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Large colonic lipoma with a laterally spreading tumor treated by endoscopic submucosal dissection: A case report

Jun Yong Bae, Hun Kyu Kim, Yee Jin Kim, Se Woong Kim, Youngeun Lee, Chang Beom Ryu, Moon Sung Lee

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Abstract

BACKGROUND

Since fat does not transmit electrical energy well, delayed perforation and post-polypectomy syndrome due to electrical thermal injury are concerns in the endoscopic removal of colonic lipoma. The endoscopic submucosal dissection (ESD) technique concentrates electrical energy conducts to the submucosa, not the adipose tissue. This helps to minimize electrical thermal injury, especially in the case of large colonic lipomas. In rare cases, such as colonic lipomas accompanied by mucosal lesions, it is difficult for endoscopists to decide how to safely remove them.

CASE SUMMARY

A 78-year-old man underwent colonoscopy for colorectal cancer screening. During colonoscopy, a yellowish submucosal tumor with positive cushion sign was observed in the ascending colon measuring about 4.5 cm. A nodular mucosal lesion of about 2.5 cm was observed on the mucosal surface of the lipoma. The lipoma was so large that it occupied much of the inside of the colon, making it difficult to see the entire laterally spreading tumor (LST) at once. The LST was confined to the surface of the lipoma, which had a semipedunculated shape with a wide neck. The margin of the LST was not observed at the neck of the lipoma. ESD was performed and the colonic lipoma with the LST was successfully removed without complications. After 3 d of hospitalization, the patient was discharged without any symptoms. The final pathology report showed that the lesion consisted of submucosal lipoma and tubulovillous adenoma with low-grade dysplasia.

CONCLUSION

ESD is effective and safe for treating a large colonic lipoma with an LST by minimizing electrical thermal injury.

Key Words: Colonic lipoma; Endoscopic submucosal dissection; Laterally spreading tumor; Tubulovillous adenoma; Electrical injury; Case report

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Core Tip: Most colonic lipomas are asymptomatic and do not require removal. Mucosal lesions of colorectal lipomas are rarely observed, but removal is necessary if there is a precancerous mucosal lesion such as tubular adenoma or tubulovillous adenoma. Due to the poor electrical conductivity of fat, excessive electrical energy during the endoscopic removal can cause complications. Endoscopic submucosal dissection is a preferred technique to minimize electrical thermal injury, especially for large colonic lipomas with a mucosal lesion.

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INTRODUCTION

Colon cancer has the 3rd incidence and 2nd mortality rate in the overall population in a report on 36 cancers in 185 countries in 2020[1]. In Republic of Korea, colorectal cancer ranks 4th in incidence among all malignancies in the overall population, 3rd in males and 3rd in females, for both genders[2]. The fecal occult blood test is performed as a national screening program for colorectal cancer in Republic of Korea. In addition, the cases of colonoscopy have increased as well for the resection of colon polyps for more active prevention[3]. The increase in colonoscopy has led to the discovery of colon polyps in various forms and situations. This has challenged endoscopists as to whether to select and apply an appropriate endoscopic technique for polyp removal. Therefore, the authors report a rare case of treatment of a large colonic lipoma with a laterally spreading tumor (LST) and describe a safe and appropriate treatment strategy for it.

CASE PRESENTATION

Chief complaints

A 78-year-old man underwent colonoscopy for colorectal cancer screening.

History of present illness

The patient did not have any gastrointestinal symptoms or signs prior to colonoscopy.

History of past illness

The patient was diagnosed with a stroke 10 years ago.

Personal and family history

The patient denied any family medical history.

