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Perforation in a Rare Solitary "True" Jejunal Diverticulum

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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Case Study

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ABSTRACT

Jejunal diverticulosis is a rare entity and is usually asymptomatic. However, it may present with chronic symptoms and acute complications. Most of these are false diverticuli. True diverticuli, as elsewhere in the GIT, possess all layers of the intestine, and are significantly rare. There is a high incidence of complications, such as perforation, in such diverticuli. Perforation in a true jejunal diverticulum has seldom been reported. We present one such rarely documented case where the site of perforation was within a true diverticulum in the jejunum.

Keywords: Jejunal; true diverticulum; false diverticulum; perforation; resection; anastomosis; diverticulitis.

1. INTRODUCTION

Jejunal diverticuli have an incidence of less than 0.5 % [1], usually part of diverticulosis elsewhere as well. Solitary jejunal diverticuli are even rarer (less than 1 in 1000) and solitary true jeujunal diverticuli are anecdotal in presentation. Pathologically, they are classified as 'true' and 'false'. False diverticula of the pulsion type result from increased intraluminal pressure and weakening of the bowel wall. They are only formed of mucosal and submucosal layers. On the other hand, true diverticuli contain all three layers of the intestinal wall. The incidence of false diverticula is far more common than that of the true type. Jejunal diverticuli can present with

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a multitude of symptoms [2], ranging from acute symptoms in about 10-15 % patients [3] to chronic manifestations. These include chronic abdominal pain, malabsorption, haemorrhage, diverticulitis, obstruction, abscess formation and rarely diverticular perforation. Perforation in one such rare diverticulum is therefore worth a clinical discussion. Jejunal diverticuli are, however, 4 times more likely to present acutely compared to other small bowel diverticuli [4]. Treatment is directed to address the complications that occur in each individual patient.

2. CASE REPORT

A 55 year old lady presented with sudden aggravation of a dull aching diffuse upper abdominal pain which had been bothering her for a week. She had been treated with proton pump inhibitors for acid peptic disease, in the past. She had undergone abdominal hysterectomy 15 years ago. She had no known co-morbidities. On examination, she was haemodynamically stable, but with diffuse abdominal tenderness and a positive release sign. She was clinically diagnosed with hollow viscus perforation peritonitis, with a suspicion of a peptic ulcer perforation, given her history of over-the-counter use of proton pump inhibitors. A chest x-ray revealed free air under the right hemi-diaphragm. Abdominal x-rays revealed a ground glass appearance with a few scattered air-fluid levels. She also underwent a contrast-enhanced computed tomography that revealed free extra-visceral air within the peritoneal cavity and thickening of the duodeno-jejunal bowel loops. There was significant ascites as well. The diagnosis of hollow viscus perforation with diffuse peritonitis was thus confirmed. After adequate resuscitation and investigation, she was taken up for exploratory laparotomy.

A median coeliotomy was performed and deepened further. Faeculent peritoneal fluid was drained. On further exploration, a large (6x5 cm) diverticulum was noted 2 feet from the DJ junction, on the anti-mesenteric border of the proximal jejunum [Fig. 1], with a 10x8 mm solitary perforation within the diverticulum. There was a single band crossing a foot distal to the involved jejunal segment, significantly narrowing its lumen and fixing it to the anterior abdominal wall. A segmental jejunal resection, including the diverticulum and the fibrous band was performed and an end-end hand-sewn anastomosis was fashioned. Thorough peritoneal lavage was performed, and the abdomen was closed after placement of a pelvic drain. She made steady recovery and was discharged on the 10th post-operative day, with only a superficial surgical site infection.

