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Case Report
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A Case of Giant Lipoma of the Transverse Colon with Intussusception Treated Successfully by Laparoscopic Surgery

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Summary

Lipoma of the transverse colon with intussusception is a rare disease. We report our experience of a case of lipoma of the transverse colon with intussusception that was successfully treated by laparoscopic surgery. The case was an 81-year-old woman who consulted a local clinic with a chief complaint of abdominal pain. The patient was referred to our department because abdominal CT scan revealed intussusception of the transverse colon. A fist-sized abdominal mass was found along with corresponding tenderness in her left upper abdominal area to the periumbilical area. The patient was diagnosed with intussusception caused by transverse colon tumor and was planned to undergo surgery. Intussusception associated with tumor was observed in the middle of the transverse colon. However, since the mobility in the abdominal cavity was favorable, partial resection of the transverse colon was performed through small laparotomy. The resection specimen showed a semi pedunculated submucosal tumor 9 × 6 cm in size. Histopathologically, the patient was diagnosed with adipose tumor outgrown with mature adipocytes in varied sizes.

Key Words: lipoma of the transverse colon, intussusception, laparoscopic surgery

Introduction

Colonic lipoma is rare disease that accounts for about 3%¹⁾ of the causes of benign gastrointestinal tumor surgery. Most of them are asymptomatic, but as the tumor grows, gastrointestinal symptoms and intussusception occur, requiring endoscopic or surgical treatment. In addition, it is even more rare for trans-

verse colon lipomas to cause intussusception. In recent years, laparoscopic surgery has been used increasingly for gastrointestinal diseases. However, in case of intussusception, laparotomy is often chosen as it may need emergency surgery. We report a case of our experience of laparoscopic surgical resection of lipoma of the transverse colon with intussusception that was diagnosed after presenting abdominal pain and vomiting.

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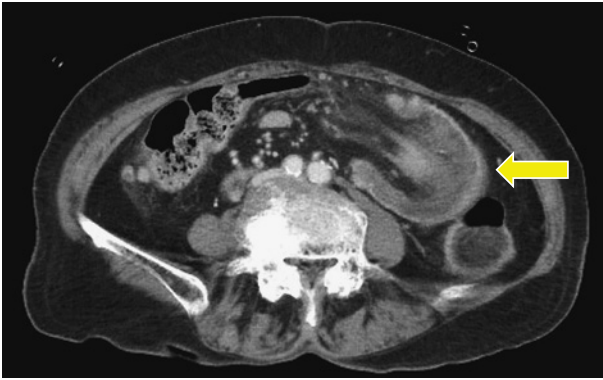


Figure 1 Abdominal contrast CT scan intussusception with the transverse colon tumor was observed as the presenting part, while the fatty tissue concentration around the tumor was elevated.

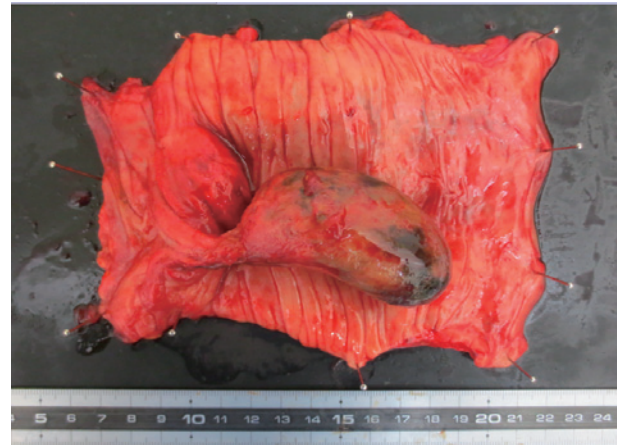


Figure 3 A pedunculated submucosal tumor of 90 × 60 mm in diameter was found

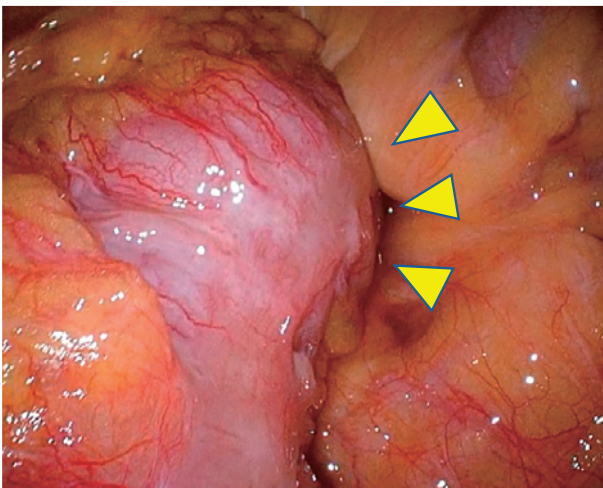


Figure 2 The intussuscepted part was found in the middle of the transverse colon. No adhesion to or infiltration of the surrounding organs was observed, so the mobility of the lesion was favorable.

