Ileo-Ileal Intussusception with Meckel Diverticulum in a Filipino Adolescent

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INTRODUCTION

Intussusception refers to the invagination (telescoping) of a part of the intestine into itself. Intussusception occurs primarily in infants and toddlers.[1] The peak incidence is between 4 and 36 months of age, and it is the most common cause of intestinal obstruction in this age group.[2] Approximately 1 percent of cases are in infants younger than three months, 30 percent between 3 and 12 months, 20 percent between one and two years, 25 percent between two and three years, and 10 percent between three and four years.[3] Although intussusception is most common in infants and young children, it is important to consider this diagnosis in children outside this age range. Approximately 10 percent of cases are in children over five years, and 3 to 4 percent in those over 10 years.[3,4] We share here images from an actual case of a 15-year-old Filipino male with an ileo-ileal intussusception that is beyond the typical age range, with an incidental finding of an intraluminal mass that was histomorphologically diagnosed as Meckel's diverticulum (MD). The diagnosis of intussusception is relatively rare in the patient's age and the diagnosis of MD in the presence of intussusception is sparsely reported in the Philippines.

Briefly, a previously well 15-year-old male presented with epigastric discomfort for one week prior to admission. This was associated with abdominal distention, vomiting and hematochezia. The patient was subjected to CT Whole Abdomen with IV Contrast revealing: ileo-ileal intussusception causing small bowel obstruction, minimal ascites, and hiatal hernia (Figure 1).

The patient underwent surgical resection and the resected portion was then submitted for histopathologic evaluation (Figure 2A). The specimen consisted of a light gray to dark brown, partially-opened bowel segment measuring 50.8 cm in length by 5.2 cm in diameter in one line of resection (inked blue) and 1.5 cm in diameter in the other line of resection (inked black), and a segment of intussuscepted bowel measuring 19.6 cm in length, with adherent fibrinopurulent material, is noted 13.0 cm from one line of resection. Opening of the bowel segment shows a dark red-brown mucosa with hemorrhagic areas. A constricted segment measuring 3.0 cm x 0.8 cm (inked red) is noted to telescope into the adjacent bowel lumen. An area of ulceration measuring 1.5 x 1.0 cm, is noted 7.0 cm from one line of resection. The rest of the bowel has a well-folded, tan brown mucosa (Figure 2B).

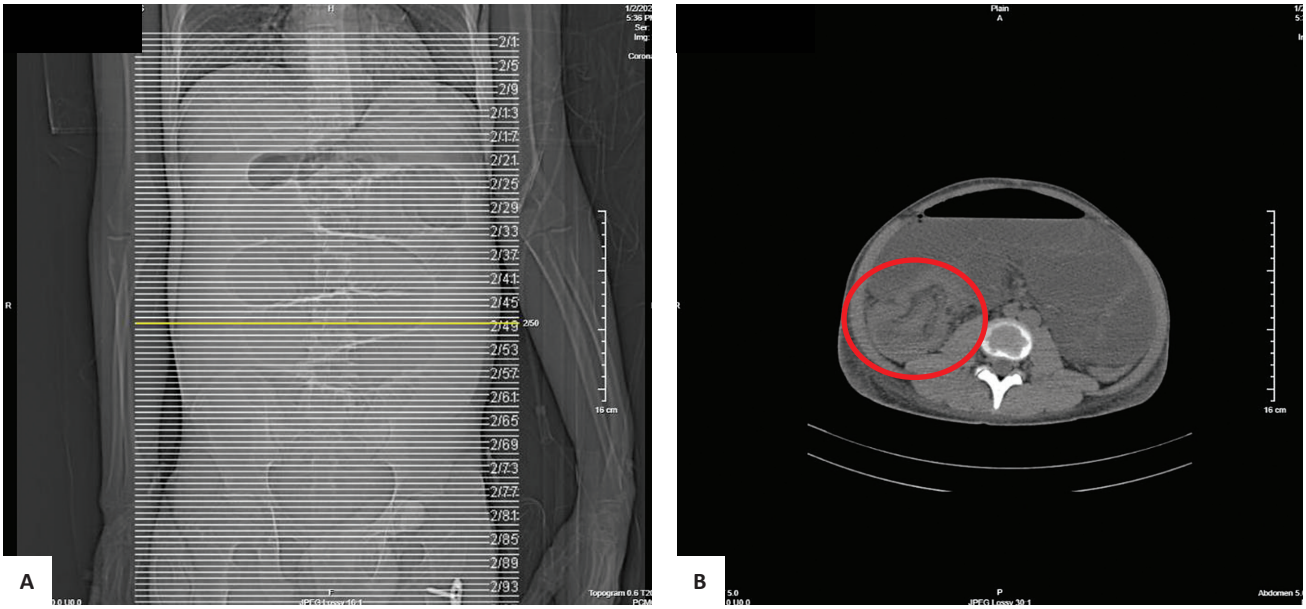

Figure 1. **(A)** CT Whole Abdomen with IV contrast (Coronal Plane) showing a bowel-within-bowel configuration; **(B)** CT Whole Abdomen with IV Contrast (Transverse Plane) showing a bowel-within-bowel configuration *(red circle)*.

