

Endoscopic Treatment of Intussusception From Massive Colonic Lipomas via Endoscopic Mucosal Resection: A Case Series

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ABSTRACT

Although the safety and effectiveness of endoscopic resection of colonic lipomas has already been described, the ideal excisional technique continues to be debated. Notably, a majority of the proposed techniques focus on small, incidentally found lipomas. We report 3 patients with massive (≥ 8 cm) colonic lipomas presenting as intussusception that were successfully treated by piecemeal endoscopic mucosal resection. We propose endoscopic mucosal resection as the endoscopic treatment of choice and feasible alternative to surgery for the management of intussuscepting lipomas.

INTRODUCTION

Most colonic lipomas are small and asymptomatic; however, 75% of those measuring >2 cm lead to symptoms including abdominal pain, bleeding, intussusception, and obstruction, requiring removal.^{1,2} In recent years, endoscopic resection has become the preferred method vs more invasive surgical options. We present 3 patients where piecemeal endoscopic mucosal resection (EMR) was successfully performed to treat massive (≥ 8 cm) colonic lipomas which served as lead points for intussusception.

CASE REPORT

Patient 1: A 37-year-old woman with a history of hypothyroidism and chronic constipation presented to the emergency department with 2 weeks of acute, sharp, left lower quadrant abdominal pain. Laboratory tests including complete blood counts, blood biochemistries, and lactic acid were within normal range. Computed tomography (CT) scan revealed a fatty intraluminal mass causing intussusception near the splenic flexure without bowel obstruction. Colonoscopy revealed a 10-cm round, smooth, sub-epithelial mass with a 5-cm stalk, partially obstructing the sigmoid colonic lumen (Figure 1). The decision was made to proceed with EMR. A diluted mixture of epinephrine and methylene blue in saline was used to inject the base of the mass for submucosal lift. Because of the enormous size of the lesion, en bloc resection was not possible, and piecemeal EMR was performed using a variety of electrocautery snares (33 mm round, 25 mm oval). The snare was slowly opened starting at one end of the head of the polyp and brought across the opposite side to encompass the entire head. Serial snare resection using blended cautery current was performed down to the base of the lesion (ENDO CUT Effect 2; Erbe USA Inc, Marietta, GA). The mass was resected into 4 sections with final enucleation of the lesion from its base using jumbo forceps. Initial resection revealed lipomatous tissue with necrosis, and final pathology confirmed mature adipose tissue consistent with a lipoma. Prophylactic hemostatic clips were successfully placed across the EMR base to close the site without any periprocedural or postprocedural bleeding or perforation. The patient experienced complete resolution of symptoms after endoscopic removal.

Patient 2: A 46-year-old woman with a history of hypertension presented to the emergency department with 2 weeks of intermittent, crampy, periumbilical abdominal pain and 3 days of bright red blood per rectum. Complete blood counts and blood biochemistries were within normal range. CT scan revealed intussusception within the descending colon due to a polypoid fat-containing

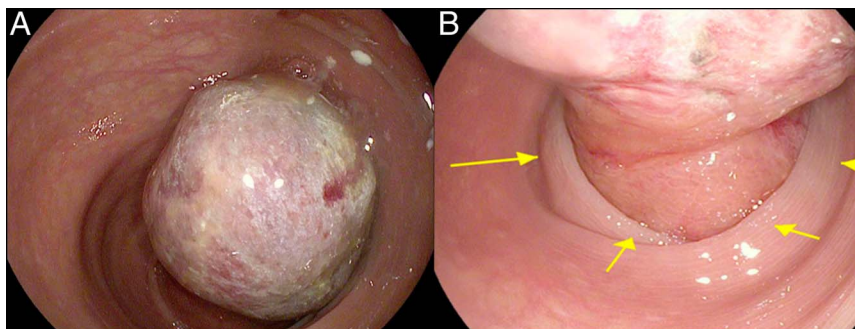


Figure 1. (A) The proximal end and (B) thick stalk (arrows) of a giant lipoma in the sigmoid colon causing intussusception.

lesion acting as a lead point (Figure 2). Colonoscopy was performed, which confirmed an 8-cm, broad-based, subepithelial mass with an overlying ulcer (Figure 3). Because of the size, en bloc EMR was not possible, and piecemeal resection was performed in a similar fashion as described above. Fat was noted within the mass consistent with the lipoma, which was later confirmed on pathology as mature adipose tissue (Figure 4). The patient's symptoms resolved after endoscopic resection. No adverse events occurred.

