

MARKED HYPERTROPHIC PYLORIOUS STENOSIS DIAGNOSED THROUGH ULTRASONOGRAPHY - CASE REPORT

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ABSTRACT

Hypertrophic pyloric stenosis is the main surgical cause of non-bilious vomiting in infants. Ultrasound is the diagnostic imaging method of choice because it can evaluate the pyloric canal morphologically and functionally. Thus, the objective of the present study is to report a case of marked pyloric stenosis with severe difficulty in gastric emptying diagnosed by ultrasound.

KEYWORDS: PYLORIC STENOSIS, INFANT, GASTRIC OBSTRUCTION, ULTRASOUND, PEDIATRICS.

INTRODUCTION

Hypertrophic pyloric stenosis is a common cause of obstruction of gastric emptying in infants. The incidence is approximately two to five cases per 1,000 live births per year in most white populations, although variations are described in relation to the geographic region of the studies and the period in which they were performed¹⁻³. Studies describe a higher prevalence in males, with a ratio of approximately four cases of males to each case of females^{2,4}. There is also a family predisposition. In addition, pyloric stenosis occurs more frequently in the white race compared to populations of black and Asian races^{2,5}.

The disease is characterized by thickening of the muscular layer of the pylorus, which begins to present difficulty in relaxation, with consequent obstruction of the passage of gastric contents through the pylorus. Usually, the clinical picture starts with the infant presenting with non-bilious vomiting between the second and eighth weeks of life³. The main differential diagnosis is gastroesophageal reflux, which is why clinical history and physical examination may not be sufficient for the definitive diagnosis⁵.

Ultrasound is the method of choice for diagnosis. It allows the anatomical study of the pylorus and the functional assessment of gastric emptying after feedings, without the need for sedation, ionizing radiation or contrast medium^{4,5}.

The objective of this work is to present an ultrasound study of a case of hypertrophic stenosis of the pylorus with marked narrowing of the pyloric channel, causing

great difficulty in gastric emptying.

CASE REPORT

LSMC, one month old, male, referred by the pediatrician with a history of frequent projectile vomiting showing low weight gain. Upon ultrasound examination, the pylorus had increased dimensions in both length and width, due to the hypertrophy of the muscle layer. Stomach peristalsis was observed without relaxation of the pylorus musculature, with the passage of gastric contents to the duodenum greatly reduced. The stomach was distended and its volume was 175 ml after three hours and thirty minutes of the last feeding. The intestinal loops were empty and without gaseous content. The pylorus measurements were 21.0 mm long (reference <18.0 mm), 17.0 mm wide (reference up to 12.0 mm) and the thickness of the muscle varied from 4.5 to 4.9 (Reference : <3.0 mm) - figure 1-3.



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Figure 1: Ultrasound of the abdomen: pylorus with enlarged dimensions.



Figure 2: Enlarged image of the muscular layer of the pylorus, which has a significantly increased length and thickness.



Figure 3: Ultrasound of the abdomen: distended stomach and small intestine loops completely empty.

DISCUSSION

The diagnostic imaging method of choice in the suspicion of hypertrophic pyloric stenosis is ultrasound. However, the ultrasound examination of the infant has particularities that are worth reinforcing and that, certainly, greatly improve the sensitivity of the method. The baby needs to feel comfortable, protected and stay close to the parents throughout the exam. The test should be performed in a quiet environment, using a heated gel close to body temperature and after breastfeeding⁴. The transducer must be of high frequency and of adequate size for the baby's biotype.

The morphological criteria for the ultrasonographic diagnosis of pyloric stenosis are the thickness of the muscular layer, which must not exceed 3mm in thickness, and the length of the pyloric canal, usually less than 12mm in length^{2,6}. An additional finding that reinforces the di-

agnosis is mucosal hypertrophy, which can present itself as a double inner layer of thick and redundant mucosa, making protrusion into the gastric antrum.

Functional assessment of pylorus is essential for the diagnostic conclusion in cases of pyloric stenosis, especially in cases where the measurements are borderline and the baby is premature⁴. The functional study of the pyloric canal includes the observation of gastric peristalsis and the verification of the opening of the pylorus, since in these cases, the pylorus remains thickened and elongated throughout the evaluation and there is no relaxation of the musculature, which occurs in cases of pylorospasm.

Therefore, the ultrasound study of the pylorus is a morphological and functional investigation, which must be carried out systematically, with great attention to the peculiarities of the age group and the possibilities of differential diagnosis, especially in borderline cases and in premature infants. Undoubtedly, ultrasound is the exam of choice in the suspicion of hypertrophic pyloric stenosis. The thickness of the muscular layer from 3 to 4 mm and the length of the pyloric channel from 15 to 18 mm have a sensitivity of 100% and specificity of 97% to 99%^{2,4,7-13}.

It is a well-tolerated examination by infants, non-invasive, without ionizing radiation and does not require sedation.

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