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Strangulated right paraduodenal hernia successfully treated with single-incision transumbilical surgery

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ABSTRACT

Right paraduodenal hernia (RPH) has been recently reported to be treated with laparoscopic surgery. We report a case of strangulated ileus that occurred as a result of RPH treated via a small umbilical incision. An 11-year-old boy presented to our hospital with complaints of sudden upper abdominal pain associated with bilious vomiting and bloody stool. We preoperatively diagnosed the case to be strangulated ileus caused by an internal hernia and thus performed emergency surgery. After the entire small intestine was carefully exteriorized via a small umbilical incision, a strangulated ileus as a result of the internal hernia was observed. A large hernia sac with its orifice on the right side of the jejunal origin was found behind the right mesocolon, on the basis of which the diagnosis of RPH was made. After releasing the strangulation, the ischemic intestine was reperfused. The hernia orifice was closed. All the above-mentioned procedures were transumbilically performed. The patient's postoperative course was uneventful. An umbilical approach is useful for treating RPH because of its favorable cosmetic outcome. In addition, manual delivery of the herniated or incarcerated intestine provides a sense of safety compared with operation using forceps during laparoscopic surgery.

Paraduodenal hernia is a type of congenital internal abdominal hernia, which is considered to occur as result of an abnormal rotation and fixation of the intestine. Right and left paraduodenal hernias have different anatomical and embryological origins [1–3]. Although paraduodenal hernias are congenital, they are usually detected in adults in their forties to sixties [4]; therefore, their presentation in children is very rare [5]. Right paraduodenal hernia (RPH) has been traditionally managed operatively via laparotomy; however, it has been recently reported to be managed by laparoscopic surgery [6–10]. To the best of our knowledge, there have been no reports regarding RPH treated via a small umbilical incision. Here we report a pediatric case of strangulated ileus that occurred as a result of RPH, which was successfully treated by an emergency single-incision transumbilical surgery.

1. Case report

An 11-year-old boy presented to our hospital with complaints of sudden upper abdominal pain, bilious vomiting, and bloody stool. He had a distended and board-like abdomen. A strangulation was suspected, and thus, contrast computed tomography (CT) examination was performed to decide operative indication or surgical procedure such as incision. It revealed a closed-loop obstruction at the navel level of the abdomen and ascites in the pelvic cavity (Fig. 1). According to these findings, we made a diagnosis of strangulated ileus as a result of an internal hernia and thus decided to perform an emergency surgery.

After an umbilical incision was made, a small wound retractor (ALEXIS, Applied Medical, Rancho Santa Margarita, CA, USA) was inserted. The intestine was subsequently carefully pulled out via the incision. Because the small intestine was dilated and appeared to be ischemic, exteriorization was difficult. Therefore, we cranially and caudally extended the 0.5-cm incision to pull out the incarcerated intestine from the hernia sac. The orifice was located on the right side of the beginning of jejunum, and the large hernia sac was behind the right mesocolon, known as the Waldeyer's fossa (Fig. 2). These findings confirmed the diagnosis of RPH. In addition, the jejunum was found to be volvuled at 360°. Altogether, we confirmed that a part of the jejunum slipped out from the RPH sac, which resulted in the strangulation at the hernia orifice, and additionally, the volvulus of the nonherniated proximal jejunum

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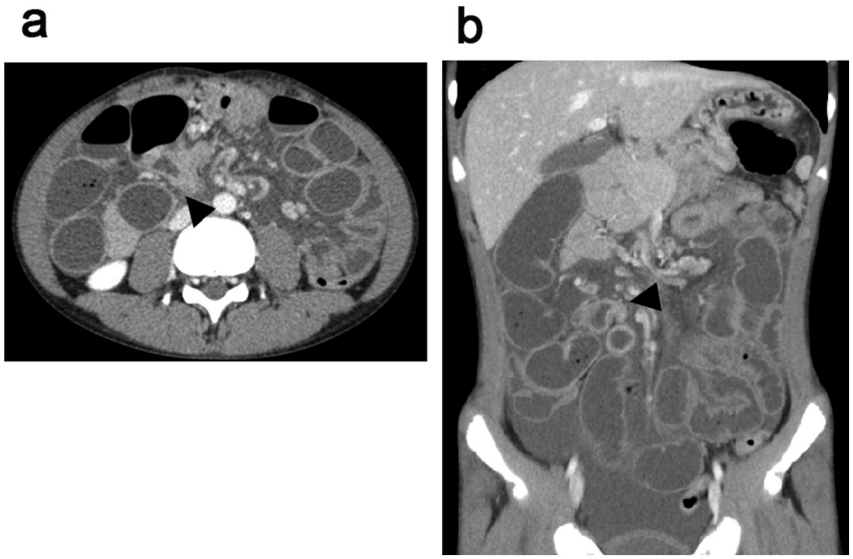