Patient 3: A 22-year-old woman was referred for colorectal surgery with complaints of intermittent, spontaneous expulsion of a mass per rectum for the past 7 years, often requiring manual reduction. The mass was described as soft, nonpainful, and intermittently bled. Physical examination included an unremarkable perianal and digital rectal examination. Complete blood count was normal. CT scan showed a fat density lesion in the rectosigmoid suspicious for a lipoma. Colonoscopy confirmed an 8-cm pedunculated lipoma with a long, floppy stalk in the sigmoid colon, which was observed to intermittently intussuscept the surrounding bowel. The base of the lesion was located at 25 cm from the anal verge, but the proximal end prolapsed down to the rectum (Figure 5). The lesion was carefully pushed back into the sigmoid colon near its origin using the colonoscope, and piecemeal EMR was performed

(Figure 6). Bisection revealed lipomatous tissue with pathology, later confirming mature adipose tissue. The lesion was resected to the base with placement of prophylactic hemostatic clips. No bleeding or perforation was observed. Endoscopic treatment achieved complete resolution of symptoms.

DISCUSSION

Colonic lipoma incidence ranges from 0.035% to 4.4% and represents 0.2%–26% of all benign tumors in the colon, making them the second most common benign neoplasm of the large bowel.^{1,3,4} Lipomas less than 2 cm tend to be asymptomatic; however, those larger than 2 cm cause a variety of symptoms including abdominal pain, diarrhea, bleeding, intussusception, and bowel obstruction.¹ Intussusception is relatively frequent in children; however, it is a rare clinical condition in adults, comprising 5% of all intussusception cases.⁵ Surgery is the definitive treatment for adult intussusceptions, given that up to 65% are due to malignancy.^{5,6} However, in the cases of colonic intussusception from a benign etiology, endoscopic management is an attractive alternative.

Traditionally, giant lipomas have also necessitated surgical removal, but recent advances in endoscopy have created a variety of



Figure 2. Computed tomography demonstrating intussusception in the descending colon with a classic “target” sign.

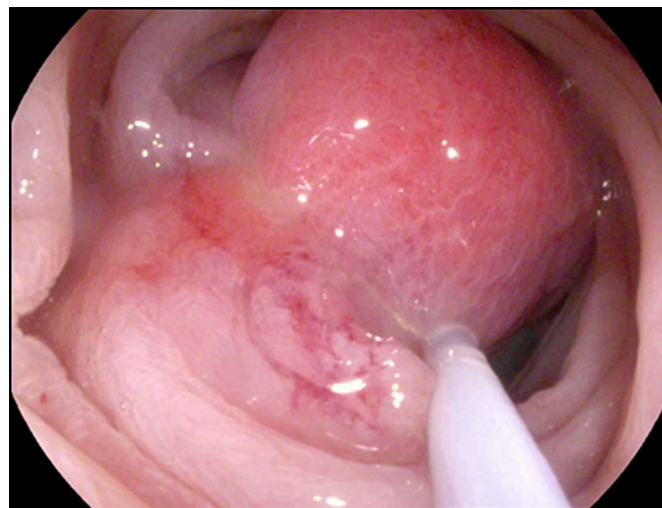


Figure 3. Lipoma causing intussusception.



Figure 4. Piecemeal resection revealing underlying adipose tissue.

techniques to remove lipomas effectively. Among these techniques, the most prevalent includes piecemeal EMR, as described in this case series, and endoscopic submucosal dissection (ESD), unroofing, and removal using an endoloop.⁷⁻⁹ Lorenzo et al provided instructional videos of each technique in the endoscopic management of gastrointestinal tract lipomas and suggest an algorithm.¹⁰ However, disagreement exists in the literature about which methods are both the safest and most effective because results have been contradictory with each technique appearing to have its limitations. EMR and ESD have demonstrated high rates of definitive resection; however, they are often purported to increase the risk of bleeding or perforation because of the poor electrical conductivity of adipose tissue.^{7,8} Given the benign nature of lipomas, the technical complexities and long procedure times to achieve a negative margin in ESD are unnecessary.^{11,12} Unroofing and removal using an endoloop are both often deemed safer to EMR and ESD; however, incomplete resection requiring additional subsequent EMR has been

