

Persistent omphalomesenteric duct causing small bowel obstruction in children

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Volvulus sur canal omphalo-mésentérique

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RÉSUMÉ

Prérequis : L'occlusion intestinale aiguë est une urgence chirurgicale fréquente. La persistance du canal omphalo-mésentérique est une anomalie congénitale très rare et est à l'origine d'une occlusion intestinale est exceptionnel.

But : Nous rapportons un cas extrêmement rare d'un volvulus sur canal omphalo-mésentérique complet avec revue de la littérature.

Observation : Il s'agit d'un garçon âgé de 10 ans, sans antécédents pathologiques et particulièrement sans écoulement ombilical, consulte nos urgences pour syndrome occlusif évoluant depuis 24heures. L'examen clinique était normal à part une distension abdominale. L'examen de l'ombilic était normal. L'abdomen sans préparation a révélé des niveaux hydro-aériques de type grêlique. L'exploration chirurgicale a mis en évidence un volvulus des anses grêles sur un canal omphalo-mésentérique complet de 10 cm de longueur et sans signes de nécrose. Une résection anastomose a été réalisée emportant le canal omphalo-mésentérique avec des suites opératoires simples.

Conclusion : La persistance du canal omphalo-mésentérique est une cause extrêmement rare d'occlusion intestinale chez l'enfant. Le praticien doit penser à cette étiologie devant tout malade sans antécédents chirurgicaux présentant un syndrome occlusif afin d'éviter les complications : occlusion et hémorragie.

SUMMARY

Background : Small bowel obstruction is a common surgical emergency and a frequently encountered problem in abdominal surgery, but persistent omphalomesenteric duct as a cause of this condition is an exceptional finding.

Aim: To report through this observation an omphalomesenteric duct causing small bowel obstruction in children.

Report: A 10-years-old male patient without medical history, and specially without umbilical secretion or umbilicoileal fistula, presented with colicky abdominal pain, vomiting, absence of passage of gas and feces, and abdominal distension of 24 hours duration. Physical examination and blood tests were normal. Abdominal X-ray showed small bowel obstruction. In exploratory laparotomy, persistent omphalomesenteric duct (10cm) causing volvulus of small bowel was identified and resected. The patient had an uneventful recovery and was discharged on the 5th postoperative day.

Conclusion: Although persistent omphalomesenteric duct is an extremely infrequent cause of small bowel obstruction in children patients. The practitioner has to think of this etiology in front of every patient without surgical histories presenting an occlusive syndrome to avoid the complications: occlusion and hemorrhage.

Mots-clés

Persistance du canal omphalo-mésentérique ; occlusion ; enfant

Key - words

Persistent omphalomesenteric duct; Small bowel obstruction; children

Small bowel obstruction is a common surgical emergency and a frequently encountered problem in abdominal surgery (1, 2). It is a major cause of morbidity and medical cost in hospitals around the world (3) and a significant cause of admissions for emergency surgical treatment (2). It is a highly severe condition, requiring quick and correct diagnosis as well as immediate, rational and effective therapy (4).

Although small bowel obstruction is common, persistent omphalomesenteric duct as a cause of this condition is an exceptional finding.

The omphalomesenteric duct remnant is one of the rare congenital anomalies associated with the primitive yolk stalk (5, 6). Most omphalomesenteric duct remnants tend to be Meckel's diverticulum while the occurrence of a persistent omphalomesenteric duct is infrequent (5, 6). An omphalomesenteric duct remnant may induce intestinal obstruction, abdominal pain, melena, and umbilical hernia or drainage that tend to occur most frequently during childhood (5, 6). An extremely rare case of persistent omphalomesenteric duct causing small bowel obstruction in a children patient is herein presented.

CASE REPORT

A 10-years-old male patient without any medical history or previous abdominal operation presented in our department with colicky abdominal pain, vomiting, absence of passage of gas and feces, and abdominal distension of 24 hours duration. Physical and umbilical examination, and blood tests were normal. Abdominal X-ray revealed small bowel obstruction with marked small bowel air-fluid levels. Ultrasound of the abdomen showed dilated small bowel loops.

