

Antenatally Detected Urinary Tract Abnormalities

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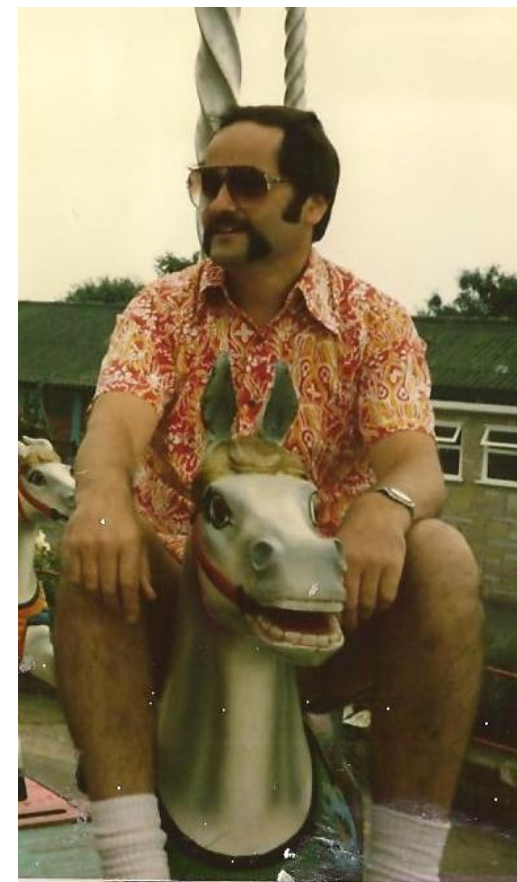
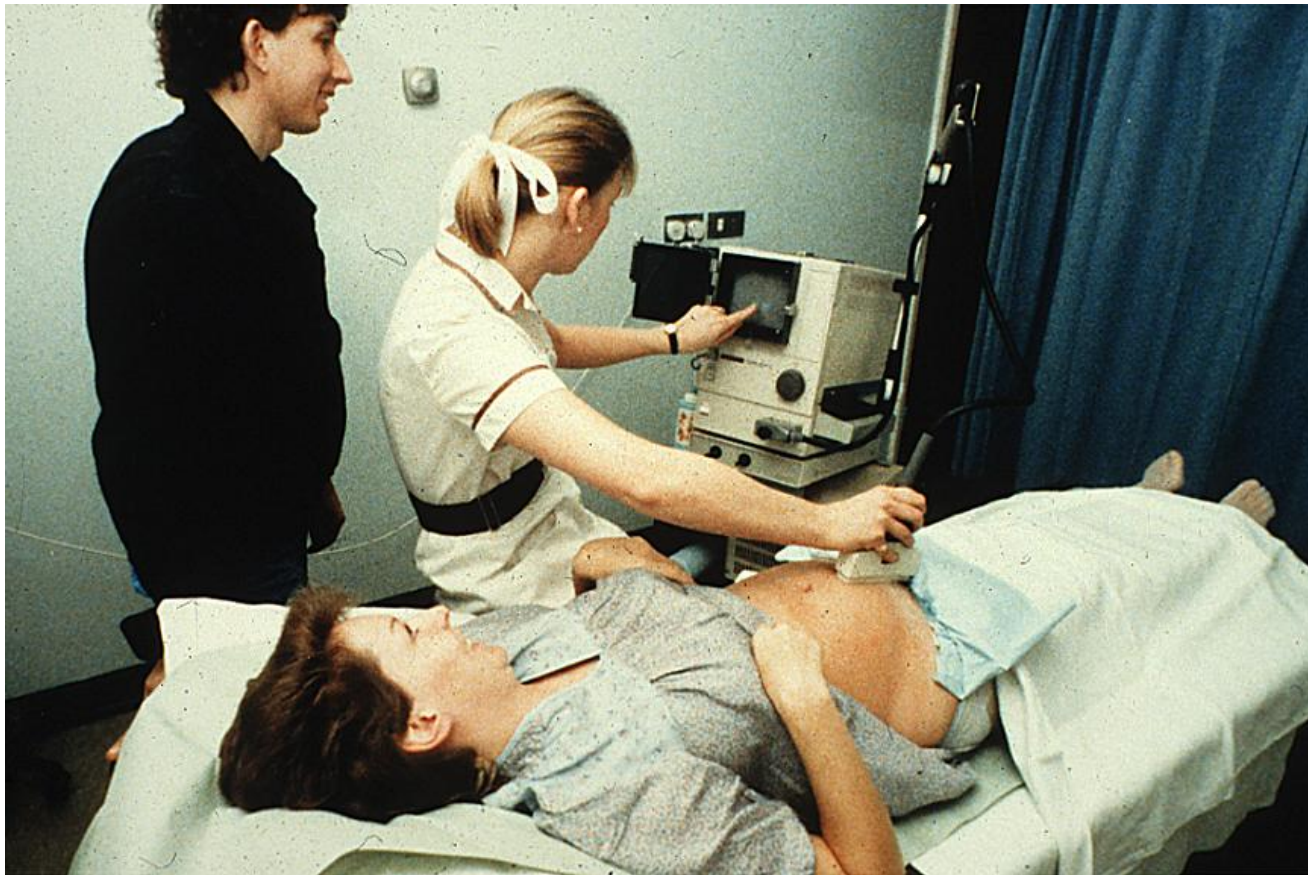
Nottingham University Hospitals NHS Trust

