

# PAEDIATRIC PYLORIC STENOSIS ULTRASOUND

## Ultrasound Assessment in Suspected Pyloric Stenosis

**Objective** To ensure that all staff follow correct procedure of evaluation in the paediatric patient when pyloric stenosis is suspected.

**Responsibility** All sonographers, trainee sonographers, registrars and radiologists performing paediatric ultrasound examinations.

**Frequency** For all paediatric ultrasound examinations that are requested for the clinical suspicion of pyloric stenosis.

**Procedure** The following table describes the process to be followed for ultrasound examination of suspected pyloric stenosis in the paediatric patient.

Step	Action
1	Look at prior radiographs/ultrasound +/- report
2	Use high frequency linear array probe, preferably = or >12-5 MHz.
3	Scan baby before feeding, preferably 4 hours after last feed.
4	Evaluate amount of fluid in the baby's stomach. (Stomach usually empties by 4 hours after last feeding)
5	Roll the baby towards you to about 45° (right side down). Place a sponge wedge behind his/her left shoulder to maintain this position. Keeping baby settled prevents pylorospasm.
6	Scan and document the gallbladder in both longitudinal and transverse planes. (The gallbladder lies adjacent to the antrum/pylorus and does not empty when pyloric stenosis is present because of the absence of cholecystokinin.)
7	Identify the gastric antrum.
8	Align transducer with pyloric canal.
9	If pyloric stenosis is present, the thickened muscle is usually easy to identify unless the stomach is very dilated with fluid.
10	The antrum of the stomach should be watched in real-time for peristalsis and gastric emptying. Gastric contents do not readily pass through the pylorus when pyloric stenosis is present.

### Note:

1	If there is insufficient fluid in the stomach, fluid (sterile water) can be given orally via a bottle.
2	If no pyloric stenosis is diagnosed, it is reasonable to assess SMA/SMV relationship, renal morphology, and screen for lower GI tract abnormality that might result in vomiting.

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### Usual Clinical Indications:

1	Projectile, non-bilious vomiting
2	Palpable olive-shaped epigastric mass
3	Failure to thrive
4	More common in males
5	Typical presentation at 4-8 weeks
6	Family history

### Appearances:

1	Pyloric stenosis results in a thickened pyloric muscle with an inner echogenic layer representing the mucosa. The lumen is usually obliterated.
2	Measurements of pyloric muscle are most reliable when obtained on a longitudinal section. (the antrum tapering to narrowed pyloric channel that is surrounded by thickened muscle looks like a sagittal scan of the distal uterus/cervix)
3	A canal length of $\geq 16$ mm and a single muscle thickness of $\geq 3.5$ mm are diagnostic of pyloric stenosis.
4	Failure of the pyloric canal to open with gastric peristalsis is additional evidence of pyloric stenosis.
5	If the pylorus appears thickened but does not meet above criteria, a repeat scan may be requested, as the thickening can evolve over a few days.