
  - Duplex kidney

- Initially seen in Bristol until 26/40 as booked in Gwent
- Moved to Swansea, so referred to Cardiff @ 32/40
  - Bilateral renal disease
  - Lumbar kyphosis and hemivertebrae
  - Anhydramnios 26 weeks
- Planned delivery in UHW



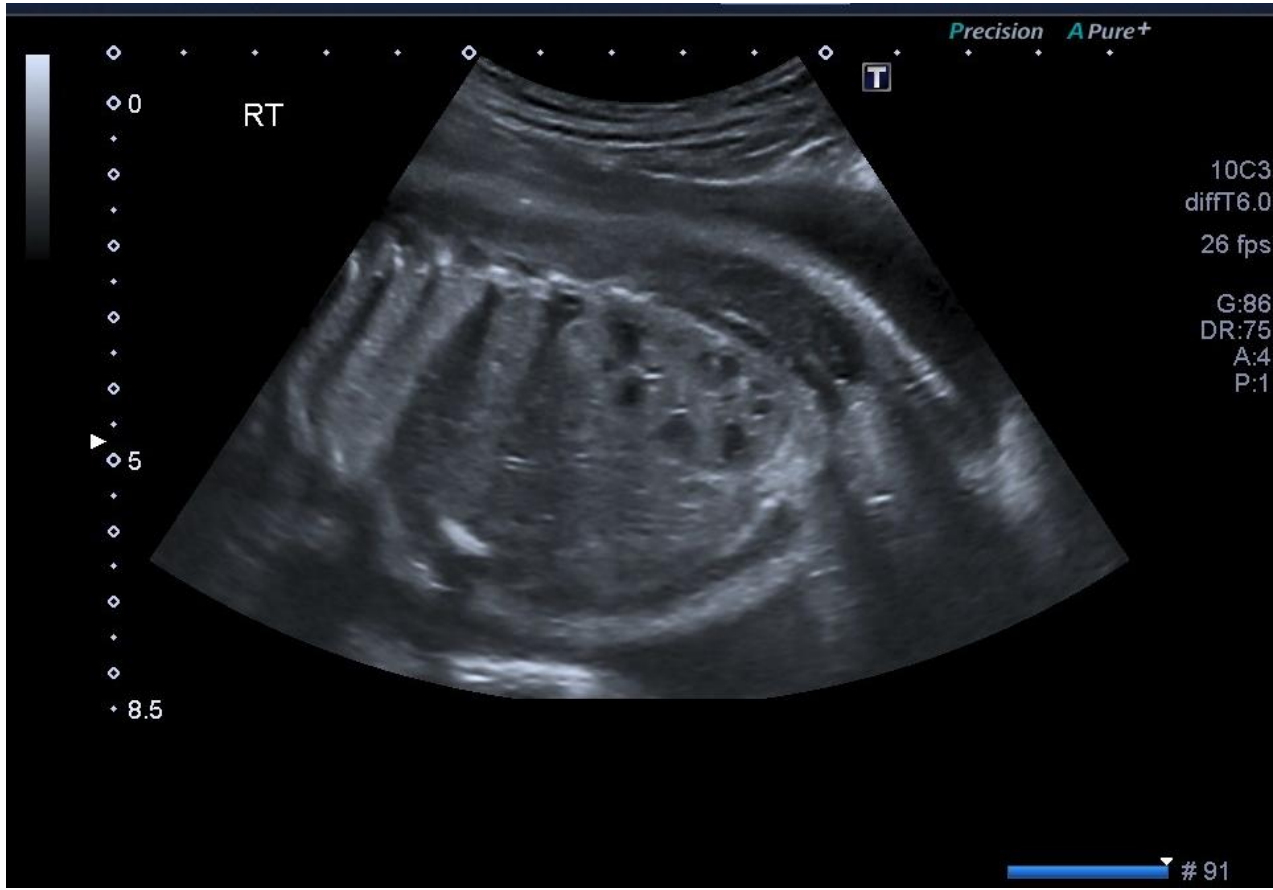
- Lung hypoplasia not expected
- Born in Swansea unexpectedly
- Severe lung hypoplasia
- Neonatologists had little information
- Counselling
- Communication between professionals
- Management