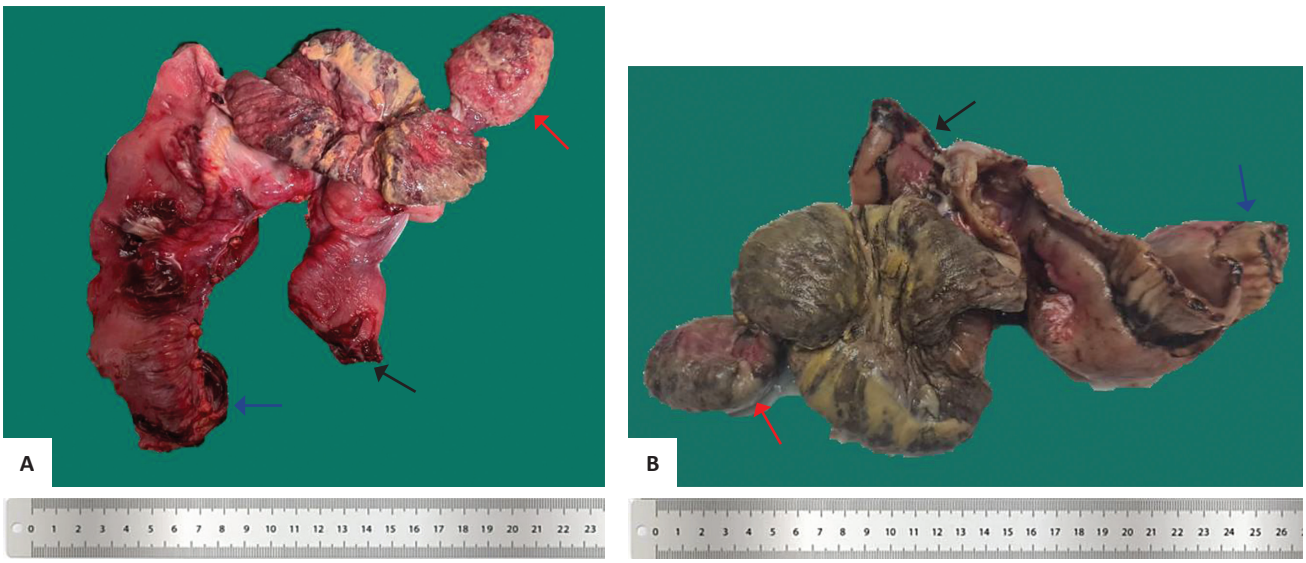

Figure 2. **(A)** Gross figure of Ileo-ileal resection specimen; *(red arrow)* intussusceptum; *(blue arrow)* one (1) line of resection; *(black arrow)* other line of resection. **(B)** Gross figure of fixed Ileo-ileal resection specimen; *(red arrow)* intussusceptum; *(blue arrow)* one (1) line of resection; *(black arrow)* other line of resection.

Microscopic examination shomws benign intestinal tissue with large areas of transmural infarction, hemorrhage and foci of necrosis of the area of intussusception (Figure 3A). There are submucosal and myenteric plexi with Schwann cells and ganglion cells identified throughout the intestinal segment (Figure 3B). Benign pancreatic tissue (Figure 3C) and gastric mucosa (Figure 3D) are seen interspersed within the stroma. No atypical or malignant cells were noted.

The most common congenital abnormality in the gastro-intestinal tract is MD. It occurs in 1% to 2% of the population. MD is more often asymptomatic, and when complications develop it becomes apparent. MD is the most common clinical presentation of MD is intestinal obstruction in adults and second most common in children. In pediatric presentation of intussusception, there may be acute onset of abdominal pain, vomiting or painless red currant stools. Both abdominal pain and vomiting are present in the case presented. Rarely, inversion of MD into the lumen of the bowel can cause intussusception, ischemia and infarction. The incidence of intussusception attributed to an inversion of MD accounts for 4% of all cases presenting with intestinal obstruction due to intussusception. is an outpouching of all three layers of the enteric mucosa characterized by a persistent remnant of the vitellointestinal duct. MD droops into the bowel lumen and then initiates as a lead point to allow telescoping of the

