Int Surg 2011;**96:**82–86

Case Report

Invasive Micropapillary Carcinoma of the Ascending Colon—a Report of a Case

Hajime Shibuya, Keiji Matsuda, Ryu Shimada, Atsushi Horiuchi, Hisae Iinuma, Tamuro Hayama, Hideki Yamada, Keijiro Nozawa, Soichiro Ishihara, Toshiaki Watanabe

Department of Surgery, Teikyo University School of Medicine, Tokyo, Japan

Micropapillary carcinoma (MC) has been recently recognized to be a rare but distinctive variant of adenocarcinoma. At present, only a limited number of colorectal MC cases have been reported. We present a case of MC of the ascending colon with distant metastasis. A 61-year-old female patient was hospitalized with a complaint of abdominal pain. A diagnostic work-up revealed cancer of the ascending colon with multiple lung metastases. The patient underwent a right hemicolectomy with lymph node dissection. A peritoneal nodule was observed in the abdominal cavity during surgery, and this nodule was also resected. The pathologic findings of the colon tumor revealed components of conventional tubular adenocarcinoma and micropapillary carcinoma. Lymph nodes and a peritoneal nodule revealed tubular adenocarcinoma. MC is a rare disease but has high malignant potential. In the present case the tumor was small in size, but the patient had a peritoneal and multiple lung metastases.

Key words: Micropapillary carcinoma – Colorectal cancer – Colon cancer – Metastasis

Micropapillary carcinoma (MC) has been recently recognized to be a rare but distinctive variant of adenocarcinoma in several anatomic sites, including breast, urinary bladder, lung, the major salivary glands, and the pancreas.[1–6] MC is pathologically characterized by small neoplastic cell clusters surrounded by aberrant stromal spaces, and it is clinically associated with a poor patient prognosis and extensive lymph node metastasis.[7] At present, there has been only a limited number of reports about colorectal MC.[5] We present a case of MC of the ascending colon with distant metastasis.

Case Report

A 61-year-old female patient presented with abdominal pain for 1 month and was hospitalized in a regional hospital. Contrast enema radiography showed stenosis in the ascending colon (Fig. 1A). The colonoscopy revealed an ulcerative tumor in the

Reprint requests: Toshiaki Watanabe, MD, PhD, Department of Surgery, Teikyo University School of Medicine, 2-11-1 Kaga, Itabashi-ku, Tokyo, 173-8605, Japan.
Tel.: +81-3-3964-1231; Fax: +81-3-5375-6097; E-mail: toshwatanabe@yahoo.co.jp

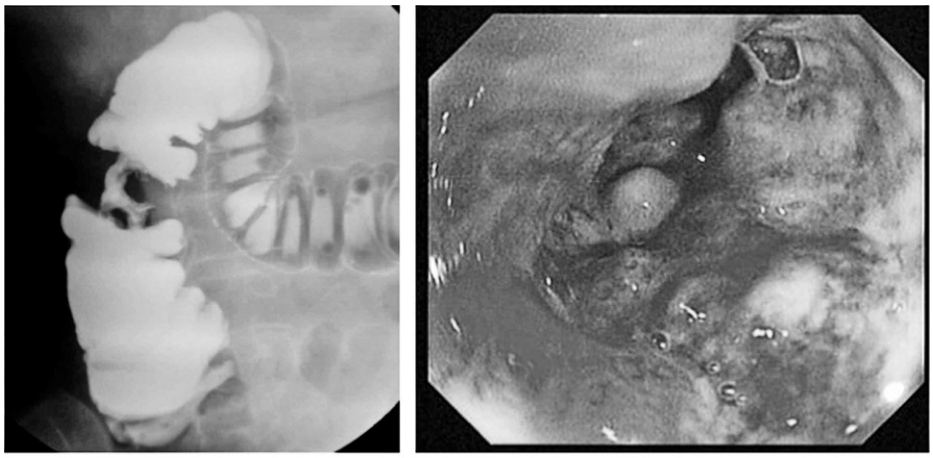


Fig. 1 (A) Contrast enema radiography revealed stenosis in the ascending colon. (B) Colonoscopy disclosed ulcerative tumor.

same portion (Fig. 1B), and a biopsy revealed an adenocarcinoma. Subsequently, the patient was transferred to the Department of Surgery at the Teikyo University School of Medicine. The chest computed tomography scans showed multiple nodules in both lungs, suggesting the presence of lung metastases (Fig. 2). The patient's past medical and surgical histories were unremarkable. The patient therefore underwent a right hemicolectomy with a lymph node dissection. However, lung metastases were not surgically resected because multiple metastatic lesions were present. During surgery, a white peritoneal nodule was detected in the abdominal cavity, which was also resected. Pathologic examination revealed the ulcerative tumor, 3.3 × 3.0 cm in size, in the ascending colon (Fig. 3). The tumor invaded the serosa. The microscopic findings of the colon tumor revealed characteristics of both conventional tubular adenocarcinoma and MC (Fig. 4A). In MC, a tumor consisting of

