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CASE REPORT

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Adult colorectal intussusception caused by giant lipoma—A case report

Vouchly Heng[1] | Suk-Kyu Oh[1] | Hour Leng[2] | Vireak Chhun[3] | Young Don Lee[2]

[1]Department of Education & Training, Hebron Medical Center, Phnom Penh, Cambodia

[2]Department of Surgery, Hebron Medical Center, Phnom Penh, Cambodia

[3]Department of Pathology, Hebron Medical Center, Phnom Penh, Cambodia

Correspondence
Young Don Lee, Department of Surgery, Hebron Medical Center, Phnom Penh 120913, Cambodia.
Email: peacemk54@gmail.com

Key Clinical Message

Adult intussusception commonly has a leading point. In the colon, malignancy is a prevalent etiology for the leading point; however, benign tumors should also be considered. We present a case of colorectal intussusception caused by a giant lipoma.

Abstract

Intussusception in adults is comparatively infrequent in contrast to children, and in adult colonic intussusception, malignancy is the predominant cause of the leading point. Lipoma, an uncommon tumor in the gastrointestinal tract, rarely induces colonic intussusception in adults. We present the case of a 55-year-old Cambodian man experiencing cramping abdominal pain. He presented with mild abdominal distension with tenderness in the lower abdomen. On the rectal examination a large palpable mass was detected three to four centimeters from the anal verge. Abdominal computerized tomography revealed a collapsed sigmoid colon with mesenteric fat invaginated into the lumen of the upper rectum. Emergency laparotomy was performed and during the surgery the sigmoid intussusception spontaneously reduced. A mass was identified in the mid-sigmoid colon, leading to the decision for segmental resection of the sigmoid colon with the mass and subsequent end-to-end anastomosis. Histological examination results confirmed the mass as a lipoma. Colorectal intussusception in adults due to a lipoma is a relatively rare, with only a few reported cases in the literature.

KEYWORDS

adult, colon, intussusception, lipoma

1 | INTRODUCTION

Intussusception is the invagination of a loop of the bowel into the lumen of a contiguous portion of the bowel as a result of peristalsis.[1] Intussusception in adults is relatively rare compared to this condition in children. The proportion of intussusception in adults is about 5% of all cases and this condition in adults accounts for approximately 1% of the cause of all bowel obstruction.[2] Intussusception can be classified according

Vouchly Heng and Suk-Kyu Oh contributed equally to this work.

to location: enteric, ileocolic, ileocecal, and colonic.[3] According to a review article, the most common type is enteric intussusception (49.5%) and colonic intussusception accounted for 19.9%. The most common etiology of pathologic leading point of colonic intussusception was malignancy. In contrast to pediatric intussusception which mainly show sausage-shaped abdominal mass and jelly stool, in adults, these symptoms are relatively infrequently. Instead, common manifestations in adults include abdominal pain, nausea, vomiting, and abdominal distension. Over 90% of adult patients with intussusception have undergone surgical treatment and recurrence rate is less than 10% and post-operative mortality rate is approximately 5%.[4]

Lipoma is a relatively uncommon tumor in the gastrointestinal tract and the most common site for lipoma in the gastrointestinal tract is the large intestine. Lipoma is known as the third most prevalent benign tumor of the colon after hyperplastic polyp and adenomatous polyp. The incidence of colonic lipoma is reported between 0.2% and 4.5%. Colonic intussusception in adults induced by giant lipoma is very rare.[5,6] We report a case of a 55-year-old man with colorectal intussusception due to a large lipoma in sigmoid colon.

2 | CASE HISTORY/EXAMINATION

A 55-year-old Cambodian man presented with intermittent cramping abdominal pain for 3 days. His bowel habit was changed, with increased frequency of passing small stool over 1 month. Three days prior to presentation of the abdominal pain, he had a small amount of bloody stool, and as then, no stool has passed and he experienced pain in the rectum. Subsequently he could not eat anything due to moderate to severe abdominal colic. He also complained of nausea, vomiting, abdominal distension, and constipation. He did not have a significant medical history and no abdominal surgery in the past. There was no significant family history or social history. He never underwent a colonoscopy before.

