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Hypertrophic pyloric stenosis in a two Months old female baby diagnosed ultrasound: A case report.

Radiodiagnosis

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ABSTRACT

Background:
Pyloric stenosis is an idiopathic thickening of the pyloric muscle resulting in gastric outlet obstruction presenting with non billous vomiting in neonates. It is the common cause of surgery in this age group. High resolution ultrasound scan is the most sensitive diagnostic tool.
Method:
Reviews of patient's clinical notes, laboratory and radiological investigations were carried out.
Results:
Ultrasound scan shows a markedly thickened pylorus with dilated stomach and thickened stomach wall.
Conclusion:
Pyloric stenosis is one of the most common causes of gastric outlet obstruction in neonates. High resolution ultrasound alone is adequate for the diagnosis.

KEYWORDS

Neonates, pylorus, Vomiting, ultrasound.

Introduction:
Hypertrophic pyloric stenosis (HPS) is an idiopathic thickening of the pyloric muscle in infancy which creates progressive gastric outlet obstruction. This condition is usually seen in 2 – 12 weeks old infants with worsening projectile non billous vomiting[1].

The exact cause of this condition is unclear but the role of genetics and drug consumption during the antenatal and prenatal periods are known[2,3].

HPS is a common condition having a male preponderance (M:F 4:1) and is more commonly seen in Caucasians. The incidence of pyloric stenosis is 2-5% per 10000 births per year in most white populations [3].

Infants with HPS usually present with non billous vomiting visible peristalsis, palpable epigatric mass, dehydration and electrolyte derangement with failure to thrive despite voracious suckling.

Case report:
A 9week old male infant was brought into the clinic by his parents with complaints of persistent vomiting and weight loss of one month duration. Vomiting occurs about 7 - 10 times per day. It is non-bilious, non-bloody and projectile occurring a few minutes after feeds.

There is associated abdominal swelling noticed at his upper abdomen that moves in a wave-like manner from left to right. There is a history of oliguria but no haematuria. No fast breathing or cough. No yellowness of the eyes or pale stools were observed. He has never had any convulsions.

Patient registered for antenatal care in a secondary health centre at 21 weeks gestation. Pregnancy was complicated by malaria at about 34 weeks gestation which she was treated with artemisinin-based combination therapy.

The rest of the pregnancy was un eventful Since onset of vomiting, parents have been to several hospitals where various antiemetics have been given parenterally but as symptoms persisted, she presented to the Federal Medical centre for further management.

she is the first child of her parents in a monogamous setting. Her father is a 33 year old Civil servant and mother is a 29 year old homemaker.

They reside in a two bedroom apartment with cross ventilation and bottled water is the baby's source of drinking water. Mother does not smoke nor take alcoholic beverages in any form.

On examination, she was not pale, anicteric, afebrile with a temperature of 36.8°C, moderately dehydrated as evidenced by reduced tearing, deep seated eyes and reduced skin tugor. He was conscious and alert.

His anterior fontanel was flat and he had good suck and grasp. His pulse rate was 128bpm and regular. Heart sounds I and II were heard and regular. Respiratory rate was 36cpm and his chest was clear clinically. His abdomen was full, moved with respiration with two visible soft epigastric swellings about 4cm in diameter that moved in a wave-like manner from left to the right. There was no palpable organomegaly. Bowel sounds were present but hypoactive.

Abdominal scan findings shows a dilated stomach with thickened walls. There was gross thickening of the pylorus (Images 2, 3).

Image1: patients abdominal showing visible peristalsis with epigastric swelling.



Image 2: Showing a dilated fluid filled stomach with thickened wall.

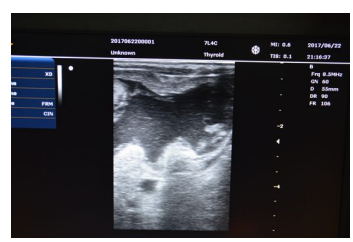


Image 3: Grossly thickened pylorus in keeping with pyloric stenosis



Discussion:

Hypertrophic Pyloric stenosis (HPS) is hypertrophy of the pylorus which causes gastric outlet obstruction in the new born with resultant non bilious vomiting, dehydration and failure to thrive. It typically presents in infants 4-6 weeks of as seen in our patient. It occurs in 1 to 4 live births per 1,000 and has a male predominance of 5 males to 1 female 1. Our index patient was however female though she was the first born.

In an infant with HPS, a palpable olive swelling may be appreciated at the epigastrium. (Image 1) with resultant vomiting causing alkalosis, hypochloremia, hypokalemia and severe dehydration. Ultrasound is most commonly used modality in the diagnosis of HPS. A criteria of muscle thickness of >4mm and pylorus length >16mm was well demonstrated in our patient (image 3). Premature or smaller weight infants with PS have been found to have similar muscle thickness but smaller pylorus length [4]. Ultrasound scan is known to have a high specificity and sensitivity in the diagnosis of HPS. However, errors in diagnosis do occur and relate to false negatives and false positives. False negatives may occur due to operator inexperience in which the pylorus may not be identified. This happens when the stomach is distended with gas and fluid. The over distended antrum may also be mistaken for the pylorus. In such infants decompression of the stomach with a nasogastric tube may be helpful.

False positives on the other hand can result from pyloropasm which is a dynamic process that change over time.

Before the advent of high resolution ultrasound, barium studies were considered to be the test of choice but its sensitivity and specificity is lower than that of ultrasound diagnosis. plain radiography is also used but provides a low degree of confidence in making the diagnosis. With the improvement in ultrasound technology, these methods are now becoming obsolete.

Surgical treatment is most common form of therapy for neonates with HPS, and it is the most common surgery performed at this age[3]. The correction of electrolyte imbalance is key to a successful surgery. Our index patients is still awaiting surgery due to financial constraints.

Conclusion:

Hypertrophic Pyloric stenosis is one of the most common causes of gastric outlet obstruction in neonates. High resolution ultrasound alone is adequate for the diagnosis.

Conflict of interest:

Kiridi EK is the proprietor of Silhouette radiodiagnostic consultants were these images were obtained Verbal consent for the use of these images for learning purposes was given by the parents on the condition that the images should be anonymized.

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