

FROM THE DEPARTMENT OF SOCIAL AND FORENSIC PSYCHIATRY, ST LARS HOSPITAL, UNIVERSITY OF LUND, LUND, AND THE DEPARTMENT OF SURGERY, MALMÖ GENERAL HOSPITAL, UNIVERSITY OF LUND, MALMÖ, SWEDEN

LONG-TERM PSYCHOLOGICAL SEQUELAE OF MASTECTOMY AND BREAST CONSERVING TREATMENT FOR BREAST CANCER

L. MEYER and K. ASPEGREN

Abstract

Psychiatric and psychosocial adaptation to two types of treatment for primary breast cancer, modified radical mastectomy and partial mastectomy with radiotherapy, was studied five years after the primary treatment. 102 consecutive patients with pT1N0M0 breast cancer were invited to follow-up which was done by standardized questionnaires. Nineteen women declined the invitation and 25 others were not included for various reasons, leaving 58 to complete the interviews. 30% of the women reported accentuated mental symptoms compared to the state before treatment, with no significant difference between the two treatment groups. Psychiatric state, marital adjustment and fear of cancer recurrence were also similar in the two groups. However, breast conserving treatment seems to preserve the woman's female identity and acceptance of body configuration. We conclude that breast conservation does not in itself prevent mental sequelae after treatment for primary breast cancer. Selective psychoprophylactic programs and reorganization of the postoperative follow-up should be tried to diminish unwanted psychological reactions.

Key words: Breast cancer; modified radical mastectomy, breast conserving treatment, psychological sequelae.

There has, over the last few years, been a growing awareness of mental disturbances and sexual difficulties following breast cancer treatment. Several studies suggest that between 15 and 25% of all mastectomized women develop symptoms of depression and anxiety, while as many as 30% seem to develop sexual problems (1-17). There are two main issues which hypothetically may cause mental distress in the mastectomized woman. Firstly the threat of a potentially fatal illness; secondly, the mutilating mastectomy which results in a changed body configuration.

Surgeons have for years been aware of these fears and thought that a breast conserving treatment would remove

some of the stress. As early as 1929 breast conserving treatment was proved possible but not accepted by most surgeons in the face of the by then current state of knowledge of cancer biology. However, over the years a substantial number of patients were treated with a combination of breast conserving surgery and postoperative irradiation and were reported as having no greater mortality than mastectomized women. It was not until the 1960s that the first controlled clinical trial of the 2 treatments was made and later followed by 2 large ones (18, 19, 20). From these trials, it is clear that the patients after a partial mastectomy with axillary clearance followed by a full dose irradiation, in stage I and possibly also in stage II of the disease, do not differ in survival or local recurrence from those after a modified radical mastectomy. However, the use of radiotherapy will lengthen the treatment period (by up to 2 months), which can be a psychologically traumatic experience (21-23).

Although most clinicians intuitively believe that breast conservation will protect women from mental disturbances, little systematic comparative study has been made of psychopathological reactions after mastectomy and breast conservation. Jenkins (24) compared body image and self-concept of a group of 23 women after unilateral mastectomy within the preceding 46-month period with a group of women having non-surgical out-patient treatment. No significant differences in self-concept or body image were found between the 2 groups. Three retrospective studies comparing the psychological outcome of partial mastectomy versus mastectomy in the treatment for stage I or II breast cancer established no major differ-

ences between and no major problems within the treatment groups (25–27). The number of patients studied was small and the time period from surgery to assessment varied considerably (2 months to 8 years postoperatively). A recent retrospective study assessed the psychiatric morbidity 4 to 32 months after surgery in 101 patients, 48 having had partial mastectomy followed by radiotherapy and 53 having had mastectomy—34 of these having also received radiotherapy—in the treatment for stage I or II breast cancer (28). No significant differences in the incidence of anxiety states and/or depressive illness or of sexual problems were found between the 2 groups. In a prospective study (29) the women could choose between simple mastectomy or, alternatively, partial mastectomy followed by radiotherapy as treatment for stage I or II breast cancer. In this study very few adverse psychosocial reactions were found, with no significant differences between the groups, up to one year postoperatively. Romsaas et al.(30) lend support to these findings by noting that sexual dysfunctions in patients operated on for breast cancer are less closely related to the treatment than has hitherto been expected.

The purpose of the present retrospective study was to compare long-term (5-year) psychosocial and sexual adaptation following mastectomy or partial mastectomy. Another purpose was to try to identify psychiatric and psychosocial background factors of possible relevance to the patient's adaptability to the operation.

