Squamous Cell Carcinoma of the Descending Colon: Report of a Case and Literature Review

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Abstract
It is very rare that squamous cell carcinoma (SCC) arises from colorectal epithelium. An 89-year-old man was treated in 2001 with chief complaints of anorexia, abdominal pain, and low grade fever. The histological diagnosis as SCC was determined by biopsy during a colonoscopy. We diagnosed primary SCC of the colon because except in the colon no malignant lesions were found by systemic CT. Surgical complete resection was performed. However, he died three months after surgical resection because of hepatic metastasis and cachexia. The prognosis of this disease seems to be worse than that of adenocarcinoma.

Introduction
It is well known that more than 90% of colorectal diseases are adenocarcinoma, with the majority of remaining cases having no epithelial histology such as carcinoid tumors, sarcomas, and lymphoid tumors [1]. Pure squamous cell carcinoma (SCC) is not uncommon in glandular organs such as the uterus, lung, and pancreas, but a tumor of the intestinal tract is rare [2]. The incidence of SCC of the colon and rectum has been reported to be 0.25 to 0.1 per 1,000 colorectal carcinomas [3]. After the first case report in 1919 [4], a total 72 pure SCCs of the colon and rectum have been reported [3, 5–7]. Clinical characteristics, biologic behavior, and treatment response of this colorectal cancer are largely unknown. In this paper we report a case of primary SCC of the descending colon.
Case Report

An 89-year-old man underwent surgical operation for sigmoid colon cancer in 1994. Histological feature was well differentiated adenocarcinoma. He visited our hospital with low grade fever, anorexia and abdominal pain, seven years after the first operation in May 2001. Abdominal examination revealed a mass in the left upper quadrant. Barium enema showed irregular stenosis of the colon at the splenic flexure. Abdominal computed tomography (CT) showed wall thickness and stenosis of the colon at the splenic flexure and lymph node enlargement around the tumor (fig. 1). Colonoscopy revealed stenosis with ulceration in the colon at the splenic flexure. The histological diagnosis of SCC was determined by biopsies during colonoscopy. Although chest, neck and cervical CT were done, tumors were only identified in the colon. Therefore, we concluded that the colon was the primary lesion site. Although this tumor was a huge mass which penetrated the jejunum and adhered to the left kidney and left diaphragm, left hemicolectomy, partial resection of the jejunum and splenectomy were performed. The resected mass was huge, 11.0 × 8.0 cm, with penetration to the jejunum (fig. 2). Pathology demonstrated SCC of the colon at the splenic flexure invading the jejunum, diaphragm and capsule of the kidney (fig. 3a). Regional lymph nodes had metastasis of SCC (fig. 3b). A curative operation was performed. Adjuvant chemotherapy was not started because of the advanced age of the patient. Three months after the operation he died because of multiple liver metastases and cachexia.

Discussion

SCCs of the colon are an extremely rare clinical entity. The first case of a pure SCC of the colon was reported in the German literature by Schmidtmann in 1919 [4]. In Japan, Murakami et al. reported the first case of a pure SCC of the colon in 1974 [8]. Since that initial description 72 cases of pure SCCs of the colon and rectum have been reported (table 1) [3, 5–7].

Certain criteria must be satisfied before a diagnosis of primary SCC of the colon is made [9]. First, metastasis from other sites to the bowel must be ruled out. Second, a squamous-lined fistulous tract must not involve the affected bowel, because this may be a source of SCCs. Third, SCCs of the anus with proximal extension must be excluded. Fourth, SCC must be confirmed by histological analysis. Our case satisfied all these criteria.

The prognosis of patients with colorectal SCC is difficult to establish because of the rarity of these tumors. The colorectal SCC seems to be more frequently locally invasive and more likely to involve regional lymphatics than the adenocarcinomas, probably because of a delayed diagnosis. In this case, the tumor was pT4 (invasion of the diaphragm and capsule of the kidney) and lymph node involvement. However, curative resection with a negative resection margin was performed. Comer et al. [10] suggested a poorer prognosis for patients with colorectal SCC than adenocarcinoma.