The patient was managed with restriction of oral intake, nasogastric suction, and intravenous hydration. Since no resolution of the obstruction or improvement of the clinical picture of the patient was observed in the following 4 hours, an operative intervention was decided. In exploratory laparotomy, a volvulus of the small bowel around a duct was identified with ischemia but without gangrene. This duct extending from the anti-mesenteric border of the preterminal ileum to the posterior wall of the umbilicus was identified, justifying the suspicion of persistent omphalomesenteric duct (figure 1).

The persistent omphalomesenteric duct was resected and the obstruction was resolved without bowel resection. The patient had an uneventful recovery and was discharged on the 5th postoperative day.

DISCUSSION

Acute mechanical small bowel obstruction is a common surgical emergency (1, 2). Immediate and correct diagnosis of this condition and its etiology are essential and appropriate treatment is of utmost importance (4). The clinical picture of these patients (4, 7) with the etiology of obstruction (1, 3) may be variable while appropriate management remains controversial (1, 3, 8, 9).

Figure 1 : Duct extending from the anti-mesenteric border of the preterminal ileum to the posterior wall of the umbilicus



The most frequent signs of patients with small bowel obstruction as our patient, although variable, are abdominal pain, vomiting, constipation, abdominal distension and tenderness (4, 7).

Small bowel obstruction due to persistent omphalomesenteric duct is extremely rare with very few cases reported in the literature (10, 12).

Omphalomesenteric duct remnants (vitelline duct anomalies) have been reported to be congenital anomalies associated with the primitive yolk stalk (5, 6). The omphalomesenteric duct is the embryonic structure connecting the primary yolk sac to the embryonic midgut that normally becomes a thin fibrous band, which eventually disintegrates and is absorbed spontaneously at the 5th-10th week of gestation (5, 6). The omphalomesenteric duct will continue to grow if it fails to completely atrophy and disintegrate; the failure of such closure may result in various lesions (omphalomesenteric duct remnants): Meckel's diverticulum, patent omphalomesenteric duct (umbilicoileal fistula), omphalomesenteric duct (umbilical sinus), omphalomesenteric duct (umbilical cyst), umbilical mucosal polyp or a fibrous cord connecting the ileum to the umbilicus (5, 6, 13). Meckel diverticulum is the most common omphalomesenteric duct anomaly (5, 6).

Omphalomesenteric duct remnants may persist in approximately 2% of infants (13). Although these malformations are found with equal frequency between the sexes, a significantly greater incidence of symptoms is encountered in males (6). Even though they may be asymptomatic, common symptoms of omphalomesenteric duct malformations include abdominal pain, rectal bleeding, intestinal obstruction, umbilical drainage, and umbilical hernia (5, 6). All these symptoms appear to be age-dependent. Most of

the symptoms usually appear before the age of 4 years (5). Eighty-five percent of infants younger than 1 month and 77% of children aged 1 month to 2 years have a symptomatic presentation (5). It has also been reported that 40% of the children with this anomaly have symptomatic lesions (5).

There are many mechanisms for small bowel obstruction from a persistent omphalomesenteric duct. These mechanisms include intussusception, in case of a patent omphalomesenteric duct, volvulus or internal hernia (closed loop obstruction) from a patent omphalomesenteric duct or a fibrous connection between the umbilicus and the ileum (11, 12). A patent omphalomesenteric duct, such as in the presented case, results from an omphalomesenteric duct that is not completely obliterated and absorbed. The originality of this case is that our patient never had umbilical secretion or umbilicoileal fistula. Congenital omphalomesenteric duct are clinically significant because they may lead to intestinal obstruction, as in our patient (10, 11, 12).

In general, appropriate treatment of small bowel obstruction as well as timing of surgery still remain controversial (1, 3, 8, 9). Management of this condition requires careful assessment and awareness while the appropriate treatment needs to be tailored to the individual situation (9). In the reported case, since there was no history of previous abdominal operation and no resolution of the obstruction or improvement of the clinical picture of the patient, an operative intervention was decided. Operative findings justified such treatment of our patient.

CONCLUSION

Persistent omphalomesenteric duct constitutes an extremely infrequent cause of small bowel obstruction, with very few cases reported in the literature. It should be taken into consideration, however, in children with acute mechanical small bowel obstruction without any previous history of surgery.

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