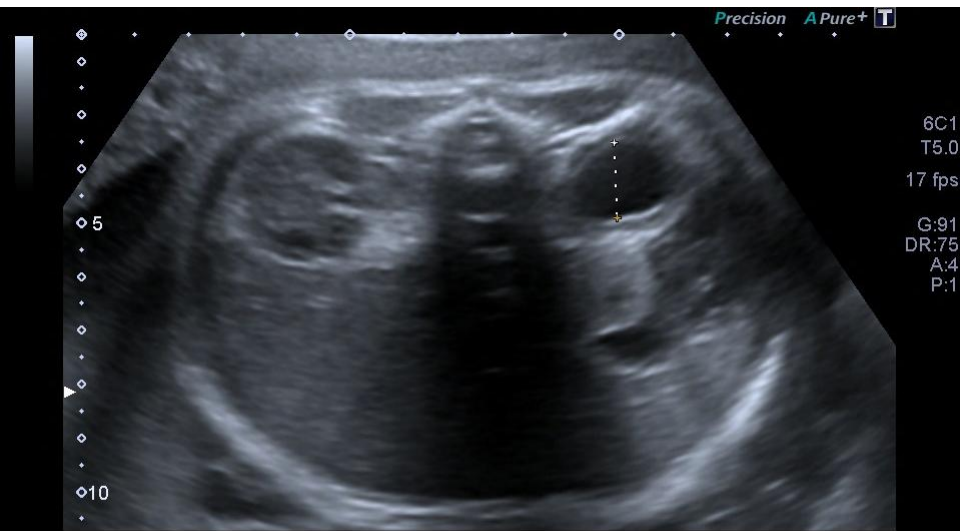
- Often in tears on arrival
- Pregnancy emotional period
- Parents often fear the worst: explore this
- Parents often blame themselves: explore this
- ‘The art of reassurance’

- Unilateral: no need to stay in hospital
- The need for prophylactic antibiotics??!!!
- Identification of UTI
- Scan