Physical examination

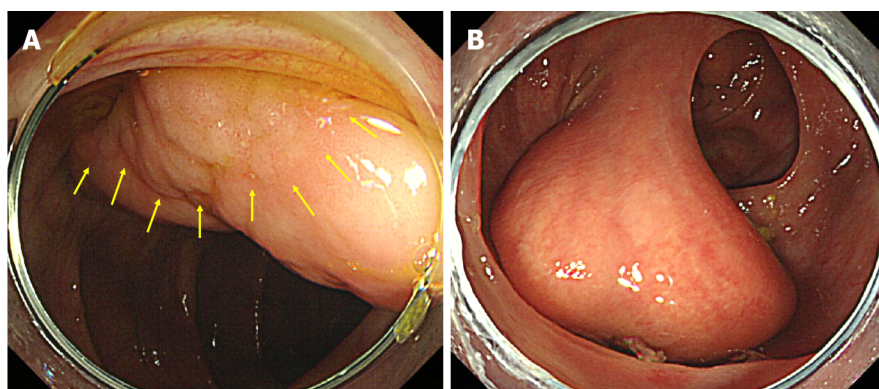
The patient had no abnormalities in physical examination.

Laboratory examinations

The patient had no abnormalities in blood and urine tests.

Imaging examinations

During colonoscopy, a yellowish submucosal tumor with positive cushion sign was observed in the ascending colon measuring about 4.5 cm. A nodular mucosal lesion measuring about 2.5 cm consisting of small nodules less than 3 mm in size was observed on the mucosal surface of the lipoma. Therefore, this lesion was diagnosed as a colonic lipoma with an LST of granular homogenous type. The LST was confined to the surface of the lipoma and the lipoma had a semipedunculated shape with a wide neck (Figure 1). A biopsy was performed and a tubular adenoma was diagnosed. The lipoma was so large that it occupied much of the inside of the colon, making it difficult to see the entire LST at once. It



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Figure 1 Colonoscopic images. A: Colonic lipoma with a laterally spreading tumor (LST) of granular type. The margin of the LST was observed along the yellow arrow. It was difficult to observe the overall margin of the LST because the LST was pressed against the lipoma; B: When the patient's posture was changed to the supine position, LST invasion was not observed in the neck of the lipoma.

was considered difficult to remove using conventional endoscopic mucosal resection (EMR), and it seemed difficult to use an endoloop. But, the margin of the LST was not observed at the neck of the lipoma.

FINAL DIAGNOSIS

The diagnosis of the lesion was a large colonic lipoma with an LST of granular homogenous type.

TREATMENT

Endoscopic submucosal dissection (ESD) was planned to remove the lipoma with the LST. ESD was performed (procedure by Bae JY) using an HQ290 scope (Olympus, Tokyo, Japan), dual knife (Olympus, Tokyo, Japan), and IT nano knife (Olympus, Tokyo, Japan). As a submucosal injection solution, normal saline was mixed with indigo carmine dye. The patient's posture was changed to the supine position during the procedure so that the lipoma was pulled in the direction of gravity and the neck of lipoma was well exposed. Complete closure was performed using six hemoclips to prevent delayed bleeding or perforation after the ESD procedure (Figure 2). The total procedure time was about 1 h.

OUTCOME AND FOLLOW-UP

After 3 d of hospitalization, the patient was discharged without any symptoms. Final pathology report showed that the lesion consisted of submucosal lipoma and tubulovillous adenoma with low-grade dysplasia (Figure 3).

DISCUSSION

Colonic lipomas are discovered incidentally during abdominal ultrasound, abdominal computed tomography, or colonoscopy. Colonic lipoma shows a variable incidence of about 0.2% to 4.4% [4]. About 90% of colonic lipomas are located in the submucosal layer, showing a peduncle or sessile shape, and about 10% are located in the subserosal layer [4, 5]. Symptomatic colonic lipomas are mainly related to size, and have been reported to vary in size from 0.35 cm to 10.00 cm, but are more likely to be symptomatic if they are larger than 2 cm [5]. There has been no established treatment method so far, and treatment is performed through endoscopic resection or surgical resection depending on the condition of the patient and lesion.

