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Clinical Study of Mucinous Colorectal Carcinoma

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Purpose: The clinical influences of mucinous colorectal carcinomas are still controversial. Some previous studies have suggested that mucinous carcinomas of colorectum affect more young patients, involve the more proximal area, are more advanced at diagnosis, show increased incidence of local and distant metastasis, and have a worse prognosis than adenocarcinoma. We evaluated the clinicopathologic aspect of mucinous colorectal carcinoma.

Methods: A retrospective review of colorectal cancer patients treated between January 1990 and December 1999 was undertaken. Eight-hundred-fifty patients were operated for colorectal cancer during the period, among them 100 patient records were available for study. Sixty-two patients (7%) could be classified as mucinous carcinoma as defined by more than 50% of mucin secreting pattern on histological examination. The sex distribution, primary location of tumor, modified classification at diagnosis, recurrence rates and survival of mucinous carcinoma patients were compared with those of adenocarcinoma patients. Survival was calculated according to Kaplan-Meier, and the differences were compared using the log-rank test.

Results: The sex ratio of mucinous carcinoma was 2.0 : 1 whereas 1.32 : 1 in adenocarcinoma. The age distribution of mucinous carcinoma showed orderly 60s (30.7%), 50s (17.7%), 40s (17.7%) similar to adenocarcinoma. The locations of the mucinous carcinoma were 22 (35.5%) in the rectum, 21 (33.9%) in the right colon, 6 (9.7%) in the transverse colon, whereas for adenocarcinoma 250 (37.0%) in the rectum, 137 (20.3%) in the sigmoid colon, 114 (16.9%) in the ascending colon. The stage of primary tumor diagnosis was as follows: In mucinous carcinoma, 5 (8.1%), 13 (21.0%), 33 (53.2%), 11 (17.7%)

In adenocarcinoma, 20 stage A (3.0%), 61 B1 (9.0%), 210 B2 (31.1%), 15 C1 (2.2%), 250 C2 (37.0%), 120 D (17.7%). Three-year and five-year disease free survival rates were similar, but slightly higher in patients with adenocarcinomas. Mean survival time was also similar, 45.5±38.1 months in the mucinous carcinoma group and 45.6±33.4 months in the adenocarcinoma. Five-year survival was 65.6% and 68.1% in patients with mucinous carcinomas and adenocarcinomas, respectively; but the difference was not statistically significant. The recurrence rates were 41.9% and 22.3% in patients with mucinous carcinoma and adenocarcinoma, respectively with statistical significance (P<0.005). Local recurrence was more frequent in the mucinous carcinoma than in the adenocarcinoma significantly.

Conclusions: Our study suggested that mucinous colorectal carcinoma showed decreased survival, although having statistical significance and increased recurrence rates with statistical significance compared with those of adenocarcinoma. So, we recommend aggressive surgical treatment and careful follow-up in mucinous colorectal carcinoma. **JKSCP 2001;17:97-102**

Key Words: Mucinous colorectal carcinoma, Survival, Recurrence

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50% , 62 , 5 , 1990 1 1 1998 12 31 9 가 가 850 가 가 782 2000 1 31 440 (56%) , 146 (18.7%) , 185 (23.7%) 가 가 11 (1.3%) 가 가 (censored data) 782 Dukes B2 694 가 645 5-FU Leucovorin 가 436 (67.6%) , 5-FU 83 (12.9%), 5-FU+ ACNU+Mitomycin 31 (4.0%), 5-FU 14 (2.2%) Interferon, adriamycin 가 75 (11.6%)

345 , 12 38 , 4,800 6,000 cGy 782 WHO 62 676

(Fig. 1).

