



Ann Ital Chir, Digital Edition 2020, 9  
pii: S2239253X20032296 - Epub, March 3  
free reading: www.annitalchir.com

# Giant pedunculated colonic lipoma causing colo-colic intussusception in a patient with mechanical ileus

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## Giant pedunculated colonic lipoma causing colo-colic intussusception in a patient with mechanical ileus

*A giant colonic lipoma causing colo-colonic intussusception is extremely rare in adults.*

*A 35-year-old woman visited our emergency room with abdominal pain, abdominal distension, nausea and vomiting. Physical examination showed a painful distended abdomen. Abdominal computed tomography revealed that there was a soft-tissue mass with a fat density of approximately 6 cm in diameter in the distal part of the transverse colon. Since the clinical presentation was that of a mechanical ileus, a laparotomy was performed. An intussusception was detected in the transvers colon. A soft and mobile mass was palpated in the transverse colon. Therefore, an extended right hemicolectomy with ileo-transversostomy was performed. Pathological examination revealed a giant pedunculated lipoma of 7 cm in diameter with no evidence of malignancy.*

*Colonic lipomas are the third most common benign pathology seen in the colon. They are more common in women with a peak incidence between 50 and 60 years of age. The most common site of lipomas in the large bowel is the right hemicolon. Colonic lipomas are usually asymptomatic but may cause bleeding, obstruction, intussusception, or abdominal pain. Colonic lipoma causing colo-colic intussusception is extremely rare in the current literature. Surgical approach remains the treatment of choice for giant colonic lipomas.*

*A colonic lipoma causing colo-colic intussusception should be considered in the differential diagnosis of mechanical bowel obstruction. The most important factor for establishing the diagnosis of intussusception caused by a colonic lipoma is awareness of the possibility, especially in adult patients with abdominal symptoms and episodes of intestinal obstruction.*

KEY WORDS: Colon, Lipoma, Colonic lipoma, Intussusception, Intestinal obstruction, Ileus

### Introduction

Intussusception of the bowel is defined as the telescoping of a proximal segment of the gastrointestinal tract within the distal segment. Intussusception was reported for the first time in 1674 by Barbette of Amsterdam. Intussusception, or 'introsusception' as it was named then, was later detailed in 1789 by John Hunter <sup>1</sup>. In 1871,

Sir Jonathan Hutchinson was the first to successfully operate on a child with intussusceptions <sup>2</sup>.

Intussusception is more common in children than adults <sup>3</sup>, and accounts for approximately 1% of all adult intestinal obstructions. Most of the intussusceptions occur in the ileo-cecal valve or small intestine. Colo-colic intussusception accounts for approximately 17% of all cases <sup>4</sup>.

Lipomas of the large bowel were initially described by Bauer in 1757 <sup>5,6</sup>, although it was not until 1909 that Stetten emphasized that they can clinically mimic colonic carcinoma <sup>7</sup>. Lipomas in the gastrointestinal tract are still relatively rare, however, being present in only 0.2% of a large autopsy series of 60,000 cases reported in 1955 <sup>8</sup>. Colonic lipomas are the third most common benign pathology seen in the colon after hyperplastic and adenomatous polyps. The incidence of colonic lipomas varies between 0.2% and 4.4% <sup>9</sup>. They are usually seen in

Pervenuto in Redazione Gennaio 2020. Accettato per la pubblicazione Febbraio 2020

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older women and located in the cecum or right colon<sup>10</sup>. Most of the small-sized colonic lipomas are asymptomatic. However, symptoms such as abdominal pain, anemia, bleeding, constipation, diarrhea or obstruction usually occur in lipomas larger than 2 cm. Lipoma causing colo-colic intussusception is extremely rare in the current literature.

In this case report, we aimed to present a case of colo-colic intussusception due to giant pedunculated colonic lipoma causing mechanical bowel obstruction, which was treated successfully with an extended right hemicolectomy.

## CASE PRESENTATION

A 35-year-old female presented to our emergency department with abdominal pain, abdominal distension, nausea and vomiting. She had a five-month history of constipation. She denied recent weight loss. She had no previous abdominal surgery. Her past medical history and family history were unremarkable. She was not taking any medication.