Material and Methods

The women included in this study were consecutive patients with stage I (pT1NOMO) breast cancer treated at Malmö General Hospital in 1980–1982. The hospital serves a city with a population of 233 000. All breast cancer patients from the city are treated at the hospital. Thus, there was no selection among the patients. Selected social and psychiatric background factors of the patients are given in the Table.

All patients were treated according to the program for stage I of the South Swedish Breast Cancer Group. This program has 2 options: Either a modified radical mastectomy without further treatment or a partial mastectomy and axillary dissection with postoperative radiotherapy of the remaining breast given as 54 Gy in 5 weeks. There is no randomization in the program but the patient and her surgeon/oncologist decide together what treatment should be given. The resulting decision mirrors both the patient's and the surgeon's preferences. Thus the patient's premorbid personality could be decisive for the treatment and might have influenced the outcome in the 2 groups.

The study was approved by the Ethical Committee of the University of Lund. From November 1985 to May 1986, 102 patients were contacted by letter and telephone calls and asked to take part in a follow-up interview. The

Table
Selected social and psychiatric background data

	Modif. radical mastectomized women (n=30)	Partial mastectomized women (n=28)	p
Age (mean/SD)	58.7+/-7.0	59.4+/-8.1	NS
No. of patients (%)			
Civil status			
Single	9 (30)	4 (14)	
Married/cohabiting	21 (70)	24 (86)	NS
Widow	4 (13)	0	0.05
Been married in a second (or later) marriage/ cohabitation	10 (33)	8 (29)	NS
Number of children			
No child	4 (13)	3 (11)	
One child	9 (30)	5 (18)	
Two children	12 (40)	9 (32)	
Three children	4 (13)	9 (32)	
Four or more children	1 (3)	2 (7)	NS
Education			
Compulsory school	26 (87)	18 (64)	
Upper secondary school	4 (13)	8 (29)	
University	0	2 (7)	NS
Occupation			
Employee	19 (63)	11 (39)	
Housewife	11 (37)	17 (61)	NS
Previous psychiatric treatment			
As outpatient only	6 (20)	3 (11)	NS
In hospital	0	3 (11)	NS
Earlier periods with symptoms of			
Depression	12 (40)	11 (39)	NS
Thoughts of suicide	3 (10)	3 (11)	NS
Attempted suicide	1 (3)	2 (7)	NS
Anxiety neurosis	10 (33)	7 (25)	NS
Lack of vitality	11 (37)	4 (14)	NS

purpose of the study was explained beforehand. Nineteen patients declined to take part in the study, most often because they thought that to discuss the surgery would arouse unmanageable emotional reactions. Another 8 patients were unable to take part in the interview on account of some somatic handicap or disease. Five patients did not, for various reasons, fit in with the planned period of interviews. No significant age differences was observed between those patients who declined to take part in the study and those who accepted. Twelve mastectomized women had had a breast reconstruction and were excluded, according to the stated purpose of the study. This left 58 patients to complete the interviews. Of these, 30 had had a modified radical mastectomy and the remaining

28 had been treated by breast conservation. Differences and similarities between the 2 groups are given in the Table.

Psychiatric assessment. Special efforts were made to obtain objectivity and reliability of data collection. Thus all interviews were highly standardized and performed by one of the authors (L. M.). The questions were generally so expressed that the answers could be dichotomized into one of two categories. This method facilitated the application of computerized data evaluation.

The clinical interview was performed at the Department of General Surgery, Malmö General Hospital, and lasted about one hour. It included a medical history, family history, socio-economic circumstances and life history. The actual mental state of the women was analyzed with the aid of different psychiatric questionnaires: A depression scale based on the CPRS psychiatric rating scale (31, 32), and a subscale, containing 20 items, assessing anxiety and phobia from a larger psychiatric questionnaire suggested by Meyer (33). The original questionnaire included 117 dichotomized questions under 7 main headings: Anxiety/phobia, Compulsion, Sensitivity, Depression, Hypomania, Affective lability and Psychosis. The questions were designed in accordance with international and local psychiatric rating scales (31, 34–36). The reliability of the questionnaire was estimated by the 'split-half' technique in 2 samples. The first was a non-psychiatric sample of 143 persons and the other a sample containing 77 psychiatric in-patients. The reliability of the applied subscale assessing anxiety and phobia was found to have a reliability score of conventionally accepted magnitude (0.72 and 0.78 in the 2 samples respectively). The subscales have been analyzed regarding their power to discriminate between diagnostic categories with promising preliminary results indicating validity of the psychiatric questionnaire. A rating scale for the description of the observed psychiatric state of the women (31) was included. Each woman was analyzed regarding her sexual adaptation to surgery as well as her reaction to her breast disease. Other areas of interest were socio-economic, psychosomatic and medical aspects of the surgery, the woman's acceptance of the change in her body contour and her understanding of the preoperative information given by the surgeon. The interview was ended with questions related to the patients' evaluation or the pre- and postoperative care.