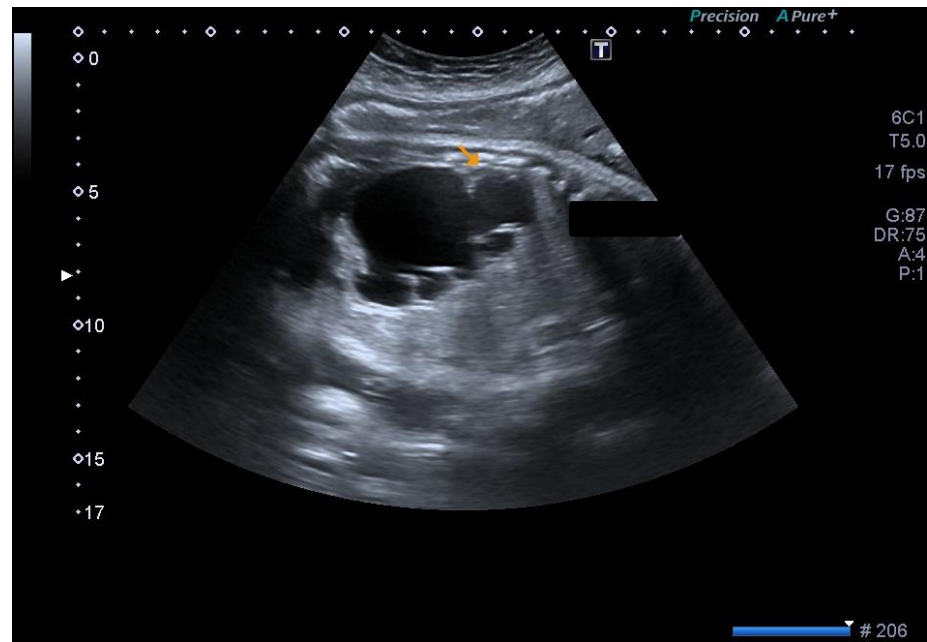


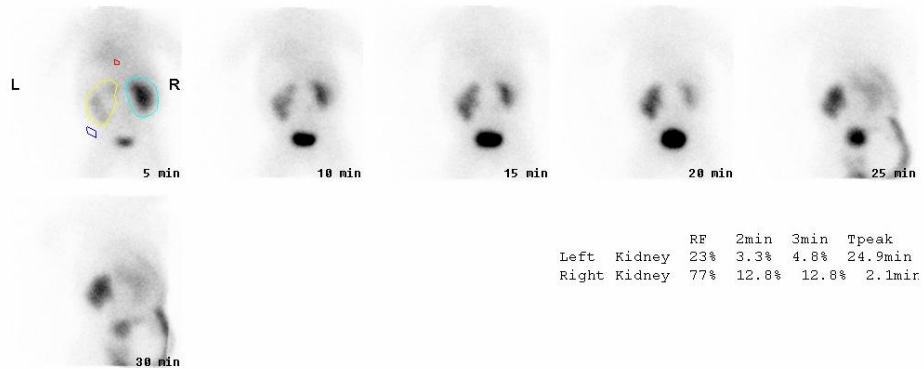




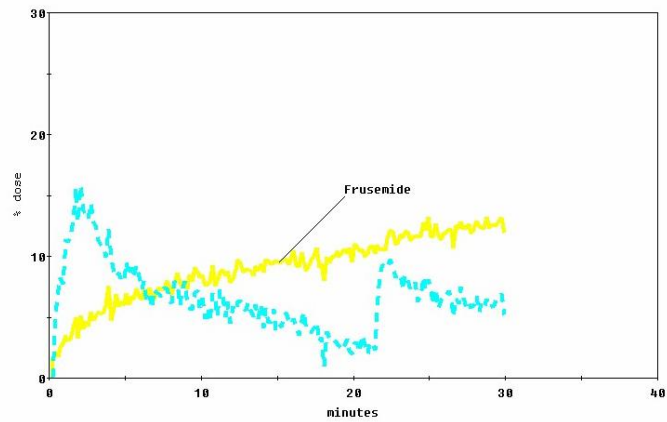


Dist A 14.0 mm





— Left Kidney      - - - Right Kidney



