

# Angiodysplasia Presenting with Multiple Polypoid Lesions: An Unusual Cause of Small Bowel Obstruction

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Received 14 September 2014; revised 12 October 2014; accepted 7 November 2014

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## Abstract

Angiodysplasia (AD), a morphologic vascular abnormality, is a common cause of gastrointestinal bleeding. We present a rare case of polypoid AD lesions. Three years after treatment for adhesive bowel obstruction, a 57-year-old man was admitted with recurrent abdominal distension, anorexia, and lower extremity edema. Computed tomography showed his dilated proximal and collapsed distal small bowel loops had disparate calibers. The transition point demonstrated mucosal enhancement and mesenteric lymphadenopathy. We observed small intestinal wall outpouching with strong mucosal enhancement and polypoid lesions dotting the dilated intestine. Intraoperative findings revealed a hard but elastic intraluminal nodule causing small bowel obstruction and the outpouching's occurrence on the ileum's antimesenteric border. We performed partial resection of the small intestine involving the nodule and Meckel's diverticulum. Macroscopically, the nodule, diverticulum, and intestinal mucosa had polypoid lesions. Histopathologically, these lesions had foci within dilated thin- or thick-walled vascular channels in the submucosa, without specific histological abnormalities. These features led to a diagnosis of AD.

## Keywords

Angiodysplasia, Polypoid Lesions, Small Bowel Obstruction, Meckel's Diverticulum

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## 1. Introduction

Angiodysplasia (AD) is a rare but important cause of both overt and occult gastrointestinal (GI) bleeding. The most common ADs in the GI tract are flat and red mucosal lesions with a characteristic endoscopic appearance.

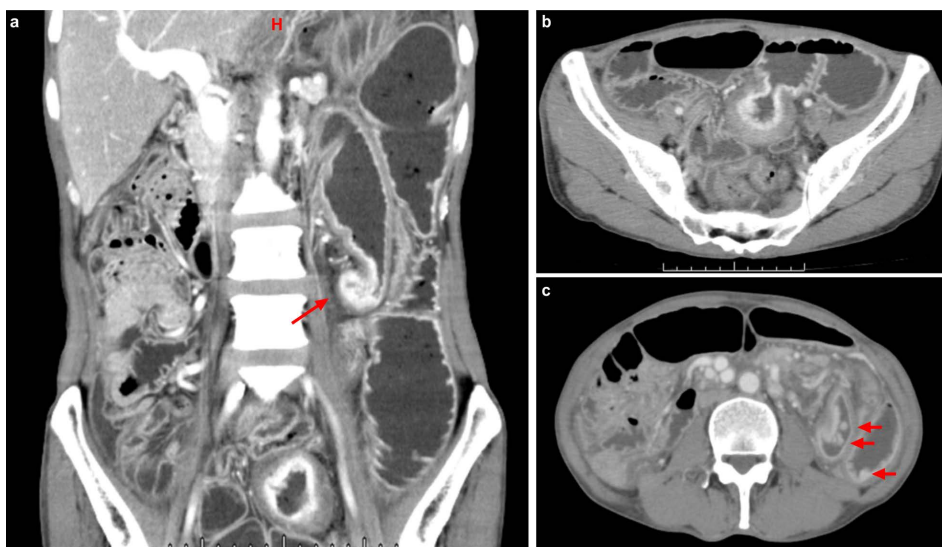
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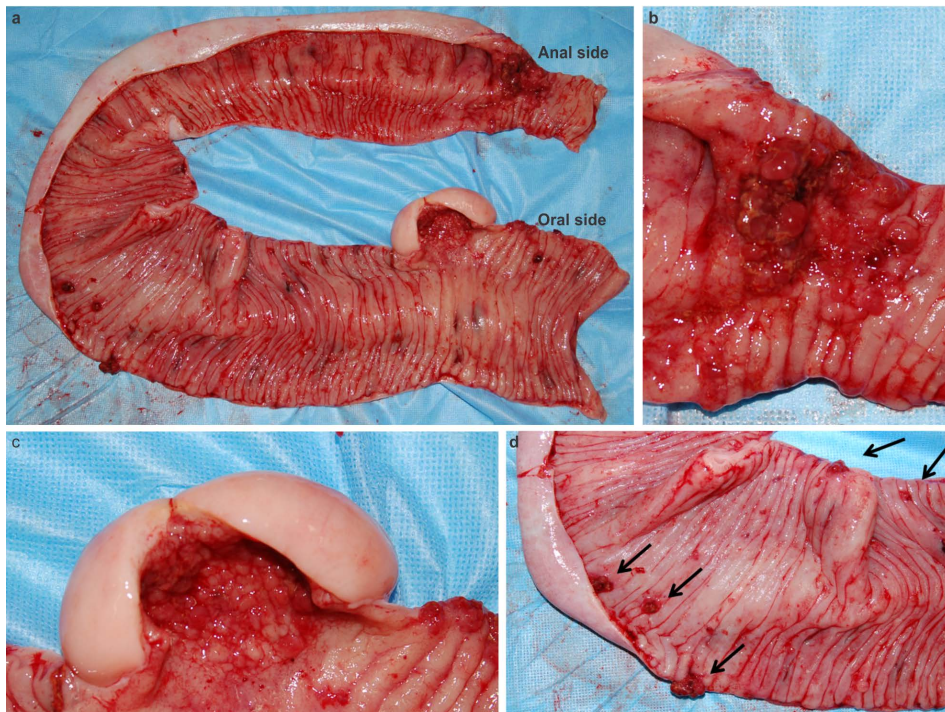
They are often multiple and are best diagnosed using endoscopy. Histologically, the affected vessels within the mucosal or submucosal layers are lined by endothelium only, with little or no smooth muscle. AD originates as a morphologic abnormality of the vascular channels. Unlike ulcerative or neoplastic lesions, it lacks morphological changes and, it rarely causes bowel obstruction. Here, we present a rare case of AD lesions that were crowded within the Meckel's diverticulum and causing intermittent ileus via an intraluminal obstruction.

