

General Paediatric Surgery: Pyloric stenosis

Overview

Pyloric stenosis is a condition where the passage (pylorus) between the stomach and duodenum is narrowed. The pylorus is muscular, and thickening of this muscle prevents milk or food from passing into the bowel. This guideline has been created to advise clinicians in peripheral hospitals regarding pre-transfer diagnosis and management of this condition.

Clinical assessment

History

- Typically presents between 2 – 6 weeks of age, but can present anytime up to 3 months post-term
- Progressive development of projectile non-bilious vomiting
- Hungry in between feeds
- Ascertain feeding history
- Hunger stools (green watery stools)
- Weight loss or failure to thrive
- May have a family history

Physical examination

- Airway, Breathing, Circulation, Disability and check blood glucose
- Assess for signs of dehydration – skin turgor, fontanelle, mucous membrane
- Attempt palpation of a pyloric tumour
- Visible gastric peristalsis

Differential diagnosis

Gastro-oesophageal reflux. Consider if non-typical age range and in absence of weight loss and alkalosis

- Over-feeding. Ensure a careful feeding history has been taken, consider in absence of weight loss.
- Bartter Syndrome. This is a rare renal cause of hypokalaemic alkalosis in babies, consider if vomiting is not a dominant feature.
- Cows' milk protein allergy.
- Infection.
- Raised intra-cranial pressure

Investigations

- Cannula insertion + bloods for full blood count, urea & electrolytes, c-reactive protein and blood gas
 - Typically will exhibit hypokalaemic hypochloaemic metabolic alkalosis, if this is absent the diagnosis is much less likely
- Abdominal ultrasound to look for evidence of pyloric mass and passage of fluid through the pylorus. Findings of single wall thickness >4mm and channel length >14mm is considered significant. Ultrasound by a sonographer inexperienced in infant scanning can be misleading so caution should be exercised.

Management

- Fluid resuscitation
 - 10ml/kg bolus of 0.9% sodium chloride if dehydrated. Repeat as necessary
 - IV fluids (0.9% sodium chloride + 5% glucose, adding 10mmol potassium chloride/500ml when baby is passing urine) at a rate of **150ml/kg/day**
 - If neonate (up to 44 weeks gestation) prescribe 10% glucose with additives
 - Replace NG losses ml for ml – 0.9% sodium chloride + 10mmol potassium chloride
- Keep nil by mouth
- Nasogastric insertion (minimum 8 Fr in term neonate) and place on free drainage
- Explain to the family that the baby needs surgery but this is not urgent and they need the salts and acids in their blood to return to normal first, reassure them that this may take several days.
- Repeat capillary gas at least 12 hourly until alkalosis normalised, more frequently if potassium level deranged. Once base excess <2 and chloride above 100mmol/dL, reduce fluid rate down to age appropriate rate (normally 120ml/kg/day).
- Contact paediatric surgical registrar on call between 7am and 10pm at designated primary tertiary centre with results of bloods, ultrasound and most recent observations.
- Once a bed is confirmed at designated primary tertiary centre, please arrange safe transfer of the child with cannula, IV fluids, nasogastric tube on free drainage and copies of documentation from your centre.
- Ensure images taken at your centre are linked to designated primary tertiary centre by contacting your PACS department

Level of care and the urgency with which input is required:

Non-emergency transfer

Referral accepted within **30 minutes**

Surgical input can be greater than **24 hrs but less than 48hrs**

The original content for this guidance was created and provided by Evelina London. Authors: Iain Yardley and Zeni Haveliwala