

Multidisciplinary Treatment for Advanced Rectal Cancer

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ABSTRACT. The effectiveness of multidisciplinary treatment for advanced rectal cancer was studied in 29 cases chosen from among 525 operations for rectal cancer performed in the 20-year period between January 1974 and December 1993. Among these 29 cases, 15 were judged nonresectable and 14 experienced local recurrence. As for the multidisciplinary treatment, 5-Fluorouracil, UFT and Mitomycin C were used for the chemotherapy portion of treatment, and liquid nitrogen was used for local treatment in cryosurgery.

As a control experiment, 11 cases of nonresectable cancer were treated by a colostomy only and 16 cases of rectal cancer with local recurrence were treated by chemotherapy only.

To determine the effectiveness of multidisciplinary treatment for nonresectable and/or locally recurred rectal cancer, patients with advanced rectal cancer were compared with control groups, but no significant improvement in survival rates was observed. Nevertheless, an excellent effect on tumor resistance was observed after cryosurgery, with the longest survival being two years and eleven months.

Therefore, to improve the effectiveness of multidisciplinary treatment, adequate chemotherapy must be provided along with improvement of the general condition of the patient (using such methods as hyperalimentation) and the effectiveness of local cryosurgery.

Key words: multidisciplinary treatment—cryosurgery—chemotherapy

Since invasion of rectal cancer into the pelvic area is sometimes judged to be nonresectable, some effective treatment must be considered. Presently, even after the first complete operation is performed, a relatively high rate of local recurrence of rectal cancer is witnessed. If local recurrence is diagnosed in the process of observation at the outpatient clinic, a different form of treatment must be considered.

For the purpose of more effectively controlling tumors and extending survival, this paper reports retrospectively on a multidisciplinary treatment combining chemotherapy and cryosurgery in addition to surgical operations for nonresectable rectal cancer and advanced cancer with local recurrence.

METHODS AND MATERIALS

Twenty-nine case studies were chosen from among 525 operations for rectal cancer performed in the 20-year period between January 1974 and December 1993. Among these 29 cases, 15 were judged nonresectable and 14 experienced local recurrence. As for the multidisciplinary treatment, 5-Fluorouracil, UFT and Mitomycin C were used for the chemotherapy portion of treatment, and liquid nitrogen was used for local treatment in cryosurgery. The amount of medication and the frequency of cryosurgery differed according to the physical condition and survival period for each case. As a control experiment, 11 cases of nonresectable cancer were treated by a colostomy only and 16 cases of rectal cancer with local recurrence were treated by chemotherapy only.

The survival rate was calculated using the Kaplan-Meier method and statistical differences were checked using the Cox-Mantel method.

RESULTS

Of the 525 cases of rectal cancer that were operated on, a total of 15 cases, i.e., 2 of Dukes C from among 159 cases and 13 of Dukes D from among 92 cases, were given multidisciplinary treatment. Their invasion sites were all in the lower rectum (Table 1).

TABLE 1. Patients with rectal cancer

Site of Rectum	Dukes Classification				Total
	A	B	C	D*	
Upper	18	27	18	20	83
Middle	46	56	76	37	215
Lower	76	51	65(2)	35(13)	227(15)
Total	140	134	159(2)	92(13)	525(15)

1974-1993

*Distant metastases

() Multidisciplinary treatment cases

These 15 cases were judged to be nonresectable and were divided into two groups: seven cases (Dukes C: 1 and D: 6) were treated by cryosurgery and chemotherapy and eight cases (Dukes C: 1 and D: 7) were treated with a colostomy in addition to cryosurgery and chemotherapy (Table 2).

TABLE 2. Multidisciplinary treatment for nonresectable cancer of the lower rectum

Treatment	Dukes Classification		Total
	C	D*	
Cryosurgery	1	6	7
+Chemotherapy			
Cryosurgery	1	7	8
+Chemotherapy			
+Colostomy			
Total	2	13	15

1974-1993

* Distant metastases

Among cases with nonresectable rectal cancer, 11 were chosen for the control group and were treated by a colostomy only. These 11 were all Dukes D patients and were chosen from all three invasion sites (Table 3).

TABLE 3. Nonresectable rectal cancer treated with only colostomy

Site of Rectum	Dukes Classification	
	C	D*
Upper		3
Middle		5
Lower		3
Total		11

1974-1993

* Distant metastases

Of the 43 cases that experienced local recurrence after surgery, we performed multidisciplinary treatment on 14: upper rectum (1); middle rectum (9); lower rectum (4). Dukes classification for these 14 cases at the time of first surgery was as follows; B: 4 cases, C: 6 cases and D: 4 cases (Table 4).

