

Surgical Treatment for Chest Wall Recurrence of Breast Cancer

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From 1977 to 1987, 23 patients with isolated chest wall recurrence, excluding sternal metastasis, from breast cancer underwent full thickness chest wall resection. The 5-year survival rate after chest wall resection was 48%, but the 5-year relapse-free survival rate was 26%. Mediastinal metastasis was proved histologically at the time of chest wall resection in 7 patients, and survival period with mediastinal involvement was significantly ($P < 0.01$) shorter than that with no mediastinal involvement ($n = 16$). In 17 patients with a long disease-free interval (DFI ≥ 24 months), survival was longer than in 6 patients with a short DFI (< 24 months). For the selected patients without mediastinal involvement and long DFI, surgical treatment for chest wall recurrence of breast cancer should play a significant role in improving the quality of life, and even in prolonging the survival rate.

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INTRODUCTION

CHEST WALL recurrence accounts for 10–30% [1–15] of breast cancer relapse and is generally considered as the first manifestation of systemic spread of the disease, since most patients with chest wall recurrence eventually develop distant metastasis. Therefore, the patients in this category are usually treated with systemic chemotherapy and/or endocrine therapy combined with radiotherapy. Surgical treatment is commonly considered not to be indicated for this type of recurrence so long as prolongation of survival is concerned.

We reported that local recurrence after mastectomy can be divided into two categories, i.e. diffuse type and solitary type [16]. The diffuse type is characterised by its rapid local progression and systemic spread, and surgical treatment is not suitable for this type of recurrence. On the other hand, the solitary type is a local disease which takes a long time for systemic spread to develop. We believe that surgical treatment should be beneficial for this type of recurrence, especially when the recurrence causes the unpleasant local symptoms such as ulceration and fungation, and since prolongation of survival period might be expected in selected patients. Therefore, we have aggressively treated the solitary local recurrence with chest wall resection.

PATIENTS AND METHODS

During 1961 to 1987, 1801 patients had undergone mastectomy for breast cancer at the Center for Adult Diseases, Osaka. Recurrence at any site was seen in 320 patients (17.8%), and chest wall recurrence with or without other site recurrence was seen in 37 patients (2.1%). We have done 40 full thickness chest wall resections for recurrence of breast cancer since 1977, including patients who underwent mastectomy at other hospitals. Excluding 17 patients who received chest wall resection for

sternal metastasis, the number of patients with isolated solitary chest wall recurrence following radical or modified radical mastectomy reaches 23. The absence of other distant metastasis was confirmed by physical examination, blood chemistry, chest X-ray, bone scintigraphy and liver ultrasonography. Chest wall recurrence was defined as a mass lying adjacent to the sternum (parasternal node recurrence) or a chest wall mass in the narrow sense excluding sternal metastasis, which can be resected only by full thickness chest wall resection.

In this series, parasternal node recurrence was proved histologically at the time of chest wall resection in 7 cases and chest wall recurrence in the narrow sense was proved in 16 cases. Median age was 55 years old (range: 28–71 years). The number of patients in stage I, II, IIIa, IIIb was 2, 8, 9 and 4, respectively. 16 patients underwent standard radical mastectomy and 8 underwent modified radical mastectomy. At the time of mastectomy, 3 were node-negative and 20 node-positive. Survival and recurrence was judged at 1 May 1990. Median follow-up period was 4.7 years (range: 2.6–9.4 years).

Before 1982, we had used synthetic materials, i.e. acrylic resin plate, to reconstruct chest wall defects [17], but there were many complications such as local skin necrosis and persistent foreign body reaction, which we reported in another paper [18]. We started to use autologous tissues (latissimus dorsi or rectus abdominis myocutaneous flap) in February 1982. Chest wall defects were reconstructed by myocutaneous flap in 15 patients (11:rectus abdominis, 4:latissimus dorsi), and 2 by pedunculated skin flap. In the remaining 6 patients, acrylic resin plate was used, but persistent foreign body reaction led all 6 patients to receive rectus abdominis myocutaneous flap reconstruction subsequently.

