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Comparison of psychological aspects and patient satisfaction following breast conserving surgery, simple mastectomy and breast reconstruction

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Abstract

The aim of this study was to assess and compare the psychological outcome and satisfaction of patients whom underwent wide local excision, mastectomy alone and mastectomy with breast reconstruction. A total of 577 patients had different types of operations for primary breast cancer (254 (44%) had wide local excision, 202 (35%) had simple mastectomy and 121 (21%) had breast reconstruction). Psychosocial morbidity and satisfaction were studied retrospectively using self-evaluation questionnaires. The three different surgical groups were cross-matched into four different age group. Significant statistical differences existed between the three procedures regarding satisfaction and psychosocial morbidity (anxiety, depression, body image, sexuality and self-esteem) in favour of wide local excision followed by breast reconstruction. Greatest morbidity was seen in the mastectomy group. Patient satisfaction of cosmetic outcome and psychosocial aspects was greater with wide local excision than with breast reconstruction or mastectomy. However, since wide local excision is indicated in only a group of patients, breast reconstruction should be an option available to patients requiring mastectomy.

Keywords: Breast conserving surgery; Breast reconstruction; Mastectomy; Satisfaction; Psychology

1. Introduction

The loss of a breast after mastectomy has significant psychological and sexual implications [1–3]. Although an external breast prosthesis may mask breast loss to the outside world, it is never incorporated into a woman's body image and does not always help her address the sense of deformity.

Because breast conserving surgery (BCS) leaves a women's body image intact; it may convey advantages over mastectomy in terms of body image, although previous studies [4–8] have failed to show significant psychological and sexual benefits of BCS over mastectomy. Breast reconstruction (BR) often represents another acceptable option for women who require mastectomy [9].

In the Nottingham Breast Unit, three primary treatment options have been used for patients with operable breast cancer; they are (i) wide local excision; simple mastectomy; and (iii) breast reconstruction immediate or delayed, often using subcutaneous mastectomy.

In this study, we compared patient satisfaction with cosmetic outcome and the psychosocial morbidity between the three different operative procedures.

2. Patients and methods

A series of 630 consecutive patients who remained disease-free following surgery for primary breast cancer were approached to take part in this study as part of their routine follow-up visit to the clinic. 577 (92%) patients agreed and completed the questionnaires: 254 (44%) women had wide local excision, 202 (35%) simple mastectomy and 121 (21%) breast reconstruction. They were seen postoperatively between June 1997 and October 1998. The follow-up was 39.5 months (range: 2–203) for wide local excision, 47.5 months (range: 30–68) for breast reconstruction and 51.2 months (range: 4–218) in the simple mastectomy group.

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Our criteria for offering wide local excision, simple mastectomy and breast reconstruction are when the tumour is less than 3 cm in diameter on both clinical and radiological measurements. The patient is then offered the choice between breast conserving surgery (wide local excision and radiotherapy) and mastectomy. There are various postoperative pathological criteria on which a woman who initially underwent breast conserving surgery is advised to convert to subsequent mastectomy. Those women who have to be advised to undergo mastectomy are offered mastectomy with reconstruction. The offer of reconstruction is not made as part of the initial offer because it is considered that the best chance of obtaining a good cosmetic result is by wide local excision.

All patients were aged less than 70 years. They were given three psychological questionnaires to complete and return in a prepaid envelope. Three standardised questionnaires were used: (1) the Hospital Anxiety Depression Scale (HADS) [10]; (2) the Body Image Scale [11]; and (3) the Rosenberg Self-Esteem (RSE) Scale [12].

A study-specific questionnaire was used to evaluate satisfaction of the cosmetic outcome as: very satisfied, moderately, slightly and not satisfied at all.

The operations performed were:

1. Wide local excision: 254 patients (44%) undwerwent this with a mean age of 52.4 years, and a follow-up period of between 3 and 203 months (mean: 39.5). Postoperative radiation was given for 219 (86%) patients, and only 33 (13%) had chemotherapy.
2. Breast reconstruction: 121 patients (21%) with a mean age of 47.5 years had breast reconstruction (81 (67%) subcutaneous mastectomy, 23 (19%) skin expansion, 13 (11%) latissimus dorsi flap and 4 (3%) patients had a transverse rectus abdominis myocutaneous (TRAM) flap). 38 (31%) patients had immediate reconstruction, while 83 (69%) were delayed. 44 (36%) women had postoperative radiation and 36 (30%) had chemotherapy.
3. Simple mastectomy: 202 patients (35%) had simple mastectomy. 70 (35%) of them with a mean age of 56.1 years chose this option when they were given the choice between wide local excision and simple mastectomy. The remaining 132 (65%) patients with a mean age of 54.2 years had to have a simple mastectomy.