The role of adjuvant chemotherapy or radiation remains unknown. Gelas et al. [3] reported that surgical resection after neoadjuvant combination of chemotherapy and external beam radiation therapy was useful for rectal SCC. Juturi et al. [5] reported that combination of cisplatin, 5-fluorouracil, and leucovorin would be a possible treatment option for patients with metastatic colorectal SCC. Copur et al. [7] reported that cisplatin, etoposide and 5-fluorouracil combination chemotherapy was effective and serum SCC antigen level was a useful marker of response to chemotherapy. Chemotherapy for colorectal SCC has been controversial. Nowadays, we think that surgical resection may be the first choice and adjuvant treatment (chemotherapy or radiation therapy) may be done if the patient has a good performance status.

In conclusion, advanced colorectal SCC with invasion to adjacent organs and metastatic lymph nodes had a poor prognosis. Treatment selection is difficult because
colorectal SCC is a very rare disease. However, surgical resection and adjuvant chemotherapy is a better approach to the treatment of colorectal SCC.

Table 1: Squamous cell carcinoma of the colon and rectum: clinical feature

| Case | Author (year)          | Age years | Gender | Location       | Treatment               | Outcome                  |
|------|------------------------|-----------|--------|----------------|-------------------------|--------------------------|
| 1    | Schmidtmann (1919)     | 65        | M      | cecum          | surgical resection      | DOD at 1 month           |
| 2    | Catell and Williams (1943) | 63        | M      | rectum at 10 cm | N/A                     | alive at 5.5 years       |
| 3    | Hicks and Cowling (1955) | 90        | F      | ascending colon | APR                     | died at 1 year           |
| 4    | Wiener et al. (1962)   | 52        | F      | rectum at 9 cm  | right hemicolectomy     | alive at 8 months        |
| 5    | Larizaden and Powell (1965) | 44        | F      | hepatic flexure | right hemicolectomy     | N/A                      |
| 6    | Wood (1967)            | 58        | M      | cecum          | right hemicolectomy     | N/A                      |
| 7    | Minkowitz (1967)       | 49        | F      | rectosigmoid   | APR                     | alive at 2 years         |
| 8    | Gaston (1967)          | 65        | M      | cecum          | right hemicolectomy     | N/A                      |
| 9    | Pemberton and Lendrum (1968) | 48        | F      | ascending colon | right hemicolectomy     | N/A                      |
| 10   | Birnbaum (1970)        | 82        | M      | ascending colon | rectum at 8 cm           | APR                      | alive at 13 years        |
| 11   | Comer et al. (1971)    | 34        | F      | transverse colon| descending colon         |                         |
|      |                        |           |        |                |                         |                          |
|      |                        |           |        |                |                         |                          |
| 12   | Lewis et al. (1971)    | 61        | M      | cecum          | right hemicolectomy     | dead at 10 days          |
| 13   | Balfour (1972)         | 63        | M      | sigmoid        | right hemicolectomy     | alive at 18 months       |
| 14   | Horne and McCulloch (1978) | 53        | M      | cecum          | right hemicolectomy     | dead at 11 months        |
| 15   | Crissman (1978)        | 72        | M      | transverse colon| colectomy               | dead at 3 days           |
| 16   | Burgess et al. (1979)  | 43        | M      | hepatic flexure| right hemicolectomy     | dead at 1 year           |
| 17   | Williams et al. (1979) | N/A       | N/A    | rectum         | N/A                     | N/A                      |
| 18   | Kahn et al. (1979)     | 64        | M      | ascending colon | N/A                     | N/A                      |
| 19   | Hickey and Corson (1981)| 48        | F      | transverse colon| left hemicolectomy      | alive at 21 months       |