The resected line was designed at least 5 cm apart from the margin of the chest wall recurrent lesion. The median value of the larger diameter of lesion was 3.0 cm (range: 0.5–8.0) and median diameter of resection was 11.0 cm (5–18). After full thickness chest wall resection, doxorubicin (20 mg intravenously once every 2 weeks) was given for 1 year, and tegafur (600 mg) and tamoxifen (20 mg), both orally, were given as long as possible to all the patients as an adjuvant therapy.

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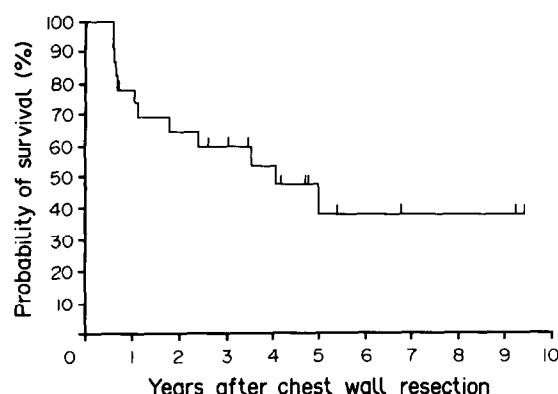


Fig. 1. Survival curve after chest wall resection ($n = 23$). Five-year survival rate is 47.9%.

Statistical analysis

Survival rate was calculated by a Kaplan–Meier method, and statistical evaluation for survival was performed by a generalised Wilcoxon test.

RESULTS

Overall survival

Survival curve after chest wall resection is shown in Fig. 1. Median survival period after chest wall resection was 36.9 months and 5-year survival rate was 48%.

Mediastinal metastasis

Chest wall resection was done only in patients whose relapses were limited to the chest wall. But, at the time of chest wall resection, mediastinal lymph node involvement was proved histologically in 7 cases (30%). Figure 2 shows survival curves after chest wall resection in negative group ($n = 16$) and in positive mediastinal metastasis group ($n = 7$). Significance was statistical between the two groups by a generalised Wilcoxon test ($P < 0.01$). Median survival period in the negative mediastinal metastasis group (45.8 months) was longer than much in the positive group (7.8 months). 4 patients in the negative group lived over 5 years, whereas none in the positive group lived over 5 years at all.

Disease-free interval

When divided into two groups depending on disease-free interval (DFI) from mastectomy to chest wall recurrence, long

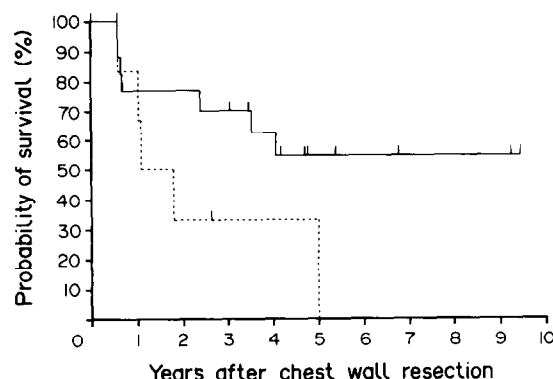


Fig. 2. Survival curves after chest wall resection. —: Mediastinal involvement(–) ($n = 16$); -----: mediastinal involvement(+) ($n = 7$); and $P < 0.01$, a generalised Wilcoxon test.

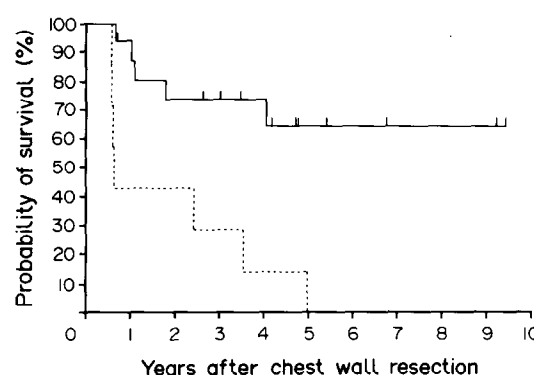


Fig. 3. Survival curves after chest wall resection. —: Disease-free interval ≥ 24 months ($n = 17$); -----: disease free interval < 24 months ($n = 6$); and $P < 0.05$, at 2 years after chest wall resection by a Kaplan–Meier method.