Dukes 5 ,

Peto log-rank

62 7% (Table 1), 2.05 : 1 2 가

Table 1. Histopathologic types

Histopathologic type	No. of patients (%)
Adenocarcinoma	676 (86.3)
Squamous cell carcinoma	6 (0.8)
Mucinous adenocarcinoma	62 (7.0)
Malignant lymphoma	5 (0.7)
Malignant melanoma	7 (0.9)
Undifferentiated	2 (0.3)
Smooth muscle tumor	3 (0.4)
Cloacogenic tumor	2 (0.3)
Basaloid cancer	2 (0.3)
Plasmacytoma	1 (0.1)
Total	782 (100.0)

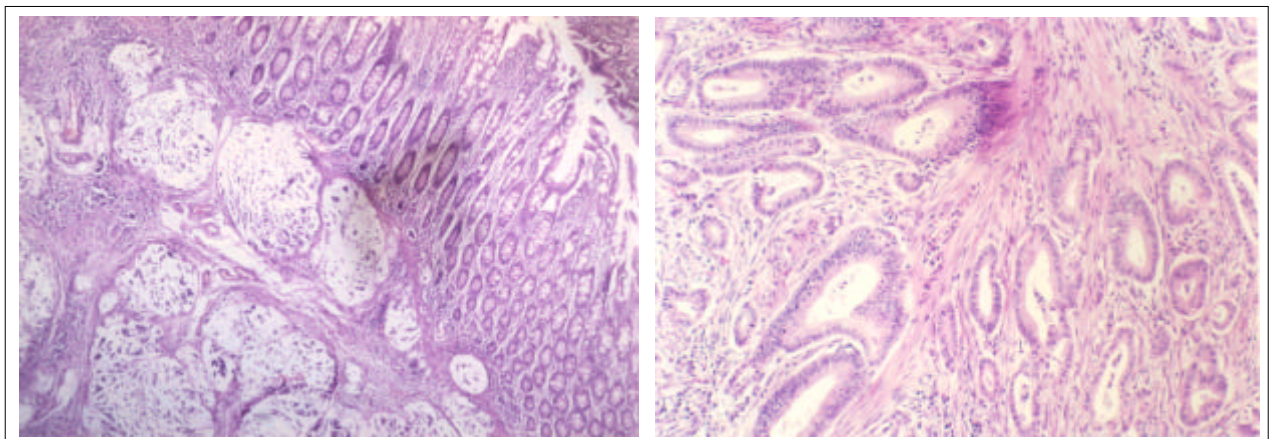


Fig. 1. Photomicrograph of mucinous adenocarcinoma including mucin pool more than 50% area (A) and well-differentiated adenocarcinoma showing tubular glandular structure (B) (H&E stain, $\times 40$).

Table 2. Age and sex distributions

Age	Mucinous adenoca.			Adenoca.		
	Male	Female	Total (%)	Male	Female	Total (%)
10-19	0	0	0 (0.0)	1	1	2 (0.03)
20-29	2	1	3 (4.8)	4	3	7 (1.0)
30-39	4	3	7 (11.3)	24	23	47 (7.0)
40-49	6	5	11 (17.7)	49	46	95 (14.1)
50-59	9	2	11 (17.7)	100	70	170 (25.2)
60-69	14	5	19 (30.7)	121	83	204 (30.2)
70-79	5	3	8 (12.9)	75	52	128 (18.9)
80-89	0	1	1 (1.6)	10	12	22 (3.3)
90-99	1	1	2 (3.2)	0	1	1 (0.02)
Total	41	20	62 (100.0)	385	291	676 (100.0)

Table 3. Location of cancer

Site	No. of patient (%)	
	Mucinous adenoca.	Adenoca.
Cecum (appendix)	3 (4.8)	22 (3.3)
Ascending colon	21 (33.9)	114 (16.9)
Transverse colon	6 (9.7)	33 (4.9)
Descending colon	2 (3.2)	40 (5.9)
Sigmoid colon	4 (6.4)	137 (20.3)
Rectosigmoid colon	4 (6.4)	68 (10.1)
Rectum	22 (35.5)	250 (37.0)
Anus	0 (0.0)	1 (0.02)
Synchronous cancer	0 (0.0)	11 (1.6)
Total	62 (100.0)	676 (100.0)

676

86%

1.32 : 1

40 (17.7%)

(Table 2).