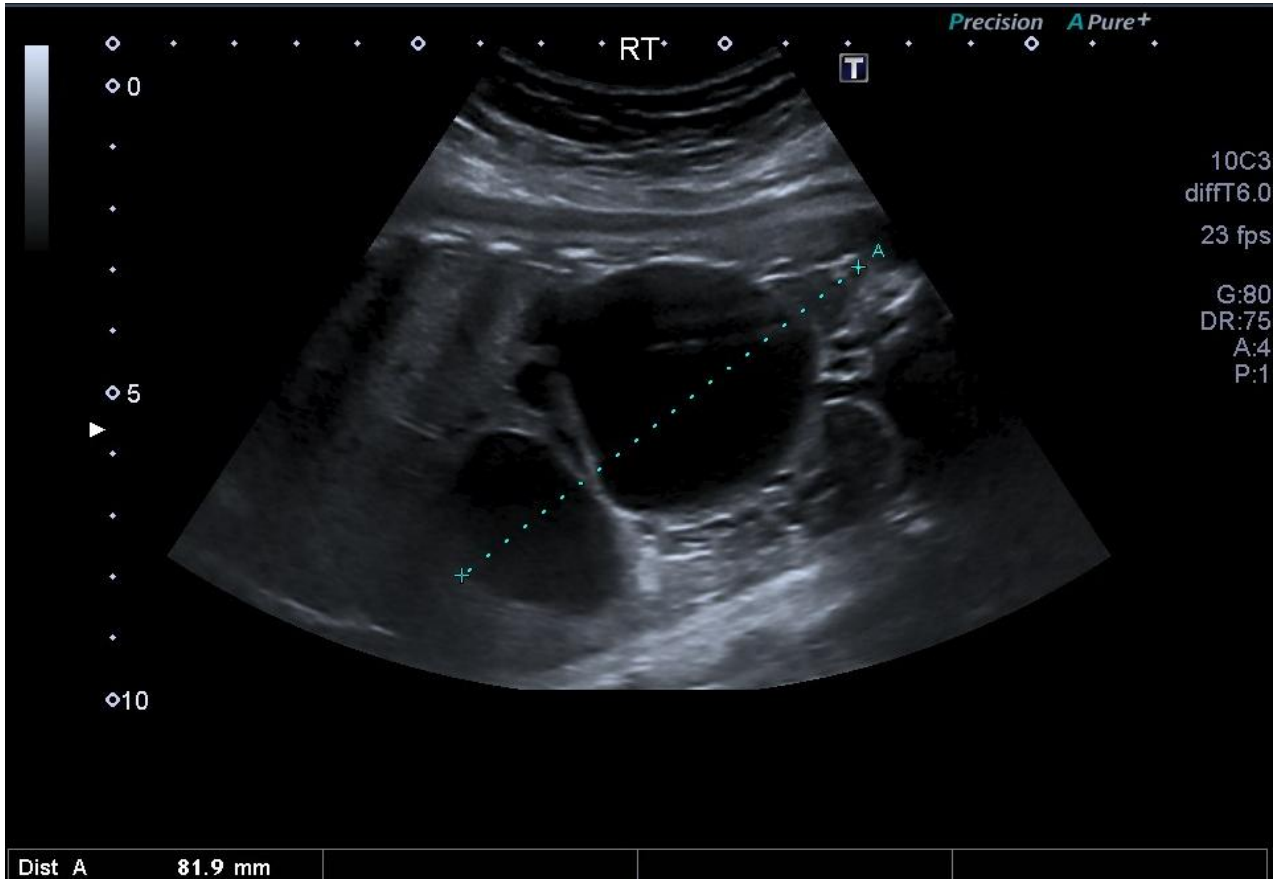
19.2 MBq  
99mTc MAG3

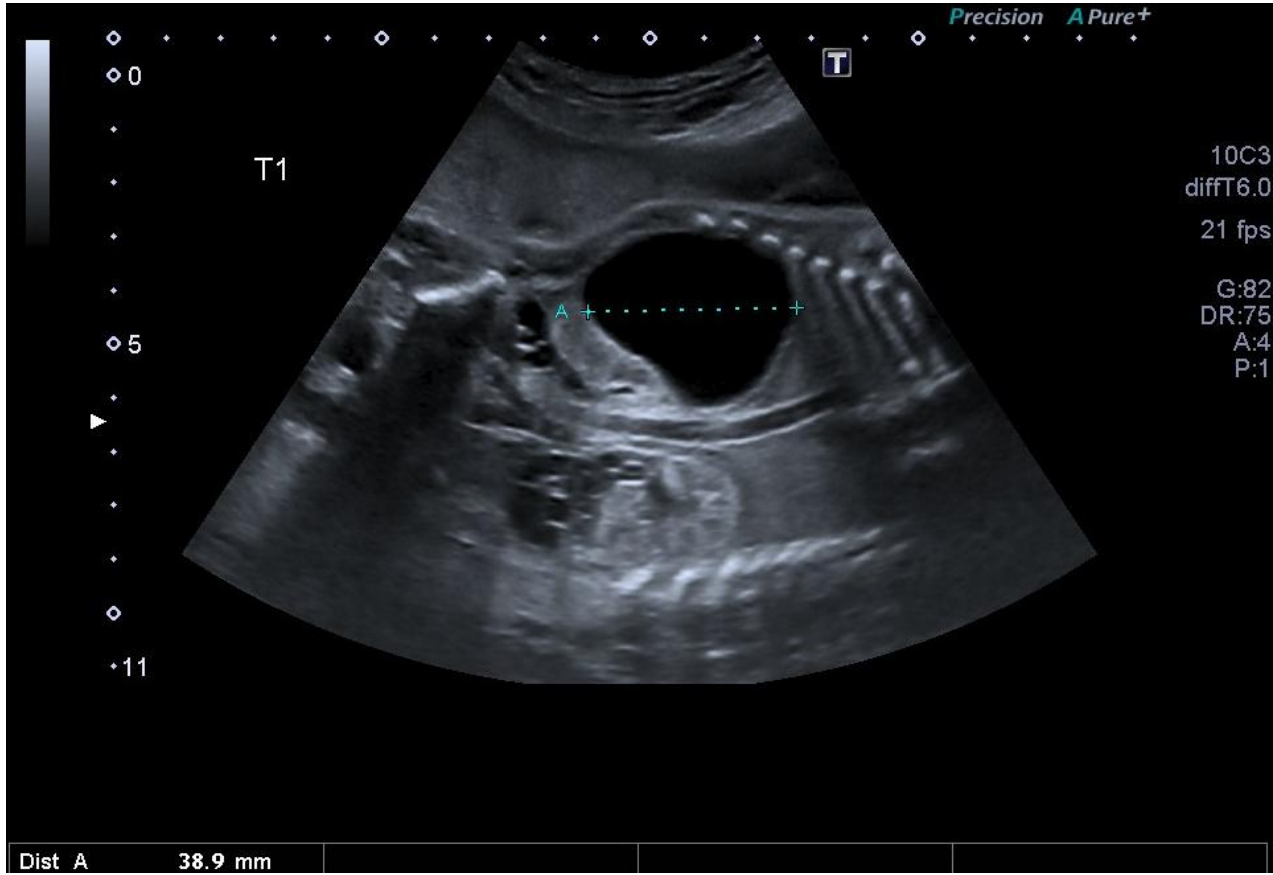
5kg child  
Posterior, Supine  
SP6 35