TABLE 4. Local recurrence after surgery for rectal cancer

Site of Rectum	Dukes Classification				Total
	A	B	C	D*	
Upper		2(1)	2		4(1)
Middle	1	3(2)	12(5)	2(2)	18(9)
Lower	4	7(1)	7(1)	3(2)	21(4)
Total	5	12(4)	21(6)	5(4)	43(14)

1974-1993

* Distant metastases

() Multidisciplinary treatment cases

The perineum was the major sight of local recurrence in five cases, followed by the pelvis in four cases (all of which were treated by cryosurgery under laparotomy). Four cases of recurrence took place in the remaining rectum and one case occurred at the site of the colostomy (Table 5).

TABLE 5. Site of local recurrence treated with multidisciplinary treatment

Site of Local Recurrence	Dukes Classification			Total
	B	C	D*	
Perineum	2	2	1	5
Pelvis	1(1)	3(3)		4(4)
Rectum		1	3	4
Colostomy	1			1
Total	4(1)	6(3)	4	14(4)

1974-1993

*Distant metastases

() Cryosurgery under laparotomy

Among the rectal cancers that experienced local recurrence, 16 cases were chosen for a control experiment and were treated with chemotherapy only. Dukes classification at the time of first surgery was B: 1, C: 11 and D: 4 (Table 6).

TABLE 6. Local recurrence of rectal cancer treated with only chemotherapy

Site of Rectum	Dukes Classification			Total
	B	C	D*	
Upper		2	2	4
Middle	1	3	2	6
Lower		6		6
Total	1	11	4	16

1974-1993

*Distant metastases

Looking at the five-year survival rates of colon and rectal cancer for the past 20 years, the survival rates as represented by 449 cases of colon cancer were Dukes A: 84.7%, B: 83.7%, C: 52.3%, D: 8.6%, and the survival rates for 525 cases of rectal cancer were Dukes A: 88.6%, B: 75.0%, C: 47.5%, D: 6.8%. The colon cancer survival rates show better results for Dukes B and C patients (Fig 1).

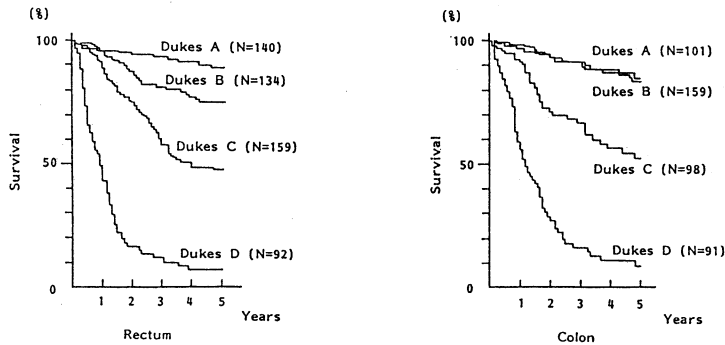


Fig 1. Five-year survival rates of colon and rectal cancer show significant differences ($p < 0.01$) each other except colon cancer Dukes A vs B.

Although none of the 15 cases of nonresectable rectal cancer receiving multidisciplinary treatment survived more than five years, 3 of 14 cases that received multidisciplinary treatment because of local recurrence survived more than five years from the first surgery (Dukes B: 2 and C: 1).

After observing the results of the multidisciplinary treatment of advanced rectal cancer, eight cases of colostomy for nonresectable rectal cancer and seven cases of noncolostomy patients were compared. However, no significant differences could be found (Fig 2).

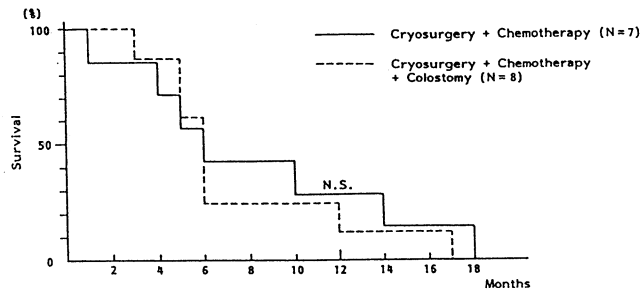


Fig 2. Survival rates of two multidisciplinary treatment groups with colostomy or not revealed no significant differences.