Statistical considerations. For the purpose of identifying items representative of a specific subgroup of patients, D-indices were calculated (37). D-index expresses the probability that a specific item response will indicate the correct categorization of an individual with respect to a given clinical group. The statistical significance of differences between observed distributions was estimated by calculating Student's *t* test (38), Mann-Whitney U test or χ^2 -values, depending on the class of variables studied (39). A *p*-value of more than 5% was denoted as non-significant.

Results

General differences. The mastectomized women had less leisure time activities, with avoidance of activities necessitating exposure of the body, such as athletics or swimming, than the breast conserved women ($p < 0.02$). They were also more socially isolated and avoided joining an association or having leisure activities together with others ($p < 0.05$).

Fifteen (50%) of the mastectomized women reported more often episodes of oversensitivity to others' opinion versus 6 (21%) of the breast conserved patients ($p < 0.05$). They also more often reported episodes of inability to take initiatives (9 mastectomized patients versus 2 breast conserved), but this difference was not statistically significant.

Ten (33%) of the mastectomized women thought that their female identity had been affected adversely, compared to 2 (7%) of the breast conserved women ($p < 0.05$), and they also found it disagreeable to look at themselves in a mirror ($p < 0.01$) and to be naked in front of their spouse ($p < 0.05$).

Twelve of the breast conserved women (43%) reported pains in the treated breast. Of the mastectomized women, 7 experienced episodes of phantom pains and further 6 reported pains in the remaining breast when making some particular movement. Thus, the number of women who had long-term pains from the breasts was similar in the 2 groups.

Psychiatric state. Accentuated anxiety and/or mood impairment, compared to the state before surgery, were reported by 9 (30%) of the mastectomized women and 8 (29%) of the conservatively treated women (NS). Six of the mastectomized women (20%) stated that they were not in mental balance compared to 3 (7%) of the breast conserved women (NS). Only one patient had during the last year been in contact with a person outside the family for supportive reasons, and 2 of the mastectomized women indicated such a need. Twelve (40%) of the mastectomized women had an on-going medication of some anti-anxiety drug compared to 4 (14%) of the breast conserved women ($p < 0.05$). No significant difference between the 2 groups was, however, observed regarding alcohol consumption. As assessed by the questionnaires no significant difference was observed between the 2 groups regarding mood impairment, symptoms of anxiety or observed symptoms of mental unbalance. Sixteen patients (28%) (10 mastectomized and 6 breast conserved women, NS) demonstrated at the interview obvious clinical signs of mental unbalance and of these, 12 patients 21% (8 mastectomized and 4 breast conserved women, NS) demonstrated psychiatric symptoms of such a magnitude that indication for psychiatric care was obvious.

Those 17 patients (29%) who assented in the interview to accentuated symptoms of mood impairment and/or anxiety postoperatively were further compared to the oth-

er 41 patients. Twelve (21%) of these 17 patients had also demonstrated obvious clinical signs of mental unbalance at the interview. The mentally afflicted women reported more frequent symptoms of: inability to take initiatives ($p < 0.01$), insomnia ($p < 0.01$), a feeling of difficulties in breathing or getting enough air ($p < 0.02$), palpitations without exertion ($p < 0.02$) and a subjective feeling of not being in mental balance ($p < 0.01$). They disliked looking at themselves in a mirror ($p < 0.05$) and indicated that they thought of the breast surgery every day ($p < 0.05$). At the interview these patients demonstrated symptoms of perseveration ($p < 0.001$), pressure of speech ($p < 0.02$) and apparent sadness ($p < 0.05$). These patients were often judged to be mentally unbalanced ($p < 0.001$) and in need of psychiatric treatment ($p < 0.001$). More often these patients indicated preoperative episodes of depression ($p < 0.05$).

