Pseudoinvasion in an Adenomatous Polyp of the Colon Mimicking Invasive Colon Cancer

Tae Jun Byun*, Dong Soo Han*, Sang Bong Ahn*, Hyun Seok Cho*, Chang Soo Eun*, Yong Cheol Jeon*, Joo Hyun Sohn*, and Young-Ha Oh†
Departments of *Gastroenterology and †Pathology, Hanyang University College of Medicine, Guri Hospital, Guri, Korea

Pseudoinvasion or pseudocarcinomatous invasion in an adenomatous polyp of the colon can be unfamiliar to an endoscopist. Pseudoinvasion in an adenomatous polyp represents prolapse of the adenomatous epithelium into its stalk. In most cases its morphology does not differ from that of general adenomatous polyps, but in some cases it can morphologically mimic a malignant polyp with submucosal invasion due to mass-like lesioning of its stalk. This makes it difficult for endoscopists to differentiate pseudoinvasion in an adenoma from an invasive carcinoma by conventional endoscopy; instead, endoscopic ultrasonography can provide useful information for differentiating these conditions. We report on an 82-year-old man who presented with a large pedunculated polyp with a thick stalk in the sigmoid colon, which mimicked a submucosal invasive carcinoma. The patient was diagnosed with pseudoinvasion in an adenomatous polyp after segmental resection of the sigmoid colon. (Gut and Liver 2009;3:130-133)

Key Words: Pseudoinvasion; Adenomatous polyps; Malignant polyp; EUS

INTRODUCTION

Benign entities associated with mucosal prolapse that may mimic invasive adenocarcinoma of colon are less common and may be an unfamiliar lesion to endoscopists. Among benign lesions, pseudoinvasion in an adenomatous polyp represents prolapse of the adenomatous epithelium into its stalk. Most pseudoinvasion in an adenomatous polyp is diagnosed pathologically after endoscopic polypectomy of colonic adenomas, especially pedunculated polyps. However, mass-like pseudoinvasion of the stalk in an adenomatous polyp, which is composed of large mucus-filled cyst, is relatively rare. In this type of lesion, although EUS may provide useful information, it is still difficult to distinguish a benign polyp with pseudoinvasion from a malignant polyp with submucosal invasion by endoscopy; therefore, endoscopic removal is not recommended.

We report an unusual case of a very large pedunculated polyp with thickened stalk that mimicked a malignant polyp with submucosal invasion.

CASE REPORT

An 82-year-old man was referred to our clinic because of a sigmoid mass suspicious of a malignancy. He had a medical history of hypertension and asthma. He had been suffering from constipation. At colonoscopy there were multiple colon polyps from the ascending colon to the sigmoid colon. Endoscopic polypectomies were performed. In the sigmoid colon, there was a large (2.5 cm in diameter) pedunculated polyp (Fig. 1A) with a thick, bulging stalk (Fig. 1B). When pushed down with biopsy forcep, the consistency of the mass was solid and movable (Fig. 1C).

In abdominal CT, there was a 3 cm sized intraluminal polypoid mass in the sigmoid colon without any evidence of pericolonic infiltration or significant lymphadenopathy. Because of the thick, bulging stalk, EUS was performed to rule out malignant submucosal invasion in the stalk. Endosonographically, the bulging stalk was consisted of a hypoechoic structure with small hyperechoic areas in the submucosa which was thought to represent blood or muci-
Fig. 1. Colonoscopy findings. A large (~2.5 cm) pedunculated polyp evident in the sigmoid colon (A) had a thick, bulging stalk (B) that was both solid and movable (C).

cin in a cystic space (Fig. 2). This finding was somewhat different from a malignant submucosal invasion. However, segmental resection of the sigmoid colon was performed because it was difficult to exclude malignancy, especially invasive mucinous carcinoma by using endosonographical findings alone.

Gross examination revealed an intraluminal pedunculated polyp with bulbously thickened stalk, measuring 3.0×2.5×1.5 cm (Fig. 3A). On coronal section, a round, firm, submucosal, cystic lesion, measuring 2.5×1.5×1.5 cm was also noted in its stalk (Fig. 3B). Microscopically upper portion of the polyp revealed a villous adenoma with moderate epithelial atypia. It also revealed a submucosal large cystic lesion filled with abundant mucin in its stalk. The cyst was surrounded by fibrous granulation tissue and partially separated by irregular fibrous septa. Despite of careful examination of cyst, no lining epithelial cell was present. There were patchy inflammatory cell infiltration and hemosiderin deposition mainly in its fibrous wall and interlacing septa. Between adenoma and cystic lesion, there was focal aggregation of adenomatous glands showing luminal dilatation. Some of them were filled with mucin and showed focal denudation of lining epithelium associated with inflammatory infiltrations (Fig. 4).