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Antenatally Detected Urinary Tract Abnormalities

- AUTAs
- CAKUT
- 20-30% of all prenatally diagnosed congenital abnormalities
- 3-6/1000 live births

Antenatal ultrasound scanning 1980's



Antenatal ultrasound scanning in 2000's



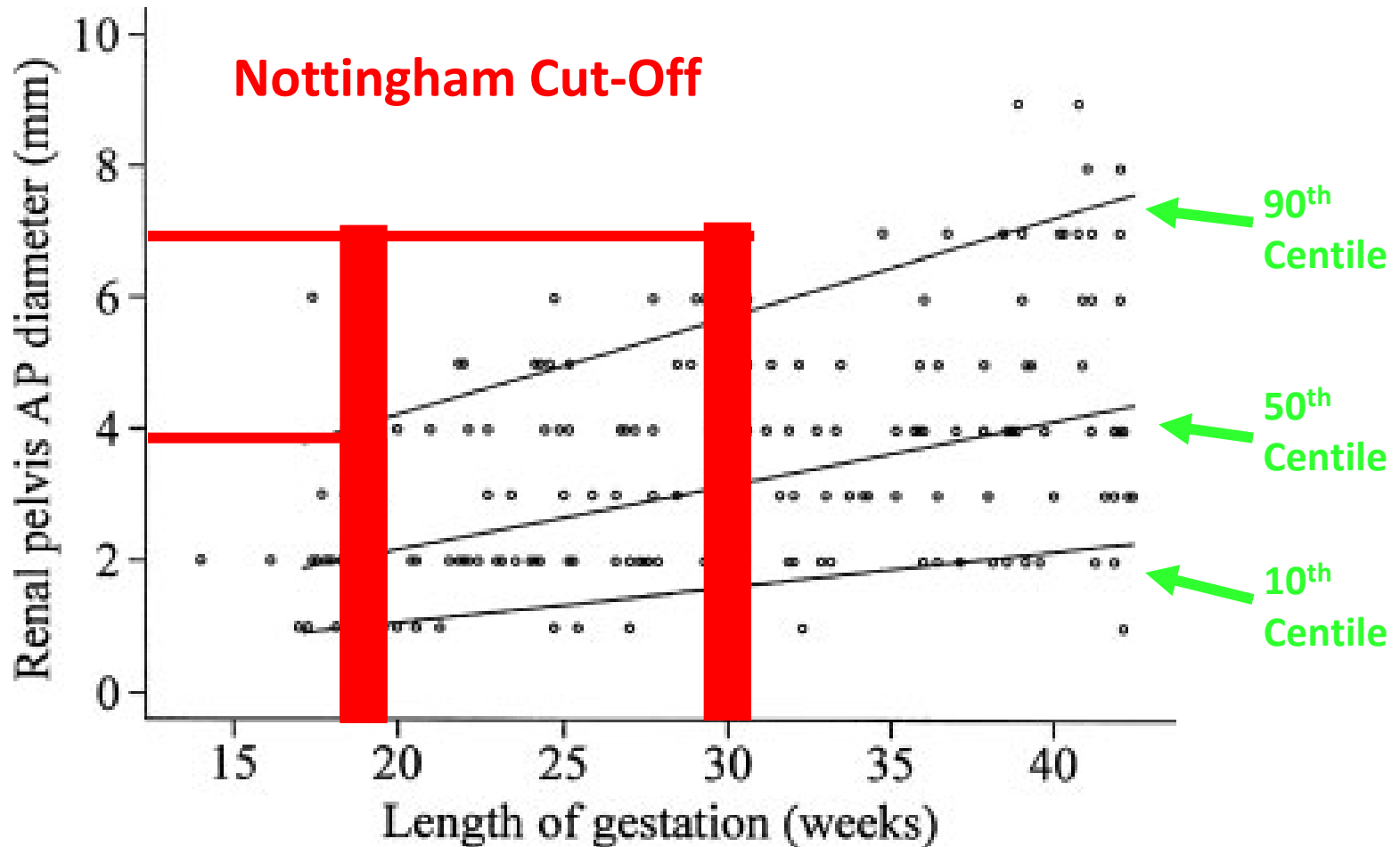
Improvement in image quality



Management controversies

- Definition of significant antenatal and postnatal hydronephrosis
- Variation in number and timing of postnatal investigations
- Use of prophylactic antibiotics
- Surgical intervention

Antenatal renal pelvic measurements



N=663 Chitty and Altman, Prenat
Diagnosis 2003

Principal Diagnosis	Frequency	%
Non-Specific Dilatation (NSD) 1	133	38
NSD 2	37	10.6
VUR	42	12
PUJO	37	10.6
MCDK	21	6
Simple duplex	9	2.6
Ureterocoele	7	2
VUJO	8	2.3
PUV	3	0.9
