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Case Report

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Spontaneous regression of colon cancer

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Abstract

A case of spontaneous regression of transverse colon cancer is reported. A 64-year-old man was diagnosed as having cancer of the transverse colon at a local hospital. Initial and second colonoscopy examinations revealed a typical cancer of the transverse colon, which was diagnosed as moderately differentiated adenocarcinoma. The patient underwent right hemicolectomy 6 weeks after the initial colonoscopy. The resected specimen showed only a scar at the tumor site, and no cancerous tissue was proven histologically. The patient is alive with no evidence of recurrence 1 year after surgery. Although an antitumor immune response is the most likely explanation, the exact nature of the phenomenon was unclear. We describe this rare case and review the literature pertaining to spontaneous regression of colorectal cancer.

Key words: spontaneous regression, immune response, colon cancer

Introduction

Spontaneous regression of cancer has been defined by Stewart (1) as the partial or complete disappearance of a malignant tumor in the absence of all treatment or in the presence of therapy which would be considered inadequate to have a significant influence on neoplastic disease. Its incidence is roughly one in every 60 000–100 000 cancer patients, but the true figure is unknown (2). Spontaneous regression of colon cancer seems to be particularly rare, but the mechanism involved has never been elucidated and only a few individual cases have been reported. Here, we report a case of spontaneous regression of cancer, which was proven histologically by examination of the surgically resected specimen.

Case report

A 64-year-old man visited a local hospital because of positivity for fecal occult blood. Colonoscopy showed a typical colon cancer, ~30 mm in diameter, in the transverse colon (Fig. 1), and a biopsy specimen revealed moderately differentiated tubular adenocarcinoma. The patient was referred to the National Cancer Center Hospital. His medical history included distal gastrectomy for gastric ulcer and cholecystectomy for gallstones, 28 and 23 years previously, respectively. He had been taking metformin for diabetes mellitus for 15 years, and both glucosamine and chlorella as dietary supplements for 3 years. Laboratory examinations revealed no remarkable abnormality: the carcinoembryonic antigen and carbohydrate antigen 19-9 levels were 1.2 ng/ml (<5.0) and 7 U/ml (<37), respectively. A second colonoscopy examination was performed 3 weeks after the initial one. The tumor was 20 mm in diameter, and thus smaller than before (Fig. 2). A biopsy specimen also demonstrated moderately differentiated adenocarcinoma (Fig. 3). Computed tomography revealed the wall thickening which was rational for diagnosing the lesion as T2 (MP), and no evidence of lymph node metastasis or distant metastasis (Fig. 4). The clinical diagnosis was cT2N0M0, cStage I according to the TNM classification. Right hemicolectomy was carried out 6 weeks after the initial colonoscopy. Examination of the resected specimen showed that the tumor had disappeared, leaving only a discolored scar (Fig. 5). The specimen, fixed in formalin, was cut into slices every 3–5 mm. Histological examination demonstrated marked inflammatory infiltration of lymphocytes, plasma cells and fibrosis between the submucosa and the muscularis propria (Figs 6 and 7). No cancer cells were found in the scar. The dissected lymph nodes also showed no cancer cells.

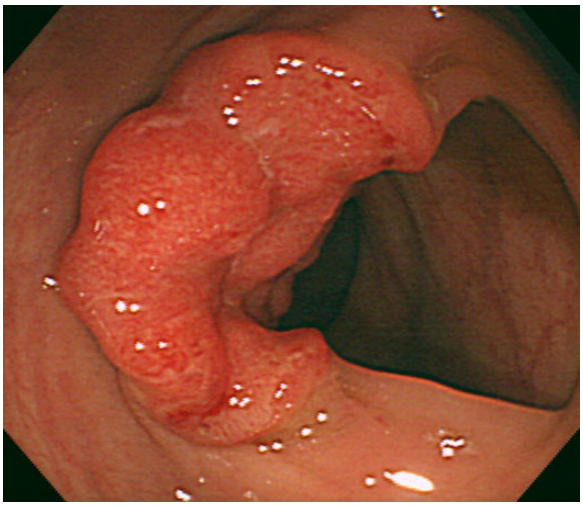

Figure 1. The first colonoscopy revealed a typical lesion, 30 mm in diameter.