DFI group ($n = 17$), whose DFI was longer than 24 months, showed very longer survival periods compared with short DFI group ($n = 6$), whose DFI was shorter than 24 months (Fig. 3). Though significance was not statistical between the two groups by a generalised Wilcoxon test, statistical significance was seen ($P < 0.05$) at 2 years after chest wall resection by a Kaplan–Meier method. While long DFI group is a good prognosis group, 7 patients died. As 5 of the deceased patients (71%) in long DFI group had mediastinal metastasis at the time of chest wall resection, mediastinal involvement is a poor prognostic factor even in long DFI group.

Recurrence after chest wall resection (re-recurrence)

Among the 23 patients with full thickness chest wall resection, 18 patients (78%) re-recurred at various sites. Re-recurrent sites are shown in Table 1. Full thickness chest wall resection is, for the main purpose, for local control, however, there were 8 local recurrent patients. Among the 8 patients, recurrence was seen at the resected margin in 5 patients. If wider resection was done at the time of chest wall resection, local recurrence might be prevented in those 5 patients.

A relapse-free survival curve after chest wall resection was illustrated in Fig. 4. Median relapse-free interval was 16.1 months. Of all re-recurrence, viscera and bone metastasis, so called distant metastasis, occurred in 6 patients whose mean DFI from chest wall resection to re-recurrence was 9 months (2–29). Short DFI from chest wall resection to re-recurrence suggested that chest wall recurrence was often the first manifestation of widespread disease even in patients having no evidence of distant metastasis at chest wall resection, though chest wall recurrence was sometimes considered as a local recurrence.

Table 1. Recurrent sites after chest wall resection

Recurrent site	No. of patients	%
Local	8	44
Supra-clavicular lymph node	3	17
Distant skin	1	6
Viscera and bone	6	33
Total	18	100

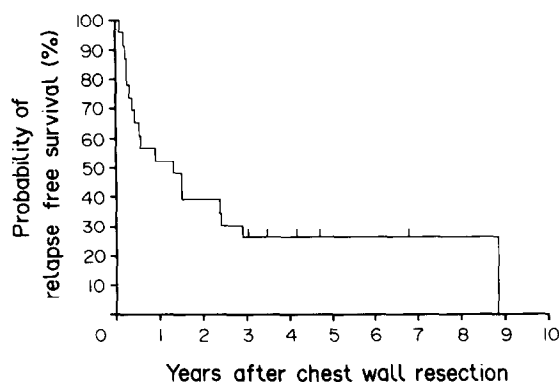


Fig. 4. Relapse-free survival curve after chest wall resection. 5-year relapse-free survival rate is 26.1%.

DISCUSSION

Recurrence is clinical reappearance of uncured cancer. A small recurrent lesion is thought of as a fraction of the whole. Because, even if recurrence is cured clinically once by various treatments, it will reappear and never be cured again. There must be some recurrent disease which is truly localised and which can be eradicated by aggressive therapy.

Though chest wall recurrence from breast cancer is sometimes thought as a local recurrence, it may be the manifestation of widely spread breast cancer. These lesions, if untreated, tend to grow, ulcerate, spread and produce symptoms. Especially, ulceration of the chest wall, which will be fungated and foul-smelling, makes the patients feel unpleasant and needs daily dressing.

The rate of incidence of locoregional recurrence of breast cancer was reported to be from about 10 to 30% [1–15], and if restricted to chest wall only, the rate became under 10%. The 5-year survival rate after chest wall resection of solitary chest wall recurrence was reported to be from about 20 to 40%. In this study, the 5-year survival rate after full thickness chest wall resection was 47.9%, which was slightly better than the rate previously reported. This is due, not only to the characteristics of breast cancer in Japan, but also to the recent various chemo- and hormonotherapies, judging from the high survival rate of the patients with recurrence.

Results of radiation therapy for chest wall recurrence were reported similar to surgical treatment [19–22]. Of course, radiation is an effective method of treatment for chest wall recurrence of breast cancer, but sometimes radionecrosis and radiation-induced squamous cell cancer of the skin may occur. Recently, we experienced radiation-induced osteomyelitis of the sternum which penetrated into the whole wall of the ascending aorta. On the other hand, after surgical treatment for chest wall recurrence, the patients need no daily dressing in the case of the ulcerated lesions and will not suffer from lately occurring complications such as radionecrosis or squamous cell cancer.

