

Evaluation of fetal and neonatal ovarian lesions using IOTA ultrasound-based rules and descriptors

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OBJECTIVES

Ovarian lesions are the common abdominal cyst in the female fetus

50% spontaneously resolve, but they can be complicated by torsion, haemorrhage or rupture

The most common complication is torsion (22%)
Currently no consensus on the management of patients with ‘complex’ cysts and globally, many undergo surgery to prevent complications – can be in utero or postpartum

We aim to evaluate the imaging features and performance of current models for risk assessing ovarian masses in the fetus.

METHODOLOGY

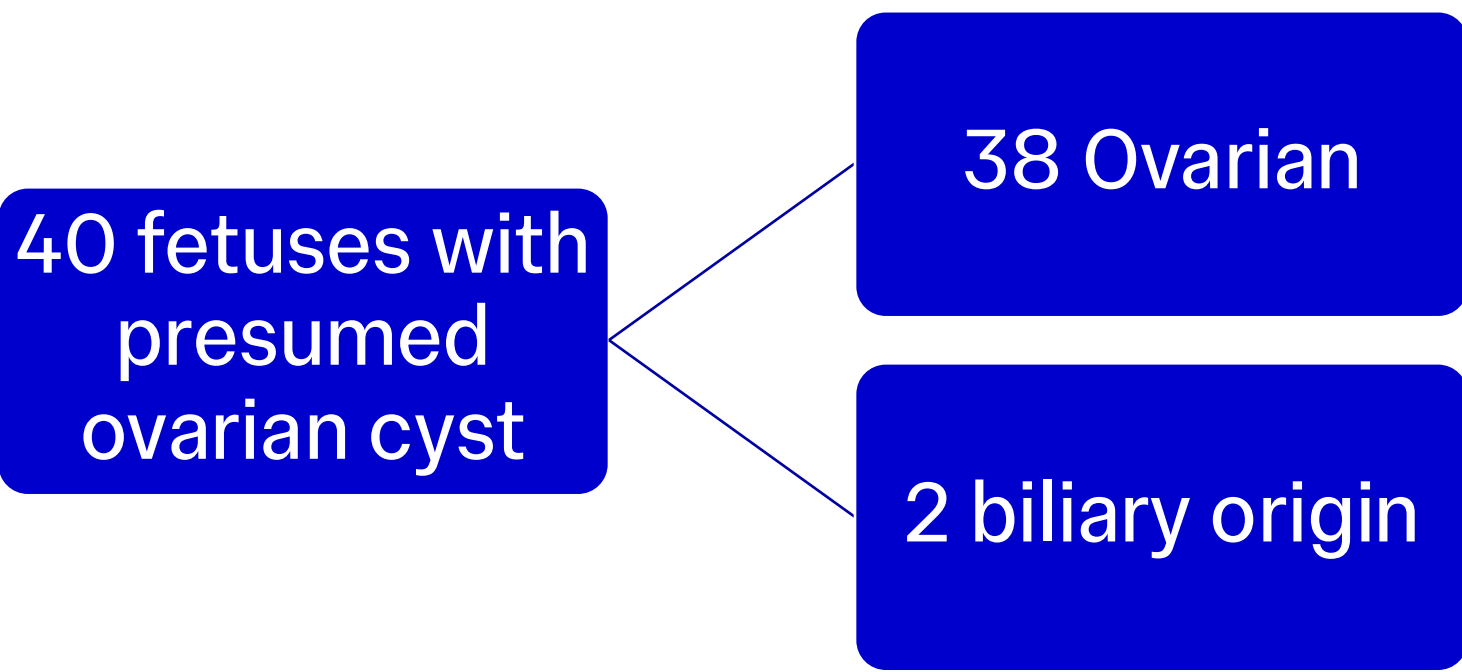
Retrospective review of **antenatal and neonatal ultrasound images** in women whose fetus was **diagnosed with a congenital ovarian lesion** from **1st January 2016–31st December 2024 (9 years)**

HRA ethical approval was obtained (REC ID 23/LO/0988).