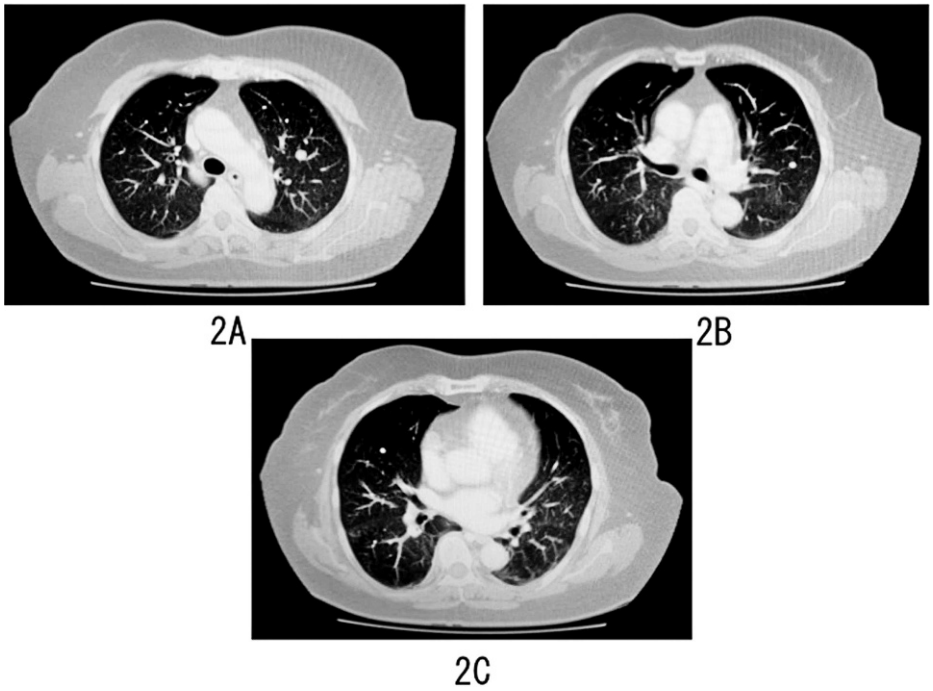
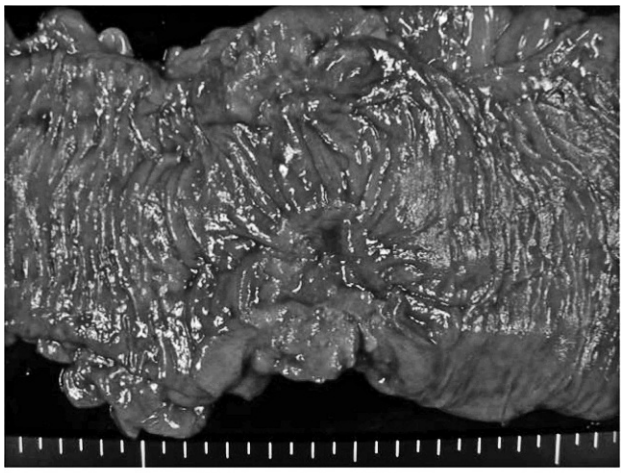


Fig. 2 Chest computed tomography scans showed multiple nodules in both lungs.



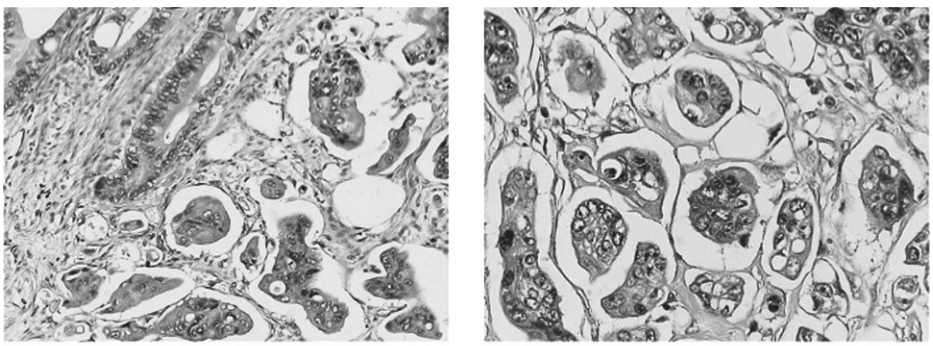
3

Fig. 3 Macroscopic findings showed an ulcerative tumor in the ascending colon.

several neoplastic cells without a fibrovascular core was found to have proliferated into the stroma. Tumor clusters were surrounded by clear empty spaces (Fig. 4B). The microscopic findings of a peritoneal nodule showed a tubular adenocarcinoma (Fig. 5).

