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Postoperative Irradiation as Adjunctive Treatment with Radical Mastectomy in Breast Cancer

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Abstract Survival rates and locoreginal failures were determined in 40 patients who had postoperative irradiation with a radical mastectomy for breast cancer. The nine-year survival rate was 78% and the locoregiona recurrences in a irradiated field were recognized in 5% of patients, which were almost similar to other reports.

Key Words : Postoperative irradiation, Radial mastectomy, Breast Caner

Introduction

Postoperative irradiation combined with radical or modified radical mastectomy was performed at Saiseikai Shimonoseki Hospital since 1982 in 40 patients with breast cancer. This article summarizes the results of the survival rate and locoregional recurrences.

Material and Methods

From 1982 through 1989, 40 patients(all females) were treated with postoperative irradiation for breast cancer. A ratio of them to all patients with radiation therapy in Saiseikai Shimonoseki Hospital was 4.8%(40/833). The age of the patients ranged from 32 to 72 years [Table 1(1)]. Stage grouping was derived from TNM clinical classification(UICC, 1987). Two patients were in stage I, 14 in stage II, 9 in stage III A, 7 in stage III B, none in stage IV and 8 unclassified[Table 1(2)]. Histological classification was as follows, 5 papillotubular carcinomas, 3 solid tubular carcinomas, 15 scirrous carcinomas, a medullary carcinoma, a squamous cell carcinoma, an invasive carcinoma, 3 adenocarcinomas, 11 unclassified[Table 1(3)]. 10 MV X-ray or 8 MeV through 15MeV electron irradiation was performed with a linear accelerator(ML15M III, Mitsubishi, Japan). Irradiation generally was started three to four weeks following radical mastectomy. 45 Gy through 60 Gy given dose was delivered in 200 cGy fractions to the ipsilateral internal mammary(InMa) and supraclavicular(SuCl) nodes and axillary(Ax) region in five to six weeks. 17 patients received radiation in InMa+SuCl+Ax, 17 patients in InMa+ScCl, 5 patients in SuCl+Ax and a patient in InMa[Table 1(4),(5)]. 21 patients received Tamoxifen[Table 1(6)]. Standard radical mastectomy(Halsted's) was done in 35 patients, modified radical mastectomy in 3 patients(Patey's in 2 patients and Kodama's in a patient), but the type of operation was not clearly identified in 2 patients[Table 1(7)]. A survival curve was analyzed using the Kaplan-Meier analysis.

Results

Locoregional Recurrence

Table 1 Clinicopathologic features and treatment of patients with evaluation for postoperative irradiation. (1) Age (2) Stage (3) Histologic type of tumor (4) Radiation field (5) Radiation dose (6) Tamoxifen (7) Operation method (8) Locoregional recurrence (9) Distant metastasis (10) Patient's profile in recurrence. Abbreviations; in-f: in the irradiated field, out-f: out of the irradiated field, cont-no: contralateral nodal metastasis, D: dead, A: alive, M: missing, m: months. The number of patients is shown in each Table.

(1) Age

30-39	7
40-49	13
50-59	17
60-69	2
70-79	1

(2) Stage

I	2
II	14
III a	9
III b	7
IV	0
unknown	8

(3) Histology

Scirrhous	15
Papi.Tubu.	5
Soil.Tubu.	3
Medullary	1
Adeno.	3
Invasive	1
Squa.Cell	1
Unknown	11

(4) Radiation Field

Axi.+Supracla.+Int.Mam.	17
Supracla.+Int.Mam.	17
Axi.+Supracla.	5
Int.Mam.	1

(5) Radiation Dose

45 Gy	1
50 Gy	26
60 Gy	13

(6) Tamoxifen

Tamoxifen	(+)	21
	(−)	10
unknown		9

(7) Operation Method

Halsted's	35
Patey's	2
Kodama's	1
unknown	2

(8) Locoregional Recurrence

a.In the Irradiated Field		
	(+)	2
	(−)	38
b.Out of the Irradiated Field		
	(+)	5
	(−)	35
c.Contralateral Nodal Metastasis		
	(+)	3
	(−)	37