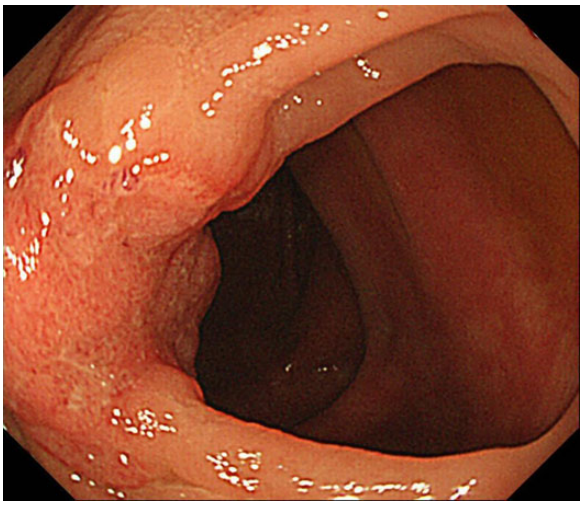

Figure 2. The second colonoscopy revealed that the lesion was 20 mm in diameter, smaller than before. The tumor ulcer had become shallow.

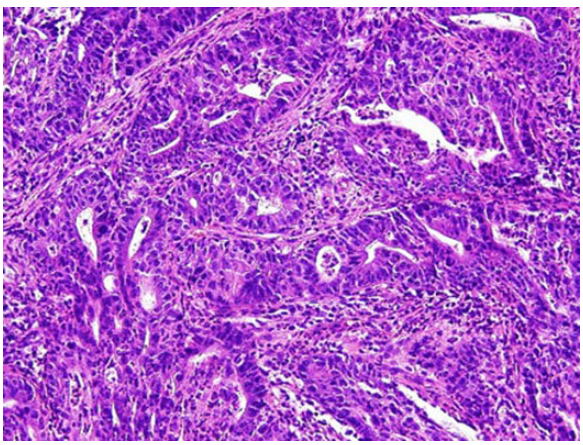

Figure 3. The biopsy specimen revealed a moderately differentiated adenocarcinoma.

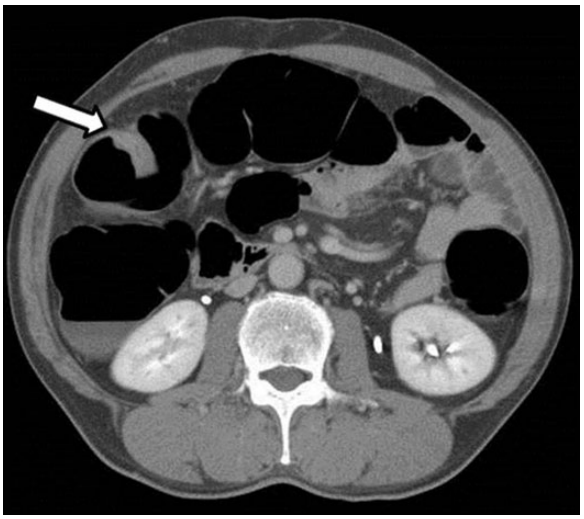

Figure 4. Computed tomography showed the wall thickening of the tumor site (arrow) and no lymph node swelling nor distant metastasis.

Figure 5. The resected specimen showed only a scar surrounded by discolored mucosa.

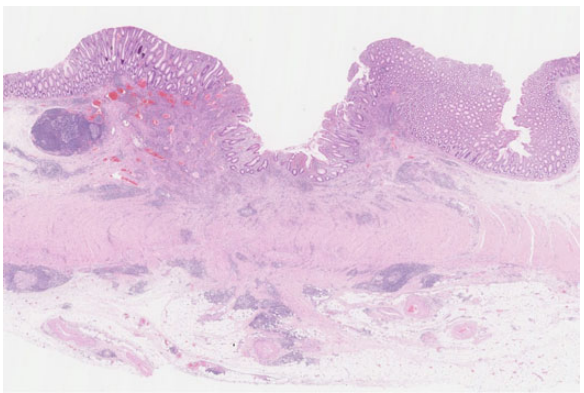

Figure 6. Loupe view. Infiltration of inflammatory cells and fibrosis from the submucosa to the muscularis propria were evident. The surface was covered by regenerative mucosa.

The post-operative course was uneventful. Before the patient was discharged, colonoscopy was performed again, and this demonstrated no tumor in the colon or rectum. Accordingly, the final diagnosis was spontaneous regression of colon cancer. At 1 year after the surgery, there is no evidence of cancer recurrence.

