



Discussion of a case report describing: total gastrectomy in an adult with intestinal malrotation

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Comment on: Tonouchi A, Kinoshita T, Watanabe M, *et al.* Laparoscopic total gastrectomy for gastric cancer with adult intestinal malrotation: a case report. *Dig Med Res* 2018;1:6.

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Herein, we will review a case report published by Tonouchi *et al.* which highlights the unique challenges of performing a total gastrectomy in a patient found to have intestinal malrotation (1). Intestinal malrotation in adults is a relatively rare pathology with a reported incidence of less than 1% (2). Intestinal malrotation occurs due to failure of the midgut to appropriately rotate 270 degrees counter-clockwise around the superior mesentery artery (SMA). This deficit in rotation results in a narrowed attachment of the midgut mesentery and places the midgut at risk for volvulus.

In the case presented by Tonouchi *et al.*, the diagnosis of non-rotation type intestinal malrotation was made at the time of staging laparoscopy for gastric cancer. Upon review of prior imaging, it was noted that the jejunum was aberrantly located on the right side of the abdomen and the colon on the left side. A laparoscopic total gastrectomy was carried out in the usual fashion, however, the reconstruction had to be adapted to the patient's unique anatomy.

It has previously been noted that Roux-en-Y reconstruction in the setting of intestinal malrotation requires an individualized approach. In an earlier case series, the reconstruction required in four different patients with intestinal malrotation undergoing gastric bypass was thoroughly discussed (3). As was stated therein, special considerations should be made for these individuals such as the appropriateness of antegastric or retrogastric anastomosis based on their unique rotational abnormalities.

Tonouchi *et al.* chose to specifically discuss variation in

the c-shape configuration of their Roux-en-Y reconstruction. An esophagojejunostomy is often oriented such that a c-shape is produced with a smooth curvature of the bowel and without significant rotation of the mesentery. This c-shape construction was felt to pose a risk for volvulus in this patient given their abnormal anatomy. Therefore, the authors proceeded to construct a Roux limb in a reverse c manner. The reverse c Roux limb has previously been described for both gastric bypass and total gastrectomy reconstructions in patients with intestinal malrotation (4,5). Like James *et al.*, the authors of this case report offered a useful diagram which may help readers less familiar with this type of surgery to better understand the specific details of the reconstruction.

It should be noted that the decision regarding whether or not to include an appendectomy upon the identification of malrotation was not discussed by the authors. While there is not a consensus in modern literature on the necessity of this procedure (6), appendectomy should be considered in these patients at the time of surgery given the diagnostic trouble raised by the atypical presentation of appendicitis often seen with malrotation.

Ultimately, the case report in question does effectively explore the unique challenges of upper intestinal reconstruction in patients with intestinal malrotation. Tonouchi *et al.* adequately describe their specific approach to a total gastrectomy with a reverse c Roux-en-Y reconstruction. Their suggested procedure appears to be

safe as the patient had no complications in the immediate post-operative period and was able to be discharged home within eight days of surgery. Despite this not being the first report of a laparoscopic gastrectomy in an adult with intestinal malrotation, given how infrequently this procedure is performed, the discussion put forth does contribute significantly to the small volume of literature on the topic. It would be of further value to follow this patient and those described in similar case reports to determine the long-term incidence of post-operative complications such as bowel obstruction, volvulus and internal hernia after these reconstructions.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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