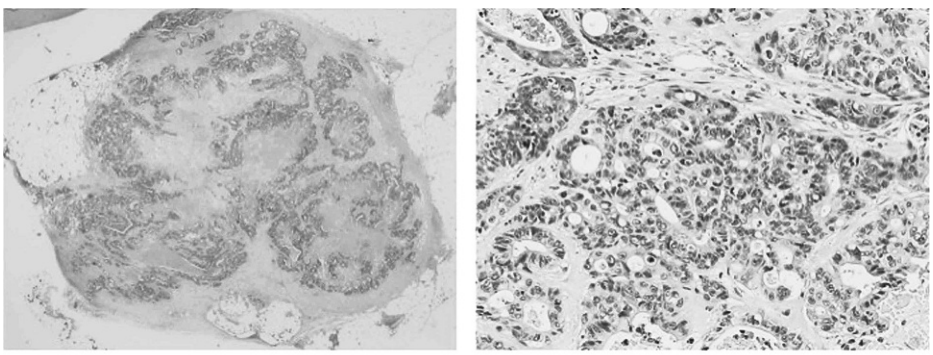
Discussion

MC is observed in the mammary gland, the urinary tract, the lung, and the salivary glands, and the incidence of mammary MC has been reported to be 0.9% to7%.[1,2] However, MC is rare in the colon and rectum. MC is associated with frequent lymphovascular invasion, lymph node metastases, distant metastases, and a higher tumor stage compared with other types of adenocarcinomas in the colon and rectum.[7] Patients with MC have a poor



4A 4B

Fig. 4 (A) Microscopic findings of the colon tumor. The components of conventional tubular adenocarcinoma were observed on the left side. The invasive micropapillary carcinoma components were present on the right side. (B) A tumor consisting of several neoplastic cells without a fibrovascular core proliferating into the stroma was observed. Tumor clusters were surrounded by clear empty spaces.



5A 5B

Fig. 5 (A) The tumor was observed in the peritoneal nodule. (B) High magnification revealed tubular adenocarcinoma.

Table 1 Reported cases of micropapillary carcinoma of the colon

	Case no.								
	1	2	3	4	5	6	7	8	Our case
Age (y)	72	71	70	64	73	67	68	53	60
Sex	F	F	F	M	F	M	F	F	F
Location of cancer	Sigmoid	Sigmoid	Sigmoid	Sigmoid	Rectosigmoid	Sigmoid	Cecum	Ascending	Ascending
CEA (ng/mL)	40	ND	ND	ND	6.4	ND	ND	ND	
CA19-9 (ng/mL)	ND	ND	ND	ND	13.2	ND	ND	ND	
Treatment	Surgery	Endoscopic resection	Surgery	Surgery	Surgery	Surgery	Surgery	Surgery	Surgery
Depth of cancer	Subserosa	Submucosal	Serosa	Submucosal	Serosa	Serosa	Serosa	Subserosa	Serosa
Lymphatic invasion	+	+	+	+	+	+	+	ND	+
Venous invasion	+	—	+	+	+	+	ND	ND	+
Lymph nodes metastasis	+	ND	+	+	+	+	+	+	+
Distant metastasis at surgery	—	—	—	—	—	—	—	—	Lung, peritoneum
Ratio of MC component (%)	Predominant	Nearly 100	40	80	70–80	ND	ND	ND	80
Postoperative chemotherapy	5FU, oxaliplatin, leucovorin	—	ND	+	UFT, leucovorin	ND	ND	ND	5FU, oxaliplatin, leucovorin
Prognosis	Alive	Died	ND	Alive	Alive	Died	Alive	Alive	Alive
Postoperative duration	18 months	12 months		25 months		18 months	1 month	1 month	2 months
No. of reference	8	9	10	11	12	13	13	13	

F, female; 5FU, fluorouracil; M, male; ND, not determined.

ND; not described.

prognosis because of the high incidence of metastasis.[7] We performed a PubMed search using key words ''micropapillary carcinoma'' and ''colon'' or ''colorectal'' and found only 8 reported patients with colorectal MC (Table 1).[8–13] As shown in Table 1, reported cases with MC show high malignancy and poor prognosis. In the present case, the patient presented with multiple lung metastases and peritoneal dissemination in spite of a small primary carcinoma of only 33 mm in size.