On physical examination, he was acutely ill-looking and afebrile with stable vital sign. He had mildly dehydrated tongue, positive skin turgor and mild abdominal

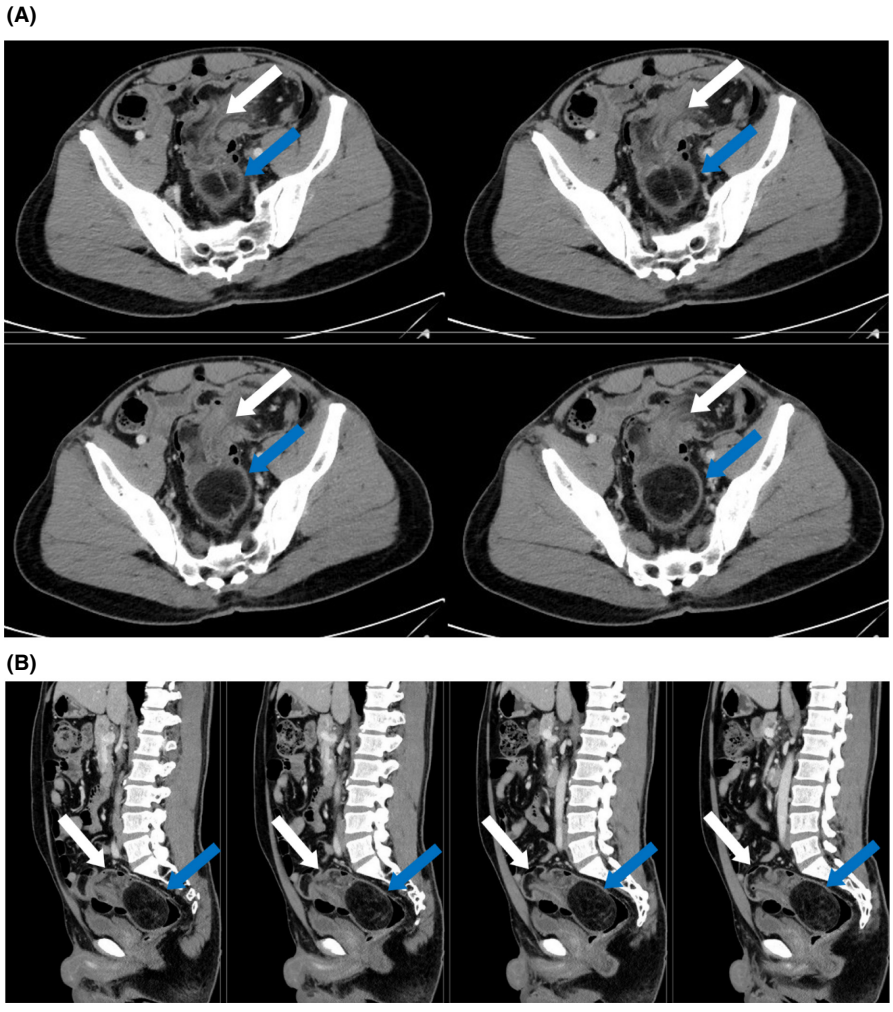

FIGURE 1 Intussusception of distal sigmoid colon (white arrow) leading by huge lipoma in the rectum (blue arrow) in the computed tomography scan (A) axial view, (B) sagittal view.

distension with tenderness on the lower abdomen without rebound tenderness or guarding. Digital rectal examination revealed a large palpable mass approximately three to four-centimeter from the anal verge. The mass was soft and round and had a smooth and regular border. The laboratory test was within the normal range without anemia.