Case Report

The patient was an 81-year-old woman. Chief complaints: abdominal pain and vomiting. Present illness: she visited the previous hospital because of abdominal pain and vomiting that had been lasting for four days before then. She was referred to our hospital on the day when they performed abdominal contrast CT scan and found that she had a tumor in the transverse colon with intussusception. Findings on admission: height, 140.2 cm; weight, 40.6 kg; blood pressure, 120/62 mmHg; pulse rate, 72/min; body temperature, 36.4

°C. A fist-sized mass was palpable in the left upper abdominal area to the periumbilical area. Tenderness was noted from the left upper abdominal area to the periumbilical area, indicating that localized peritonitis was present. However, no obvious peritoneal irritation symptoms were observed. Blood and biochemical findings on admission: an elevation of inflammatory response was found in the WBC count (14,600/ μ l) and CRP level (14.6). No other abnormalities in biochemical test results was observed. No abnormalities were observed in tumor markers (CEA/CA19-9). Abdominal contrast CT scan (Fig. 1): intussusception with the transverse colon tumor was observed as the presenting part, while the fatty tissue concentration around the tumor was elevated. No obvious signs of intestinal ischemia and ascites were observed. Based on these findings, the patient was diagnosed with intussusception associated with transverse colon tumor and was scheduled to undergo surgery. Laparoscopic surgery was chosen because it was minimally invasive and also diagnosis and treatment were possible. Surgical findings (Fig. 2): A small laparotomy was made at the umbilical area, and a 12-mm port was placed to start pneumoperitoneum. No ascites was observed in the abdominal cavity. Two 5-mm ports were placed in the right upper and lower abdomen without causing any adhesion. The intussuscepted part was found in the middle of the transverse colon. No adhesion to or infiltration of the surrounding organs was observed, so the mobility of the lesion was favorable. The umbilical incision was extended, and the lesion was pulled out from

the wound to perform a partial resection of the transverse colon. Surgical time was 93 minutes, and the blood loss volume was 52 g. Gross image of the resected specimen (Fig. 3): A semi pedunculated submucosal tumor of 90 × 60 mm in diameter was found. Histopathological findings (Fig. 4): the patient was diagnosed with lipoma due to the proliferation of mature adipocytes of varying size in the large intestine and

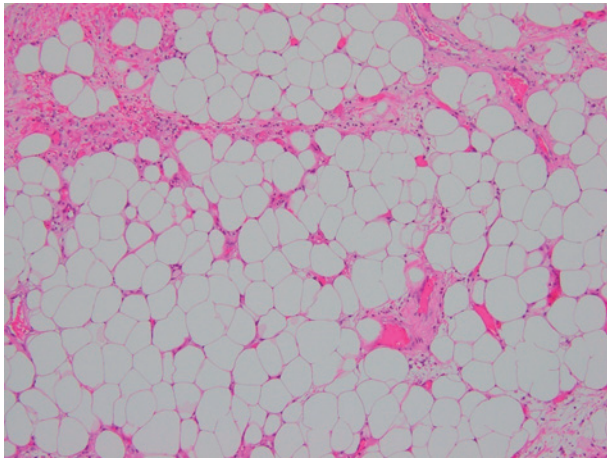


Figure 4 The patient was diagnosed with lipoma due to the proliferation of mature adipocytes of varying size in the large intestine and the clear margination with the surrounding stromal tissues (HE × 100).

the clear margination with the surrounding stromal tissues. No malignant findings were observed. Postoperative course: The patient followed an uneventful course without developing any complications and was discharged on the 14th day. No recurrence has been observed in the past 12 months after surgery.

Discussion

We experienced a case of giant lipoma of the transverse colon with intussusception that was surgically resected using a laparoscope. Lipoma is a benign tumor that causes localized growth of mature adipose tissue. Mayo et al. reported that it accounted for about 4% of benign tumors of the gastrointestinal tract and that the incidence in the large intestine was highest at 64% in the entire gastrointestinal tract¹⁾. In Japan, it is found mostly in women in their 40s to 60s especially frequent in the right side of the colon²⁾. In addition, it is even more rare for transverse colon lipomas to cause intussusception. This time, the author searched into the Central Journal of Medicine and PubMed issued between 2000 and 2020 with key words “lipoma of the transverse colon”, “intussusception”, and “laparoscopic surgery”, and found five case reports³⁻⁷⁾ (Table 1). A total of six cases including our experience were examined. The ages of the patients (3 men and 3 women)

Table 1 An example of laparoscopic surgery for lipoma of the transverse colon.

