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Jejunal duplication presenting with perforation peritonitis: Complication of a rare congenital malformation in an elderly female

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Abstract

Intestinal duplication is a rare congenital malformation that is usually detected or becomes symptomatic in early paediatric age and is rarely reported in adults. The ileum is the most frequent site, while jejunum is rarely involved. Features are often nonspecific, hence difficult to diagnose. Ultrasonography is often preferred imaging method. The surgical procedure is determined depending on the presentation. We present a case of an adult female presenting with perforation peritonitis. Intraoperatively, approximately 6 cm length communicating jejunal tubular duplication over the mesenteric margin was found, with perforation involving the duplication segment and normal jejunum. Resection of jejunal duplication segment and anastomosis was carried out. This presentation proposed further insight into enteric duplication and their clinical presentations, along with emphasis on how and why this entity was missed preoperatively and came out to be an intra-operative surprise.

Keywords: Jejunal duplication, preoperatively, intra-operative

Introduction

Enteric duplication is a rare congenital malformation that can occur in any segment of the bowel, most frequently in ileum and ileocolic region ^[1, 2], and typically involves the mesenteric side ^[1]. It's often clinically misdiagnosed due to nonspecific signs and symptoms, presenting in infancy as volvulus, obstruction, or abdominal mass. It rarely presents as acute abdomen in paediatric population with/without complications like bleeding, fistulisation, malignancies, and perforation ^[1], and only a few cases in adults have been reported ^[2]. The diagnostic accuracy of radiological and endoscopic methods is limited ^[3]. At present, surgical resection is the ideal treatment modality to address anomalies and complications. We present a rare case of jejunal duplication presenting as acute abdomen in an adult female. This is an infrequent presentation of a congenital complication rarely reported in literature.

Case Report

A 55-year woman presented to surgical emergency with complaints of abdominal pain and distension for four days and absolute constipation for two days. Patient had past surgical history of laparoscopic cholecystectomy performed 5 years back, and no known medical comorbidities. She had no known allergies or illicit drug history.

On admission, her GCS was 13/15, blood pressure was 98/54 mm Hg, pulse 116 beats per minute, respiratory rate 18 breaths per minute, SpO₂ 88% on room air, and temperature 37.6 °C. Abdominal examination revealed abdominal distension and generalized tenderness with guarding. No lump was palpable and bowel sounds were absent on auscultation. Digital rectal examination was negative for any mass or blood. Hernial sites and genitalia were normal.

Laboratory parameters depicted mild leucocytosis with 78% neutrophilia and deranged urea/creatinine. Abdominal radiograph revealed free gas below the diaphragm and ground glass opacities (Figure 1). A provisional diagnosis of perforation peritonitis was made which prompted resuscitation and early emergency laparotomy without further radiological investigations.



Fig 1: Abdominal radiograph showing free gas below the diaphragm and ground glass opacities

On surgical exploration, around 1100 ml of contaminated fluid was present in peritoneal cavity. The bowel loops in vicinity were densely matted, forming intestinal phlegmon approximately 25 cm distal to Treitz ligament. Therefore after thorough peritoneal lavage, decision to resect the involved jejuna segment followed by end to end anastomosis was made. On examination of the phlegmonous mass, an additional loop of bowel of length 6cm was noted on the mesenteric border, adjacent to the resected jejunal segment. A 0.5x0.5 cm perforation was noted over mesenteric side of jejunum & adjacent tubular duplicated segment. A diagnosis of perforated jejunal duplication was made (Figure 2).

Postoperatively, the patient was managed in the intensive care unit with supportive oxygen, intravenous fluids, and parenteral nutrition. She recovered well and tolerated oral feed seven days post-surgery. The patient was discharged eight days after surgery and no complications or recurrence was noted over 6 months follow-up period.