Echogenic kidneys	6	1.7
DNA/Lost to follow up	12	3.4
Other	35	10
Total	350	100

Surgery
in 12%

Most infants are found to have mild, asymptomatic disease



6% CKD (*Quicino et al, Ped Neph 2014*)

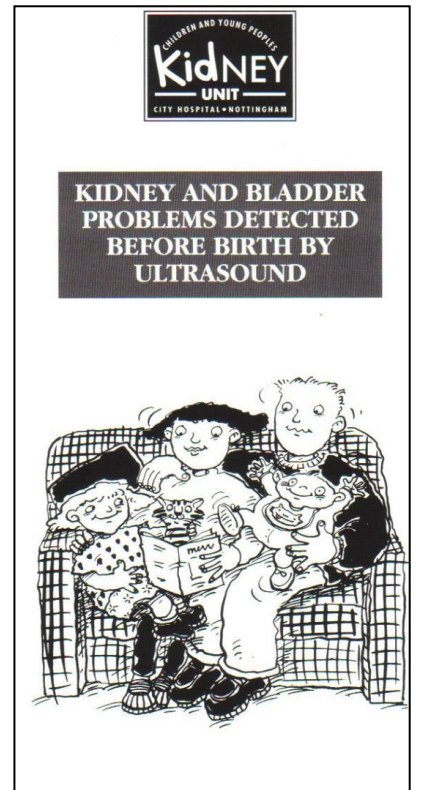
CAKUT account for 40-50% of Childhood CKD (*Vivale et al, Ped Neph 2014*)

Identifying High Risk Cases

- Any renal abnormality associated with oligohydramnios
- Bladder outlet obstruction
- Hydronephrosis and a single kidney
- Severe bilateral hydronephrosis
- Bilateral parenchymal disease

High Risk Cases

- Fetomaternal team
- Paediatric nephrology - joint counselling (service specification)
- Neonatal alert
- Postnatal management plan
- Combined nephrology and urology



Prognosis should be guarded.
Postnatal findings and outcome may be
significantly different from what the
antenatal appearances suggest