## 2. Case Presentation

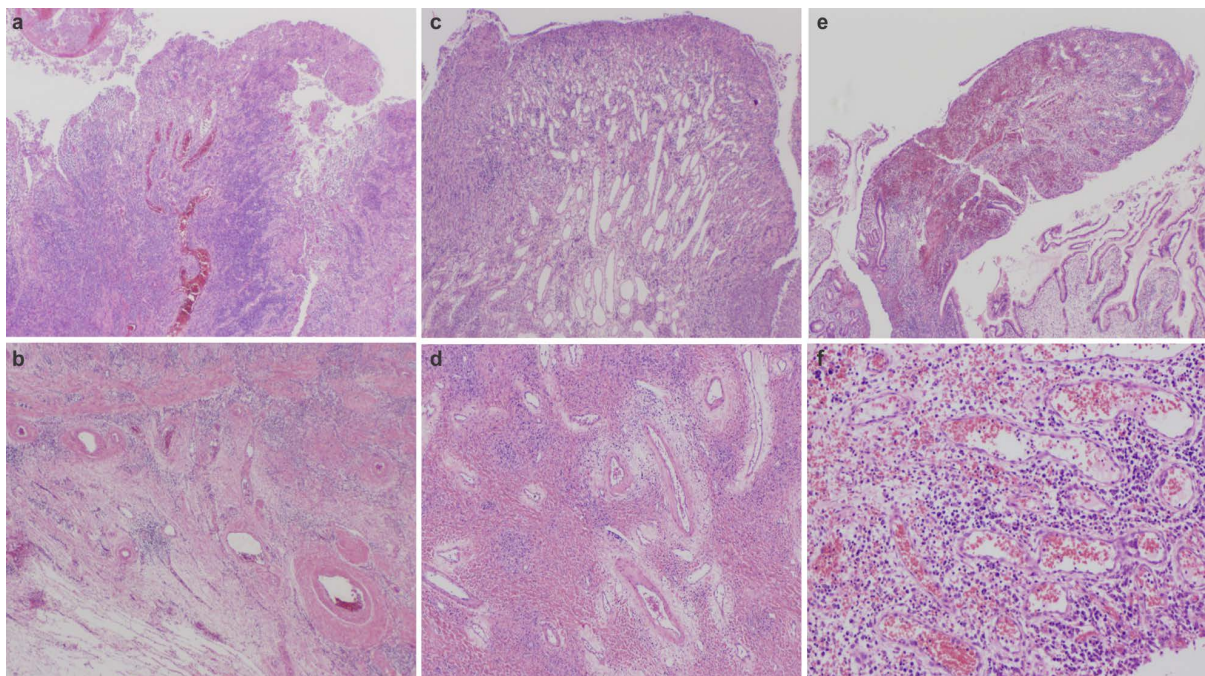
A 57-year-old man presented with recurrent abdominal distension, anorexia, and lower extremity edema. Immediately after birth, he had undergone a laparotomy due to intussusception. Three years before the current admission, he had undergone 6 courses of conservative treatment, followed by laparoscopic adhesiolysis, because of a diagnosis of adhesive bowel obstruction. He did not have a family history of GI disease. On physical examination, his abdomen was moderately distended, without tenderness or signs of peritoneal irritation. Laboratory tests revealed hemoglobin and albumin levels of 11.3 g/dL (normal, >14.0 g/dL) and 1.9 g/dL (normal, >3.5 g/dL), respectively. Contrast-enhanced computed tomography (CT) showed a disparity between the caliber of his dilated proximal and collapsed distal small bowel loops. The transition point demonstrated strong mucosal enhancement (Figure 1(a), arrow) and mesenteric lymphadenopathy. Moreover, we observed outpouching of the small intestinal wall with strong mucosal enhancement (Figure 1(a), Figure 1(b)) and multiple polypoid lesions dotted along the dilated intestine (Figure 1(c), arrows). Although the preoperative diagnosis was very difficult, an operation was performed for bowel obstruction via laparotomy. Intraoperative findings revealed that the small bowel obstruction was caused by a hard but elastic intraluminal nodule and that the outpouching was located on the antimesenteric border of the ileum. The case was intraoperatively diagnosed as small bowel cancer with lymph nodes metastasis within the small intestinal mesentery. Therefore, we performed partial resection of the small intestine involving the nodule and the Meckel's diverticulum with lymphadenectomy in the mesentery near the nodule. Macroscopic findings of the resected specimen showed that both the nodule and the