MC is observed in the colorectum and also in the mammary gland, bladder, lung, and stomach.[14] However, it has been reported that there is heterogeneity of micropapillary patterns depending on the site of the cancers.[15] Ohtsuki *et al*[15]examined MCs in the breast, bladder and colon cancers by immunohistochemistry using antibodies to KL-6, epithelial membrane antigen (EMA), MUC1 (CD227), and CD 10 and showed that MCs of the colon were different in character from breast and urinary bladder cancer. The precise mechanism underlying these differences has not been fully clarified. They suggested that this heterogeneity of the micropapillary pattern in various cancers needs to be investigated with a larger number of cases in further study.

The optimal chemotherapy or adjuvant chemotherapy for the colorectal MCs has not yet been established. In the present case, we have been administering FOLFOX (+ bevacizumab) chemotherapy to treat lung metastasis of the patient for 15 months after surgery. The number and the size of lung metastases increased to a small extent; however, the patient is well without symptoms at the present time. Further study is expected to clarify which regimen of chemotherapy is optimal for the treatment of metastatic lesions from colorectal MCs.

References

1. Sirianunkgul S, Tavassoli FA. Invasive micropapillary carcinoma of the breast. *Mod Pathol* 1993;**6**(6):660–662
2. Luna-More S, Gonzalez B, Acedo C, Rodrigo I, Luna C. Invasive micropapillary carcinoma of the breast. A new special type of invasive mammary carcinoma. *Pathol Res Pract* 1994;**190**(7):668–674
3. Amin MB, Ro JY, el-Sharkawy T, Lee KM, Troncoso P, Silva EG, Ordonez NG, Ayala AG. Micropapillary variant of transitional cell carcinoma of the urinary bladder. Histologic pattern resembling ovarian papillary serous carcinoma. *Am J Surg Pathol* 1994;**18**(12):1224–1232
4. Amin MB, Tamboli P, Merchant SH, Ordonez NG, Ro J, Ayala AG, Ro JY. Micropapillary component in lung adenocarcinoma: a distinctive histologic feature with possible prognostic significance. *Am J Surg Pathol* 2002;**26**(3):358–364
5. Nagao T, Gaffey TA, Visscher D, Kay PA, Minato H, Serizawa H *et al*. Invasive papillary salivary duct carcinoma: a distinct variant with biologic significance. *Am J Surg Pathol* 2004; **28**(3):319–326
6. Nassar H, Pansare V, Zhang H, Che M, Sakr W, Ali-Fehmi R *et al*. Pathogenesis of invasive micropapillary carcinoma: role of MUC1 glycoprotein. *Mod Pathol* 2004;**17**(9):1045–1050
7. Kim MJ, Hong SM, Jang SJ, Yu E, Kim JS, Kim KR *et al*. Invasive colorectal micropapillary carcinoma: an aggressive variant of adenocarcinoma. *Hum Pathol* 2006;**37**(7):809–815
8. Wen P, Xu Yiqing., Frankel WY, Shen R. Invasive micropapillary carcinoma of the sigmoid colon: distinct morphology and aggressive behavior. *Int J Clin Exp Pathol* 2008;**1**(5): 457–460
9. Hisamori S, Nagayama S, Kita S, Kawamura J, Yoshizawa A, Sakai Y. Rapid progression of submucosal invasive micropapillary carcinoma of the colon in progressive systemic sclerosis: report of a case. *Jpn J Clin Oncol* 2009;**39**(6):399–405
10. Kuroda N, Oonishi K, Ohara M, Hirouchi T, Mizuno K, Hayashi Y *et al*. Invasive micropapillary carcinoma of the colon: an immunohistochemical study. *Med Mol Morphol* 2007;**40**(4):226–230
11. Sonoo H, Kameyama M, Inatugi N, Nonomura A, Enomoto Y. Pedunculated polyp of early sigmoid colon cancer with invasive micropapillary carcinoma. *Jpn J Clin Oncol* 2009; **39**(8):523–527
12. Hirota N, Yamashita K, Ichihara T, Nakamura E. A case of rectal cancer with the component of micropapillary carcinoma. *Jpn J Gastroenterol Surg* 2008;**41**(9):1741–1745
13. Sakamoto K, Watanabe M, De La Cruz C, Honda H, Ise H, Mitsui K *et al*. Primary invasive micropapillary carcinoma of the colon. *Histopathology* 2005;**47**(5):479–484
14. Shimoda M, Okada Y, Hayashi Y, Hatano S, Kawakubo H, Omori T *et al*. Primary invasive micropapillary carcinoma of the stomach. *Pathol Intern* 2008;**58**(8):513–517
15. Ohtsuki Y, Kuroda N, Umeoka T, Watanabe R, Ochi K, Okada Y *et al*. KL-6 is another useful marker in assessing a micropapillary pattern in carcinomas of the breast and urinary bladder, but not the colon. *Med Mol Morphol* 2009;**42**(2):123–127