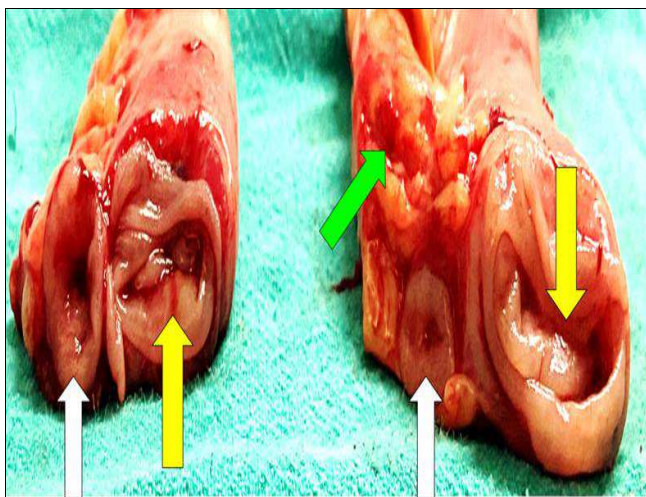


Fig 2: Resected jejunal segment (Yellow arrow) with tubular duplication (White arrow) over mesenteric side with perforation (Green arrow) communicating with the jejunum.

Discussion

Intestinal duplications are rare congenital anomalies

(Incidence 1:4500 births), occurring commonly in the ileum and ileocolic segment (33%), with 10% cases reported in the jejunum [2-4]. Intestinal duplication is relatively rare in females, and arise often from the mesenteric border of the involved bowel. Often diagnosed in the initial years of life, presentation in adults is rare (5-6%) [2-4].

Duplication can be classified as intestinal (membrane/cyst), extra-intestinal (tubular/cyst) and solitary [5]. Duplication is often continuous with normal intestinal wall serosa and musculature (Communicating type), sharing its blood supply; though rarely non-communicating types have been reported [5-7]. Tubular duplications often run along the normal gastrointestinal tract and communicate with it [1-4, 7]. Theoretical explanation of duplication is given by 'intrauterine vascular accident theory, amongst other theories postulated, but none gives adequate insight [3, 6].

The clinical presentation is variable, depending to an extent on type, size of intestinal duplication, and relation to adjacent structures [2, 7-8]. Duplication is majorly symptomatic in early childhood with abdominal pain, obstruction, or vomiting; and symptomatic cases in adults are less reported [1, 2]. Nonspecific clinical signs and symptoms in the acute abdomen are major causes of misdiagnosis as volvulus, intussusception, appendicitis, abscess, or diverticulitis [7, 8]. Cases can have complicated presentation as perforation, obstruction, bleeding manifestation, or malignant change. Our patient presented with communicating tubular jejunal duplication presenting with perforation.

Duplication can be differentiated from intestinal diverticula by the presence of developed smooth muscle, which is lacking in diverticula. Intestinal duplications are often associated with other maldevelopment conditions like intestinal malrotation, cardiac, genitourinary, or spinal malformations with an incidence of 16-26% [7].

Radiological investigations like ultrasonography, CECT, and MRI have been resourceful in diagnosis. Ultrasonography can state location, echogenicity, double lumen, common bowel wall or two-layered structuring, and surrounding characteristics, helping establish the diagnosis and preferable over other modalities [1, 9]. Heterogeneous signal intensity on T₁ weighted imaging and homogeneous signal intensity on T₂ weighted imaging is suggestive of duplication on MRI [10]. Technetium radionuclide imaging can also be used for diagnosis [3]. CECT can be adequately used for the diagnosis and detection of complications [9].

The surgical intervention is the preferred treatment modality [1-5, 7, 9]. The choice of procedure depends upon clinical presentation, location, type of duplication, and surrounding structures as well as the condition of the patient. Most often diagnosis is confirmed on surgical exploration and the issue addressed. In the present case, preoperative diagnosis of perforation peritonitis necessitated urgent laparotomy, and resection of perforated jejunal duplication segment and primary anastomosis was performed. No dysplastic change or malignant transformation was evident.

Conclusion

Intestinal duplication in itself is a rare congenital anomaly; occurrence in the jejunum in an adult female signifies further rarity. They remain usually asymptomatic till a complication occurs. In the current case, presence of a jejunal duplication was a surprise discovery at the time of surgery for enteric perforation. Resection of the involved

bowel segment remains the preferred treatment in such cases.

Conflict of Interest

Not available

Financial Support

Not available

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