Full-thickness endoscopic resection of an invasive adenocarcinoma in the right side of the colon

Christopher G. Chapman, MD, Irving Waxman, MD, FASGE

An 81-year-old man underwent a screening colonoscopy at an outside hospital revealing a 3 × 1 cm mass in the ascending colon. Biopsy specimens obtained of the mass revealed fragments of a tubulovillous adenoma with foci of intramucosal adenocarcinoma. A CT scan of the abdomen and pelvis revealed no evidence of lymphadenopathy or metastases. After consultation with a colorectal surgeon, the patient was determined not to be a good surgical candidate because of a recent and incomplete recovery from cardiovascular surgery. He was referred for consideration of endoscopic resection of the mass.

In this video report (Video 1, available online at www.VideoGIE.org), the colonoscope was advanced to the ascending colon, revealing a 15-mm Paris classification mixed IIa+IIC lesion along a haustral fold (Fig. 1). A mixture of saline solution and methylene blue was used to lift the lesion, and a 15-mm monofilament hot snare was used for resection. Using the standard EMR technique, we only partially resected the entire lesion, and attempts to lift the remaining lesion were unsuccessful, suggesting submucosal infiltration (Fig. 2). The decision was then made to use an endoscopic submucosal dissection (ESD) technique for removal of the residual lesion.

An incision was made using a dual knife, and subsequent submucosal dissection was performed. With deeper dissection, the muscularis propria was identified. In an attempt to increase the likelihood of resecting the lesion in its entirety, deeper dissection was attempted. The muscularis propria was incised and meticulously and serially dissected until a new plane separating the muscularis propria and serosa was identified.

At the end of the dissection, the residual lesion was isolated as an island of tissue in the center on the serosa with visible peritoneal fat (Fig. 3). The lesion was then further injected to lift from the serosa, and a minioval hot snare was used to resect the residual base lesion. With the residual lesion completely resected, primary closure of the defect was completed with 8 sequentially placed hemostatic clips in a zipper fashion until it was completely closed (Fig. 4).

The ascending colon polyp–index specimen measured 2.7 × 1.4 × 0.4 cm on gross pathologic examination (Fig. 5), and the resection base specimen measured...
1.2 × 0.9 × 0.2 cm (Fig. 6). Examination of the polyp confirmed well-differentiated (G1) invasive colonic adenocarcinoma arising from an adenoma.

There was focal invasion of the carcinoma into the submucosa, involving the inked margin of the first, index-resected specimen (Fig. 7). However, deep margins of the submucosa in the resection base specimen were free of tumor (3 mm from the resection margin) (Fig. 8). There was no evidence of tumor budding, lymphovascular invasion, or neurovascular invasion.

The depth of submucosal invasion was 800 μm, and the final pathologic stage of the resected adenocarcinoma was pT1sm1. Given the finding of sm1 classification for submucosal involvement, the risk of lymph node disease was determined to be low (<1% to 3%), and surgical resection was determined to be unnecessary.

In conclusion, full-thickness colonic resection in the colon can be completed with careful dissection. This approach can be applied to both malignant and nonmalignant lesions and can be used to salvage resections in which EMR is incomplete because of adherence to the submucosa. In this case, the technique was demonstrated to be safe and effective in completing a full-thickness endoscopic resection of a pT1sm1 colonic adenocarcinoma.

**DISCLOSURE**

Dr Waxman has been a consultant for Cook Medical, Boston Scientific, Medtronic, and Olympus. The other author disclosed no financial relationships relevant to this publication.
Abbreviation: ESD, endoscopic submucosal dissection.

REFERENCES

1. Nascimbeni R, Burgart LJ, Nivatvongs S, et al. Risk of lymph node metastasis in T1 carcinoma of the colon and rectum. Dis Colon Rectum 2002;45:200-6.

2. Kitajima K, Fujimori T, Fujii S, et al. Correlations between lymph node metastasis and depth of submucosal invasion in submucosal invasive colorectal carcinoma: a Japanese collaborative study. J Gastroenterol 2004;39:534-43.

Figure 7. H & E-stained ascending colon polyp index lesion revealing a well-differentiated invasive colonic adenocarcinoma arising from an adenoma with focal invasion of the carcinoma into the submucosa involving the inked margin (circle) (H&E, orig. mag. ×40).

Figure 8. H & E-stained residual base lesion revealing submucosa and muscularis propria (arrows). There is evidence of continuation of the carcinoma into the submucosa (circle); however, the resection base deep margins of the submucosa are free of tumor (H&E, orig. mag. ×40).

Center for Endoscopic Research and Therapeutics, The University of Chicago Medicine and Biological Sciences, Chicago, Illinois, USA.

Reprint requests: Irving Waxman, MD, FASGE, Center for Endoscopic Research and Therapeutics, The University of Chicago Medicine and Biological Sciences, 5700 S Maryland Ave, MC 8043, Chicago, IL 60637.

Copyright © 2017 American Society for Gastrointestinal Endoscopy.

Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

http://dx.doi.org/10.1016/j.vgie.2017.01.005