CASE REPORT

Laparoscopic Repair of a Right Paraduodenal Hernia in a Child

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ABSTRACT

Paraduodenal hernias are infrequently occurring rotational anomalies. We report a case of a right paraduodenal hernia repaired via laparoscopy, which occurred in a 13-year-old boy.

Key Words: Laparoscopy, Hernia, Paraduodenal.

INTRODUCTION

Paraduodenal hernias result from an error in rotation of the midgut. They are classified as either right or left, with the latter being more common.[1] The embryologic abnormality, originally described by Andrews in 1923,[2] occurs when rotation of the prearterial portion of the midgut arrests after 90° of counterclockwise movement. The cecum and colon continue to rotate anterior to the duodenum and become fixed to the posterior peritoneum. This leads to the small bowel becoming entrapped in a right-sided sac below the transverse mesocolon. The mouth of the sac points left and is bordered anteriorly by the superior mesenteric artery. Although these hernias may present as abdominal catastrophes if strangulated or perforated, others may be discovered at laparotomy or on routine radiographic imaging.[3] Traditionally, these hernias are managed operatively via laparotomy. Recently, a right paraduodenal hernia managed by laparoscopy in an adult has been reported.[4] To date, however, there has been no report of this type of hernia being repaired laparoscopically in a child.

CASE REPORT

A 13-year-old male presented to our facility after being involved in a motor vehicle accident. Physical examination revealed a tall thin male in no distress with a nontender abdomen. His initial radiographs revealed right-sided pelvic fractures. A subsequent computed tomographic (CT) scan revealed no evidence of solid organ injury; however, a right-sided abdominal mass was noted **(Figure 1)**. Further questioning of the patient's family led to the observation that he was "not a big eater," typically eating small frequent meals. He denied nausea or vomiting, and he had tolerated a diet as an inpatient. Further imaging **(Figure 2)** raised suspicion for a rotational anomaly and laparoscopic exploration was planned.

At exploration, a 5-mm infraumbilical trocar was placed via the Hasson technique and pneumoperitoneum was established. After inserting the laparoscope, we immediately noted the "mass" covered by the transverse mesocolon that appeared to be peristalsing. The diagnosis of right paraduodenal hernia was made, and our objective be-

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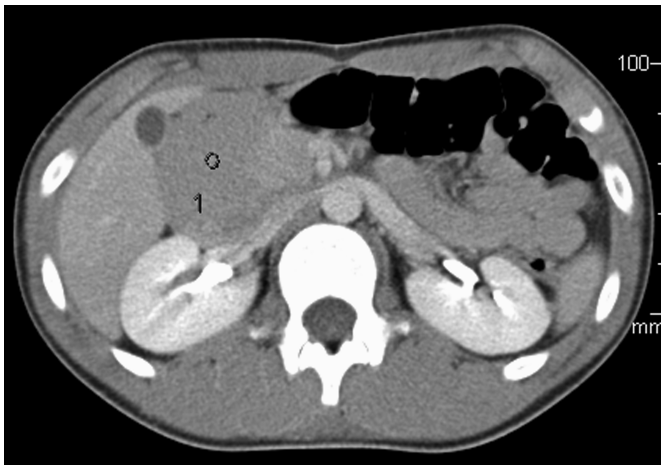

Figure 1. Computed tomographic scan of abdomen depicting right-sided abdominal mass.

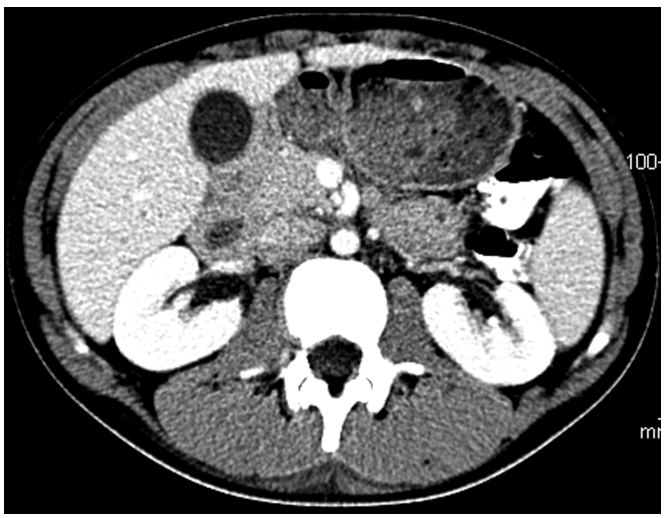

Figure 2. Abdominal computed tomographic scan showing "swirling" of superior mesenteric vein around the superior mesenteric artery.

came placing the bowel in a "nonrotated" position. We then placed 5-mm trocars in the right and left lower quadrants and the left upper quadrant. The right colon and hepatic flexure were mobilized and omentum was taken off the transverse mesocolon. These maneuvers allowed the right colon to be positioned on the left side of the abdomen. The small bowel entrapped in the hernia was then reduced and placed on the right side of the abdomen. Next, Ladd's bands were divided, and the duodenum was sufficiently mobilized. Finally, an appendectomy was performed. Our patient tolerated the operation well and had an uncomplicated postoperative course.

CONCLUSION

Right paraduodenal hernias are rotational anomalies of the midgut that can have a variety of presentations. Once discovered, however, operative management is warranted. Bartlett[3] described the operative principles of placing the pre- and postarterial segments of the intestine in the position they would occupy after the first stage of rotation. This position of "nonrotation" allows the narrow neck of the hernia sac to be opened and become part of the peritoneal cavity. As such, the entrapped bowel is released without injury to the nearby mesenteric vessels. In children, this operative technique has only been described via laparotomy. However, repair of right paraduodenal hernias in children can be performed effectively and safely through a laparoscopic approach.

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