

A Case of Adenosquamous Carcinoma of the Ascending Colon

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Abstract

Adenocarcinoma accounts for most of the malignant tumors originating from the colon, whereas adenosquamous carcinoma is rare, accounting for about 0.1% of all colon cancers. We present herein a case of adenosquamous carcinoma of the ascending colon. The patient was a 94-year-old woman who presented with a chief complaint of lower abdominal pain. A barium enema examination and lower gastrointestinal endoscopy showed a type 3 tumor in the ascending colon, and a biopsy confirmed the diagnosis of adenosquamous carcinoma. Right hemicolectomy was performed, and the tumor was diagnosed as a stage III advanced colon cancer. The patient had postoperative aspiration pneumonia and died 35 days after surgery. A search of Japanese literature over the past 25 years yielded 70 patients with adenosquamous carcinoma of the colon, and the clinicopathological features are discussed herein.

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Key words: adenosquamous carcinoma, colon

Introduction

Adenocarcinoma accounts for the majority of malignant tumors arising in the colon. Adenosquamous carcinoma of the colon, on the other hand, is rare at sites other than the lower rectum and anal canal¹ and has a poor prognosis². Herein, we report a case of adenosquamous carcinoma of the ascending colon.

Case Report

The patient was a 94-year-old woman who presented with a chief complaint of lower abdominal

pain. Her past medical history included dementia for 2 years and diabetes mellitus for 1 year for which she was being treated for these conditions. Her family history included a second daughter with colon cancer and a second son with stomach cancer; both were healthy at the time of presentation. Two weeks before hospitalization, she complained of lower abdominal pain; the results of a fecal occult blood test were positive. Subsequently, her previous physician ordered a barium enema examination (**Fig. 1**). A carcinoma of ascending colon was diagnosed and the patient was referred to our hospital.

Her status on admission was as follows: a slightly poor general condition; height, 150 cm; body weight, 49 kg; blood pressure, 120/62 mmHg; and heart rate,

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82 beats/min. Slight anemia was present, although no ocular jaundice was noted. The superficial lymph nodes were not palpable. No physical abnormalities were seen in the thoracic and abdominal regions. A

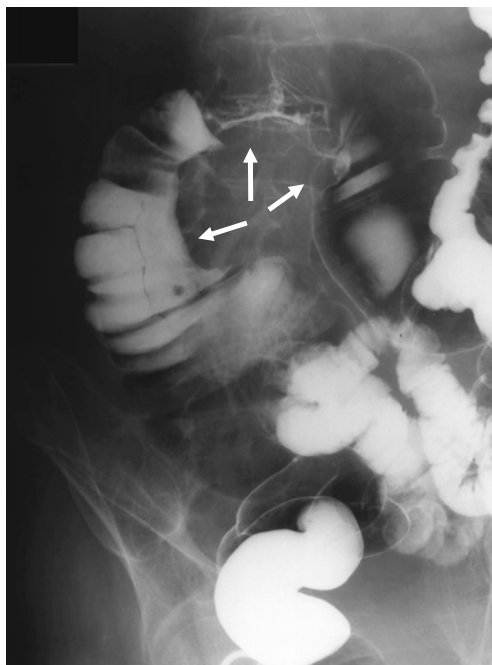


Fig. 1 Barium enema

A large type 3 tumor extending from the ascending colon to the right transverse colon (**arrows**) is visible.

rectal examination did not reveal any tumor. Results of hematologic, biochemical, and electrolyte studies at admission were normal except for the following: hemoglobin, 9.5 g/dL; serum albumin, 2.6 g/dL. The level of carcinoembryonic antigen (CEA) was 15.9 ng/mL (normal, <2.5); and the level of carbohydrate antigen (CA19-9) was normal.