During the initial physical examination, she had a painful distended abdomen. Rebound tenderness was elicited upon palpation. A digital rectal examination revealed no stool, mass or blood. She was normothermic. White blood cell count was  $12,0 \times 10^3/\mu\text{L}$ . There were multiple air-fluid levels on the upright abdominal X-ray. Abdominal contrast-enhanced computed tomography (CT) images revealed that there was a soft-tissue tumor with a fat density of about 6 cm in diameter in the transverse colon near the splenic flexure. In this area, an intussuscepted colonic segment was seen (Fig. 1), and cecum was markedly dilated.

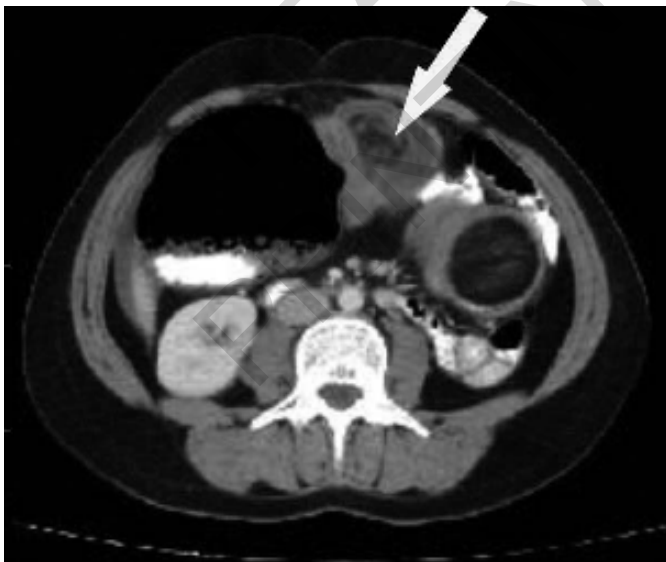


Fig. 1: Abdominal CT scan showed a soft-tissue tumor with a fat density of about 6 cm in diameter in the distal part of the transverse colon, and in this area, an intussuscepted colonic segment was detected (white arrow).

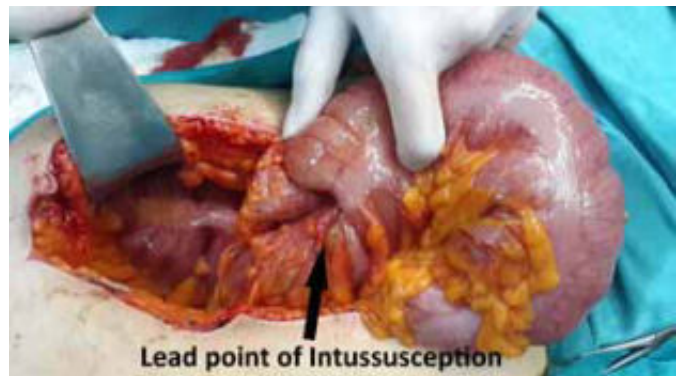


Fig. 2: Operative image of the transverse colonic segment showing the lead point of intussusception.



Fig. 3: Operative image of the transverse colonic segment showing the contour of intraluminal mass.



Fig. 4: Operative image showing the giant pedunculated colonic lipoma on opening the large bowel.

Patient underwent an emergent median laparotomy because of mechanical bowel obstruction. During the operation, an obstruction caused by intussusception of the transverse colon near the splenic flexure was observed (Fig. 2). A soft and mobile mass was palpated in the transverse colon after pulling out the telescoping segment of large bowel with gentle constant traction (Fig. 3). Then a colotomy was performed to investigate the mass and there was a pedunculated soft-tissue mass of approxima-

tely 6-7 cm in diameter within the lumen of transverse colon (Fig. 4). Hepatic flexure of the colon, ascending colon and terminal ileum were all markedly dilated. Therefore, an extended right hemicolectomy with ileo-transversostomy was performed. Oral fluid intake was started on the postoperative day 3, and the patient was discharged on the fifth postoperative day without any complication. Pathological examination of the resected specimen revealed that the soft-tissue tumor causing colo-colic intussusception was a giant pedunculated lipoma of 7 cm in diameter with no evidence of malignancy. Postoperative colonoscopy showed no further abnormalities.

