

## A Neonate with Benign Transient Non-Organic Ileus: A Case Report

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### Case Study

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#### ABSTRACT

We present a 27 day old male who had an abdominal distension due to benign transient non-organic ileus (BTNIN). The physical exam in the clinic was remarkable for a distended abdomen with an AC of 43 cm, soft, non-tender and no organomegaly or masses palpated. A radiography of the abdomen showed several abnormalities. Pediatric gastroenterologist together with pediatric surgery did not recommend performing a rectal biopsy to rule out the diagnosis of HD. BTNIN has an excellent prognosis as it responds well to conservative intermittent treatment with glycerin, with resolution of symptoms by 5 months of age.

### INTRODUCTION

Neonates with abdominal distention are usually suspected to have Hirschprung's Disease (HD). Pediatricians often encounter patients who have similar symptoms of HD, but their clinical course is different [1]. Most of these patients are considered to have variants of HD. However, some patients cannot be classified as variants of HD because their symptoms disappear spontaneously without any specific treatment and they have an excellent prognosis [2]. These patients are suspected to have benign transient non-organic ileus of neonates (BTNIN) [4]. We present a case of abdominal distention in a neonate due to benign transient non-organic ileus of neonates.

### CASE PRESENTATION

A 27 day old male presented to the outpatient clinic for the first well baby visit and was noticed to have abdominal distention. The patient was born at 36 weeks via C-section, with a birth weight of 2870 g, an abdominal circumference (AC) of 33 cm and an Apgar score of 9 and 9 at the 1<sup>st</sup> and 5<sup>th</sup> min, respectively. The baby was transferred from the well-baby nursery to the Neonatology Intensive Care Unit (NICU) on day 3 of life after routine oxygen saturation showed O<sub>2</sub> saturation ranging from 80-90% room air. The patient stayed in the NICU for 20 days where he received Oxygen support via Nasal cannula for 8 days and Continuous positive airway pressure for 11 days and was discharged with a weight of 3475 g and AC of 37 cm. The family history was unremarkable. One day prior to the visit, the patient had 5 episodes of loose stools with no vomiting or fever and he was tolerating his regular diet combining breastfeeding with formula. On arrival to the clinic, the patient was in no acute distress and afebrile (37.3 °C). The physical exam was remarkable for a distended abdomen with an AC of 43 cm, soft, non-tender and no organomegaly or masses palpated. A serum electrolyte was performed yielding a normal result. A radiography of the abdomen showed several abnormalities (**Figures 1 and 2**).

The acute abdominal series showed a gaseous distention of the entire large intestine and rectum, with a large fecal mass in the distal rectum and a tapered narrowing of the very distal portion of the rectum.

We identified in our patient the most distended intestinal loop and measured its diameter (DB) to be 35.8 mm. We then determined, as proposed by Edwards [3], the distance between the upper edge of the first lumbar vertebra and the lower edge of the second one, including the disc space (L1-L2) 17.8 mm, the distance between the lateral edges of the first lumbar vertebra (L1) pedicles (18.6 mm) (**Figure 2**) and finally calculated the DB/L1-L2 and DB/L1 ratios to be 2.01 and 1.92, respectively. Those results clearly showed that our patient had significant bowel distention.

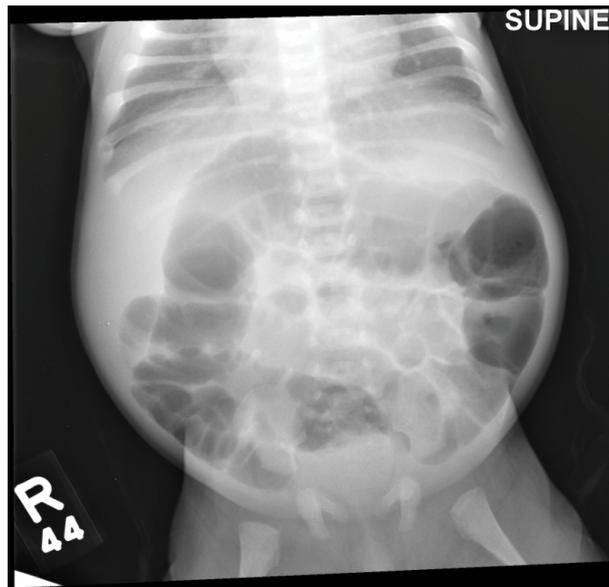


Figure 1. Gaseous distension of the entire large intestine and rectum.