Chest computed tomography (CT) showed only mild chronic bronchitis and pleural thickening; no signs of metastatic lesions were found. Abdominal CT showed wall thickening in almost all areas of the ascending colon; no liver metastases were evident. Upper gastrointestinal endoscopy showed only chronic gastritis. Lower gastrointestinal endoscopy showed circumferential stenosis of the hepatic flexure, and insertion to the oral side was not possible. A biopsy revealed adenosquamous carcinoma. Because the patient was older than 90 years and had dementia, informed consent was obtained from her family and surgery was performed 30 days after admission. The tumor of the ascending colon involved not only the hepatic flexure but also the right transverse colon. Right hemicolectomy and D3 lymph node dissection were performed. Histopathological examination showed

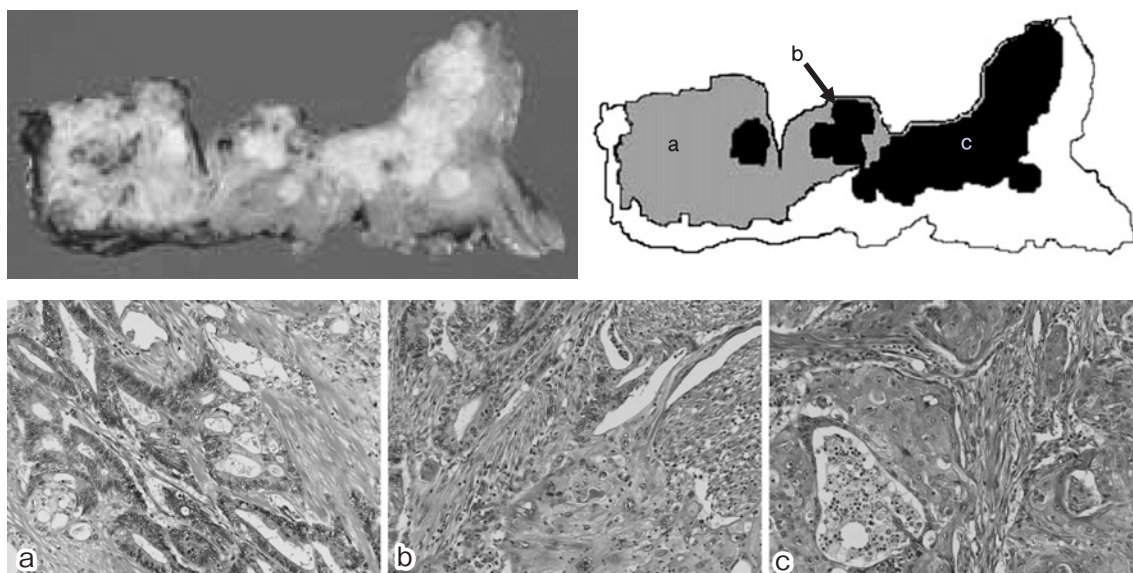


Fig. 2 Histopathological examinations

The upper left figure shows a section of the excised tissue, and the upper right figure shows a schematic diagram of the tissue. The gray areas indicate adenocarcinoma, and the black areas indicate squamous cell carcinoma. The bottom row shows histopathological images of the adenocarcinoma (a), transition area (b) and squamous cell carcinoma (c).

Table 1 Clinicopathological features of adenosquamous carcinoma

	No. of patients (n=71)	%
Gender		
male	37	52.1
female	34	47.9
Age (years)		
mean	63.3	
range	24–94	
Gross appearance (type)		
1	11	16.4
2	39	58.2
3	12	17.9
4	2	3.0
5	3	4.5
unknown	4	
Tumor size (cm)		
mean	7.3	
range	1.0–16.0	
unknown	4	
Primary site		
C + A	34	47.9
T	6	8.5
D	6	8.5
S	16	22.5
Rs + Ra	9	12.6
Lymph node meta		
negative	23	37.7
positive	38	62.3
unknown	10	
Depth of invasion		
m	0	0
sm	2	2.9
mp	2	2.9
ss ~ sei	64	94.2
unknown	3	
Stage		
0 + I	3	5.2
II	15	25.9
III	21	36.2
IV	19	32.7
unknown	13	

that the tumor was composed of moderately differentiated adenocarcinoma and well differentiated squamous cell carcinoma accompanied with intercellular bridging and cancer pearl formation. The tumor was diagnosed as an adenosquamous carcinoma (**Fig. 2**). Squamous cell carcinoma accounted for 46.6% of the cut surface of

the tumor. The final diagnosis was as follows: A (circ), type 3, 100 × 60 mm, se, INFβ, ly0, v1, n0 (0/27), pPM0, pDM0, pRM0, H0, P0, M0, and stage IIIa according to the Japanese classification of colon cancer³. Aspiration pneumonia developed 19 days after surgery and the patient died 35 days after surgery.