3 | METHOD

Abdominal computerized tomography (CT) revealed a collapsed sigmoid colon (intussusceptum) with mesenteric fat invaginated into the lumen of the upper rectum (intussuscipiens). (Figure 1). The leading point was suspected to be a 50 mm-sized homogenous low-density mass in the rectum. In sigmoidoscopy, a 50 mm-sized round-shape smooth mass was found 60–70 mm proximal to the anal verge (Figure 2). From the second day of hospitalization, the abdominal pain progressively intensified, accompanied by tachycardia. Considering the possibility of intestinal obstruction or necrosis, emergent operation was decided.

Emergency laparotomy was performed under general anesthesia. During the laparotomy, the sigmoid intussusception was spontaneously reduced. The sigmoid was very redundant and there was a mass at mid-sigmoid colon. The mass occupied most of the sigmoid lumen, and the diameter was about 50 mm, and the length was about 100 mm. The distal sigmoid and rectum were markedly dilated and had an edematous wall. There was no mass at the rectum but the mesorectum was thickened. Moderate ascites was present in the pelvic cavity. No lymph node enlargement was observed. Segmental resection of the sigmoid colon with mass and end-to-end anastomosis was done. Additional lymph node dissection was not conducted because, during the process of confirming the mass during surgery, it clearly exhibited characteristics consistent with a lipoma (Figure 3).

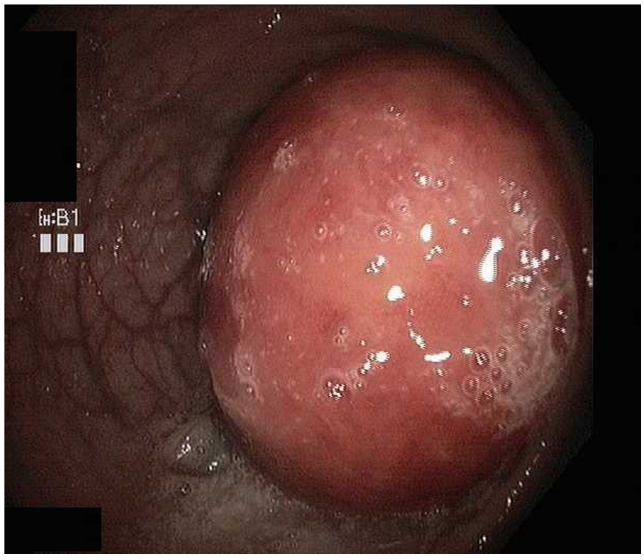

FIGURE 2 Huge lipoma with a smooth surface in sigmoidoscopy.

4 | CONCLUSION AND RESULTS

The gross findings of the specimen showed a well-circumscribed lipomatous mass with a size of 80 × 50 mm. The microscopic findings showed that the mass was consistent with lipoma which was encapsulated with normal lobular fat tissue containing unilocular adipocytes, separated by thin fibrous septa (Figure 4). Resected sigmoid colon size was 100 × 50 × 40 mm and colon mucosa showed unremarkable.

The patient recovered well after surgery and was discharged without any complications. No abnormal findings were observed during outpatient follow-up.

5 | DISCUSSION

We present this case for two main reasons. First, we underscore that colonic intussusception can be triggered by a benign mass, such as lipoma, despite the fact that most colonic intussusceptions are induced by malignancy. Second, we aim to spotlight the occurrence of intussusception in the colorectal lesion, the relatively distal part of the colon, induced by a large-sized lipoma in sigmoid colon.

Adult intussusception case is a rare condition compared to pediatric this condition constituting approximately 5% of all cases.[2] In pediatric intussusception, approximately 90% of cases lack definitive pathologic leading points. However, in adults, the majority of cases are secondary to pathological lesions within the bowel.[7] Intussusception could be classified according to location. In the past literature, intussusception was classified as enteric, ileocolic, ileocecal, and colonic,[3] and in a recent review article, it was analyzed by classifying into enteric, ileocolic, and colonic. Among them, the most common type was enteric intussusception (49.5%) and colonic intussusception is known to account for about 20%.

