Jejunal polypoid arteriovenous malformations (AVMs) and jejunojejunal intussusceptions are both rare. Here, we present the case of a 61-year-old woman who suffered intermittent episodes of abdominal pain over the course of 13 years. A computed tomography scan of her abdomen and pelvis revealed a distal jejunojejunal intussusception. A suspected low density mass was observed at the tip of the intussusception. Treatment comprised laparoscopic small bowel resection with end-to-end jejunostomy. The final diagnosis was a polypoid AVM measuring 5×3.5×3 cm. We suggest that polypoid AVM should be considered as a differential diagnosis in patients presenting with small intestinal neoplasms.

**Key Words:** Abdominal pain; Arteriovenous malformations; Jejunum; Intussusception; Polypoid arteriovenous malformation

**INTRODUCTION**

Vascular malformations of the gastrointestinal tract can occur at any age, and patients may present with a variety of symptoms. Most malformations are asymptomatic, though some can present with acute hemorrhage or chronic anemia, and others can result in obstruction or intussusception when the vascular anomaly is tumorous.\(^1\)

Polypoid arteriovenous malformations (AVMs) in the bowel are very rare and, to the best of our knowledge, only 12 cases have been reported in the medical literature thus far: 10 in adults and two in children.\(^2\)\(^-\)\(^12\) However, there are no reported adult cases of polypoid AVM presenting with intussusception, although one case was reported in a child.\(^11\)

Here, we report an adult case of jejunal polypoid AVM, which manifested as a jejunojejunal intussusception, and review the relevant literature.

**CASE REPORT**

A 61-year-old woman was admitted to our department with a 13-year history of intermittent cramping abdominal pain in the left lower quadrant, which radiated throughout the entire abdomen. There was no accompanying nausea, vomiting, melena, hematochezia, changes in bowel habits, or weight loss. She underwent esophagogastroduodenoscopy and colonoscopy 2 years ago and there were no significant findings. She refused further diagnostic workup because her abdominal pain resolved spontaneously. She had undergone a hysterectomy and left oophorectomy 20 years ago, and was diagnosed with hypertension 3 years ago. She took amlodipine (5 mg) and atorvastatin (10 mg) once per day.

Her vital signs were stable. She reported tenderness in left lower quadrant. There was no rebound tenderness or any palpable mass. Bowel sounds were normal. Laboratory results did not identify any significant abnormalities. Routine blood chemistry results were as follows: white blood cell count, 4,400/mm\(^3\); hemoglobin, 12.1 g/dL; hematocrit, 36.8%; and platelet count, 238,000/mm\(^3\). Tumor markers, including carcinoembryonic antigen, CA 19-9 and CA 72-4 were normal.
There were no significant findings on chest or abdominal radiography. Esophagogastroduodenoscopy (GIF-H260; Olympus, Tokyo, Japan) revealed gastric ulcer scars and duodenitis, and findings upon colonoscopy (CF-H260AL; Olympus) were unremarkable. However, intravenous contrast enhanced abdominal-pelvic computed tomography showed a small bowel intussusception in the mid-to-distal jejunum, with a suspected low density mass at its tip (Fig. 1).

The patient underwent laparoscopic small bowel resection and primary anastomosis. A polypoid mass (5×3.5×3 cm) was found within the intussusceptum (Fig. 2). Histological examination revealed a normal mucosa, but abnormal dilated arteries and veins of variable size were observed in the submucosa, which is consistent with AVM (Fig. 3). Four days after surgery, the patient was discharged without any complications. At 3 months postdischarge, she was free of symptoms with no evidence of recurrence.

DISCUSSION

Here, we report the very unusual case of a 61-year-old woman presenting with a 13-year history of intermittent cramping abdominal pain. She eventually presented with a small bowel intussusception due to a polypoid AVM, which acted as a pathologic lead point. Intussusception is defined as the prolapse of a proximal bowel segment into a distal segment (rather...
Table 1. Previous Reports of Intestinal Polypoid Arteriovenous Malformations in the Literature