The patient was finally diagnosed with pseudoinvasion in adenomatous polyp after segmental resection of the sigmoid colon.
DISCUSSION

As one type of mucinous lesion of the colon and rectum, pseudoinvasion or pseudo-carcinomatous invasion
represents prolapse of adenomatous glands into its stalk.\textsuperscript{1,6,7} It is known that most pseudoinvasion in ad-

enomatous polyps occurs in pedunculated polyps located
in the sigmoid colon.\textsuperscript{2,6,8} In 1973, the ‘pseudoinvasion’
was first term to describe these lesions.\textsuperscript{6} Pseudoinvasion
in adenomatous polyps is commonly reported in the
literature.\textsuperscript{2,6} Past studies employed histopathologic analy-
sis of polyps retrieved from patients who underwent colon-

oscopic polypectomies. Although several reports identi-
fied cystic changes in the stalk of the colonic adenoma,
the cyst size was small.\textsuperscript{2,8} Very large cyst confirmed by
surgical operation like our case is rare.\textsuperscript{3}

The most likely mechanisms that displace glands into
the submucosa of the stalk are repeated twisting of the
stalk, ischemia, or prior biopsy. These glands may be-
come dilated with mucin, even rupturing into the stalk,
mimicking an invasive carcinoma that can arise inside an
adenoma.\textsuperscript{1,2,6}

Distinguishing a colonic adenomatous polyp with pseu-
doinvasion into its stalk from invasive carcinoma arising
within the adenomatous polyp is an important problem
irrespective of lesion size, especially in light of current

 treatment modalities.\textsuperscript{1} Currently, there are no definite en-
doscopic or clinical methods to differentiate between the
two lesions; diagnosis depends on pathologic findings.\textsuperscript{8} In
pseudoinvasion, the displaced glands are cytologically
similar to the overlying adenoma and are often admixed
with nonadenomatous glands. The glands of pseudoinva-
sion are rounded, and are surrounded by a rim of normal
lamina propria. In addition, desmoplastic responses are
absent, and hemosiderin is usually present in the lamina
propria. Finally, the adenomatous epithelium typically re-
mains at the periphery of the mucinous pool instead of
floating within it. These features are in contrast with
those of an invasive mucinous adenocarcinoma.\textsuperscript{1,2,6-9}

In spite of the many characteristics unique to pseu-
doinvasion, various pathologic methods are employed be-

cause it still remains difficult for clinician to differentiate
between manifestations of pseudoinvasion and micro-invasive tumors.8,9

From the viewpoint of recent development of endoscopic technology, EUS may be helpful to discriminate between pseudoinvasion and malignant submucosal invasion because it can elucidate cystic changes, which are prominent features of pseudoinvasion. Further research on this problem is called for and encouraged.

In conclusion, our case of a large pedunculated polyp exemplifies the difficulty inherent in distinguishing between pseudoinvasion and invasive carcinoma, even with endoscopic and morphologic examination. However, EUS has been shown to help in differentiating these manifestations. Accordingly, it is necessary for clinicians to be aware of pseudoinvasion in adenomatous polyps and to recognize its histopathologic characteristics. In order to confirm the practical usefulness of EUS, further studies are needed. Also, there is a real and current need for development of new endoscopic modalities, techniques and equipment to aid in distinguishing these lesions. The recognition and differentiation of these lesions may prevent unnecessary surgical treatment and false reports.

REFERENCES

1. Molavi D, Argani P. Distinguishing benign dissecting mucin (stromal mucin pools) from invasive mucinous carcinoma. Adv Anat Pathol 2008;15:1-17.
2. Qizilbash AH, Meghji M, Castelli M. Pseudocarcinomatous invasion in adenomas of the colon and rectum. Dis Colon Rectum 1980;23:529-535.
3. Sadamoto Y, Tanaka M, Ito K, et al. Colonic adenoma with pseudocarcinomatous invasion. Gastrointest Endosc 2003;57:722.
4. Rembacken BJ, Gotoda T, Fuji T, Axon AT. Endoscopic mucosal resection. Endoscopy 2001;33:709-718.
5. Davila RE, Rajan E, Adler D, et al. ASGE guideline: the role of endoscopy in the diagnosis, staging, and management of colorectal cancer. Gastrointest Endosc 2005;61:1-7.
6. Muto T, Bussey HJ, Morson BC. Pseudo-carcinomatous invasion in adenomatous polyp of the colon and rectum. J Clin Pathol 1973;26:25-31.
7. Greene FL. Epithelial misplacement in adenomatous polyps of the colon and rectum. Cancer 1974;33:206-217.
8. Yantiss RK, Bosenberg MW, Antonioli DA, Odze RD. Utility of MMP-1, p53, E-cadherin, and collagen IV immunohistochemical stains in the differential diagnosis of adenomas with misplaced epithelium versus adenomas with invasive adenocarcinoma. Am J Surg Pathol 2002;26:206-215.
9. Tanizawa T, Seki T, Nakano M, Kamiyama R. Pseudoinvasion of the colorectal polypoid tumors: serial section study of problematic cases. Pathol Int 2003;53:584-590.