A meta-analysis of adult intussusception reveals that the most common etiology of intussusception is a benign tumor (37.4%) followed by a malignant tumor (32.9%) and idiopathic cause (15.1%).[4] However, when confined to the colonic intussusception, malignant tumor become the predominant etiology (46.5%), with primary adenocarcinoma representing 80% of these cases. We reviewed

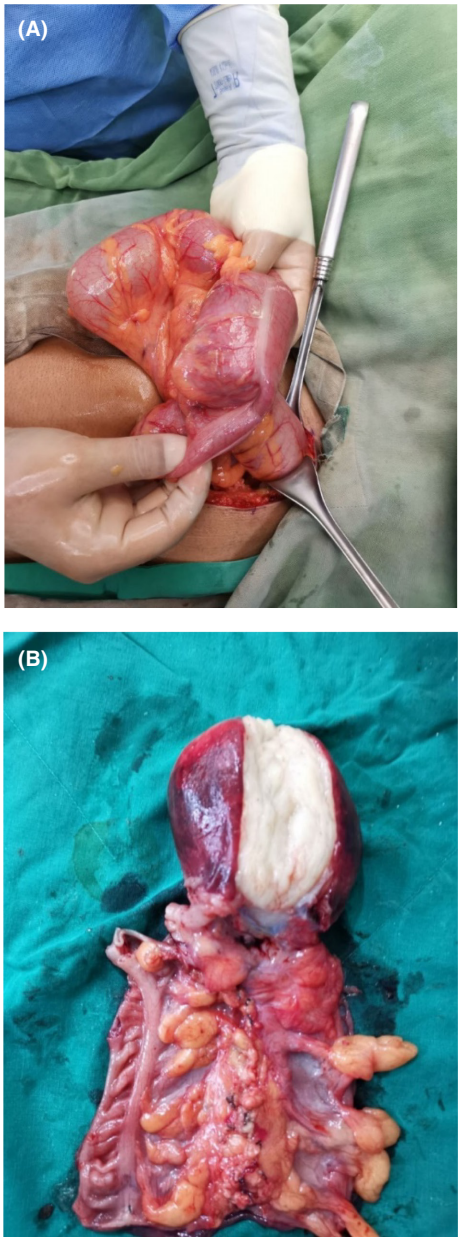

FIGURE 3 (A) The gross finding of intussusception during surgery (B) huge lipoma cut by mass.

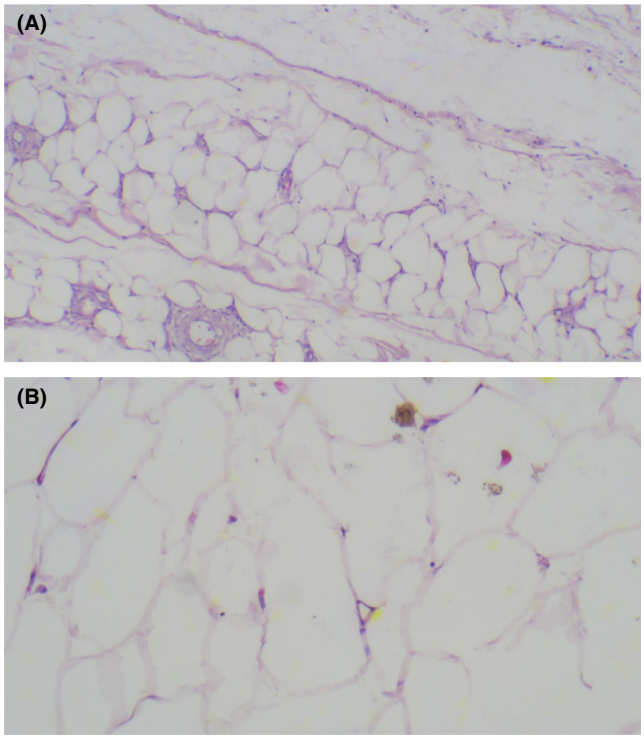

FIGURE 4 Microscopic pathologic of lipoma with lobulated adipose cell (hematoxylin and eosin [H&E] stain, magnification (A) ×100, (B) ×400.