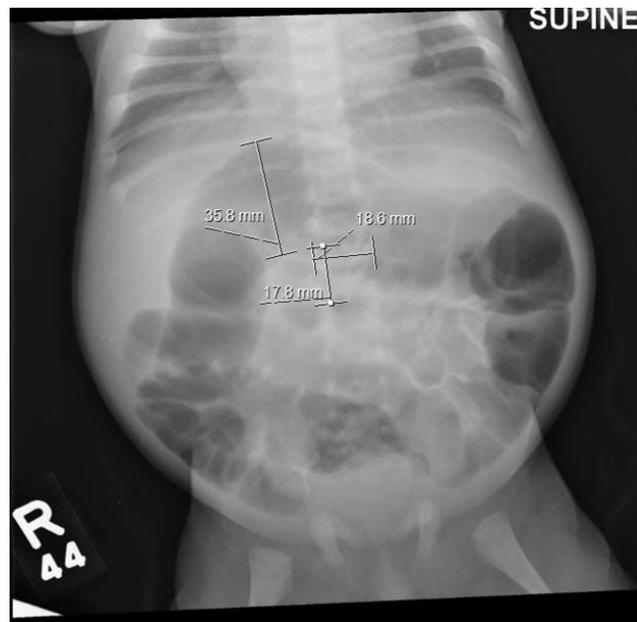


Figure 2. Distance measurements.

Our patient did not have delayed passage of meconium. The barium enema showed a nonspecific distension of the bowels with distension of the rectum without a rectal mass, a nonspecific aspect of HD. It did not demonstrate a rectum reduced in caliber or a transition zone to an enlarged-caliber sigmoid. Pediatric gastroenterologist together with pediatric surgery evaluated the patient and did not recommend performing a rectal biopsy to rule out the diagnosis of HD [4].

The patient was hospitalized for 5 days, feeding as per baseline and passing 3-4 soft stools per day and on discharge the AC decreased to 42 cm. On the follow up visit in the clinic, we noted that the abdomen remained soft, non-tender and distended but the AC had further decreased to 38 cm.

## DISCUSSION

The term benign transient non-organic ileus of neonates (BTNIN) is applied to neonates who present symptoms and plain radiographic findings of HD, but do not have aganglionic bowel and are managed well by conservative treatment. It can often be difficult to diagnose BTNIN because its initial symptoms are similar to those of HD. The vast majority of patients experience the onset of symptoms between 2 and 4 weeks of age [1]. Our patient was within this age range.

Acute gastroenteritis (AGE) was also suggested as a possible differential diagnosis for our patient. Acute gastroenteritis can induce abdominal distention by different mechanisms such as disruption of gut micro-flora, increase in gas production and change in the intestinal transit [5]. With the increase of gases in the intestinal lumen, the contraction of the ventral abdominal wall

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muscles decrease and the diaphragms descend, resulting in an increase of the abdominal girth. For our patient, AGE was unlikely as he did not have fever, vomiting and his diarrhea spontaneously resolved the next day.

One important diagnosis to consider in our case was benign transient non-organic ileus of neonate (BTNIN). This condition presents with similar symptoms of HD with abdominal distention, emesis, explosive defecation and constipation. Moreover, the radiologic findings are also very similar to HD<sup>[1,2]</sup>.

Considering the etiology of BTNIN, cow's milk allergy was suggested to be the main cause. However, in Chang et al study, most patients were mostly breastfeeding as our patient also was.

### CONCLUSION

Benign transient non-organic ileus of neonates has an excellent prognosis as it responds well to conservative intermittent treatment with glycerin, with resolution of symptoms by 5 months of age. This condition is still not fully understood, and further studies are required to ascertain its pathophysiology.

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