Discussion

The clinical guidelines for colon cancer³ define adenosquamous carcinoma of the colon as a neoplasm comprising adenocarcinoma and squamous cell carcinoma. The epithelium near the dentate line is anatomically capable of differentiating into both glandular and squamous epithelium, and Comer et al.¹ defined the rectum as located 7 cm oral to the dentate line. Adenosquamous carcinoma of the colon therefore generally excludes the lower rectum (Rb) and anal canal (P). Adenosquamous carcinoma of the colon accounts for 0.1% to 0.2%⁴ of all colon cancers. In the past 12 years since our hospital opened, a total of 841 patients with cancers of the colon and upper rectum (Ra) have undergone surgery in our department, and the incidence of adenosquamous carcinoma of the colon during this time was 0.12% (1 of 841 cases). The histogenesis of adenosquamous carcinoma remains unclear, but four hypotheses have been proposed as follows: 1) ectopic squamous cells; 2) the transformation of uncommitted basal cells into squamous cells; 3) squamous metaplasia of glandular epithelium; and 4) squamous metaplasia of adenocarcinoma cells. The fourth hypothesis that squamous metaplasia occurs during the process of conventional colon adenocarcinoma development^{5–8} is generally accepted because adenosquamous carcinoma of the colon consists of both carcinoma type and a transitional area.

We reviewed 70 cases of adenosquamous carcinoma of the colon including the upper rectum published in the Japanese literatures between 1983 and 2007 (excluding cases mentioned in minutes and suspected duplicate cases). The 71 cases, including the present case, were analyzed according to the following clinicopathological factors: gender, age, gross appearance, tumor size, location, lymph node

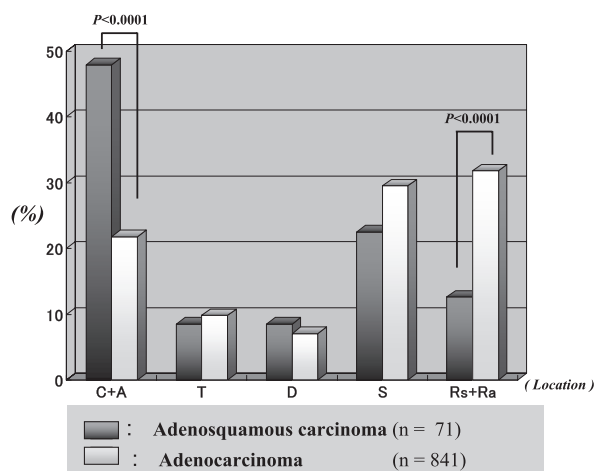


Fig. 3 Tumor location for adenosquamous carcinoma and conventional adenocarcinoma of the colon.

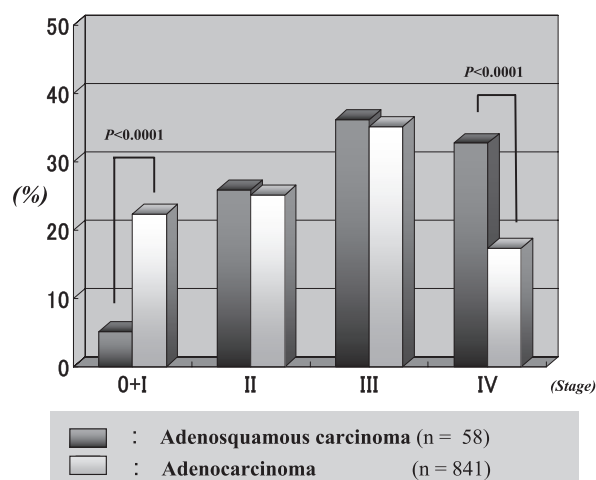


Fig. 4 Stage of adenosquamous carcinoma and conventional adenocarcinoma of the colon.