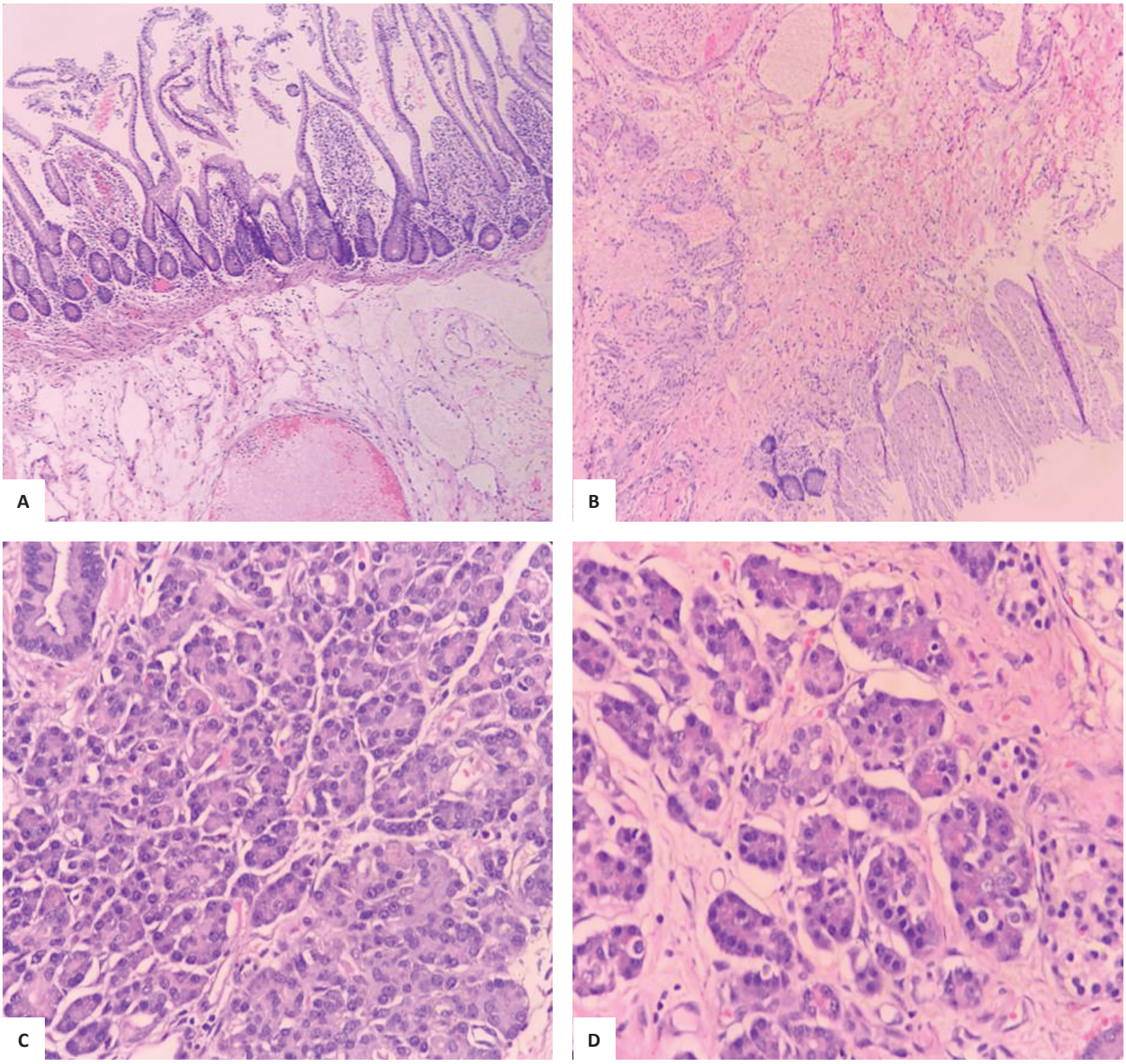

Figure 3. **(A)** Intestinal tissue with areas of hemorrhage and necrosis *(H&E 100x)*; **(B)** Intestinal mucosa with transmural infarction, hemorrhage and necrosis. There are submucosal plexi with Schwann cells and ganglion cells *(H&E 100x)*; **(C)** Pancreatic tissue *(H&E 400x)*; and **(D)** Gastric mucosa *(H&E 400x)*.

intestinal segment, first into the distal ileum and then into the large intestine, causing ileo-ileal and ileocolic type of intussusceptions. [5-8] In a retrospective study that involves 100 children with diagnosed cases of symptomatic MD. Seventeen cases are associated with intussusception having a mean age of 4.55 ± 3.76 with male predominance.[9] Histologically, MD is composed of intestinal villi, crypts, Paneth cells and abundant goblet cells with gastric mucosa and or pancreatic acini. In this case, it is worth noting that both gastric mucosa and pancreatic acini are present.

ETHICAL CONSIDERATION

Patient consent was obtained before submission of the manuscript.

STATEMENT OF AUTHORSHIP

The authors certified fulfillment of ICMJE authorship criteria.

AUTHOR DISCLOSURE

The authors declared no conflict of interest.

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