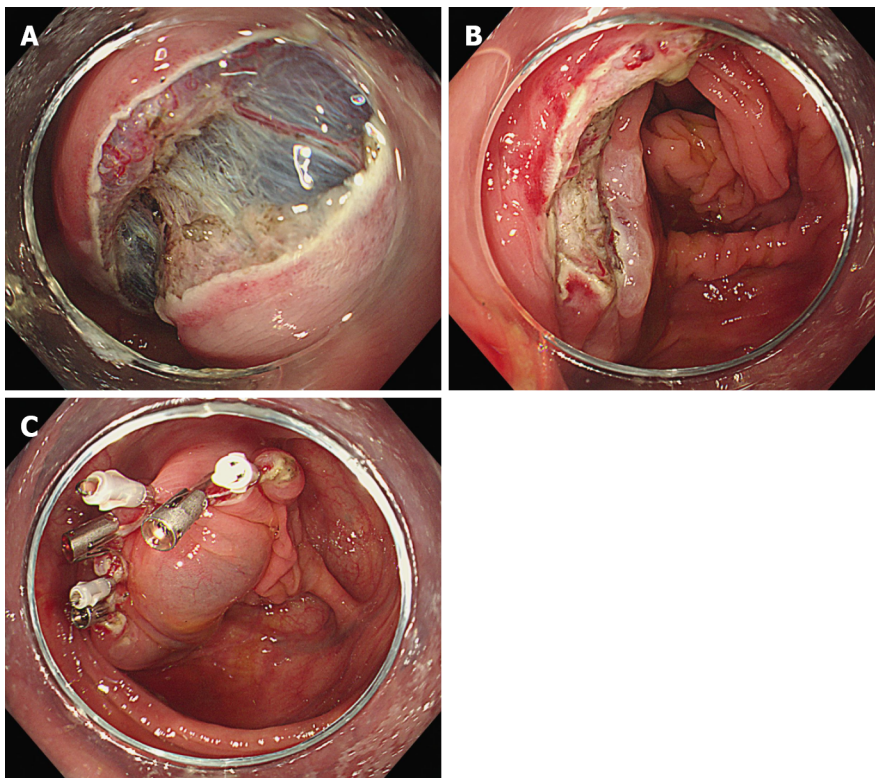
Colonic lipoma is mostly asymptomatic, but can sometimes be associated with complications. Reported complications included hemorrhage [6], obstruction [7], perforation [8], and intussusception [9]. All of these complications are caused by secondary colon damage to mechanical injury of the colonic lipoma. If the colonic lipoma is very large (more than 2 cm) or the patient's symptoms and vital signs are unstable, surgical treatment should be considered first. However, due to the development of endoscopic techniques, endoscopic resection has been attempted in various colonic lipomas.

As the number of colonoscopies is increasing, there are rare reports of lesions found in the mucosa of colonic lipomas. Hyperplastic epithelium [10,11], tubular adenoma [12,13], and tubulovillous adenoma [14] have been reported on the mucosal surface of colonic lipoma (Table 1). In resection of these lesions, it is essential to minimize electrical thermal injury that may occur during removal of lipoma and to obtain a negative resection margin of mucosal lesion.

Table 1 Reported cases of colonic lipoma with a mucosal lesion

Ref.	Sex/age	Location	Symptom/sign	Size of lipoma	Type of mucosal lesion	Size of mucosal lesion	Treatment
Yeom <i>et al</i> [10], 2013	F/68	Ascending colon	None	9 mm	Hyperplastic and serrated epithelium	9 mm	EMR
Radhi <i>et al</i> [11], 1997	M/45	Sigmoid colon	Abdominal pain, hematochezia/diverticulitis, perforation	Not mentioned (estimated about 35 mm from the figure in the article)	Hyperplastic and serrated epithelium	Not mentioned	Surgery
Chu <i>et al</i> [12], 2009	F/52	Ascending colon	None	30 mm	Tubular adenoma	20 mm	EMR with endoloop
Nguyen <i>et al</i> [13], 2021	M/71	Hepatic flexure	None	Not mentioned (estimated about 33 mm from the figure in the article)	Tubular adenoma	20 mm	EMR with 2 hemoclips
Moschetta <i>et al</i> [14], 2018	M/49	Transverse colon	Abdominal pain	35 mm	Tubulovillous adenoma	Not mentioned	Surgery

EMR: Endoscopic mucosal resection.