Sauerbruch [23] first reported an extensive chest wall resection for locally recurrent breast cancer in 1907, and some reports [24–26] dealt with the chest wall resection and long-term follow-up of the patients. Shah and Urban [27] reported 52 such resections precisely from 1950 to 1972, and Gilliland [28] also made a report of 106 patients with local chest wall recurrence treated by surgery and/or radiation in 1989. We began the full thickness chest wall resection for recurrent breast carcinoma for the first time in Japan. There have been no follow-up studies

dealing with the results of chest wall resection for recurrent breast carcinoma on chest wall in Japan.

Some papers have reported on indications for chest wall resection to date. Shah and Urban [27] reported that gross and determinate 5-year survival rate dropped from 43 and 57% to 16 and 19%, respectively, in the patients whose chest wall recurrences failed to respond to radiation therapy. McKenna *et al.* [29] reported that the indications were local symptoms, tumour recurrence despite radiotherapy and infection precluding chemotherapy. In 1987, Magno *et al.* [30] recommended that the patients with a distinctly good medium-term survival and a good local control of disease should be chosen. We first reported the importance of the mediastinal involvement other than the long disease-free interval from mastectomy to chest wall recurrence. In this paper, we revealed that the patients with over 24 months DFI had good prognosis, but if the patients with long DFI had mediastinal involvements, prognosis became worse. So, it is important to know whether mediastinal involvements exist before chest wall resection. Now, we look for the existence of swollen mediastinal lymph nodes by chest X-ray, computed tomography (CT) and magnetic resonance imaging (MRI), but we cannot represent the small metastatic lymph nodes by any means. The problem is how to determine mediastinal lymph node involvement at the time of chest wall recurrences in order to decide on the resection of chest wall to obtain good results after chest wall resection.

In conclusion, the rate of solitary chest wall recurrence after mastectomy for breast cancer is low, but if the chest wall produces ulcers due to chest wall recurrence, it makes the patient feel unpleasant. From the viewpoint of the quality of life rather than good survival rate, full thickness chest wall resection for isolated chest wall recurrence of breast cancer is a good therapeutic procedure.

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Determinants of the Psycho-social Outcome After Operation for Breast Cancer. Results of a Prospective Comparative Interview Study following Mastectomy and Breast Conservation

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In a prospective interview study, designed to compare the psycho-social outcome after a breast-conserving vs. a mastectomy operation, we analysed possible predictors of the psycho-social adjustment. 99 women with breast cancer histopathological TNM stages I and II were consecutively admitted to the study. Half-structured interviews, based on the Social Adjustment Scale and a scale by P. Maguire, were performed 4 and 13 months after the operation. Living together with the spouse seems to protect women from developing psycho-social problems postoperatively. Women who were gainfully employed or who were given radiotherapy had a higher risk of poor adjustment after 4 months. At 13 months, the scorings indicate that radiotherapy has a reassuring effect. Type of surgery was controlled for in the analysis and showed that, of the risk factors studied, the most consistent trend for an overall better outcome was in the breast-conserved group except for sexual disturbances. *Eur J Cancer*, Vol. 28A, No. 6/7, pp. 1062–1067, 1992.

INTRODUCTION

AMONG WOMEN with breast cancer, 20–30% express serious feelings of depression and/or anxiety after the primary surgical treatment [1–8]. This high rate of postoperative psycho-social disturbance has been seen in several reports during the last decade, despite increased awareness of the problem and attempts to improve the psycho-social care in surgical clinics [9–11]. It has been hoped that a breast-conserving procedure would reduce the number and/or severity of the problems in this regard *vis-à-vis* a mastectomy. Studies hitherto undertaken indicate a more

favourable psycho-social outcome [7, 12–14] and a better preserved body image after breast-conserving procedures [15–16], but none of the studies confirms that this type of operation is a major predictor of the psycho-social adjustment.

If individually-based surgical and nursing care are to be given to every breast cancer patient, it is important to investigate whether any factors can predict the psycho-social outcome of the treatment. Women at risk of developing psycho-social sequels might then be given support to increase their ability to cope with the disease. Some studies have tried to investigate the