| Case | Author | Age (yr)/Sex | Location | Maximal size, cm | No. of polyps | Gross findings | Treatment | Result |
|------|--------|--------------|----------|-----------------|---------------|---------------|-----------|--------|
| 1    | Koziara et al. (1996) | 84/M | Hematochezia | Sigmoid | 4.0×3.5 | Single | Pedunculated | Polypectomy | Hemostasis |
| 2    | Koziara et al. (1996) | 58/M | Iron deficiency anemia | Transverse | 1.5×long | Single | Pedunculated | Polypectomy | Correction of anemia |
| 3    | Park et al. (2000) | 41/M | Hematochezia | Descending | 1.0×long | Single | Pedunculated with hemorrhagic spots | Polypectomy | Hemostasis |
| 4    | D'Arienzo et al. (2001) | 53/M | Hematochezia | Sigmoid | 3.0×2.0 | Single | Pedunculated and erthyematous | Polypectomy | Hemostasis |
| 5    | McKevitt et al. (2002) | 24/M | Hematochezia | Sigmoid | 0.7×0.7 | Single | Semipedunculated and erthyematous | Polypectomy | Hemostasis |
| 6    | Maeng et al. (2004) | 59/F | Hematochezia | Transverse | 6.2×3.5 | Single | Pedunculated and multinodular | Surgical resection | Hemostasis |
| 7    | Nasseri-Moghaddam et al. (2004) | 26/M | Hematochezia | Sigmoid | 3.0×long | Single | Pedunculated and erthyematous with ulcer | Polypectomy | Hemostasis |
| 8    | Jiet al. (2005) | 81/M | Hematochezia | Transverse | 3.5×2.2 | Single | Semipedunculated with hemorrhagic spots | Polypectomy | Hemostasis |
| 9    | Kim et al. (2009) | 66/F | For screening | Cecum | 0.5×0.3 | 0.4×0.3 | Cold biopsy | No bleeding |
| 10   | Rodriguez-Jurado et al. (2010) | 6/F | Intestinal obstruction | Jejunum | 4×3×2.5 | Single | Pedunculated | Polypectomy | Cure |
| 11   | Yazbeck et al. (2011) | 12/M | Intussusception | Jejunum | 5.5×2.5×2 | Single | Pedunculated | Surgical resection | Cure |
| 12   | Chen et al. (2012) | 57/F | For screening | Sigmoid | 1.8×long | Single | Pedunculated | Polypectomy | No bleeding |

In conclusion, we report the unusual case of an adult presenting with chronic abdominal pain caused by an unusual benign small bowel polypoid AVM manifesting as an intussusception. The case was successfully treated by surgical resection. The case suggests that polypoid AVM should be considered as a differential diagnosis in patients (including adults) presenting with small intestinal polyps.

Conflicts of Interest

The authors have no financial conflicts of interest.

REFERENCES

1. Gordon FH, Walton A, Bogdahn U. Vascular malformations of the gastrointestinal tract. Best Pract Res Clin Gastroenterol 2003;17:55-74.
2. Bredenoord AJ, van Berlo FA, Wijburg FA, et al. Primary jejunal arterial rectal arteriovenous malformations: a case of polypoid AVM. Gut 2000;45:131-32.
3. Park DR, Yang SK, Jung SA, et al. A case of polypoid arterial malformation presenting with massive hematochezia. Gastrointest Endosc 2000;52:131-35.
4. Park DR, Yang SK, Kwon SC, et al. Polypoid arterial rectal arteriovenous malformations. Gastrointest Endosc 2002;55:744-47.
5. McKevitt EC, Asimow AL, Dorsey HR, Yamashita EM. Intramural intussusception: a case of polypoid rectal arteriovenous malformation. Endoscopy 2002;34:452.
6. D'Arienzo A, Manguso F, D'Armiento FP, et al. Colonoscopic removal of a polypoid arteriovenous malformation. Dig Liver Dis 2001;33:435-37.
7. D'Arienzo A, Manguso F, D'Armiento FP, et al. Colonoscopic removal of a polypoid arteriovenous malformation. Dig Liver Dis 2001;33:435-37.
8. Koziara FJ, Brodmerkel GJ, Boylan JJ, Ciambotti GF, Agrawal RM. Healing arterial rectal arteriovenous malformation presenting with giant hematochezia. Gastrointest Endosc 2001;54:377-79.
9. Gordon FH, Watkinson A, Pollock DG, et al. Vascular malformations of the gastrointestinal tract. Best Pract Res Clin Gastroenterol 2003;17:55-74.
10. Koziara FJ, Brodmerkel GJ, Boylan JJ, Ciambotti GF, Agrawal RM. Healing arterial rectal arteriovenous malformation presenting with giant hematochezia. Gastrointest Endosc 2001;54:377-79.
6. Maeng L, Choi KY, Lee A, Kang CS, Kim KM. Polypoid arteriovenous malformation of colon mimicking inflammatory fibroid polyp. J Gastroenterol 2004;39:575-578.
7. Nasseri-Moghaddam S, Mohamadnejad M, Malekzadeh R, Tavangar SM. Images of interest. Gastrointestinal: polypoid arteriovenous malformation of the colon. J Gastroenterol Hepatol 2004;19:1419.
8. Ji JS, Choi KY, Lee BI, et al. A large polypoid arteriovenous malformation of the colon treated with a detachable snare: case report and review of literature. Gastrointest Endosc 2005;62:172-175.
9. Kim BK, Han HS, Lee SY, Kim CH, Jin CJ. Cecal polypoid arteriovenous malformations removed by endoscopic biopsy. J Korean Med Sci 2009;24:342-345.
10. Rodriguez-Jurado R, Morales SS. Polypoid arteriovenous malformation in the jejunum of a child that mimics intussusception. J Pediatr Surg 2010;45:E9-E12.
11. Yazbeck N, Mahfouz I, Majdalani M, Tawil A, Farra C, Akel S. Intestinal polypoid arteriovenous malformation: unusual presentation in a child and review of the literature. Acta Paediatr 2011;100:e141-e144.
12. Chen CH, Yan SL. Colonic arteriovenous malformation presenting as a pedunculated polyp. Dig Endosc 2012;24:485.
13. Azar T, Berger DL. Adult intussusception. Ann Surg 1997;226:134-138.