Unacceptance of body configuration. Fourteen of the simple mastectomized women and 3 of the segmentally operated women were defined as not accepting their body configuration after the surgery by reporting a discomfort on looking at themselves in a mirror and/or finding that their female identity had been affected adversely after the breast cancer surgery ($p < 0.01$). To characterize these patients they were compared with the other 41 patients. Such a comparison demonstrated that the women with difficulties in accepting their body configuration more often had been in unskilled manual labour ($p < 0.01$), had fewer leisure time activities ($p < 0.05$), more often a history of broken heterosexual relationships ($p < 0.05$) and in the present marriage a lack of confidence in their spouse ($p < 0.05$). After the surgery they had experienced less interest in sex ($p < 0.01$) and avoided being naked in front of their spouse ($p < 0.05$). They were more dissatisfied with the preoperative information regarding the accomplishment ($p < 0.05$) and the final result ($p < 0.05$) of the breast cancer surgery. They also more often had a history of neurotic symptoms in childhood ($p < 0.01$) and reported accentuated nervous symptoms postoperatively ($p < 0.05$). At the interview these patients demonstrated symptoms of perseveration ($p < 0.01$) and were more often judged to be mentally unbalanced ($p < 0.02$) and in need of psychiatric treatment ($p < 0.05$).

Sexual functioning. Marital adjustment seemed largely unaffected by breast cancer surgery. Four of the 44 women with a stable heterosexual relation indicated that their relation to their husband had changed for the better while 2 women indicated that it had deteriorated. Forty-one (93%) of the women living in a stable heterosexual relation had been naked in front of their spouse. However, the cancer treatment seemed to have had a substantial effect on the women's sexual adaptation. Fourteen women (24%) (9 mastectomized women and 5 conservatively treated women, NS) indicated a diminished interest in sex after treatment and 10 women (17%) (7 mastectomized women and 3 conservatively treated women, NS) indicated

a change of sexual habits regarding their breasts, such as avoidance of breast touch or preference for coitus in the dark. The great majority of the women (84%), however, indicated satisfaction with their present sex life.

Nineteen women (33%) (11 mastectomized women and 8 conservatively treated women, NS) were defined as having a less successful sexual adaptation to surgery by their indication of a diminished interest in sex and/or changed sexual habits and/or dissatisfaction with sex life. To characterize these women they were compared with the other 39 patients. Such a comparison indicated that the women with a less successful sexual adaptation to surgery more often indicated restricted arm motility as a result of the operation ($p < 0.001$) and frequent pains from neck and shoulders ($p < 0.05$). They also more often reported symptoms of somaticized anxiety, such as palpitations without exertion ($p < 0.01$), frequent dizzy fits ($p < 0.05$) and periods of abnormal weariness and inability to stand physical effort ($p < 0.02$). They had also more often suspected some form of heart disease ($p < 0.02$) and consulted a doctor for dizzy fits or a tendency to faint ($p < 0.02$). They found it disagreeable to look at themselves in a mirror ($p < 0.02$) and considered that their female identity had been affected adversely by the surgery ($p < 0.02$). They had fewer friends ($p < 0.01$) and they found their general social situation unsatisfying ($p < 0.02$). At the interview the women were judged to be in need of psychiatric treatment ($p < 0.02$).

Late reactions to the cancer disease. Twenty-one (70%) of the mastectomized women and 20 (71%) of the conservatively treated women indicated that they were afraid of a recurrence of cancer disease. Six (20%) of the mastectomized women and 3 (11%) of the conservatively treated ones responded that the breast cancer operation was on their mind every day (NS).

The patients' understanding of the preoperative information. Twelve (40%) of the mastectomized women considered the preoperative information on the operative procedure inadequate compared to 3 (11%) of the breast conserved women ($p < 0.02$). The same 12 mastectomized women also considered the information on the expected result inadequate compared to 6 (21%) of the breast conserved women (NS). Twenty-five (83%) of the mastectomized women considered the preoperative information on possible adverse psychological reactions inadequate or that this information had not been given compared to 14 (50%) of the breast conserved women ($p < 0.01$).

The patients' evaluation of the pre- and postoperative care. Seventeen (57%) of the mastectomized women considered the postoperative follow-up inadequate compared to 12 (43%) of the breast conserved women (NS). Both groups were at the time of the interview having about the same number of check-ups per year either at the local oncological clinic or at the clinic for general surgery.

The women were given the opportunity to comment freely on their experiences of the preoperative and post-

operative care. Of the total group, 29 women gave some comment. The most frequent comments were on the importance to meet the same doctor at the check-ups (24%), to get sufficient information preoperatively regarding the disease, planned surgery and possible secondary effects of the treatment (24%), to get sufficient information at the check-ups about the main findings and that the check-ups are made in a proper manner to give confidence that possible recurrences could be identified (21%), on the importance to give the cancer diagnosis in a psychologically correct way (14%), and to get frequent check-ups at least during the first year after surgery (10%). Other comments were on the difficulties to get proper exterior prosthesis, on the disagreeableness of the radiotherapy and that it was not the responsibility of the woman, but the doctor, to choose between possible surgical treatments for breast cancer.