Predefined outcomes were extracted from an electronic record system and any missing data were requested from primary care.

Complications occurring within 12 months of birth were recorded.

RESULTS



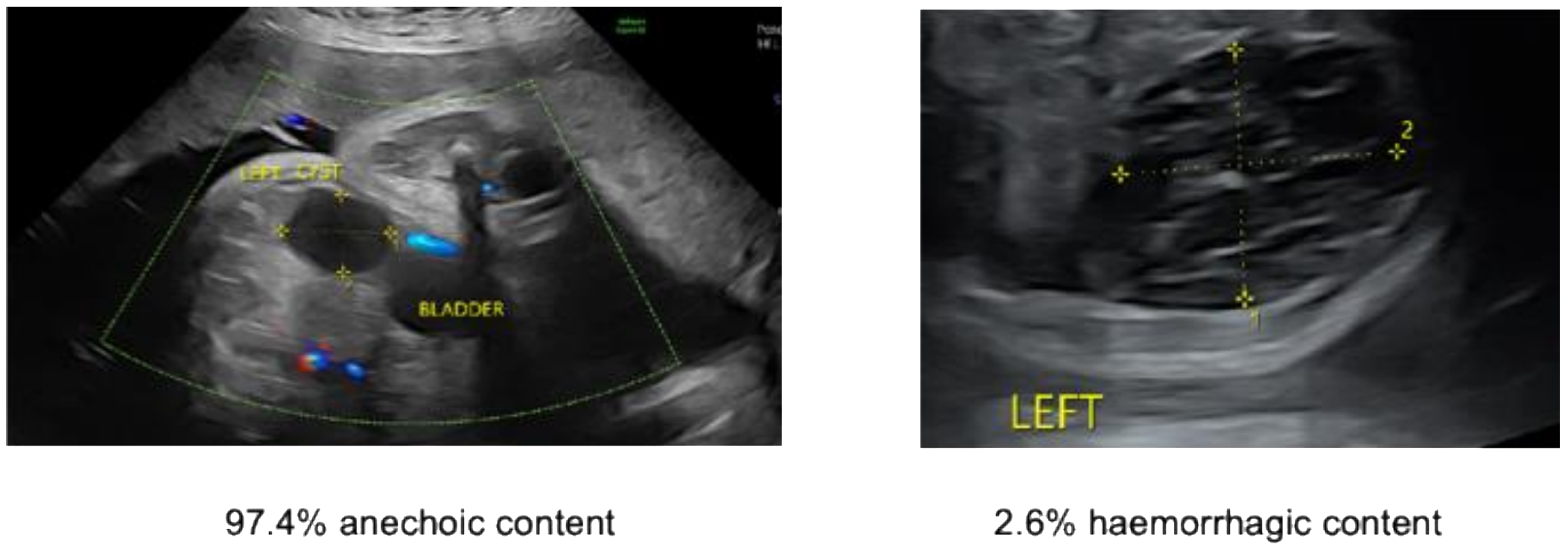
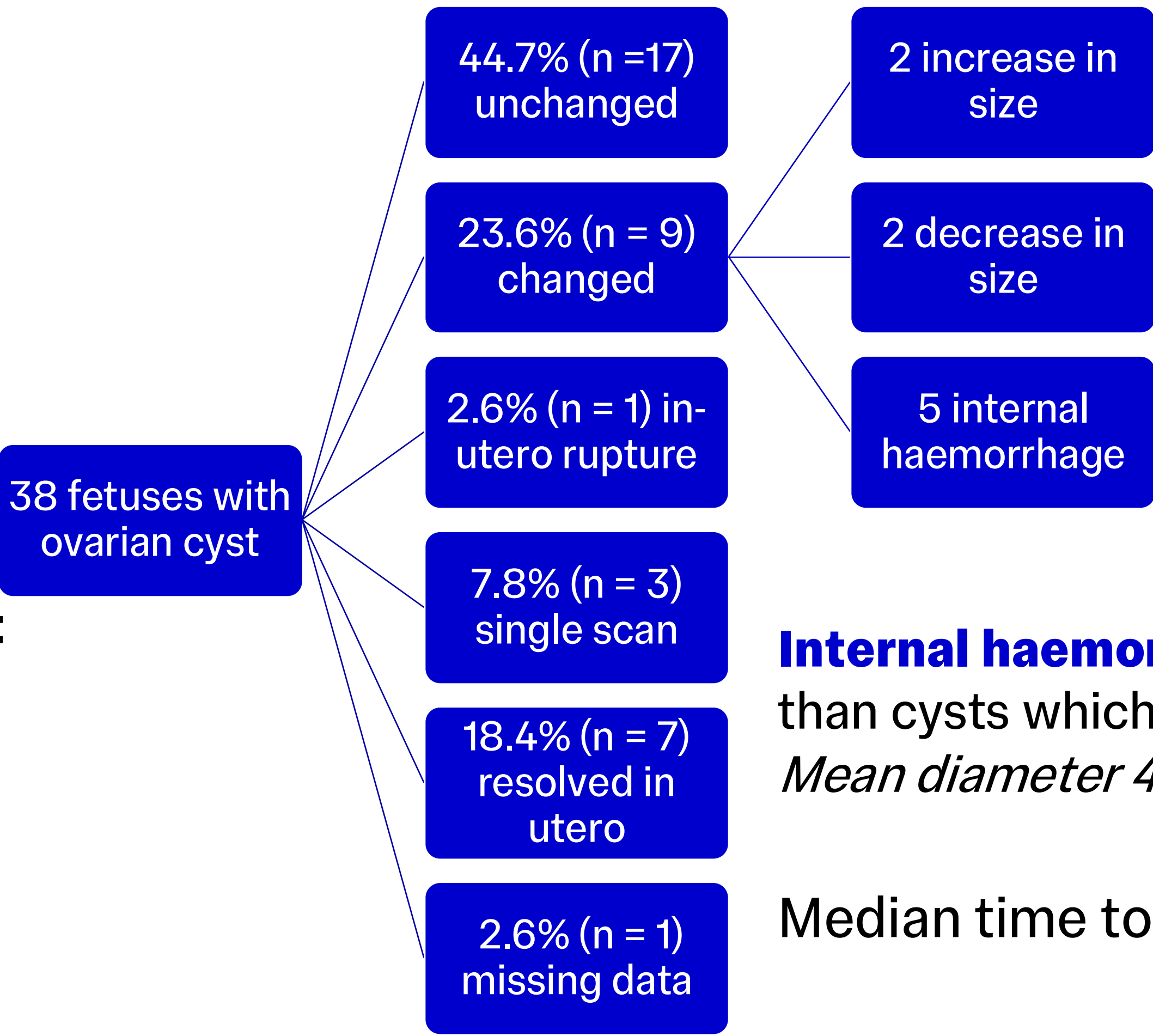
Mean gestation at diagnosis: 31 weeks (IQR 26.5 – 32.2 weeks)