(9) Distant Metastasis

Bone	7
Lung	1
Pleura	2
Brain	1
Peritoneum	1

(10) Patient's Profile in Recurrence

age	stage	in-f	out-f	cont-no	distant metasta.	outcome
35	III b	(−)	(+)	(+)	bone	21m D
56	III a	(−)	(+)	(+)	(−)	32m A
38	II	(−)	(−)	(+)	(−)	103m A
51	unknown	(−)	(−)	(−)	pleura	45m D
40	III a	(−)	(+)	(−)	bone+lung	22m D
50	III b	(−)	(−)	(−)	bone	44m A
52	II	(−)	(−)	(−)	bone	77m A
32	II	(−)	(+)	(−)	bone+peritoneum	72m A
41	II	(+)	(+)	(−)	bone+pleura	18m D
53	unknown	(+)	(−)	(−)	bone	24m M
45	unknown	(−)	(−)	(−)	brain	16m D

Locoregional Recurrences were recognized in 2 patients in the irradiated fields and in 5 patients in the non-irradiated fields. Statistical significance was not observed between these two groups of patients (p=0.216, NS) [Table 1(8),(10)]. Also, there was no significant difference in locoregional recurrences with regard to radiation dose; 2 recurrent cases out of 26 patients with 50 Gy, none out of 13 patients with 60 Gy[Table 1(5)]. Metastases at contralateral nodes were found in 3 patients(7.5%)[Table 1(8)(10)].

Survival Curve

The 9-year survival rate was 78%(35/40 cases)(Fig.1). Five out of the 40 patients were dead within 45 months[Table 1(10)].

Distant Metastasis

Bone metastasis was found in 7 patients, brain metastasis in a patient, pulmonary metastais in a patient, peritoneal metastasis in a patient and pleural metastasis in 2 patients[Table 1(9),(10)]. Three cases out of 9 patients with distant metastases had scirrous carcinomas.

Complications of Treatment

Radiation-induced dermatitis was found in the majority of patients, but it healed within a month after radiation therapy. The degree of arm edema increased in some patients with radiation therapy.

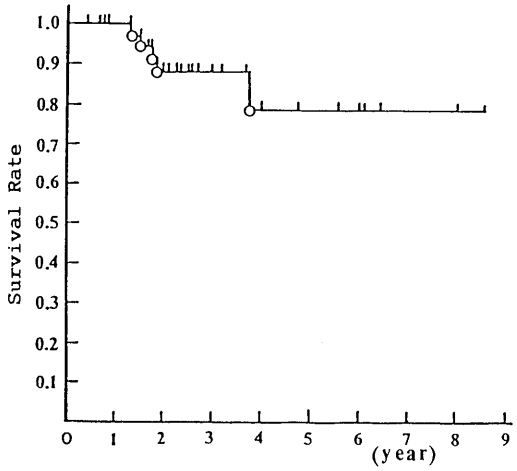

Fig. 1

Discussion

We described the results of postoperative radiation therapy for radical mastectomy. The 9-year survival rate was 78%, which would agree with other reports[1),2)]. However, the comparison with surgery alone has not been made because most of patients with nodal metastases were treated with postoperative irradiation. Therefore, it can't be evaluated if irradiation contributes to a survival rate or not. Some authors reported a survival befnefits of postoperative irradiation[1),3)] but others did not[2),4)], though radiation is known to be very effective for cell killings of breast cancer[3),5)]. Statistical significance was not observed in locoregional recurrence rates between the irradiated fields and out of them. This result may indicate irradiation is not effective for local control. However, it is difficult to conclude it because we don't have any results of locoregional recurrences without irradiation in the same fields as irradiated ones where recurrences are feasible to occur. The effect of Tamoxifen or differences between each group of stages can't be analized stastically in survival curves because only 5 patients was mortal.

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