Authors	Sex	Age	Maximum tumor diameter (mm)	Symptoms	Method of diagnosis	Preoperative intussusception	Emergency	Procedure	Malignancy
2014 S-J kwag et al. ³⁾	Woman	54	60	Severe Abdominal pain	CT	Yes	Yes	Right hemicolectomy	No
2015 Takehara et al. ⁴⁾	Man	53	110	Abdominal pain	CT, MRI	Not described	No	Tumor resection	No
2015 Tomoda et al. ⁵⁾	Man	28	60	Abdominal pain	CT	No	No	Left hemicolectomy, D2 dissection	No
2019 Yano et al. ⁶⁾	Woman	47	73	Abdominal pain	CT	No	No	Tumor resection	No
2020 Y.Y.Law et al. ⁷⁾	Man	54	95	Abdominal pain	CT	Yes	No	Right hemicolectomy	No
Our case	Woman	81	90	Abdominal pain	CT	Yes	Yes	Partial resection of transverse colon	No

ranged from 28 to 81 years with a mean of 52.8 years. Since all patients presented with abdominal pain, abdominal CT scan was used for all cases. Only three cases (33%), including our case, were diagnosed with intussusception on preoperative examination. The diameter of the tumors was 63.3 mm (60 to 110 mm) on average, and in all cases, it was 40 mm or longer, which increased the incidence of intussusception. No evidence of malignancy was found in all cases on histopathological evaluation. Most of the patients were asymptomatic, but as the tumor grew, symptoms such as abdominal pain and abnormal bowel movement were present^{3,7}. Colonic lipoma is highly mobile on the wall of the intestine because it takes the form of pedunculated or semi pedunculated submucosal tumor, which is why it is considered that the incidence of intussusception increases as the tumor diameter increases. The incidence of intussusception increases dramatically when the tumor diameter is 4 cm or longer. Particularly, it is 80% when the tumor diameter is 6 cm or longer and 100% when 7 cm or longer^{8,9}. In our case, the diameter was 9 cm and intussusception were inevitable.

As preoperative diagnosis of intussusception is difficult, patients with asymptomatic or spontaneously reduced intussusception are often diagnosed with submucosal tumor by contrast enema or colonoscopy. The pillow sign and the cushion sign caused by forceps pressure are uniquely observed by colonoscopy, and tissue biopsy rarely leads to a definitive diagnosis. In addition, CT scan shows the layered structure, such as the target sign and the multiple concentric ring sign, in the intussuscepted part, which is often captured as an image of the intrusion of the oral mesentery into the inside of the intestine. It is relatively easy to make a diagnosis when the CT value of the tumor is consistent with adipose tissue. Differentiation from liposarcoma is important. Since the incidence of liposarcoma is very low and internally homogenous density is seen in the lipoma on CT scan, differentiation is possible. This case was accompanied by colorectal obstruction, and tenderness was severe and localized peritonitis was present, so emergency surgery was selected. In general, intussusception in adults is relatively rare and is most often caused by malignant tumors¹⁰. Lipoma complicated with colorectal cancer can be rarely diag-

nosed by clinical symptoms such as intussusception because the tumor size is usually smaller than that of a case with lipoma alone (less than 3 cm). Therefore, in most cases the coexistence of lipoma is discovered by chance during the treatment of colorectal cancer, so the causal relationship between these two cases is weak¹¹⁻¹⁴. Endoscopic resection is indicated if the tumor diameter is between 2.5 cm and 3 cm, and surgical resection is indicated if it is 3 cm or longer^{9,15}. Furthermore, whether or not reduction should be performed prior to intestinal resection remains to be discussed. Since in our case not only the tumor diameter was large but also the inflammatory findings were observed around the intussusception area, reduction was impossible anyway. The reasons why it should not be reduced can be explained by the risk of hematogenous spillage of tumor cells and intestinal necrotic materials in malignant cases, and the high possibility of injuring the necrotic intestine presenting with impaired intestinal blood circulation¹⁶. Laparoscopic surgery for lipoma of the transverse colon presenting with intussusception was considered useful for giant tumors with intussusception, as its magnified view effect can confirm the location of the tumor, the degree of inflammation in the surrounding area, and the mobility of the tumor in the abdominal cavity. The criteria for laparoscopic surgery for transverse colon lipoma with intussusception are those with generalized peritonitis findings due to perforation of the tumor and the spread of inflammation to other organs. It is also widely used because of its advantages such as shorter hospital stay as well as excellent cosmetic appearance achieved by minimal invasion and minimal skin incision. In our case, laparoscopic surgery was useful in terms of minimally invasive diagnosis and treatment.

Conclusion

Laparoscopic surgery was useful for lipoma of the transverse colon with intussusception because it allows for minimally invasive diagnosis and treatment. We believe that in the future it is important to perform laparoscopic surgery actively to pursue further minimization of invasiveness and ensure its safety.

Ethical Statement

This study followed the Declaration of Helsinki on

medical protocol and participants signed an informed consent agreement.

Conflict of interest

All authors declare they have no conflict of interest.

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