22 (35.5%), 21 (33.9%), 6 (9.7%), 250 (37.0%), S

137 (20.3%), 114 (16.9%)

(Table 3). Dukes

A, C1 B1 5 (8.1%), B2 7 (13.2%), C2 7 (11.1%), D 11 (17.7%)

A 7 (11.1%), B1 61 (9.0%), B2 7 (11.1%)

Table 4. Modified Dukes' classification

Site	No. of patient (%)	
	Mucinous adenoca.	Adenoca.
A, limited to mucosa	0 (0.0)	20 (3.0)
B1, muscularis, node (-)	5 (8.1)	61 (9.0)
B2, serosa, node (-)	13 (21.0)	210 (31.1)
C1, muscularis, node (+)	0 (0.0)	15 (2.2)
C2, serosa, node (+)	33 (53.2)	250 (37.0)
D, distant metastasis	11 (17.7)	120 (17.7)
Total	62 (100.0)	676 (100.0)

Table 5. 5 year disease-free survival rate according to modified Dukes' stage

	No. of patients	5 year-disease free survival rate	Significance ($\chi^2 > 7.879$)
All case			
Mucinous adenoca.	62	0.345	N-S
Adenoca.	676	0.457	($\chi^2=0.107$)
Dukes' B1			
Mucinous adenoca.	5	0.750	N-S
Adenoca.	61	0.802	($\chi^2=1.018$)
Dukes' B2			
Mucinous adenoca.	13	0.615	N-S
Adenoca.	210	0.653	($\chi^2=0.232$)
Dukes' C2			
Mucinous adenoca.	33	0.361	N-S
Adenoca.	250	0.340 (3 yr)	($\chi^2=0.049$)
Dukes' D			
Mucinous adenoca.	11	0.000 (0.091)	N-S
Adenoca.	120	0.067 (0.117)	($\chi^2=0.068$)

210 (31.1%), C1 15 (2.2%), C2 7 (11.1%), D 120 (17.7%) (Table 4).

0.44, 0.35,

0.55, 0.46

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(Table 5).

45.5 ± 38.1, 45.6 ± 33.4

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65.6%, 68.1%

Table 6. 5 year survival rate according to modified Dukes' stage

	No. of patients	5 year survival rate	Significance ($\chi^2 > 7.879$)
All case			
Mucinous adenoca.	62	0.656	N-S
Adenoca.	676	0.681	($\chi^2=0.111$)
Dukes' B1			
Mucinous adenoca.	5	1.000	N-S
Adenoca.	61	0.972	($\chi^2=0.004$)
Dukes' B2			
Mucinous adenoca.	13	0.839	N-S
Adnoca.	210	0.848	($\chi^2=0.004$)
Dukes' C2			
Mucinous adenoca.	33	0.590	N-S
Adnoca.	250	0.670	($\chi^2=1.096$)
Dukes' D			
Mucinous adenoca.	11	0.221	N-S
Adenoca.	120	0.174	($\chi^2=0.609$)

Table 7. Type of recurrence

	Adenoca.	Mucinous adenoca.
Local	34 (22.5%)	9 (34.6%)
Distant	117 (77.5%)	17 (65.4%)
Total	151 (100%)	26 (100%)

$Z_{.995} = 2.575$ $z = 3.1026$ ($P < 0.005$).

($\chi^2 = 0.11$),

(Table 6).

62 26 (41.9%)

676 151 (22.3%)

($Z =$

3.40, $Z_{0.99} = 2.33$).

($P < 0.05$)(Table 7).

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 Dukes C 48.5%, 69.1%

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 13.5%) 13.6%
 ,
 41%
 22.3%
 (65.4%)

Connelly ¹¹ 62 Dukes stage B C
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 5 (residual (56%)

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 .¹⁷
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 ±33.4
 5 65.6%, 68.1%
 가 , 5

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 5 11%
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 (surgical margin) 가
 Sasaki ⁷ , Connelly ¹²

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