Then, 8 cases with multidisciplinary treatment including colostomy for nonresectable rectal cancer were compared with 11 control group cases with a colostomy only. Again, no significant differences could be found (Fig 3).

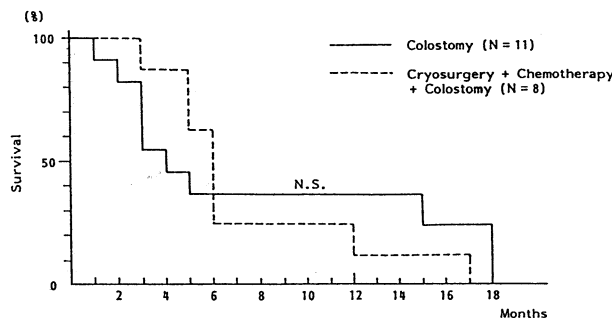


Fig 3. Survival rates of multidisciplinary treatment group and colostomy group. No significant differences could be found.

Finally, 14 cases with multidisciplinary treatment and 16 cases treated with chemotherapy only for local recurrence of rectal cancer were compared, and again, there was no significant difference (Fig 4).

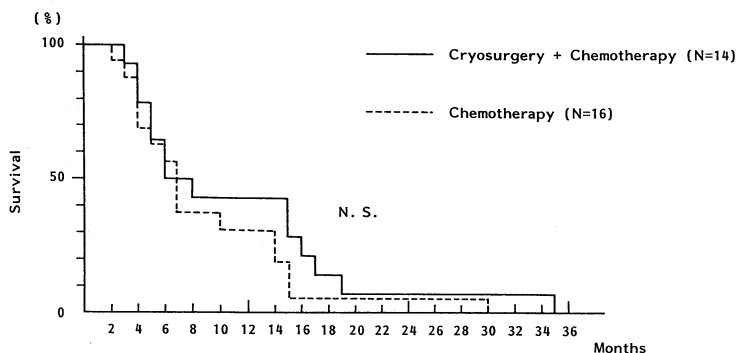


Fig 4. Survival rates of multidisciplinary treatment group and chemotherapy group showed no significant differences.

DISCUSSION

Multidisciplinary treatment including cryosurgery was used in 15 cases of nonresectable rectal cancer. Because this is a retrospective study, the frequency of chemotherapy and cryosurgery for all cases is not regular, but there appear to have been no significant differences in the survival rate whether a colostomy was performed or not. Therefore, it is important to determine the necessity of a colostomy based on the stenosis in the rectum.

To determine the life-prolonging effectiveness of multidisciplinary treatment for nonresectable rectal cancer, 11 cases involving a colostomy only were compared with 8 cases involving multidisciplinary treatment including a colostomy, but no apparent improvement in the survival rate was observed. However, as far as tumor reduction in nonresectable rectal cancer is concerned, cryosurgery seems to have been most effective. An improvement in the reduction of bleeding and pain was also noted. Therefore, to improve the effectiveness of multidisciplinary treatment, adequate chemotherapy must be provided along with improvement of the total physical condition of the patient (using such methods as hyperalimentation) and the effectiveness of local cryosurgery.¹⁾

To determine the effectiveness of multidisciplinary treatment for rectal cancer with local recurrence, this group was compared with a control group treated using chemotherapy only. Calculating the survival rate starting from the time of initial treatment for recurrence in both groups, there appeared to be no noticeable difference. Therefore, there was no life-prolonging effect with the multidisciplinary treatment.

Nevertheless, an excellent effect on tumor resistance was observed after cryosurgery with the longest survival being two years and 11 months. Among 14 cases, three survived more than five years from the first surgery (Dukes B: 2, C: 1). Among the 16 cases in the control experiment (chemotherapy alone), four years and four months was the longest survival from the time of surgery. Therefore, for rectal cancer with local recurrence, cryosurgery should be

performed where there is a recurrent tumor. By doing so, the tumor can be reduced and chemotherapy can be continued while the patient's total physical condition is being maintained.²⁾

CONCLUSION

For nonresectable rectal cancer and advanced rectal cancer with local recurrence, a multidisciplinary treatment was applied using per os or intravenous injection chemotherapy and cryosurgery, which is effective in tumor reduction. Although no statistical differences were found, a prospective study is being planned to establish a multidisciplinary treatment utilizing the strong points of various treatments.

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