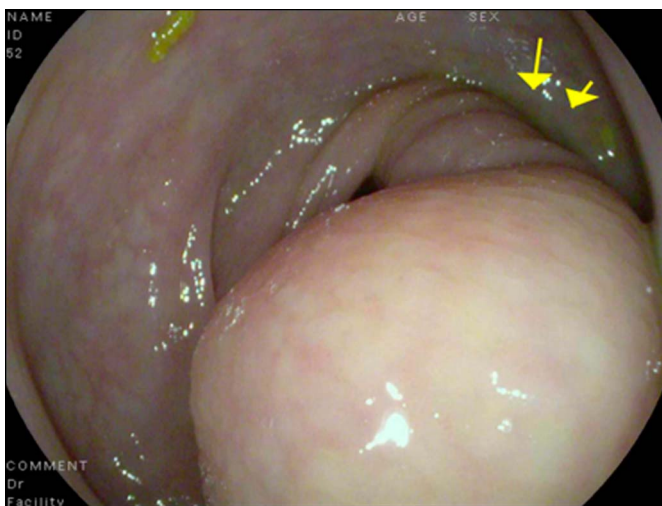


Figure 5. Large sigmoid lipoma with a long, floppy stalk (arrows).



Figure 6. Piecemeal endoscopic mucosal resection of a lipoma in the sigmoid colon.

reported.^{7-9,13} Notably, a vast majority of these studies have focused on lipomas smaller than 8 cm.

Our case series demonstrates complete, effective, and safe removal of massive lipomas (≥ 8 cm) causing intussusception via piecemeal EMR. No immediate or delayed adverse events nor recurrent symptoms were observed in the follow-up of over 1 year. Although other endoscopic techniques are known to be available, there is a lack of data supporting these alternatives when removing massive lipomas such as those found in this case series.^{9,12,14} Piecemeal EMR is a feasible alternative to surgery in treating intussusception caused by massive lipomas. Limitations of this series include small sample size; therefore, larger trials need to be conducted to further establish the safety and efficacy of piecemeal EMR for symptomatic, massive lipomas.

DISCLOSURES

Author contributions: Both authors wrote the manuscript. M. Schopis is the article guarantor.

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Informed consent was obtained for this case report.

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REFERENCES

- Geraci G, Pisello F, Arnone E, Sciuto A, Modica G, Sciumè C. Endoscopic resection of a large colonic lipoma: Case report and review of literature. *Case Rep Gastroenterol.* 2010;4(1):6-11.
- Bahadursingh AM, Robbins PL, Longo WE. Giant submucosal sigmoid colon lipoma. *Am J Surg.* 2003;186(1):81-2.
- Nebbia JF, Cucchi JM, Novellas S, Bertrand S, Chevallier P, Bruneton JN. Lipomas of the right colon: Report on six cases. *Clin Imaging.* 2007;31(6):390-3.
- Ryan J, Martin JE, Pollock DJ. Fatty tumours of the large intestine: A clinicopathological review of 13 cases. *Br J Surg.* 1989;76(8):793-6.

5. Begos DG, Sandor A, Modlin IM. The diagnosis and management of adult intussusception. *Am J Surg*. 1997;173(2):88–94.
6. Marinis A, Yiallourou A, Samanides L, et al. Intussusception of the bowel in adults: A review. *World J Gastroenterol*. 2009;15(4):407–11.
7. Lee KJ, Kim GH, Park DY, et al. Endoscopic resection of gastrointestinal lipomas: A single-center experience. *Surg Endosc*. 2014;28(1):185–92.
8. Matsushita M, Danbara N, Kawamata S, Omiya M, Okazaki K. Endoscopic removal of large colonic lipomas: Difficult submucosal dissection or easy snare unroofing? *Endoscopy*. 2009;41(5):475; author reply 475.
9. Raju GS, Gomez G. Endoloop ligation of a large colonic lipoma: A novel technique. *Gastrointest Endosc*. 2005;62(6):988–90.
10. Lorenzo D, Gonzalez JM, Benezech A, Barthet M. Endoscopic resection of giant GI lipoma: A case series. *VideoGIE*. 2016;1(2):43–6.
11. Wang J, Zhang XH, Ge J, Yang CM, Liu JY, Zhao SL. Endoscopic submucosal dissection vs endoscopic mucosal resection for colorectal tumors: A meta-analysis. *World J Gastroenterol*. 2014;20(25):8282–7.
12. Tanaka S, Oka S, Kaneko I, et al. Endoscopic submucosal dissection for colorectal neoplasia: Possibility of standardization. *Gastrointest Endosc*. 2007;66(1):100–7.
13. Tomiki Y, Niwa K, Nagayasu K, et al. Two patients with large colonic lipomas for which endoscopic unroofing was ineffective. *Case Rep Gastroenterol*. 2016;10(3):538–44.
14. Soares JB, Goncalves R, Rolanda C. Endoscopic resection of a large colonic lipoma by unroofing technique. *Endoscopy*. 2011;43(Suppl 2):E407.

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