Cent. Eur. J. Med. • 7(6) • 2012 • 713-715
DOI: 10.2478/s11536-012-0081-1

VERSITA

Central European Journal of **Medicine**

Laparoscopically Assisted Resection of Jejunal Diverticula. A Case Report and Review of the Literature

Case report

Lawrence Toquero*, Roland Fernandes, Nang Kyi, Sonia Chloe Bains, Filipos Sagias, Samantha Baillie, Samer Doughan

1 Queen Elizabeth Hospital, South London Healthcare Trust CT9 4A, Woolwich, UK

Received 15 May 2012; Accepted 12 September 2012

Abstract: We present the first documented case of laparoscopically assisted resection of a jejunal diverticulum. A 53 year old gentleman presented with right sided abdominal pain along with raised inflammatory markers. Computed tomography revealed multiple diverticula in the proximal jejunum, one of which was inflamed. The patient was managed conservatively, and subsequently underwent an elective laparoscopically assisted resection of a jejunal diverticulum with no complications.

Keywords: *Diverticulum • Laparascopic • Jejunum*

1. Introduction

Small bowel diverticulosis has been a known entity since the sixteenth century. Duodenal diverticula were first described by Chomel, a French Pathologist, in 1710 [1]. Subsequently, jejunal diverticula were described in 1794 by Somerling and in 1807 by Sir Astley Cooper [2].

Small bowel diverticula are generally divided into congenital or acquired. Congenital, or true, diverticula contain all layers of the intestinal wall. Examples are Meckel's diverticula and intraluminal duodenal diverticula. An acquired, or false, diverticulum usually occurs in a small structural defect that allows the protrusion of an outpouch containing only mucosa and submucosa. The true aetiology of diverticula is not clear, however factors such as old age, progressive weakening of intestinal smooth muscle and pressure phenomena may all encourage outpouching of the intestinal wall.

There is limited evidence to demonstrate the true incidence of small bowel diverticula. Most small bowel diverticula are discovered incidentally [3], 1% to 6% in upper gastrointestinal contrast studies, 12% to 27% in upper gastrointestinal endoscopic studies, and 15% to 22% in autopsies [4,5].

2. Case Report

A 53 year old gentleman presented as an emergency with a 3 day history of generalised abdominal pain which settled to his right side. His past medical history included non-insulin dependent diabetes mellitus, asthma and hypercholesterolaemia, with no previous surgical history.

On examination, he was clinically tender in his right upper quadrant but did not have any signs of peritonism. Blood tests revealed a leucocytosis and an equally raised C-reactive protein. Radiographs were unremarkable, whilst an ultrasound scan was equivocal. Computed tomography revealed 3 diverticula with the largest measuring 5.2cm in diameter. One of these diverticula was inflamed. Malrotation of the bowel was an incidental finding, with the caecum lying to the left of the midline and the small bowel lying to the right. The patient settled with a course of oral antibiotics and was

* *E-mail: ltoquero@hotmail.com*

subsequently discharged home. Computed tomography with oral contrast was performed two weeks later, and revealed improvement of the affected segment with reduced adjacent fat stranding. Due to the intractable nature of his symptoms, the patient was listed for surgical intervention in the form of an elective laparoscopically assisted resection of jejunal diverticula.

Intra-operatively, three 12mm ports were inserted; to the left of the umbilicus, in the left iliac fossa and in the left upper quadrant. The small bowel was traced back to the duodenal-jejunal flexure. A jejunal diverticulum was noted approximately 30cm away from the duodenal-jejunal flexure with dense adhesions on the mesenteric surface. There was also a non-inflamed jejunal diverticulum 15cm from the duodenal-jejunal flexure. Malrotation of the bowel was again noted, with the caecum lying in the left iliac fossa and the duodenal-jejunal flexure lying in the right upper quadrant. The diverticular segment was isolated, and a minimal, five centimetre Lanz incision in the right hypochondrium was used to deliver the small bowel. The affected segment was resected using a TLC 75 followed by a double-layered, side-to-side, functional anastomosis.

Figure 1. A Laparoscopic view of the jejunal diverticulum

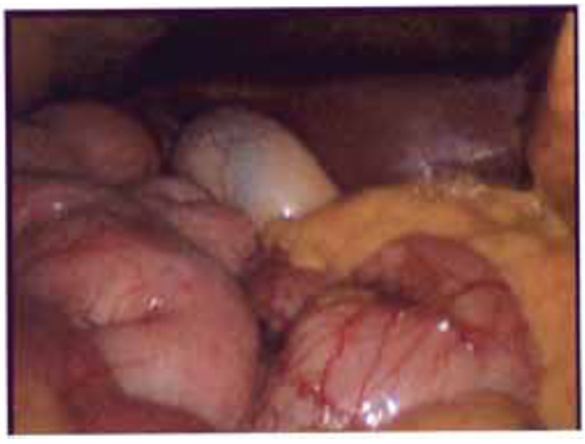
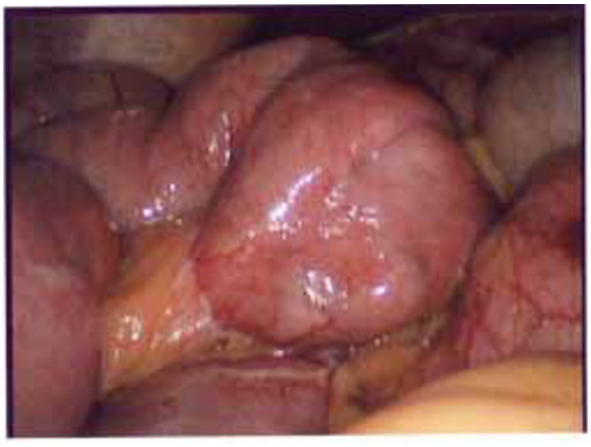


Figure 2. A large proximal jejunal diverticulum



The patient made an uneventful recovery, was discharged home within forty-eight hours and was followed up three months post-operation with subsequent discharge. The histology showed a jejunal diverticulum with non-specific inflammatory changes, and no evidence of malignancy.