| 20   | Petrelli et al. (1981) | 73        | M      | sigmoid        | palliative colostomy    | dead at 9 days           |
| 21   | Pilella and Torres (1982) | 33        | M      | ascending colon | ileocolic bypass        | dead at 10 days          |
| 22   | Hey and Brandt (1982)  | N/A       | N/A    | colon (not specified) | N/A            | N/A                      |
| 23   | 30 Lytta (1983)        | 65        | F      | ascending colon | right hemicolectomy     | alive at 2 months        |
| 24   | Vezeridis et al. (1983) | 56        | M      | rectum at 10 cm | APR                    | intraoperative death     |
| 25   | 57 M transverse colon  | 57        | M      | transverse colon| colectomy               | alive at 14 months       |
| 26   | Kahn et al. (1979)     | 64        | M      | rectum         | APR                     | dead at nine days        |
| 27   | 44 M rectum            | 61        | F      | rectum         | investigational         | dead at 4 months         |
| 28   | Gould et al. (1983)    | 66        | F      | rectum at 5 cm  | 5-FU and radiation      | dead at 15 months        |
| 29   | Francioni et al. (1983) | 62        | F      | rectum         | APR                     | dead at 13 months        |
| 30   | Nunta et al. (1984)    | 61        | M      | splenic flexure| ileocolic bypass        | dead at 3 months         |
| 31   | Forouhar (1984)        | 65        | M      | colon (not specified) | N/A            | N/A                      |
| 32   | Pigott and Williams (1987) | 58        | M      | ascending colon | APR                    | doing well               |
| 33   | Shao et al. (1987)     | 44        | M      | cecum          | APR                     | right hemicolectomy      |
| 34   | Lundquest et al. (1988) | 45        | F      | transverse colon|                         |                          |
| 35   | McMahon (1991)         | 50        | F      | transverse colon|                         |                          |
| Case Report | Sex | Age | Site of Tumor | Procedure | Outcome |
|-------------|-----|-----|---------------|-----------|---------|
| Wyatt (1991) | M | 71 | Cecum | surgery and RT | alive at 1 year |
| Schneider et al. (1992) | | | Rectum | surgery and RT | |
| Betancourt et al. (1992) | | | Hepatic flexure | surgery and RT | |
| Vignale (1993) | M | 69 | Sigmoid colon | left hemicolectomy | alive at 8 months |
| Yoshida et al. (1994) | M | 51 | Splenic flexure | chemotherapy | dead 39 days after diagnosis |
| Vraux et al. (1994) | | | Colon | | dead 5 years after diagnosis |
| Alekseev et al. (1994) | | | Colon | | |
| Morita (1995) | M | 57 | Ascending colon | APR | alive at 2 years |
| Petrelli et al. (1996) | M | 62 | Rectum | Colectomy | alive NED |
| Juturi et al. (1998) | F | 61 | Hepatic flexure | Right hemicolectomy | 18 years after diagnosis |
| | | | | and CT | dead of disease 15 months after diagnosis |
| Goodfellow et al. (1999) | M | 66 | Hepatic flexure | Right hemicolectomy | N/A |
| Copur et al. (2001) | M | 54 | Rectosigmoid | APR + CT | dead at 18 months after diagnosis |
| Gelas et al. (2002) | F | 47 | Rectum | APR + CT | |
| | | | | APR + CT | |
| | | | | APR | |
| | | | | RT | |
| | | | | Low anterior resection | |
| | | | | Low anterior resection | |
| | | | | Descending colectomy | |
| our case | M | 89 | Descending colon | | dead 3 months after operation |

N/A = Not available; DOD = died of disease; APR = abdominoperineal resection; 5-FU = 5-fluorouracil; RT = radiation therapy; CT = chemotherapy; NED = no evidence of disease.
Fig. 1. Abdominal computed tomography (CT) scan showed a large heterogeneous mass involving the colon at the splenic flexure and swelling lymph nodes.

Fig. 2. Macroscopic appearance. The resected specimen was a huge mass of 11.0 × 8.0 cm.
**Fig. 3.** a Primary tumor showing weak squamous change, demonstrating moderately differentiated SCC. Original magnification ×100. HE stain. b Metastatic lymph node showing metastatic, moderately differentiated SCC. Original magnification ×100. HE stain.
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