Discussion

We have reported a case of spontaneous regression of primary colon cancer. Everson (3) has divided numerous reports of spontaneous regression into four categories on the basis of clinical evidence:

1. Regression of the primary tumor.
2. Regression of a metastatic tumor (after histologic confirmation of malignancy).
3. Regression of a metastatic tumor (without histologic confirmation of malignancy).
4. Regression of a presumptive metastasis as diagnosed by roentgenography.

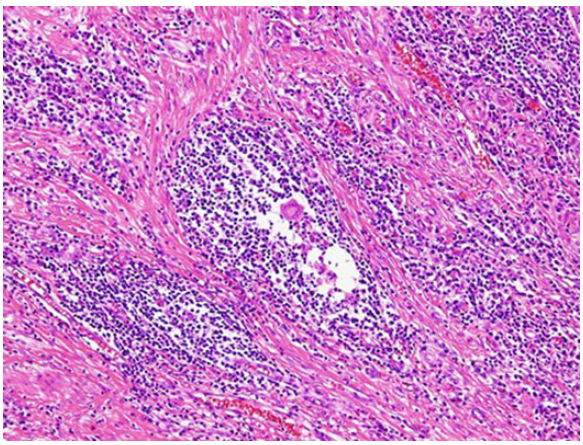

Figure 7. Microscopic view with hematoxylin and eosin staining. There was remarkable inflammation and fibrosis with no cancer cells.

Although numerous cases of spontaneous tumor regression have been reported in the world literature, the validity of spontaneous regression may be somewhat questionable in categories 3 and 4, since the cancerous nature of the metastatic growth in these cases is based only on gross examination, not always on histologic proof of malignancy.

The incidence of spontaneous regression of colon cancer is unclear. One reason for this is that colorectal cancer is usually treated immediately after diagnosis. Also there is a need for resection to prevent bowel obstruction or uncontrollable bleeding from the primary lesion even if distant metastasis is detected. Observation without any kind of therapeutic intervention is an unlikely situation in patients with colorectal cancer.

A review of spontaneous regression cases of colorectal cancer between 1900 and 2005 reported by Abdelrazeq (4) confirmed only 11 such cases, at least with regard to the primary tumor. In addition to these cases, only three cases were found by a literature search of PubMed by cross-referencing the terms 'spontaneous regression' and 'colorectal cancer'. However, details of the clinical characteristics of these patients were limited, and these 14 cases together with the present case are shown in Table 1. The clinical findings in the four most recent cases reported in the last decade, including the present case, were much more detailed than for cases reported earlier. All were small, between 20 and 30 mm in diameter, and without lymph node metastasis (within cT2N0M0). The periods from initial diagnosis to confirmation of spontaneous regression ranged from 6 weeks to 6 months.

Because of the rarity of spontaneous regression of cancer, the mechanisms involved have never been elucidated. There are many possible factors that could be involved in the spontaneous regression of tumors, and numerous concepts have been advanced so far. Abdelrazeq (4) placed special emphasis on identifying the possible causes of regression. According to his description, severe sepsis with prolonged high fever was a likely contributory factor. However, no such septic complications prior to tumor regression were observed among the cases reported during the last decade. Although disappearance of a polypoid lesion can be explained in terms of tumor dislodgement, it would seem an unlikely mechanism in the present case.

Epidemiologic and retrospective studies have demonstrated that metformin which is an oral antidiabetic drug decreases incidence

Table 1. Summary of reported cases of spontaneous regression of primary colorectal cancer

Author (year)	Age/ sex	Primary site	Size (mm)	Histology	Duration (months)	Proposed mechanism	Follow-up (years)
Henry (1944) (5)	60/M	Rectum					11
Fergeson (1954) (6,7)	45/M	Descending				Severe sepsis (abscess)	10
Dunphy (1956) (2)	46/M	Rectum				Severe debilitation; fecal diversion	8
Fallis (1959) (2)	42/M	Transverse				Severe sepsis (abscess); fecal diversion; religious rituals	18
Brown (1961) (8)	54/F	Sigmoid					16
Fullerton and Hill (1963) (9)	58/F	Transverse		Anaplastic			16
Synder (1968) (10)	62/F	Sigmoid				Persistent high fever due to wound infection, immunologic and genetic	15
Weinstock (1977) (11)	40/F	Sigmoid				Favourable psychosocial change	20
Meares (1979) (12)	64/M	Rectum				Intensive meditation	1
Glasser (1979) (13)	36/M	Ascending				Genetic factors	28
Beechy (1986) (14)	23/F	Ascending					4
Sakamoto (2009) (15)	80/M	Rectum	25	Well	3	Immune-mediated host responses	2
Shimizu (2010) (16)	80/M	Transverse	25	Moderate	6	Physical stimulation such as peristaltic movement	
Sekiguchi (2013) (17)	69/F	Ascending	20	Moderate	1.5	Perioperative stress of the lung surgery and related hyperimmunity	5
Present case	64/M	Transverse	30	Moderate	1.5		1

rate of colorectal cancer potentially (18). Although the patient took metformin for 15 years, it is difficult to confirm that metformin has played an important role in this regression.