diverticulum had multiple polypoid lesions (Figures 2(a)-(c)); multiple polyps were also detected in the intestinal mucosa (Figure 2(d)). A histopathological examination of these polypoid lesions revealed foci within dilated thin- or thick-walled submucosal vascular channels without specific histological abnormalities (Figure 3). These features led to a diagnosis of AD without malignancy. The patient progressed well postoperatively and was discharged without further admissions for ileus or intestinal tumor over the subsequent 2 years.



**Figure 1.** Preoperative findings of contrast-enhanced computed tomography (CT). (a) CT (coronal image): a disparity in the caliber of his dilated proximal and collapsed distal small bowel loops; the transition point demonstrates strong mucosal enhancement (arrow); (b) CT (axial image): an outpouching is seen in the middle of the pelvic cavity; (c) CT (axial image): polypoid lesions are visible in the small bowel (arrows).



**Figure 2.** Macroscopic appearance of the resected specimen. (a) The oral side small bowel of the nodule is remarkably dilated; (b) Multiple polypoid lesions are seen in the nodule; (c) Multiple polypoid lesions are visible in the diverticulum; (d) Multiple polypoid lesions are seen in the dilated bowel.



**Figure 3.** Histopathological findings (hematoxylin/eosin staining). (a), (b) Polypoid lesions consisting of the nodule revealed foci of dilated thin- or thick-walled, submucosal, vascular channels ((a)  $\times 20$ ; (b)  $\times 100$ ); (c), (d) Polypoid lesions consisting of the diverticulum revealing foci of dilated linear or meandering thin-walled submucosal vascular channels ((c)  $\times 20$ ; (d)  $\times 100$ ); (e), (f) The polyp in the dilated small bowel showing foci of dilated thin-walled submucosal vascular channels with the accumulation of inflammatory cells ((e)  $\times 20$ ; (f)  $\times 100$ ).