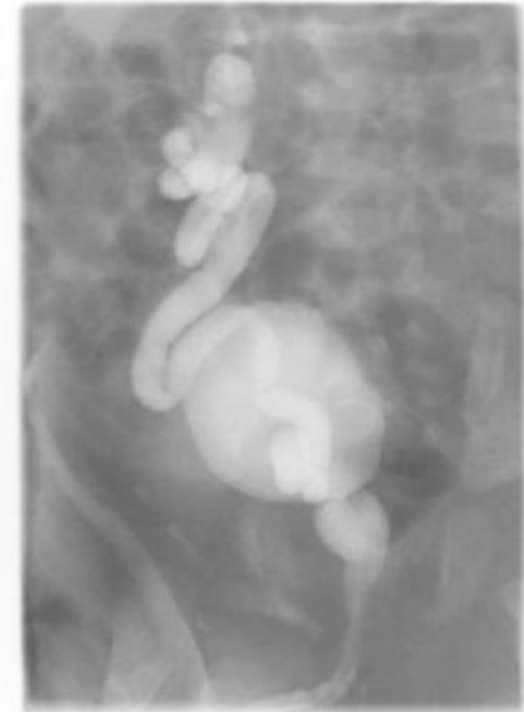
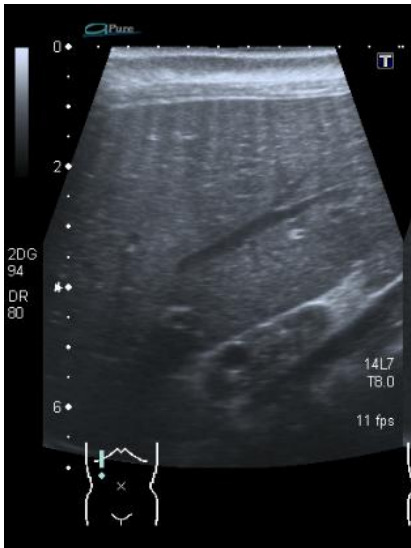
The outcome may be worse...

Male infant

Mild unilateral hydronephrosis on anomaly and
3rd trimester scan

No oligohydramnios

The outcome may be worse...



Renal dysplasia

Posterior urethral valve

Stage 5 chronic kidney disease

....or better!

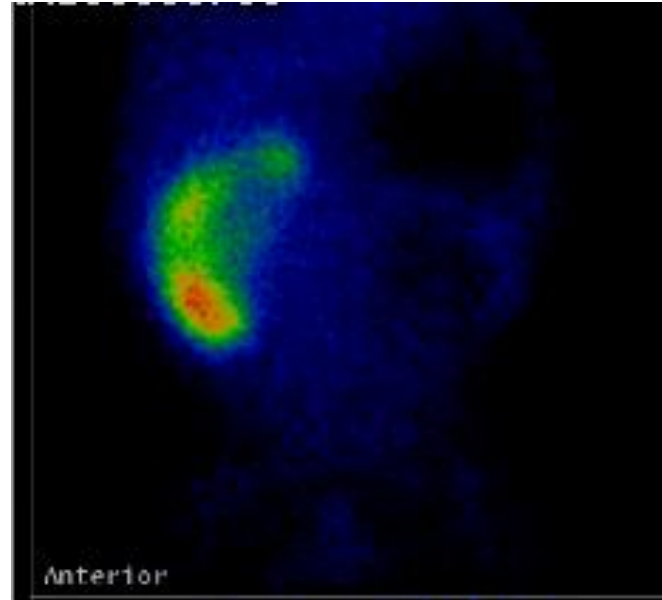
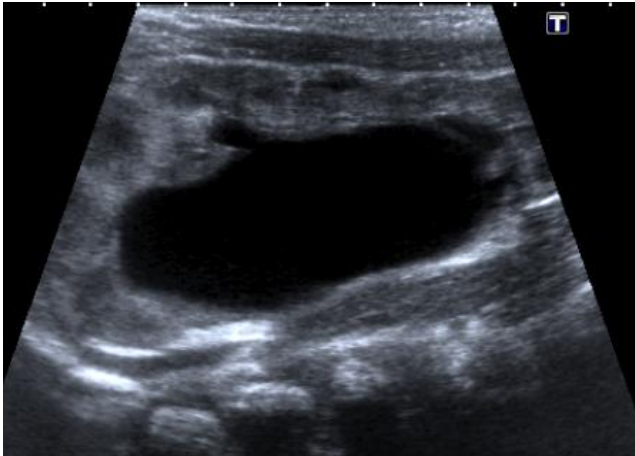
Male infant