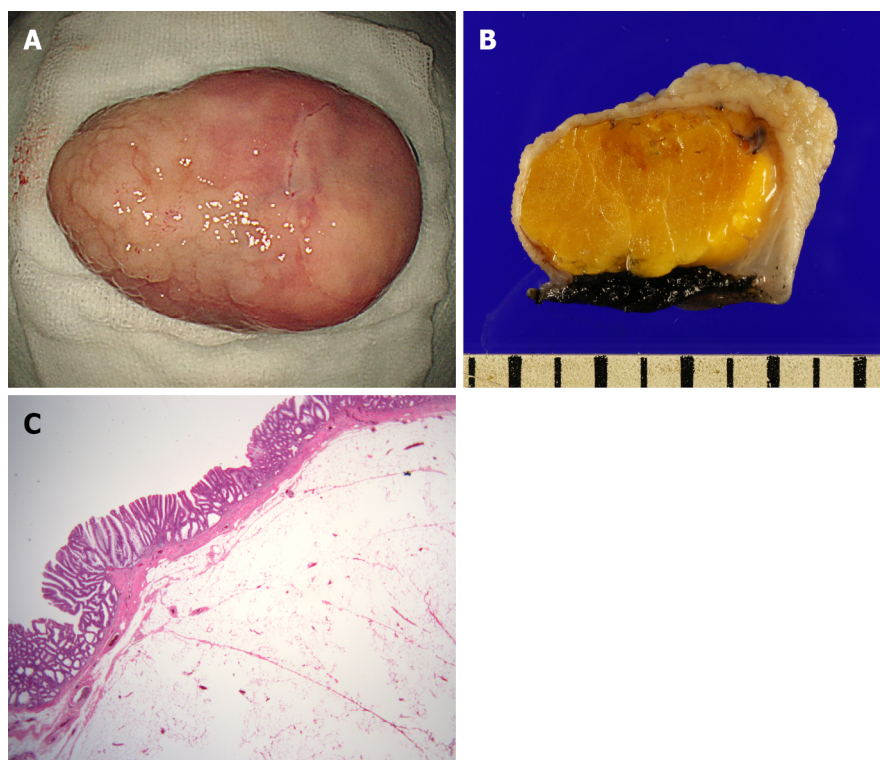


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Figure 2 Endoscopic submucosal dissection. A: Dissection was attempted through the submucosa rather than through the lipoma; B: No remaining lipoma was observed on the endoscopic submucosal dissection bed; C: Complete closure with hemoclips.

In general, the EMR technique can be applied for endoscopic removal of colonic lipoma. Since colonic lipomas often have a relatively wide base and have the characteristic of fat that does not conduct electrical energy well, the conventional EMR technique may have the risk of perforation or delayed perforation[15,16]. Therefore, an endoloop before procedure [12,17] or hemoclippping[7] after procedure may be helpful in the case of EMR. In order to avoid deep tissue damage or post-polypectomy syndrome, it may be better to avoid excessive coagulation and use a blended or pure cut[12]. Because removal of colonic lipomas using the EMR technique has these risks, there have been a report of removal using partial resection of the lipoma[18].

The ESD technique has also been reported to be used for endoscopic removal of colonic lipomas[19]. During ESD of colonic lipoma, electrical energy is concentrated only between the knife and the tissue and electrical energy is conducted to the submucosal layer, not the adipose tissue, so thermal injury can be minimized. In addition, the ESD technique has



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Figure 3 Pathologic findings. A: Macroscopically, a yellow lipoma was observed in the submucosa and a laterally spreading tumor was observed on the mucosal surface; B: The black color at the bottom of the lipoma was not a burnt area due to electrical thermal injury, but a stain indicated the border of the bottom for pathological evaluation; C: Microscopically, the mucosal lesion on the surface of the lipoma showed tubulovillous adenoma with low-grade dysplasia (H&E staining, magnification $\times 12.5$).

the advantage of being able to remove larger lesion than the EMR technique. In the case of colonic lipoma with a mucosal neoplasm, it is important to obtain a negative resection margin of the mucosal neoplasm. Compared to the EMR technique, the ESD technique can be performed by directly observing the marginal involvement of mucosal lesions, especially in large colonic lipomas.

CONCLUSION

It is thought that the ESD technique may be more helpful for endoscopic resection than the EMR technique in order to reduce tissue electrical thermal injury and obtain a negative resection margin in large colonic lipomas with a mucosal lesion.

FOOTNOTES

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