Frusemide: 15 minutes

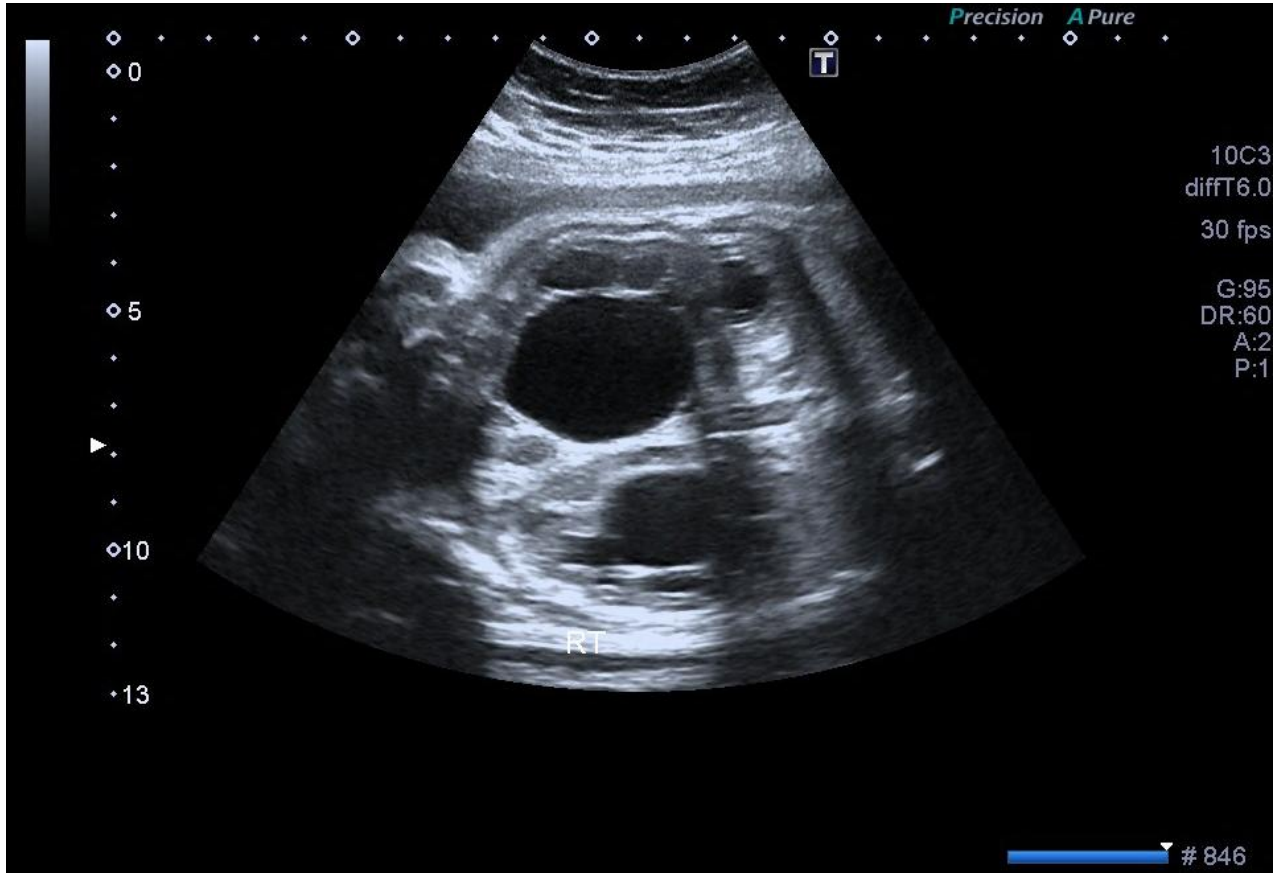
Processed by EAK  
Background: Rutland

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- Thank you
- Questions?