Miyamoto (19) has described an immune-mediated antitumor response in *in vivo* models, the regression rate being 40% for Stage I and II colon cancer. However, it is hard to prove such an immune response in a case. Although several mechanisms for spontaneous regression are reported as mentioned above, it is hard to define which mechanism acts for spontaneous regression of the present case.

In the series reported by Abdelrazeq (4), one patient out of 21 died of the disease. Tomiki (20) has also reported tumor regrowth after its remission due to spontaneous decapitation. Therefore, there is a need to establish a schedule for treatment and follow-up of ordinary colon cancer, even if spontaneous regression of cancer occurs.

Conflict of interest statement

None declared.

References

1. Stewart FW. Experiences in spontaneous regression of neoplastic disease in man. *Tex Rep Biol Med* 1952;10:239–53.
2. Jerry LM, Challis EB. Oncology. In: Rakel RE editor. *Textbook of Family Practice*. 3rd edn. 1984;1061–81.
3. Everson TC. Spontaneous regression of cancer. *Ann N Y Acad Sci* 1964;114:721–35.
4. Abdelrazeq AS. Spontaneous regression of colorectal cancer: a review of cases from 1900 to 2005. *Int J Colorectal Dis* 2007;22:727–36.
5. Boyd W. The spontaneous regression of cancer. *Proc Can Cancer Conf* 1957;2:354–60.
6. Fergeson JO, Black BM. Disappearance, probably spontaneous of locally inoperable carcinoma of the descending colon: report of case. *Mayo Clin Proc* 1954;29:407–10.
7. Thomford NR, Black BM. Presumably spontaneous cure of inoperable carcinoma of the colon; addendum to a report of a case in 1954. *Mayo Clin Proc* 1961;36:504–6.
8. Brown CH. Regression of metastatic lesions: report of two cases. *Am Pract (Clin Pediatr)* 1961;12:655–6.
9. Fullerton JM, Hill RD. Spontaneous regression of cancer. *Br Med J* 1963;21:1589–90.
10. Synder W, Clark R, Rubini J. Long-term survival of mother and son with widespread metastatic adenocarcinoma of colon. *Cancer* 1968;21:129–33.
11. Weinstock C. Notes on "spontaneous" regression of cancer. *J Am Soc Psycosom Dent Med* 1977;24:106–10.
12. Meares A. Regression of cancer of the rectum after intensive meditation. *Med J Aust* 1979;2:539–40.
13. Glasser M, Rosenberg MZ, Gaito R. Widespread adenocarcinoma of the colon with survival of 28 years. *JAMA* 1979;241:2542–3.
14. Beechey RT, Edwards BE, Kellands CH. Adenocarcinoma of the colon: an unusual case. *Med J Aust* 1986;144:211–3.
15. Sakamoto S, Fu K, Kobayashi O, Matsuyama S, Miyazaki A, et al. Spontaneous complete regression of a rectal cancer. *Endoscopy* 2009;41:910–2.
16. Shimizu H, Kochi M, Kaiga T, Mihara Y, Fujii M, et al. A case of spontaneous regression of advanced colon cancer. *Anticancer Res* 2010;30:2351–4.
17. Sekiguchi M, Ito K, Matsuhashi N. Spontaneous disappearing colon cancer. *Dig Endosc* 2013;25:88–9.
18. Komiya M. Prevention and intervention trials for colorectal cancer. *Jpn J Clin Oncol* 2013;43:685–94.
19. Miyamoto M, Saeki K, Tani S, Tani Y. Morphology on spontaneous regression of the autochthonous colon carcinoma in WF Osaka rat strain. *Med J Osaka Univ* 1989;38:13–18.
20. Tomiki Y, Gonda H, Seki E, Maeda T, Kitamura D. Spontaneous decapitation of a small colorectal cancer: follow-up of spontaneous course. *Endoscopy* 2007;39:290–1.