Single Case

A Diminutive T1 Cancer 4 mm in Size Resected by Cold Snare Polypectomy

Naohisa Yoshida^a Yuji Naito^a Takaaki Murakami^a Kiyoshi Ogiso^a
Ryohei Hirose^a Yutaka Inada^a Mitsuo Kishimoto^b Rafiz Abdul Rani^c
Yoshito Itoh^a

^aDepartment of Molecular Gastroenterology and Hepatology, Graduate School of Medical Science, Kyoto Prefectural University of Medicine, Kyoto, Japan; ^bDepartment of Surgical Pathology, Graduate School of Medical Science, Kyoto Prefectural University of Medicine, Kyoto, Japan; ^cGastroenterology Unit, Faculty of Medicine, Universiti Teknologi MARA, Shah Alam, Malaysia

Keywords

T1 cancer · Cold snare polypectomy · Diminutive polyp · Colorectal cancer

Abstract

Cold snare polypectomy (CSP) should be performed for benign lesions, though an accurate diagnosis is sometimes difficult with only white light observation. Irregular findings by narrow-band imaging (NBI) are useful for differentiating malignant lesions from benign lesions, and cases with this finding are not expected for CSP. We present a diminutive T1 cancer resected by CSP as a reflection case. A 68-year-old man underwent colonoscopy for surveillance after polypectomy. A reddish polyp 4 mm in size was detected at the rectum. White light observation showed no depression, but a slight, heterogeneous color change. NBI magnification showed irregular vessel and surface patterns. The polyp was diagnosed as intramucosal cancer. Even though cancerous lesions are regularly resected by endoscopic mucosal resection (EMR), this polyp was resected by CSP in daycare surgery because the patient requested not to be treated by EMR but by CSP, which needed an admission to our institution. The surgeon thought the polyp could be completely resected by CSP. It was thoroughly resected, and a histological examination showed submucosal cancer with a positive vertical margin. Additional surgical resection was not accepted by the patient, since he had received total gastrectomy for gastric cancer and a right hemicolectomy for colonic cancer in the past

7 years. He underwent follow-up colonoscopy 2 months after the CSP. Although there were no recurrent endoscopic findings, endoscopic submucosal dissection was performed to the scar area. The histological examination showed no residual tumor. In conclusion, CSP should only be adopted for benign cases, as cancerous lesions have a possibility for invading the submucosa, like in our case.

© 2018 The Author(s)
Published by S. Karger AG, Basel

Introduction

The National Polyp Study (NPS) revealed that colorectal cancer can be prevented by colonoscopic removal of adenomatous polyps, with the long-term effect of polypectomy suggesting a 53% reduction in mortality from colorectal cancer [1]. Thus, we resect all polyps including small ones with various methods such as endoscopic submucosal dissection, endoscopic mucosal resection (EMR), standard polypectomy, and cold snare polypectomy (CSP). In general, CSP is performed for benign polyps <10 mm in diameter without a high-frequency device or submucosal injection. It is associated with a low risk of postoperative complications even for patients receiving anticoagulants [2]. Furthermore, the procedural time is significantly shorter with CSP than with standard polypectomy.

The indication for CSP is limited to only benign polyps because CSP is unable to resect through sufficient margins of the lesions, which inadvertently leads to difficulties with histological evaluation. A study showed that 67% of resected specimens were inadequate for the assessment of lateral margins [3]. Thus, with specific indications, an accurate diagnosis differentiating benign from malignant tumors during the procedure is a definite requirement or prerequisite prior to CSP. However, it is sometimes difficult to get an accurate diagnosis based only on white light observation. Additional pit pattern observation and narrow-band imaging (NBI) observation are recommended. In this case report, for learning purposes, we present a reflection case of a diminutive T1 cancer resected with CSP which was observed both by white light observation and NBI magnification.

Case Report

A 68-year-old man underwent colonoscopy for surveillance after previous polypectomy. A reddish and diminutive polyp 4 mm in size was detected at the rectum (Fig. 1a). White light observation showed no depression but a slightly heterogeneous color change to the surface. NBI with magnification showed irregular vessels and surface patterns (Fig. 1b). The polyp was thus diagnosed as a Tis cancer or high-grade adenoma. Upon the patient's request, this polyp was resected by CSP using a snare (15 mm; Boston Scientific, Marlborough, MA, USA) in daycare surgery, though cancerous lesions regularly are resected by EMR. The patient requested not to be treated by EMR but by CSP, which needed a 1-day admission to our institution. Additionally, the operator thought it could be completely resected by CSP.

The polyp was thoroughly resected, though the snare was stuck during resection and partial protrusions within the CSP mucosal defect were detected (Fig. 1c). Histological examination showed T1 cancer with a positive vertical and horizontal margin (Fig. 2). There were no lymphovascular invasions on immunohistochemical examination. Additional surgical resection, which is standard treatment for cases with positive submucosal vertical margins, was not accepted by the patient, since he had received total gastrectomy for stage 3 gastric cancer and right hemicolectomy for stage 2 colonic cancer in the past 7 years. He underwent

follow-up colonoscopy 2 months after the CSP. There were no recurrent endoscopic findings by magnified blue laser imaging. However, there was the possibility of a remnant tumor in the submucosa, and thus endoscopic submucosal dissection was performed on the scar area for local cure (Fig. 3). The histological examination showed no residual tumor.