Severe bilateral hydronephrosis with
pelvicalyceal dilatation

Findings suggestive of bilateral PUJO

Oligohydramnios

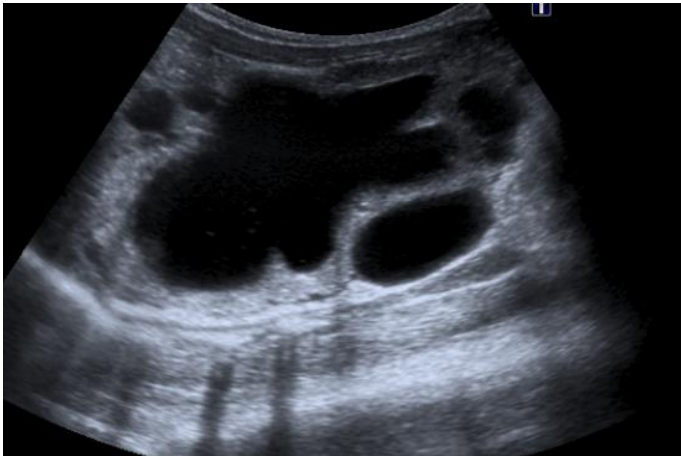
....or better!



Bilateral PUJO

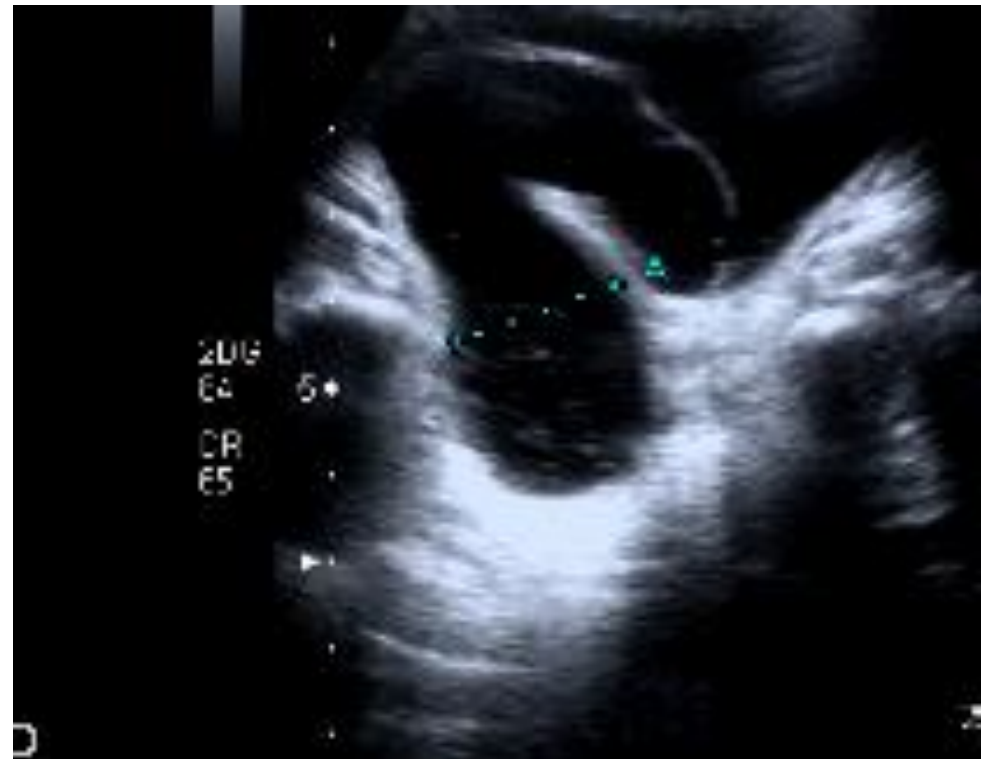
Non-functioning left kidney

Creatinine 42 $\mu\text{mol/L}$ at 9 mths

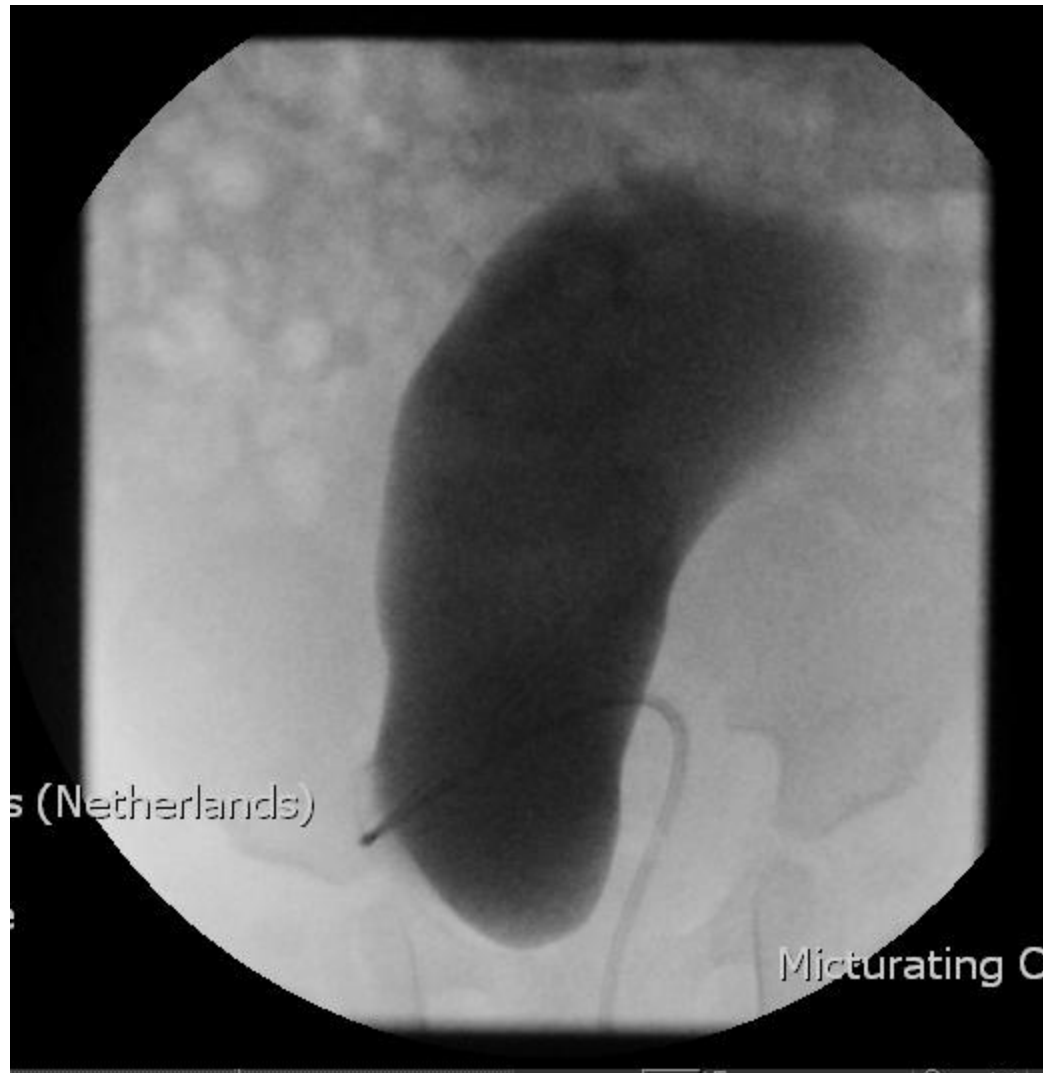


Whenever possible, adopt the
conservative approach with careful
monitoring

Antenatally detected duplex with dilated upper pole



