The vomiting infant: When should intestinal volvulus be suspected?

Lactante con vómitos, ¿cuándo sospechar un vólvulo intestinal?

Dear Editor:

Intestinal malrotation is present in 1 out of 500 births and produces symptoms in only 1 out of 5000 cases; the onset of symptoms occurs in the first month of life in 75% of affected patients, and in the first year in 90%. The most important complication of malrotation is intestinal volvulus, in which delays in diagnosis can have severe consequences.

Intestinal malrotation is a predisposing factor for volvulus and bowel obstruction in infancy and childhood. It is due to defects in intestinal rotation that occur during embryonic and foetal development. The different types of intestinal malrotation are classified based on the stage of development at which the defect occurs.

A malrotated bowel can twist into a volvulus, leading to acute regional vascular compromise and bowel obstruction. Volvulus causes 14% of cases of short bowel syndrome, which can eventually require bowel transplantation, and early diagnosis and treatment could reduce the associated morbidity and mortality.

We present a series of 5 cases of volvulus secondary to intestinal malrotation managed in the course of 1 year in the emergency department of our hospital. The female-to-male ratio was 3:2 and the median age was 5 days (range, 4 days to 5 months). The onset occurred in the first week of life in 3 patients, at age 1.5 months in another, and at age 5 months in the last one, although the latter had previously visited the emergency department on several occasions due to vomiting.

All patients visited the emergency department due to vomiting: bilious in 3, and of gastric contents in the other 2. Two patients presented with irritability and another with abdominal distension. One patient had an altered level of consciousness and decreased appetite.

In 4 patients, the first imaging test performed was a plain radiograph of the abdomen, which evinced reduced intraluminal gas in the right hemiabdomen in all and dilated bowel loops in two (Fig. 1). An abdominal ultrasound examination on account of the radiographic features, which, in combination with the findings of previous tests, suggested the diagnosis of malrotation and/or volvulus in all (Fig. 2).

Every patient was managed with nil per os, placement of a nasogastric tube and intravenous fluids. Urgent surgery was performed in all five, with confirmation of the diagnosis of intestinal malrotation and secondary volvulus; one patient also had a midgut malformation with a single branch of the superior mesenteric artery supplying the volvulsed segment, and no surrounding arterial arcades. None of the patients died or required bowel resection. The patient with a midgut malformation required an ileostomy and a total of 4 surgeries to restore intestinal continuity.

The diagnosis of intestinal volvulus requires a high degree of suspicion. It is initially based on the clinical manifestations, which in newborns and infants usually include vomiting (normally bilious, although it can be non-bilious), abdominal distension and vomiting.

In cases with clinical manifestations compatible with intestinal volvulus, the first diagnostic test should be an X-ray of the abdomen. Its findings are usually nonspecific, with features such as reduced intraintestinal gas or dilated bowel loops, and may be completely normal in some cases, so that radiography is of limited use in the diagnosis of intestinal volvulus. The following step is abdominal ultrasound, which is useful for establishing the position of the mesenteric vessels and for ruling out malrotation, volvulus and other anomalies.

Although imaging tests may reveal features suggestive of intestinal malrotation or volvulus, normal findings do not rule out these conditions. Therefore, a high degree of suspicion must be maintained, given that surgery is the only method that can confirm the diagnosis of intestinal volvulus.

Blood tests can guide the diagnosis of intestinal ischaemia in the context of volvulus. The results are nonspecific in the early stages, with presence of leukocytosis. As the disease progresses, and due to third-space fluid losses and bowel oedema, the white blood cell count increases.

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with an associated increase in haemoglobin and haematocrit values due to haemoconcentration. Cell destruction leads to increases in amylase, lactic dehydrogenase, creatine phosphokinase and transaminase levels. Patients may also develop metabolic acidosis with increased lactate levels and electrolyte imbalances such as hyponatraemia and hypokalaemia.

Surgical treatment consists of the Ladd procedure, in which the affected intestine is untwisted and fixed in its correct position. Appendectomy and resection of bowel segments followed by anastomosis or bowel diversion surgery are performed as needed.\(^3,4\)

Vomiting is a frequent reason for visits to the emergency department. When infants aged less than 1 year present with vomiting, the differential diagnosis should include intestinal volvulus despite its infrequent occurrence, as early diagnosis and treatment are crucial to achieve a favourable outcome.

References


Bárbara Moreno Sanz-Gadea\(^{a,∗}\), Clara Udaondo Gascón\(^{a}\), Margarita Sellers Carrera\(^{a}\), Julia Martín Sánchez\(^{b}\), María de Ceano-Vivas La Calle\(^{b}\)

\(^{a}\) Hospital Universitario Infantil La Paz, Madrid, Spain

\(^{b}\) Servicio de Urgencias Pediátricas, Hospital Universitario Infantil La Paz, Madrid, Spain

\(^{∗}\) Corresponding author.

E-mail address: msgbarbara@gmail.com (B. Moreno Sanz-Gadea).