Discussion

Our previous report about CSP encompassing 1,006 colorectal polyps showed that the rates of en bloc resection and postoperative hemorrhage were 98.8 and 0.1%, respectively [4]. With respect to polyp size, the rates of cancer for polyps ≥ 10 and < 10 mm were 5.0 and 0.9%, respectively ($p < 0.001$). For diagnosing Tis and T1 cancer lesions, white light observation is generally useful, but it is sometimes difficult in some cases including the current one [5]. Magnified observation using NBI, blue laser imaging, and pit patterns is reported to be useful for an accurate diagnosis. Recently, a Japanese unified NBI classification for diagnosing colorectal polyps named the JNET classification has been presented [6]. It is similar to the NICE classification, but type 2 is divided into two subtypes: type 2A (regular pattern) and type 2B (irregular pattern) [7]. Generally, type 2A indicates adenoma and type 2B indicates mainly Tis cancer. The other components are type 1, which indicates a hyperplastic polyp, and type 3, indicating T1 cancer. In the current case, it showed type 2B. However, type 2B may sometimes inadvertently include T1 cancer, and additional pit pattern observation is recommended [6]. We therefore propose that CSP should only be performed on lesions of type 2A according to the JNET classification.

Moreover, our previous study showed that loss of muscularis mucosa was found in 27.8% of lesions resected by CSP [4]. Another report revealed that protrusions within CSP mucosal defects may include the submucosa and muscularis mucosa and therefore represent incomplete mucosal layer resection [8]. This particular finding was seen in the current case. Thus, in CSP cases, T1 cancer and Tis cancer have a possibility of positive vertical margins. In our case, the muscularis mucosa was partially but not perfectly resected. It caused a positive vertical margin. If EMR had been performed, we might possibly have had a negative vertical margin and evaluated risk factors for lymph node metastasis of T1 cancer, including lymphovascular invasion and poor differentiation [9].

With respect to the choice of device, we believe that in order to perform a complete resection, it is crucial to carefully choose the correct device, as there are snares of varying size, hardness, and thickness of wire available for CSP. We used a dedicated snare 15 mm in size for CSP with a moderate-to-thick wire which is designed for EMR and CSP, though complete resection was not achieved due to submucosal invasion. Using a dedicated snare made for CSP results in complete resection more often than with a traditional snare made for hot polypectomy and EMR (91% [89/98] vs. 79% [88/112], $p = 0.015$) [10].

In conclusion, we presented a T1 cancer resected by CSP as a reflection case. CSP should only be adopted for benign cases, as cancerous lesions have the possibility of invading the submucosa, like in this case. The diagnosis of diminutive cancerous lesions by white light observation is sometimes difficult. Additional NBI magnification helps us to differentiate benign from malignant tumors.

Acknowledgement

We thank all members of the Department of Molecular Gastroenterology and Hepatology, Kyoto Prefectural University of Medicine, for helping with this study.

Disclosure Statement

All authors have no conflicts of interest to declare.

References

- 1 Zauber AG, Winawer SJ, O'Brien MJ, et al: Colonoscopic polypectomy and long-term prevention of colorectal-cancer deaths. *N Engl J Med* 2012;366:687–696.
- 2 Horiuchi A, Nakayama Y, Kajiyama M, et al: Removal of small colorectal polyps in anticoagulated patients: a prospective randomized comparison of cold snare and conventional polypectomy. *Gastrointest Endosc* 2014;79:417–423.
- 3 Matsuura N, Takeuchi Y, Yamashina T, et al: Incomplete resection rate of cold snare polypectomy: a prospective single-arm observational study. *Endoscopy* 2017;49:251–257.
- 4 Hirose R, Yoshida N, Murakami T, et al: Histopathological analysis of cold snare polypectomy and its indication for colorectal polyps 10–14 mm in diameter. *Dig Endosc* 2017;29:594–601.
- 5 Oka S, Tanaka S, Nakadoi K, et al: Endoscopic features and management of diminutive colorectal submucosal invasive carcinoma. *Dig Endosc* 2014;26(suppl 2):78–83.
- 6 Sano Y, Tanaka S, Kudo SE, et al: Narrow-band imaging (NBI) magnifying endoscopic classification of colorectal tumors proposed by the Japan NBI Expert Team. *Dig Endosc* 2016;28:526–533.
- 7 Hewett DG, Kaltenbach T, Sano T, et al: Validation of a simple classification system for endoscopic diagnosis of small colorectal polyps using narrow-band imaging. *Gastroenterology* 2012;143:599–607.
- 8 Tutticci N, Burgess NG, Pellise M, et al: Characterization and significance of protrusions in the mucosal defect after cold snare polypectomy. *Gastrointest Endosc* 2015;82:523–528.
- 9 Tanaka S, Saitoh Y, Matsuda T, et al: Evidence-based clinical practice guidelines for management of colorectal polyps. *J Gastroenterol* 2015;50:252–260.
- 10 Horiuchi A, Hosoi K, Kajiyama M, et al: Prospective, randomized comparison of 2 methods of cold snare polypectomy for small colorectal polyps. *Gastrointest Endosc* 2015;82:686–692.

Fig. 1. A T1 cancer 4 mm in diameter at the rectum. **a** White light observation showed a reddish and diminutive polyp 4 mm in size. **b** Narrow-band imaging showed irregular vessel and surface patterns. JNET 2B. **c** Partial protrusions within the cold snare polypectomy mucosal defect were detected.

Yoshida et al.: A Diminutive T1 Cancer 4 mm in Size Resected by Cold Snare Polypectomy

Fig. 2. Histological examination showed a T1 cancer with a positive vertical and horizontal margin.

Fig. 3. Follow-up after cold snare polypectomy. **a** White light observation showed no recurrent findings. **b** Blue laser imaging showed no recurrent findings. **c** Endoscopic submucosal dissection was performed on the scar area, and the histological examination showed no remaining tumors.