the literature on intussusception with more than 10 cases until 2022 to investigate the etiology of colonic intussusception (Table 1).[7–34] Most common etiology of pathologic leading point in colonic intussusception was a malignant tumor (53.8%) followed by benign tumor (28.7%) and inflammation/infection (11.7%), and idiopathic (5.8%). Among benign tumor, lipomas (15%) are the most common, followed by adenoma or adenomatous polyp (9%) and leiomyoma (2%).

Colonic lipoma is a rare benign tumor with incidence ranging between 0.2% and 4.4%.[6] Colonic lipoma is mostly asymptomatic and often does not require treatment.[35] Only 25% of colonic lipoma patients develop symptoms, however, when lipoma size is bigger, it could cause symptoms in 75% of patients.[36,37] Large lipoma bigger than 3.5 cm could cause symptoms such as abdominal pain, constipation, diarrhea, rectal bleeding, or intussusception.[38] Colonic lipoma is more common in women, regardless of symptoms.[39] Lipoma-induced colonic intussusception, is also more prevalent in women (57% vs. 47%).[40]

Most colonic lipomas are small and occur mainly in the right side colon including the cecum and the ascending colon.[38] However, according to a review article, the colonic lipoma causing colonic intussusception was localized more frequently at the transverse colon (28%), followed by the sigmoid (20%), and the cecum (19%). This finding suggests that the anatomical distribution of large-sized lipomas that could cause intussusception may differ from the total lipoma distribution known as the right dominant. In an analysis of lipoma-induced intussusception cases, the average size of lipoma was 59.81 × 47.84 × 38.90 mm, and the range was between 15 × 15 × 15 mm and 160 × 110 × 100 mm. In our cases, the size of the lipoma was around 50 mm × 80 mm, bigger than the average size of the previous study.

Common symptoms of colonic intussusception include abdominal pain (83%), constipation (18%) and rectal bleeding (16%), while physical examination findings may include tenderness (37%) and distention (16%).[40]

TABLE 1 The etiology of colonic intussusception according to literature review.

					Etiology of colonic intussusception							
					Malignant tumor			Benign tumor				
Year	Author	Country	Total no.	Colonic no. (%)	Adenocarcinoma	Lymphoma	Etc.	Adenoma/polyp	Lipoma	Etc.	Inflammation/infection	Idiopathic
1981	Coleman[8]	Australia, UK	17	6 (35%)	6							
1997	Begos[7]	USA	13	2 (15%)	1						1	
1999	Eisen[9]	USA	27	5 (19%)	4						1	
2003	Omori[10]	Japan	11	3 (27%)	2					1 (Cecal submucosal tumor)		
2005	Erkan[11]	Turkey	13	2 (15%)	1				1			
2006	Balik[12]	Turkey	18	4 (22%)				1	2			1
2006	Zubaidi[13]	Canada	22	6 (27%)	1	1			1		1	2
2007	Palanivelu[14]	India	14	7 (50%)	2			2	1	2 (Leiomyoma)		
2007	Wang[15]	Taiwan	24	3 (13%)	3							
2009	Wang[16]	China	41	9 (22%)	3			3	2		1	
2010	Ghaderi[17]	Iran	15	1 (7%)					1			
2010	Guillen[18]	Spain	14	2 (14%)	2							
2010	Hanan[19]	Brazil	16	5 (31%)	3			1	1			
2013	Gomes[20]	Portugal	16	2 (13%)				1			1	
2014	Mostafa[21]	Egypt, Saudi Arabia	14	1 (7%)	1							
2014	Kim[22]	Korea	33	12 (36%)	7	1	1 (Metastatic carcinoma)		2		1	
2015	Honjo[23]	Japan	44	10 (23%)	9				1			
2015	Ozogul[24]	Turkey	31	4 (13%)					2		1	1
2016	De Clerck[25]	Belgium	43	12 (28%)	4	1	1 (Melanoma)	3	1		1	1
2017	Shenoy[26]	USA	11	1 (9%)	1							
2018	Kim[27]	Korea	77	13 (17%)	8			1	1		3	
2019	Balogun[28]	Nigeria	20	5 (25%)		1			1			3
2020	Siow[29]	Malaysia	37	23 (62%)	18	3		1			1	
2020	Su[30]	China	139	69 (50%)	30	5		7	9	3 (Teratoma, vascular tumor, lymphangioma)	15	
2020	Kang[34]	Korea	71	10 (14%)	3				4	2 (Leiomyoma, mucocele)	1	
2021	Tarchouli[32]	Morocco	26	2 (8%)	1				1			
2021	Kim[33]	Korea	28	16 (57%)	2		1 (Appendix mucinous neoplasm)	2	3	2 (Leiomyoma, Neurofibroma)		6
2021	Ayyanar[31]	India	15	5 (33%)		1	1 (Dendritic cell sarcoma)		3			
			850	240 (28%)	112 (47%)	13 (5%)	4 (2%)	22 (9%)	37 (15%)	10 (4%)	28 (12%)	14 (6%)