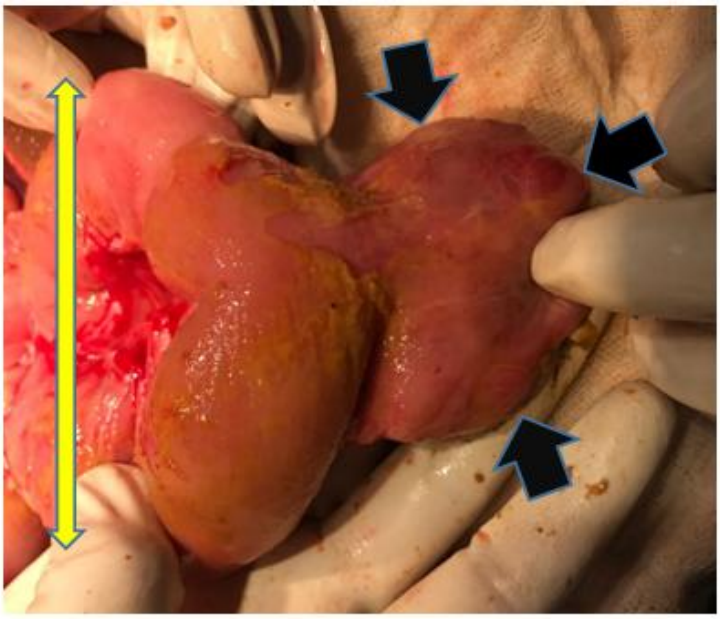

Fig. 1. Segment of jejunum (yellow double-headed arrow) with an anti-mesenteric diverticulum (blue arrow heads) and faeculent staining of bowel

3. HISTOPATHOLOGY

True diverticulum of jejunum with perforation.

Gross findings - external surface outpouching 6x5 cm, with a 8 mm perforation at its most prominent surface.

Microscopic findings - all layers of intestine within the diverticulum with focal ulceration, serositis and perforation.

4. DISCUSSION

Jejunal diverticuli are rare; true ones being even more so. In the jejunum, these diverticuli are most liable to suffer complications. Motor dysfunction due to involvement of the enteric autonomic nervous system and the resultant increased intraluminal pressure [2] may have a role in their formation. False diverticuli are found on the mesenteric border whereas true ones occur along the antimesenteric border, as in our case. The disease rarely manifests before the fifth decade, with 80-90% patients being older than 40 years [3, 5, 6]. There may be a slight male preponderance [7, 8, 9], though due to the rarity of the disease, a concrete opinion is hardly discernible. Diverticula of other segments of bowel commonly coexist, with the colon being involved in 5-45% [5] of cases. Our patient had just the one solitary jejunal diverticulum. Perforation is an infrequent acute complication, with only few reports in literature available on perforated isolated jejunal diverticuli [10, 11, 8].

Diverticulitis (82%), blunt trauma (12%) and foreign body impaction (6%) [12] are reported to predispose to perforation. Other precipitating factors include distal obstruction due to band adhesion or stricture [12], as in our patient.

Preoperative diagnosis is difficult. Cross-sectional imaging is often not diagnostic [13, 9], especially in solitary diverticular disease. Diagnostic laparoscopy for abdominal pain or chronic undiagnosed symptoms may clinch the diagnosis. Presentation with perforation, obstruction or diverticulitis warrants surgical exploration. False diverticuli tend to hide within mesenteric leaves and thorough exploration is warranted.

5. CONCLUSION

Jejunal diverticuli are a rare entity, the “true” variety being even more so. Clinical diagnosis is often limited by the symptomatology with not much additional help from cross-sectional imaging in the acute setting. While conservative management may have a role in high-risk patients with small perforations with contained contamination, segmental resection with reconstruction remains the intervention of choice for free perforation. An enterostomy is most often deleterious given the proximal location and the high volume and nature of contents. A thorough evaluation of the entire bowel in a sequential and systematic manner is indicated, to avoid missing another complicated diverticulum in a separate bowel segment. In closing, this case study has attempted to highlight one of the rare nuances of small bowel anatomical aberrations, its clinical implications and the associated diagnostic and therapeutic dilemmas one might face.

CONSENT AND ETHICAL APPROVAL

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the authors

COMPETING INTERESTS

Author has declared that no competing interests exist.

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