Patients' evaluation of complications after the treatment. The patients were questioned regarding any postoperative complications and reactions, such as lymphoedema, erythroderma, nausea, extreme tiredness and lack of appetite. Fourteen (47%) of the mastectomized women and many conservatively treated women (50%) reported one or more such complications. Their response pattern was compared with the 30 patients denying any surgical complication. Patients with some complication more often had, or had had, unqualified occupations ($p < 0.05$), their relation to a spouse was unsatisfactory ($p < 0.05$) and they reported a variety of somatic expressions of anxiety ($p < 0.02-0.05$). They also more often reported a depressed mood ($p < 0.05$), a lack of initiative ($p < 0.05$) and being out of mental balance ($p < 0.01$).

Discussion

Our study was originally designed to compare psychological reactions after breast preservation or mastectomy as treatment for breast cancer. This explains why we did not include a control group. Thus, our finding of a 30% psychic morbidity after 5 years may be due to other factors than breast cancer treatment. In a study of the subjective mental complaints of 1763 women in a defined population of similar age to the one studied here, 17% complained of anxiety-related somatic symptoms, 13% of depression and 11% complained of anxiety (40). It thus seems that the incidence of mental morbidity observed in the present study is substantially higher than that which can be expected in an unselected group of Swedish women. Our results are also in good agreement with what other investigators in this field have found (for review, see Morris, 41). We thus conclude that the enhanced rate of mental morbidity here observed is related to breast cancer disease and its treatment.

Our study was made on a cohort of consecutive patients from a city population served by only one hospital. The only exclusions in our material were due to either death or

nonacceptance of the invitation to participate. Our results thus mirror a realistic situation in a Swedish town population.

The percentage of patients with mental disturbances may be even higher than the 30% recorded. Of the invited patients, 19 declined the invitation. The reasons given for declining to participate indicate that many of these 19 patients had mental problems. Thus, the real mental morbidity in a consecutive, unselected cohort of breast cancer patients may reach 50%.

Our study showed only minor differences in mental disturbances between mastectomized women and those treated by breast conservation, a result in agreement with what others have found in similar groups who were not counselled during or after the treatment. However, we found a difference in quality of life with an advantage for breast preservation. Those patients seemed to fare better on a number of points, especially acceptance of body configuration and preservation of female identity. Thus we recommend that breast conservation should be preferred in all possible cases.

Maguire et al. (9, 42) have demonstrated in randomized studies that posttreatment counselling by specially trained nurses did significantly lower the mental morbidity after treatment for breast cancer. They also showed that doctors not trained to assess psychiatric symptoms generally did not detect the mental illness of their patients.

It is important for the woman that the information on breast cancer be given in a psychologically correct way with ample time for questions. Ideally the information about the disease, the planned treatment and possible secondary effects should be given on two or more occasions. To know a doctor whom she can contact to discuss the planned surgery and any fears and psychological reactions related to the surgery, is important to the woman. Most women seem to prefer an established contact with the surgeon or a specialized nurse rather than to be referred to a psychiatrist, psychologist or social worker. Women operated on for breast cancer seem to experience the time before and immediately after the surgery as most stressful and they emphasized the importance of correct information and support during this period. Many women complained about meeting different doctors at the postoperative controls and that the examinations were made in such a way that they diminished the confidence that possible recurrences could be identified. Many women also found the postoperative controls psychologically inadequate, with too little time to put questions and with inadequate information about the results of the examinations. Thus doctors and nurses who treat cancer patients must be trained in the detection and handling of mental reactions to cancer disease as a part of their professional training.

The high frequency of long-term mental disturbances among our patients indicates that cancer-related disturbances do not heal spontaneously and are not remedied by

breast preservation. Therefore, selective psychosocial intervention programs, directed at patients at high risk for psychological morbidity, should be a part of the treatment for breast cancer. The effect of such programs should be evaluated before they are more widely applied.

ACKNOWLEDGEMENTS

This study was supported by the Memorial Foundation of Ellen and Henrik Sjöbring; The Memorial Foundation of Professor Bror Gadelius; The Pfannenstill Foundation and the Foundation of the National Swedish Board of Health and Welfare. The study was performed with the approval of the Ethical Committee, University of Lund.

Request for reprints: Dr L. Meyer, Department of Social and Forensic Psychiatry, St Lars Hospital, S-22006 Lund, Sweden.

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