Fig. 1. Findings of axial (a) and coronal (b) views on contrast computed tomography (CT). The images demonstrate closed-loop obstruction (black arrowhead) at the navel level of the abdomen and ascites in the pelvic cavity.

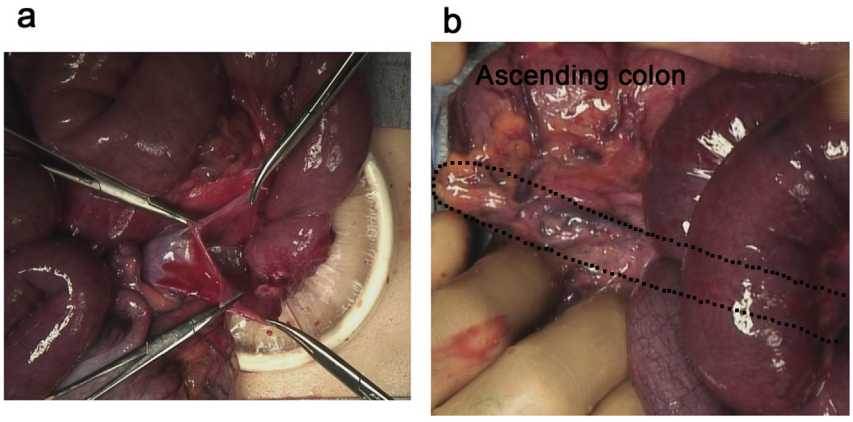

Fig. 2. Operative findings. (a) The hernia orifice was located at the right side of the beginning of jejunum. (b) A large hernia sac was behind the right mesocolon, confirmed by the insertion of the suction tube (dotted line).

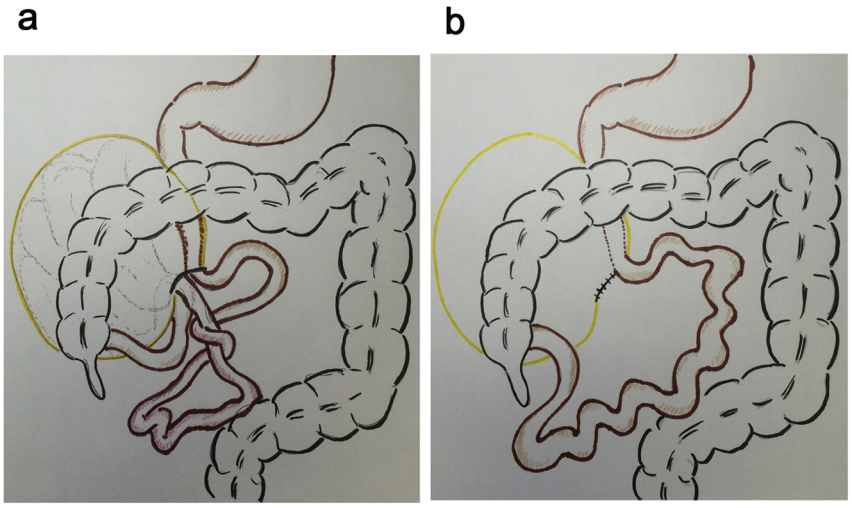

Fig. 3. Scheme of operative findings. (a) The prolapse of the jejunum occurred through the small hernia orifice, followed by volvulus of the jejunum near the orifice. (b) After releasing the strangulation, the hernia orifice was closed. All the procedures were transumbilically completed.