3. Discussion

Similar to colonic diverticula, small bowel diverticula are frequently encountered in patients over forty. Patients with small bowel diverticula are generally asymptomatic and a very small percentage of symptomatic patients would ever require an operation [6]. However, when they do, these patients often present acutely, as in this case report. The acute symptoms include abdominal pain, gastrointestinal bleeding, obstruction, perforation and diverticulitis. Patients may also present with chronic symptom such as chronic abdominal pain, nausea, vomiting, flatulence, diarrhoea, and steatorrhea secondary to malabsorption [7,8].

Like large bowel diverticula, most complications of small bowel diverticula resolve with conservative treatment. A study of operative management of symptomatic small bowel diverticula showed operative treatment is safe but should be reserved for those with emergency presentations (haemorrhage, perforation, and obstruction) , intractable symptoms, or malignancy [9,10].

The preferred surgical approach to acute haemorrhage is intestinal resection of the bleeding jejunal segment with formation of primary anastomosis. Intense supportive therapy is required as an adjunct to surgical management in these cases [11]. When jejunal diverticula present acutely with perforation, the treatment is surgical resection, open or laparoscopically assisted, of the diseased segment with formation of primary jejuno-jenunal or jejuno-ileal anastomoses [12]. However, it has been shown that extensive resection should be avoided due to the potential of short bowel syndrome [13].

The management for jejunal diverticula complicated by obstruction may be either conservative or surgical. An unsuccessful trial of conservative treatment warrants operative management. Previously described surgical techniques used in laparotomy include crushing of the enteroliths and milking of the fragments into the colon, formation of enterostomy proximal or distal to the site of obstruction with the enterolith removed, or resection of the affected jejunal segment. The techniques are to be considered in step-by-step manner [14-16].

Due to the relative clinical rarity and variable presentation of small bowel diverticula, achieving accurate

preoperative diagnosis is often challenging. If the situation permits, radiographic studies such as computed tomography could prove invaluable in diagnosis and management, as described in this case. However, if the patient is haemodynamically unstable emergency laparotomy is warranted and the diagnosis can only be made intra-operatively.

4. Learning Point

Jejunal diverticula are present in approximately 1% of the population. Although complications such as perforation can occur, it is possible to treat conservatively and organise a minimally invasive laparoscopically assisted procedure on an elective basis. One must appreciate the difficulty in diagnosis of such cases and be guided by both radiology and clinical signs in deciding upon when and how to surgically treat the condition.

References

[1] Chomel JB. Report of a case of duodenal diverticulum containing gallstones. Histoire Acad R Sci Paris. 1710: 48-50

[2] Williams RA, Davidson DD, Serota AI, Wilson SE. Surgical problems of diverticula of the small intestine. Surg Gynecol Obstet. 1981; 152: 621-626

[3] Brian S E Jr, Stair J M. Noncolonic diverticular disease. Surg Gyn Obst. (1985); 161: 189–195

[4] Marhin WW, Amson BJ. Management of perforated duodenal diverticula. Can J Surg. 2005; 48(1): 79-80

[5] Afridi SA, Fichtenbaum CJ, Taubin H. Review of duodenal diverticula. Am J Gastroenterol. 1991; 86(8): 935-938

[6] Tsiotos GG, Farnell MB, Ilstrup DM. Non-Meckelian jejunal or ileal diverticulosis: an analysis of 112 cases. Surgery 1994: 116; 726-731

[7] Ross CB, Richards WO, Sharp KW, Bertram PD, Schaper PW. Diverticular disease of the jejunum and its complications. Am Surg. 1990; 56: 319-324

[8] De Bree E, Grammatikakis J, Christodoulakis M, Tsiftsis D. The clinical significance of acquired jejunoileal diverticula. Am J Gastroenterol. 1998; 93: 2523-2528

[9] Kouraklis G, Glinavou A, Mantas D, Kouskos E, Karatzas G. Clinical implications of small bowel diverticula. Isr Med Assoc J. 2002 June; 4(6): 431-433

[10] Longo WE, Vernava AM 3rd. Clinical implications of jejunoileal diverticular disease. Dis Colon Rectum. 1992; 35: 381-388

[11] Mathis KL, Farley DR. Operative management of symptomatic duodenal diverticula. Am J Surg. 2007 Mar: 193(3): 305-308

[12] Cross MJ, Snyder SK. Laparoscopic-directed small bowel resection for jejunal diverticulitis with perforation. J Laparoendosc Surg. 1993; 3: 47-49

[13] Novak JS, Tobias J, Barkin JS. Nonsurgical management of acute jejunal diverticulitis: a review. Am J Gastroenterol. 1997; 920: 1929–1931

[14] Hayee B, Khan HN, Al-Mishlab T, McPartlin JF. A case of enterolith small bowel obstruction and jejunal diverticulosis. World J Gastroenterol. 2003; 9: 883–884

[15] Harris LM, Volpe CM, Doerr RJ. Small bowel obstruction secondary to enterolith impaction complicating jejunal diverticulitis. Am J Gastroenterol. 1997; 92: 1538–15

[16] Shocket E, Simon SA. Small bowel obstruction due to enterolith (bezoar) formed in a duodenal diverticulum: a case report and review of the literature. Am J Gastroenterol. 1982; 77: 621