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Case Report

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The most common cause of nonbilious vomiting in newborn: Infantile hypertrofic pylor stenosis: A case report

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Abstract

Infantile hypertrophic pyloric stenosis (IHPS) is one of the most common causes of long-term vomiting in newborns. The prevalence can change from region to region; however, it is between 2 and 3.5 per thousand. The disease can be diagnosed with a careful evaluation of the medical history and the physical examinations and ultrasonography (USG). In this article, we present a case of a newborn that was diagnosed with IHPS through physical examination, USG and the evaluation of the medical history. The 28-day-old baby girl was transferred from an external center to the neonatal intensive care unit following a long-standing case of vomiting that had increased in the last week. The abdominal USG revealed a 21 mm-long concentric bowel wall thickening at the pyloric level. The thickness of a single wall reached 4mm in the thickest part. The patient was diagnosed with urosepsis and IHPS following these findings. The patient started to be treated with antibiotics and IV fluids (due to dehydration). She was referred to the pediatric surgery department for the operation. IHPS should be considered especially in the cases of prolonged nonbilious vomiting and severe dehydration, to prevent overlooking the diagnosis.

Keywords: Hypertrofic pylor stenosis, Neonatal intensive care, Vomiting in newborn.

INTRODUCTION

Among newborns, vomiting can be caused by simple reasons such as the regurgitation of nutrients or excessive consumption. However, it can also be caused by life-threatening reasons such as the obstruction of the upper gastrointestinal system, sepsis, asphyxia, or necrotizing enterocolitis. Therefore, it may initially seem innocent, but it can delay diagnosis and leave the clinician in a difficult position (1,2, 3).

IHPS is one of the most common causes of long-term vomiting in newborns. The prevalence can change from region to region,however, it is between 2 and 3.5 per thousand (4).It is observed 4 times more commonly among males compared to females (5). The most typical symptom of the disease is nonbilious forceful vomiting that starts in the 3rd-6th week after birth. The vomiting is initially a few times per day but gradually becomes more frequent.

When the diagnosis is delayed, it can result in complications such as severe dehydration, nutrition disorders, or an electrolyte imbalance (6).

The disease can be diagnosed with a careful evaluation of the medical history and the physical examinations and USG.

In this article, we present a case of a newborn that was diagnosed with IHPS through physical examination, USG and the evaluation of the medical history.

CASE REPORT

The 28-day-old baby girl was transferred from an external center to the neonatal intensive care unit following a long-standing case of vomiting that had increased in the last week. The medical history revealed a previous hospitalization in the neonatal ICU with a diagnosis of transient tachypnea of the newborn (TTN). The echocardiography revealed a patent oval foramen. There were no features in the medical history. The physical examination results were as follows: body weight 2550 g (birth weight 3100 g), dryness of the

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mouth, decreased turgor tonus, dehydrated, weakened suckling and tissue regeneration, the findings for the other systems were stable. The results of the laboratory examinations were as follows: Na 149 mmol/L, K 3.6 mmol/L, Ca 11 mg/dL, blood sugar 79 mg/dL, creatinine 0.73 mg/dL, urea 94 mg/dL, Serum Glutamik Oksaloasetik Transaminaz (SGOT) 33 U/L, Serum Glutamik Pirüvik Transaminaz (SGPT) 20 U/L, Procalcitonin 0.97 mg (reference < 0.5 mg). Complete urinalysis results were as follows: pH 5 density 1025, leukocyte 8_10, protein 3, erythrocyte high, decreased amorph urate and presence of bacteria.

The cranial USG was normal. The abdominal USG revealed a 21 mm-long concentric bowel wall thickening at the pyloric level. The thickness of a single wall reached 4mm in the thickest part (Figure 1).

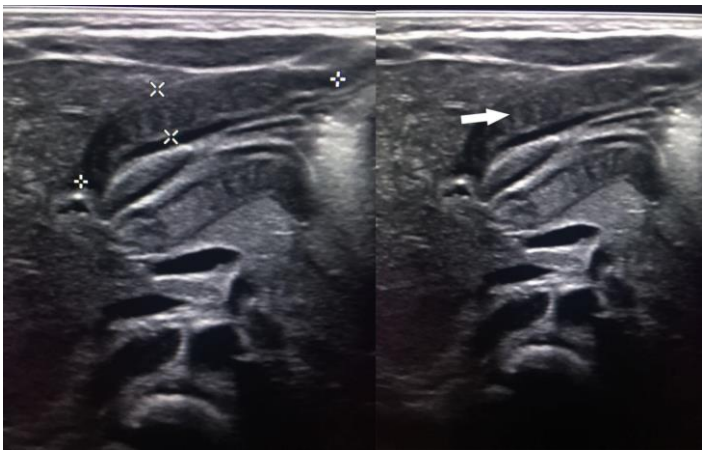

Figure 1: The abdominal USG revealed a 21 mm-long concentric bowel wall thickening at the pyloric level. The thickness of a single wall reached 4mm in the thickest part.

The patient was diagnosed with urosepsis and IHPS following these findings. The patient started to be treated with antibiotics and i.v fluids (due to dehydration). She was referred to the pediatric surgery department for the operation. Appropriate informed consent was obtained from her parents.

DISCUSSION

Even though the symptoms of IHPS were defined by the 17th century, the clinical table and the pathology were not correctly defined until Harald Hirschsprug (a Danish pediatrist) defined them in 1887 (7). IHPS is one of the surgical causes of prolonged vomiting in early infancy. This can be explained by the thickening of the pyloric sphincter and the subsequent obstruction of the stomach outlet (2). The etiology of IHPS is not entirely clear, however, it is thought to be caused by both genetic and environmental factors. The genetic tendency theory is supported by the higher prevalence rate among males, first- and second-degree relatives and monozygotic twins (8). Other risk factors mentioned in the literature include exposure to drugs such as nalidixic acid or macrolides, maternal smoking, imbalance in the birth rate or gender ratios (2,9). It is observed 4 times more commonly among males (5). Our patient was female, and there were no known risk factors in the family.

The most typical symptom of the disease is nonbilious forceful vomiting that starts in the 3rd-6th week after birth. The vomiting is initially a few times per day but gradually becomes more frequent. It can be diagnosed with nonbilious vomiting and the palpation of a peripyloric mass in the physical examination (6). In the case of our patient, the abdominal examination did not reveal such a mass. The patient had increasing vomiting for the last week and was admitted to our clinic due to severe dehydration. The patient was diagnosed with IHPS according to the clinical and USG findings.

She was treated with antibiotics (for the urosepsis) and i.v fluids (for the dehydration). The patient was referred to the pediatric surgery clinic for the operation. The abdominal USG is an important diagnostic tool for IHPS for the early diagnosis before significant fluid and electrolyte loss (10). The USG should be considered as a primary examination in the cases of projectile vomiting and dehydration as it is cost-effective, harmless and easy to perform.

CONCLUSION

To conclude, newborn vomiting can result from physiological causes such as food regurgitation. It can also be caused by severe underlying causes and, if left untreated, it can cause malnutrition, dehydration, electrolyte imbalance or even death. IHPS should be considered especially in the cases of prolonged nonbilious vomiting and severe dehydration, to prevent overlooking the diagnosis.

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