Our case also presented with these symptoms and physical findings; however, these symptoms and findings are non-specific and vague, thus, patients need further investigation. Computed tomography (CT) is the most common diagnostic tool with a sensitivity of 71%–87%, and a specificity of up to 100% to detect intussusception.[41,42] However, identifying the pathologic leading point poses a challenge. Magnetic resonance image (MRI), colonoscopy, and barium study are used to find the etiology of colonic intussusception and more than 70% of patients underwent two or more investigations to find the etiology of colonic intussusception caused by a lipoma.[40]

Diagnosing and determining the etiology of adult intussusception before surgery remains uncertain. In addition, in adults, the most common etiology of colonic intussusception is malignancy. Therefore, the principle of treatment in colonic intussusception is surgical resection.[38,43] In our case, there is a mass suspected to be leading point of intussusception on both CT and sigmoidoscopy. During surgery, a large mass in mid-sigmoid colon was discovered leading to a segmental resection of the sigmoid colon with mass and end-to-end anastomosis. In a review article, around 90% of colonic intussusception with lipoma was treated with surgery and only 10% were treated by endoscopic polypectomy.[40] In the surgery of colonic intussusception, there is still debate on the reduction of this condition before bowel resection.[44] Although conservative treatment with reduction could preserve the bowel, some doctors suggested surgical bowel resection without reduction, because the most common etiology of colonic intussusception is malignancy and there is a risk of spreading of malignant cells during reduction.[2,45]

Most adult intussusception has a pathologic leading point. In the colon, malignancy is a common cause of leading point, however, benign tumors should also be considered as a cause. In our case, colorectal intussusception was diagnosed in the CT scan and during the surgery the leading point was identified with giant lipoma in the sigmoid colon. Colorectal intussusception in adults caused by a lipoma is relatively rare, with only a few documented cases in the medical literature.

AUTHOR CONTRIBUTIONS

Vouchly Heng: Formal analysis; project administration; writing – review and editing. **Suk-Kyu Oh:** Investigation; writing – original draft. **Hour Leng:** Investigation; supervision. **Vireak Chhun:** Investigation; methodology. **Young Don Lee:** Conceptualization; project administration; resources; writing – review and editing.

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Nothing to declare.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no competing interests.

DATA AVAILABILITY STATEMENT

Data sharing not applicable–no new data generated.

ETHICS STATEMENT

The study was approved by the National Ethics Committee for Health Research (NECHR), Ministry of Health of Cambodia. (No. 251 in 2023).

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

ORCID

Vouchly Heng https://orcid.org/0009-0003-4773-8504
Suk-Kyu Oh https://orcid.org/0000-0002-9875-8658

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