Massive ureteric dilatation

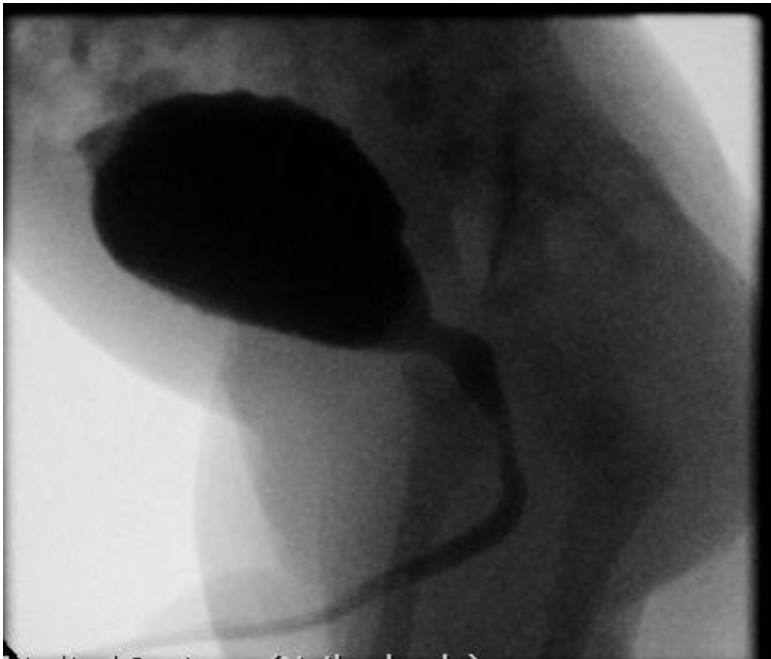


At 16 month follow-up

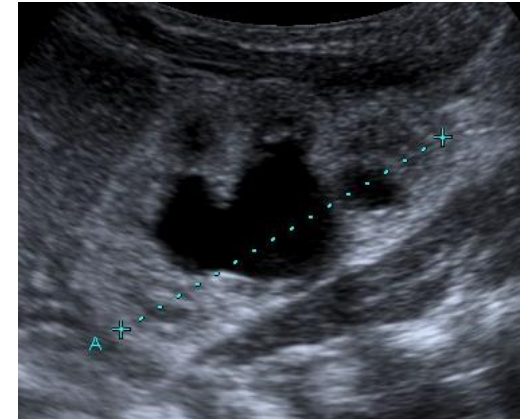


Association with chromosomal disorders

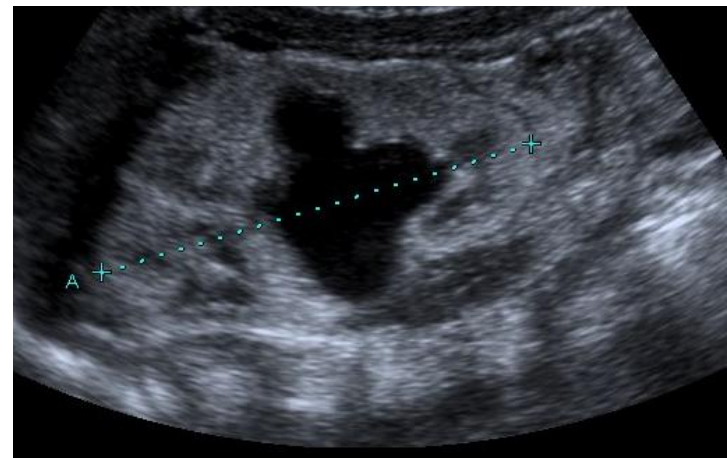
3rd trimester scan, bilateral hydronephrosis. Suspected posterior urethral valve



Normal MCUG



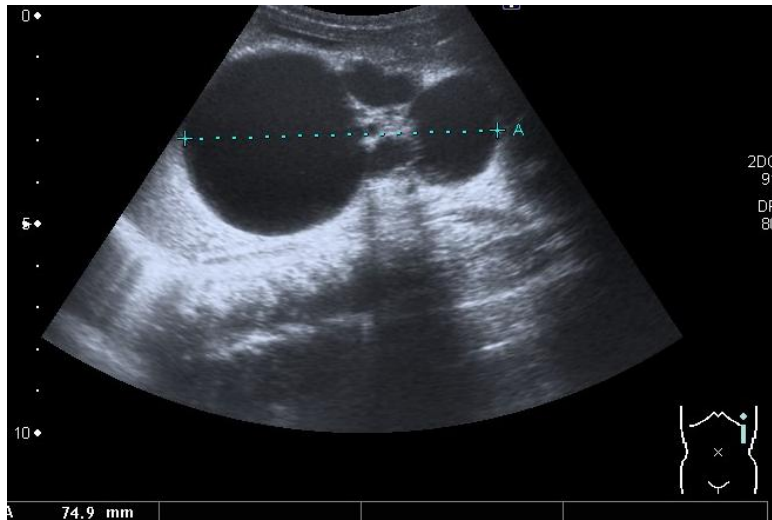
Ultrasound, mild p-c dilatation



Trisomy 21, AVSD

Don't forget to mention possibility of associated anomalies...

Central renal mass, solid and
cystic elements
Late oligohydramnios



Mild pulmonary hypoplasia
Bilateral renal dysplasia, urethral
CKD
Anal atresia

AUTAs - Summary

- Commonest antenatally detected abnormalities
- Huge spectrum
- Careful antenatal counselling required
- Majority of cases are managed conservatively
- Nephrourology liaison important
- Management and follow-up of complex cases must be individualised

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