## Discussion

Intussusception of the gastrointestinal tract may be in the form of entero-enteric, colo-colonic, ileo-cecal or ileo-colic. The etiology of intussusception in children is mostly benign diseases. In children, clinical symptoms usually regress with medical treatment. In contrast, approximately 90% of cases with adult intussusception have an underlying pathology that requires a surgical intervention. These pathologies may be due to mucosal or submucosal lesions. Unfortunately, malignancy is the most common etiology in adults<sup>11</sup>. However, lipoma causing intussusception of the colon is quite rare as presented in this article.

Colonic lipomas are benign well-differentiated tumors arising from adipose tissue in the bowel wall<sup>12</sup>. Malignant transformation has never been reported although some lipomas have atypical pseudosarcomatous features<sup>13</sup>. Moreover, recurrence of a colonic lipoma after surgical treatment has not been documented so far. They are the third most prevalent benign tumor of the large bowel, after hyperplastic and adenomatous polyps<sup>14</sup>. They are more common in women with a peak incidence between 50 and 60 years of age. However, our patient was a 35-year-old female in childbearing age. The most common site of lipomas in the large bowel is the right hemicolon<sup>15</sup>. Sixty one percent of lipomas are seen in the right colon, 20.1% in the left colon, 15.5% in the transverse colon, and 3.4% in the rectum<sup>12</sup>. The colonic lipoma was located in the distal part of the transverse colon in our case. The size of lipomas described in the literature ranges from 2 mm to 30 cm. Colonic lipomas become symptomatic when their diameter exceeds 3 cm<sup>16</sup>. Lipomas larger than 4 cm are considered giant and produce symptoms in 75% of cases<sup>17</sup>. In our patient, pathological examination revealed that the mass within the transverse colon was a giant pedunculated lipoma of 7 cm in diameter with no evidence of malignancy. The symptoms of large lipomas are mainly due to mechanical interference with the colonic passage caused by acute or intermittent colo-colic intussusceptions or to lower gastrointestinal bleeding due to

ulceration of the mucosa covering the lipoma<sup>18,19</sup>. Our patient underwent an emergent median laparotomy because of mechanical ileus. During the operation, an obstruction caused by intussusception of the distal part of the transverse colon was observed. Grasso and Guastella reported a case of 54-year-old woman with a giant submucosal lipoma, 6 cm in diameter, of the descending colon causing colo-colonic intussusception, which was managed with a left hemicolectomy with end-to-end anastomosis<sup>20</sup>.

Diagnosis of a colonic lipoma in the preoperative stage is quite difficult because of the lack of specific symptoms and physical signs. Plain abdominal X-ray is typically the first diagnostic tool. Ultrasonographic examination may be useful in diagnosis. The classical imaging features in ultrasonography are "target sign" or "pseudo-kidney sign"<sup>21</sup>. Abdominal contrast-enhanced CT is the most effective radiological method in the diagnosis of intussusception. A CT scan may define the location, the nature of the mass, its relationship with surrounding tissues, and it may also help staging the patient with suspected malignancy causing the intussusception<sup>3</sup>. In the preoperative abdominal CT scan, we saw a soft-tissue mass in the distal part of the transverse colon and detected an image consistent with intussusception in this region. Colonoscopy may be helpful in the diagnosis of colonic intussusception. Colonic lipoma can be diagnosed during colonoscopy based on appearance and eliciting the "cushion" or "pillow sign" and "naked fat sign"<sup>22,23</sup>. Endoscopic cautery snare resection of colonic lipomas > 2 cm is discouraged due to the increased risk of colonic perforation. However, removal of colonic lipomas < 2 cm by endoscopic snare cautery may be performed, but there is always a risk of either bleeding or perforation<sup>23</sup>. On the other hand, colonoscopic biopsy is not recommended in patients with suspected colonic lipoma because the lesion is covered with normal colonic mucosa<sup>24</sup>. In addition, the procedure can be difficult and does not always rule out malignancy.