metastasis, depth of invasion and stage (Table 1). For statistical analysis, the χ^2 test was used to compare data between two groups and survival rate was calculated with the Kaplan-Meier method. Differences between groups were considered significant at $P<0.05$. Male patients (37 cases, 52.1%) were slightly outnumbered female patients, and the mean age of patients was 63.3 years. The most common macroscopic type was 2 (58.2%, 39 of 67 cases, no record for 4 cases), followed by types 3 (17.9%) and 1 (16.4%). These factors did not differ markedly between cases of adenosquamous carcinoma and cases of conventional colon cancer. The tumor size was ≥ 5 cm in 71.6% of the cases (48 of 67 cases, no record for 4 cases), and the mean diameter was 7.3 cm, slightly greater than that in cases of conventional colon cancer. As in the results reported by Michelassi et al.⁹, the incidence of adenosquamous carcinoma of the colon was the highest in the cecum and ascending colon (Fig. 3); compared with the incident in our 841 patients with conventional colorectal cancer patients (excluding patients with Rb cancer), the incidence in patients with adenosquamous carcinoma was at least double ($p<0.0001$). The rate of lymph node metastasis was 62.3% (38 of 61 cases, no record for 10 cases), and the depth of tumor invasion was at least to the subserosa (ss) in 94.2% (64 of 68 cases, no record for 3 cases), suggesting that most tumors were advanced. These results suggest that the frequency

of advanced cancer was high. Compared with the rates in the 841 patients with conventional carcinoma, the rates of stages 0 and I disease in patients with adenosquamous carcinoma were significantly lower ($p<0.0001$), the rates of stage II and III disease were similar and the rates of stage IV was significantly higher ($p<0.0001$; Fig. 4), these results indicate that adenosquamous carcinoma is a far advanced carcinoma.

Accordingly, the prognosis of the patients with adenosquamous carcinoma is very poor¹⁰. Thirty years ago, Comer et al.¹ reported that the 5-year survival rate was approximately 30%, although that for conventional carcinoma was 69.9%¹¹. However, in 58 of the 71 cases that we identified in our review of the Japanese literature, the 5-year survival rate was 47.2%. Surgical treatment with D3 lymph node dissection could be easily and safely performed, especially for tumors in the ascending colon where the incidence of adenosquamous carcinoma is highest and curative resection for advanced cancer could be achieved except in patients with stage IV disease. These findings may be due to the development of perioperative management for elderly and high-risk patients, and of radical operative procedures for advanced carcinoma.

Further investigations showed that median survival time (MST) was 13.0 months, and that the 1-year survival rate (52.9%) was similar to the 5-year survival rates (47.2%), so rapid deterioration seems

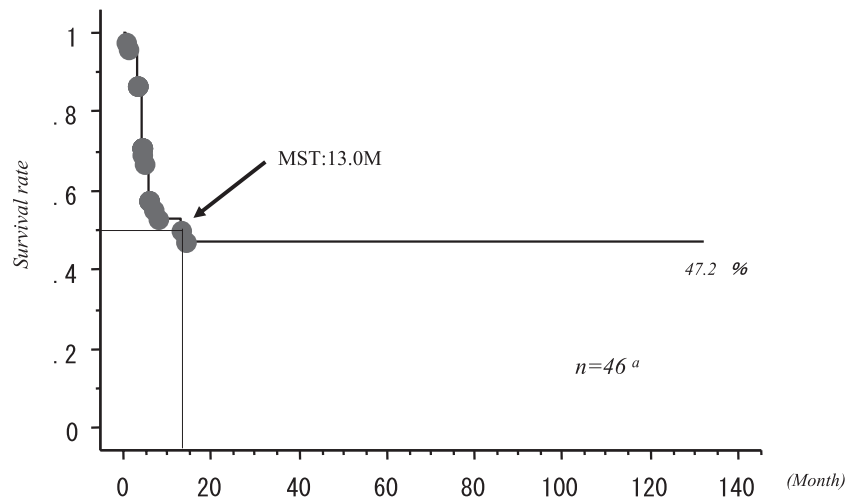


Fig. 5 Cumulative survival rate for adenosquamous carcinoma of the colon.

^aThe survival rate of 46 patients was examined because the data for the 25 patients was missing.

MST: median survival time

to occur within the first year in most cases (**Fig. 5**), suggesting that this disease is biologically aggressive during its early state. Because the efficacy of adjuvant chemotherapy and radiation therapy for adenosquamous carcinoma of the colon has not yet elucidated, surgical resection remains the primary treatment.

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