Case Report

A Rare Case of Sigmoid Intussusception due to Sigmoid Diverticula in a Patient with Concomitant Extensive Small Bowel Diverticula

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ABSTRACT

Small intestinal diverticula is a rare occurrence, and their surgical management remains controversial due to the lack of a recognized classification system. Complications such as perforation and obstruction are treated surgically. Their etiology remains nebulous but theories such as damage to the Auerbach’s nerve plexus have been advanced as a possible cause. The concomitant presence of a sigmoid intussusception due to diverticular disease in the same patient is truly a rare occurrence. The vast majority of colonic intussusception is due to malignancy and a benign etiology remains elusive. The reported cases of benign causes include a lipoma and benign lymphadenopathy. We believe this to be the first such case report of a colonic diverticulum causing an intussusception. Despite an exploratory laparotomy of less than sixty minutes, the patient demised in the intensive care unit following an occipital lobe stroke. We believe this case of sigmoid intussusception with concomitant small intestinal diverticula to be the first such case report of its kind in English-language scientific publications.

Keywords: colon, intussusception, diverticula, sigmoid

Introduction

Small and large intestinal diverticula in the same individual is an extremely rare occurrence; 85% of the small bowel diverticula originate from the jejunum and 5% from both jejunum and ileum [1]. Less than 1% of diverticula cases are reported in the small bowel. This clinical feature, coupled with a sigmoid intussusception of a benign etiology, makes for an extremely rare clinical finding. The patient’s age and physiological status upon presentation to the acute care surgical team, contributed to his poor outcome. His exploratory laparotomy was performed within 35 minutes but he demised post-surgery in the intensive care unit as a result of an occipital lobe stroke.

Case Report

A 90-year-old gentleman with a known history of atrial fibrillation, congestive cardiac failure, hypertension, chronic renal failure, and hypothyroidism was brought to the emergency room in septic shock. The patient was unresponsive and hypotensive. He was resuscitated with two liters of modified ringer’s lactate and given Rocephin (2g) intravenously. His blood pressure began increasing incrementally. He had no obvious signs of trauma, nor clinical evidence of an upper or lower gastrointestinal bleed. After initial resuscitation, that included gastric and urethral intubation, he became more responsive by verbalizing his thoughts, and he could protect his airway. Our clinical suspicion was that of an ischemic colon, given his high lactate and severe acidosis as reflected by a venous blood gas pH of 7.19 with a base deficit of -12.3. He was sent for an emergency computerized tomography scan, that showed a sigmoid intussusception with a diverticular stricture and an incidental finding of small bowel diverticula throughout the small intestine. There was no obvious liver or lung metastases. Computerized tomography revealed his abdomen was now clinically peritonitic and the patient was transferred to the intensive care unit (ICU) for further resuscitation and stabilization. Inotropic support
was commenced to maintain hemodynamic stability. After an urgent discussion with his family, an emergency exploratory laparotomy was performed. The family was made fully aware of the high morbidity and mortality associated with this procedure, given that the patient was metabolically in extremis. The patient lived in a care home and so the family could not contribute much to the patient’s current medical history. Intraoperatively, a distended large and small bowel with an intussusception of the sigmoid colon was noted. He had extensive colonic diverticula. There was evidence of ischemia and multiple perforations of the left colon with stool soilage in the peritoneal cavity. It was also noted that he had diverticula of his ileum, jejunum, and duodenum (Figures 1-3). An exploratory laparotomy was affected by performing a left hemicolectomy, closure of the rectal stump, and an end colostomy with the transverse colon in the right upper quadrant. The intussusception was not reduced intraoperatively. It was reduced postoperatively to elucidate a possible malignancy. A primary closure of the abdominal wall was performed. The patient remained on inotropic support throughout the surgery and was transferred back to the ICU, for further resuscitation. His surgical operative time was 35 minutes. Postoperatively, he suffered an occipital lobe stroke and after five days on a ventilator, he demised in the ICU. His family declined a postmortem investigation.

Discussion

Small bowel diverticula are a rare surgical entity and often remain asymptomatic until clinical presentation of perforation, inflammation, or obstruction. Their incidence in published reports ranges from 0.06-2.3% [2]. They are commonly seen in elderly males in the 7th decade of life. They are pseudodiverticula consisting of mucosal and submucosal protrusion through the muscle wall of the gastrointestinal tract. This contrasts with Meckel’s diverticulum, a true diverticulum, which includes the muscle layer as well as the protrusion [3]. Their etiology remains nebulous, and theories include intestinal dyskinesia with damage to Auerbach’s plexus [3,4]. In this patient, diverticula were observed throughout the small and large intestine (Figures 4-6). Colonic diverticula have been reported in up to 60% of patients with small bowel diverticula [1]. These are isolated incidents of sporadic small bowel diverticula in the duodenum, jejunum, or ileum but have never been reported throughout the small bowel with concomitant colonic diverticula. The small bowel diverticula were not resected as they were clinically asymptomatic. The paucity of a classification system for small bowel diverticula prevents a standardized approach to management [5]. The Hinchey classification, commonly used in the management of colonic diverticula, affords surgeons a standardized approach to colonic diverticula. Most small intestinal diverticula are discovered incidentally during a laparotomy and often involve long segments of ileum or jejunum. Surgery is limited to managing diverticular complications, such as perforation or obstruction.
Extensive surgical resection is not the preferred option given the complications of short bowel syndrome. There have been 16 cases of small bowel diverticula published to date in English-language scientific literature [6]. The published cases reported an age range of 29-87 years; at 90 years of age, the patient in this case report may be the oldest. To our knowledge, this is the 1st case report where the patient had diverticula in the duodenum, jejunum, ileum as well as the colon. It is hoped that in future a classification system of small bowel diverticula will afford a standardized approach to their management. The patient in this case report presented with intestinal obstruction due to a sigmoid intussusception. Adult intussusception (Figure 7) remains a rare clinical entity with an incidence of 5% of all cases, and it is responsible for 1-3% of intestinal obstruction [8,9]; 65% of adult colonic intussusception is due to malignancy. The most common malignancy is primary adenocarcinoma, then lymphoma, followed by metastatic adenocarcinoma [10].

There have been sporadic reports of large lipomas or benign lymphadenopathy acting as a lead point [8,9]. Having a sigmoid diverticulum as the lead point, is truly a unique presentation. The management of adult colonic intussusception is surgical resection as there is usually an underlying malignancy acting as the lead point. This is usually undertaken en-bloc to prevent possible tumor seeding [8,9]. Reduction of the intussusception through colonoscopy or laparoscopy serves no useful purpose as the underlying malignancy needs to be surgically resected.

**Conclusion**

We present a case report of diverticular induced sigmoid intussusception with an incidental finding of extensive small intestinal diverticula. We believe this to be the first such case report, involving two rare etiologies, in the English-language scientific literature.
Author Contributions

Conceptualization: YP. Methodology: YP. Formal investigation: AL. Data analysis: AL. Writing original draft: YP. Writing - review and editing: AL.

Conflicts of Interest

The authors declare that they have no competing interests.

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Ethical Statement

This research did not involve any human or animal experiments.

Data Availability

All relevant data are included in this manuscript.

References