Mean maternal age: 32.5 years (IQR 28 – 36.7 years)



In utero course

Mean maximum diameter was 30.0mm (IQR 15.2 – 38.0mm)



Internal haemorrhage was associated with **greater cyst diameter** than cysts which **resolved** or **did not change**
Mean diameter 41.3mm vs. 15.4mm vs. 25.4mm

Median time to **resolution** was 34 days (IQR 24.5–59.5 days).

Simple Rules applied in **38/38** ovarian masses *in utero*

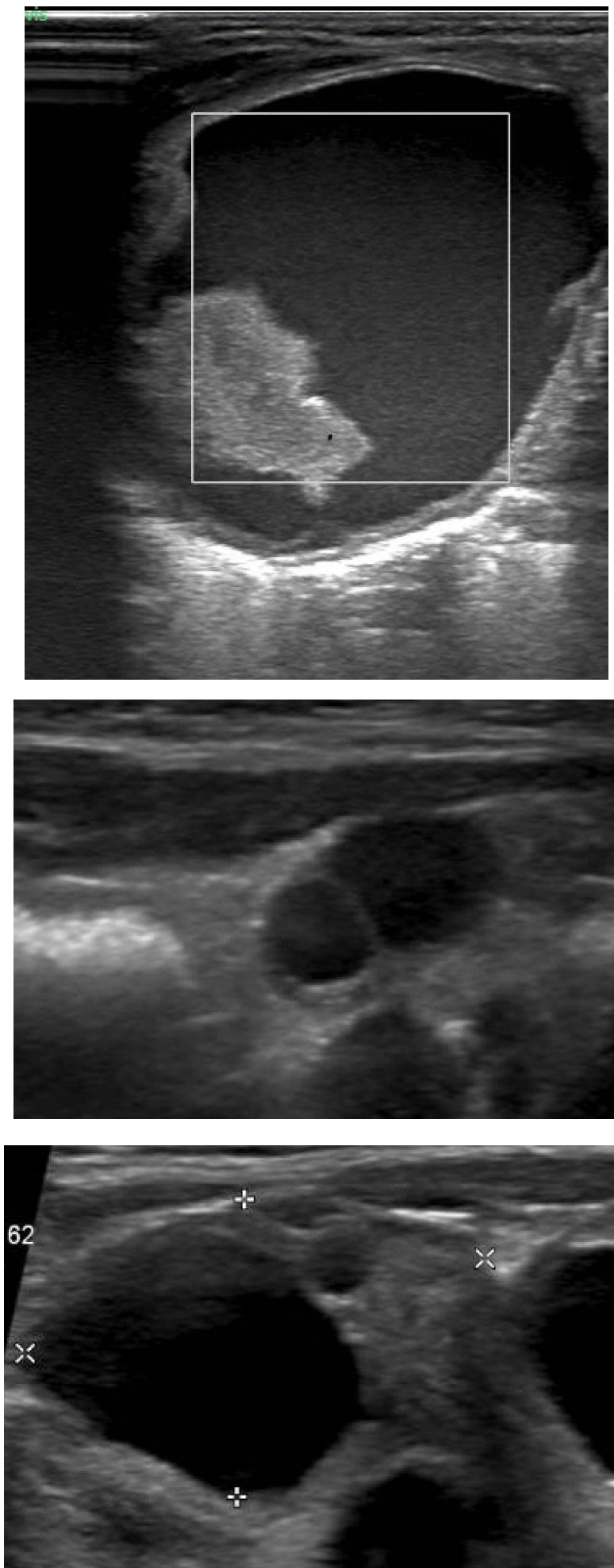
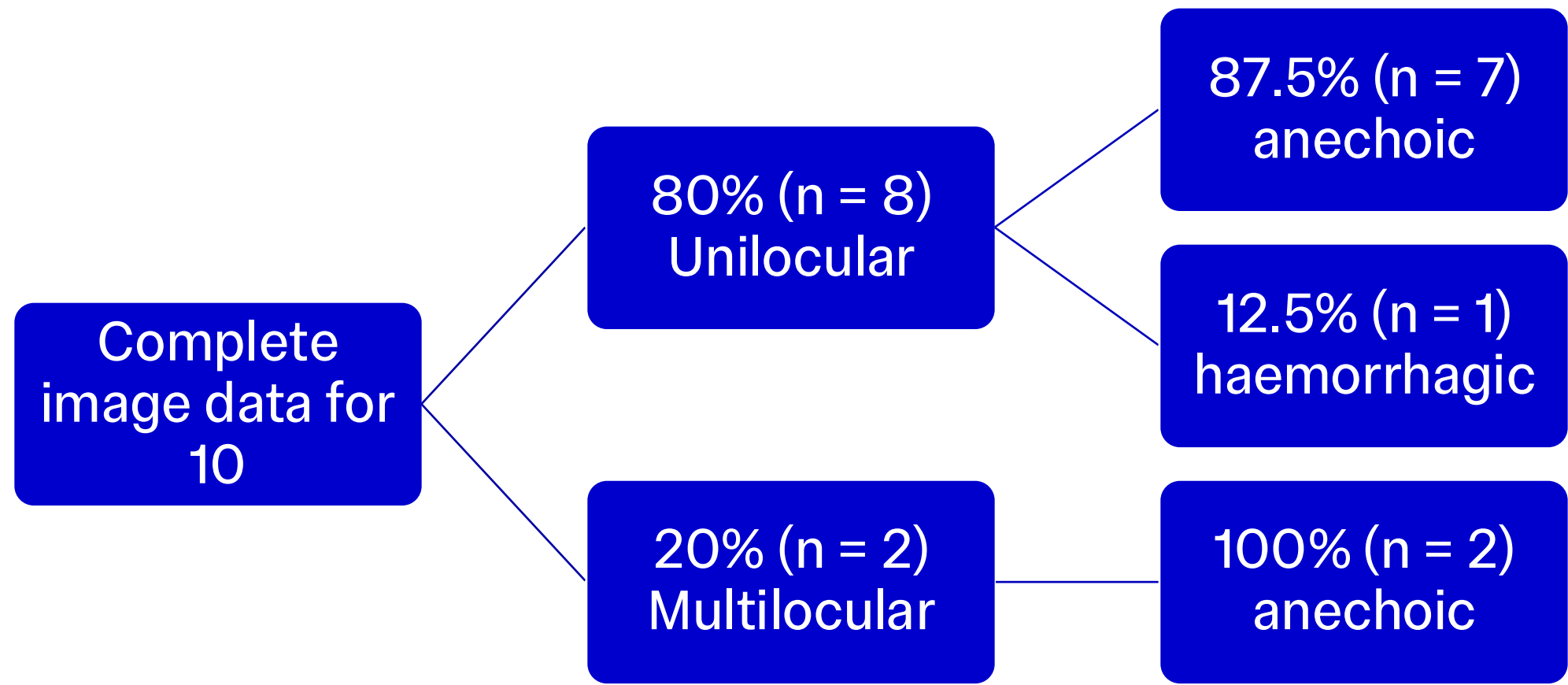
Benign descriptors applicable in **32/38** confirmed ovarian masses (**84%**) *in utero*

Neonatal Course

23 scans postpartum

17 cysts seen

Complete image data available for 10 neonates



Mean cyst diameter was **27.0mm (4.0–69.0mm)**

Simple rules applicable in all (10/10)

1 multilocular (neonate) previously classified as unilocular, still meets SRs

Benign descriptors applicable in **8/10 - 2 not applicable (multilocular)**

Surgically managed masses (n = 2)

	Patient A	Patient B
Age at first follow up scan	0 days	5 days
Max. cyst diameter	53mm	69mm
Age at surgery	42 days	6 days
Indication for surgery	Bilious vomiting ?obstructing cyst	Vomiting and not tolerating feeds
Type of surgery	Laparotomy + cystectomy	Laparoscopy + cyst marsupialisation
Histology	Benign paraovarian cyst	Benign cystadenoma

CONCLUSIONS

IOTA terminology, BDs, and SRs are applicable to describing most benign congenital ovarian lesions in fetuses and neonates, which typically resolve in utero or within the first year of life.

Larger cysts may haemorrhage but rarely require intervention, with only a small subset of persistent, symptomatic cases needing surgery.