Surgical treatment has been the first choice in the adult intussusception. The reason for this is the frequent occurrence of malignancy in the etiology of adult intussusception<sup>11</sup>. For this reason, a resection of the involved bowel segment with an anastomosis by using oncological principles are important in the ileo-cecal, ileo-colic or colo-colic intussusceptions, especially in patients over 60 years of age<sup>24,25</sup>. Furthermore, surgical intervention is the treatment of choice for symptomatic large colonic lipomas<sup>9,26</sup>. Colotomy with lipomectomy and limited colonic resection are considered an adequate treatment modality for certain colonic lipomas diagnosed preoperatively<sup>26</sup>. However, a segmental colonic resection, right or left hemicolectomy, or even subtotal colectomy may be necessary in patients when diagnosis is questionable or when a complication occurs<sup>9,26,27</sup>. Surgical enucleation of a colonic lipoma should only be reserved for uncomplicated cases with a confirmed preo-

perative diagnosis. We performed an extended right hemicolectomy with ileo-transversostomy to treat our patient's mechanical ileus because we thought that the mass in the transverse colon would be harbouring carcinoma. Laparoscopic or open methods can be preferred in the surgical treatment of colonic lipomas. Feo *et al.* reported a case of a 50-year-old man who was successfully treated with laparoscopic approach for his colocolic intussusception secondary to a lipomatous polyp of the splenic flexure<sup>28</sup>. However, laparoscopic procedures are difficult in patients with advanced mechanical bowel obstruction<sup>29</sup>.

## Conclusion

In conclusion, it should be noted that a colonic lipoma causing colo-colic intussusception, although very rare, should be considered in the differential diagnosis of mechanical bowel obstruction. The most important factor for establishing the diagnosis of intussusception caused by a colonic lipoma is awareness of the possibility, especially in adult patients with abdominal symptoms and prior episodes of partial intestinal obstruction. Colonic lipomas are usually asymptomatic but may cause bleeding, obstruction, intussusception, or abdominal pain. Correct preoperative diagnosis is very difficult, and a colonic lipoma is often mistaken for adenomatous polyp or carcinoma. Abdominal contrast-enhanced CT should be examination of choice in the preoperative radiological evaluation. Surgical resection is the first choice in the treatment of adult intussusception, because benign and malignant distinction of etiology is not correctly established with available diagnostic tools. Furthermore, surgical approach remains the treatment of choice for giant colonic lipomas, and the type of procedure depends on the correct preoperative diagnosis, size and localization of tumor, as well as presence of complications.

## Riassunto

Un lipoma colico gigante che causa intussuscezione colocolica è estremamente raro negli adulti. Una donna di 35 anni ha visitato il nostro pronto soccorso con dolore addominale, distensione addominale, nausea e vomito. L'esame obiettivo mostrava un addome doloroso e disteso. La tomografia computerizzata addominale ha rivelato che c'era una massa di tessuto molle con una densità grassa di circa 6 cm di diametro nella parte distale del colon trasverso. Poiché la presentazione clinica era quella di un ileo meccanico, è stata eseguita una laparotomia. È stata rilevata un'intussuscezione nel colon trasverso. Una massa molle e mobile è stata palpata nel colon trasverso. Pertanto, è stata eseguita un'emicolectomia destra estesa con ileo-transverso-

stomia. L'esame patologico ha rivelato un lipoma peduncolato gigante di 7 cm di diametro senza evidenza di malignità.

I lipomi del colon sono la terza patologia benigna più comune osservata nel colon. Sono più comuni nelle donne con un'incidenza di picco tra i 50 e i 60 anni. Il sito più comune di lipomi nell'intestino crasso è l'emicolone destro. I lipomi del colon sono generalmente asintomatici ma possono causare sanguinamento, ostruzione, intussuscezione o dolore addominale. Il lipoma del colon che causa intussuscezione colico-colica è estremamente raro nella letteratura attuale. L'approccio chirurgico rimane il trattamento di scelta per i lipomi del colon giganti.

Un lipoma del colon che causa intussuscezione colico-colica deve essere considerato nella diagnosi differenziale dell'ostruzione meccanica dell'intestino. Il fattore più importante per stabilire la diagnosi di intussuscezione causata da un lipoma del colon è la consapevolezza della possibilità, soprattutto nei pazienti adulti con sintomi addominali ed episodi di ostruzione intestinale.

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