### 3. Discussion

AD is a morphological abnormality of the vascular channels that may occur at any location in the GI tract, but is especially likely occur in the colon. AD is a common cause of GI bleeding [1]. Indeed, GI bleeding in patients > 50-years of age is likely to be caused small bowel AD. AD-associated bleeding is believed to be related to cardiovascular disease [1] [2], chronic kidney disease [1] [2], and Von Willebrand disease [1] [3] [4]. Intestinal AD lesions with a polypoid morphology are rare, and some reports have shown that intestinal polyps are pathologically identified as AD lesions after endoscopic or surgical resection [5] [6]. However, polypoid AD lesions that caused intermittent ileus via intraluminal obstruction are extremely rare, as are polypoid AD lesions crowded within the Meckel's diverticulum.

In the present case, the patient did not have overt or occult GI bleeding and a CT scan showed both multiple polyps in the small bowel and mesenteric lymphadenopathy. Therefore, polyposis-complicating chronic inflammation (e.g., Cronkhite-Canada syndrome) was also considered. However, the diagnosis of this condition was difficult because small bowel obstructions with mucosal imaging enhancement are rarely the result of polyposis.

Most AD lesions develop secondary to chronic low-grade intermittent obstruction of submucosal veins coupled with increased vascular endothelial growth factor-dependent proliferation [1]. Recent studies have reported that an increased expression of angiogenic factors likely plays a pathogenic role in colonic AD [1] [4] [7]. However, further studies are needed to clarify the pathogenesis of these lesions.

### 4. Conclusion

Here, we have presented a case of polypoid AD lesions that were crowded within the Meckel's diverticulum, causing intermittent ileus via intraluminal obstruction. In cases for which preoperative GI endoscopy is impossible, a diagnosis can only be made based on CT findings. With the development of GI endoscopy, small intestine lesions will be observed more frequently in the future. It is necessary to consider small intestine AD when faced with a case that involves strong contrasting image of the small intestinal mucosa in CT findings.

### Acknowledgements and Potential Conflicts of Interest

There are no conflicts of interest to declare.

### References

- [1] Sami, S.S., Al-Araji, S.A. and Rangunath, K. (2014) Review Article: Gastrointestinal Angiodysplasia—Pathogenesis, Diagnosis and Management. *Alimentary Pharmacology & Therapeutics*, **39**, 15-34. <http://dx.doi.org/10.1111/apt.12527>
- [2] Holleran, G., Hall, B., Hussey, M. and McNamara, D. (2013) Small Bowel Angiodysplasia and Novel Disease Associations: A Cohort Study. *Scandinavian Journal of Gastroenterology*, **48**, 433-438. <http://dx.doi.org/10.3109/00365521.2012.763178>
- [3] Sohal, M. and Laffan, M. (2008) Von Willebrand Disease and Angiodysplasia Responding to Atorvastatin. *British Journal of Haematology*, **142**, 308-309. <http://dx.doi.org/10.1111/j.1365-2141.2008.07005.x>
- [4] Starke, R.D., Ferraro, F., Paschalaki, K.E., Dryden, N.H., McKinnon, T.A., Sutton, R.E., Payne, E.M., Haskard, D.O., Hughes, A.D., Cutler, D.F., Laffan, M.A. and Randi, A.M. (2011) Endothelial von Willebrand Factor Regulates Angiogenesis. *Blood*, **117**, 1071-1080. <http://dx.doi.org/10.1182/blood-2010-01-264507>
- [5] Kakushima, N., Fujishiro, M., Yahagi, N., Oka, M., Kobayashi, K., Hashimoto, T., Miyoshi, H., Moriyama, Y., Enomoto, S., Iguchi, M., Ichinose, M. and Omata, M. (2004) An Unusual Case of Polypoid Angiodysplasia. *Endoscopy*, **36**, 379. <http://dx.doi.org/10.1055/s-2004-814473>
- [6] Van Weyenberg, S.J., Van Grieken, N.C. and Van Waesberghe, J.H. (2012) Iron Deficiency after Non-Small Cell Lung Cancer. *Gastroenterology*, **142**, e3-e4. <http://dx.doi.org/10.1053/j.gastro.2011.11.050>
- [7] Tan, H., Chen, H., Xu, C., Ge, Z., Gao, Y., Fang, J., Liu, W. and Xiao, S. (2012) Role of Vascular Endothelial Growth Factor in Angiodysplasia: An Interventional Study with Thalidomide. *Journal of Gastroenterology and Hepatology*, **27**, 1094-1101. <http://dx.doi.org/10.1111/j.1440-1746.2011.06967.x>