Patient perception of the effects of the procedures on sexual attractiveness was assessed in four categories: not at all, a little, quite a bit and very much.

The three groups were similar regarding civil status, employment and education. They were therefore cross-matched by age into four groups: Group 1: 20–39 years; Group 2: 40–49 years; Group 3: 50–59 years; Group 4: 60–69 years (Table 1).

Statistical comparisons were made using the Chi-squared test and Kruskal–Wallis one-way ANOVA analysis to test the significance of differences. Data were analysed using the Statistical Package for the Social Sciences (SPSS). A P value of <0.05 was considered significant.

3. Results

3.1. Satisfaction

When patients were asked: How satisfied are you with the cosmetic result of your operation? 230 (91%) of the wide local excision were very much or moderately satisfied with the cosmetic outcome compared with 97 (80%) of the breast reconstruction group and 147 (73%) of the simple mastectomy group (Table 2). There was a significant difference between the three procedures in favour of wide local excision, with the exception of Age Group 1 and details of patient satisfaction in each age group are summarised in Table 3.

3.2. Sexuality

When patients were asked: Have you been feeling less sexually attractive as a result of your surgery? Only 45 (18%) of the wide local excision patients stated that they felt quite a bit or very much so compared with 30 (25%) of the breast reconstruction and 137 (68%) of the simple mastectomy groups (Table 4). Significant statistical differences were noted between the treatment policies within each age group (Table 5).

Table 1
The age groups

	Group 1 20–39 years n (%)	Group 2 40–49 years n (%)	Group 3 50–59 years n (%)	Group 4 60–70 years n (%)
Simple mastectomy ($n=202$)	16 (8)	47 (23)	70 (35)	69 (34)
Breast reconstruction ($n=121$)	26 (21)	57 (47)	35 (29)	3 (2)
Wide local excision ($n=254$)	15 (6)	80 (31)	90 (35)	69 (27)
Total ($n=577$)	57 (10)	184 (32)	195 (34)	141 (24)

3.3. Anxiety and depression

139 (69%) of the simple mastectomy group had some degree of anxiety, compared with 66 (55%) of the breast reconstruction group and 97 (38%) of the wide local excision patients. In addition, 20 (10%) of the simple mastectomy group had some degree of depression compared with 3 (2%) of the breast reconstruction group and 19 (7%) of the wide local excision (Table 6). Significant differences were shown in age groups between the different operations, with the exception of Age Group 1 and the depression measurements (Table 7). Anxiety and depression was better in the simple mastectomy sub-group ($n=70$ patients) who chose their operation than the other sub-group ($n=132$) who did not chose their mastectomy operation ($P<0.05$).

3.4. Body image

A significantly better body image was observed in the wide local excision group, with the worst body image in the simple mastectomy group (Table 7).

3.5. Self-esteem

Better self-esteem was shown in the wide local excision group and the worst in the simple mastectomy patients (Table 7).

4. Discussion

BCS for the treatment of primary breast cancer has been a goal of surgeons and radiotherapists for some time and is now regarded as an appropriate therapy [13,14]. Early comparisons of BCS with mastectomy did not demonstrate major psychological advantages. However, more recently, we reported our cosmetic results [15] and patient satisfaction [16] following wide local excision in separate reports, and showed that the psychological outcome was better among patients with a better cosmesis [17].

The issue remains controversial, but it should be noted that most published studies in the 1980s and early 1990s that showed no protection from psychological

Table 2
Patient satisfaction results. How satisfied are you with the cosmetic result of your operation?

	Very satisfied *n* (%)	Moderately *n* (%)	Slightly *n* (%)	Not satisfied at all *n* (%)
Simple mastectomy ($n=202$)	50 (25)	97 (48)	42 (21)	13 (6)
Breast reconstruction ($n=121$)	51 (42)	46 (38)	20 (17)	4 (3)
Wide local excision ($n=254$)	156 (61)	74 (29)	21 (8)	3 (1)

Table 3
Details of patient satisfaction in each age group

No. of cases	(*n*)	Mean rank	
Simple mastectomy	16	35.72	Age Group 1
Breast reconstruction	26	27.83	
Wide local excision	15	23.87	
Total	57	$P=0.08$, $\chi^2=5.04$	
Simple mastectomy	47	113.85	Age Group 2
Breast reconstruction	57	93.19	
Wide local excision	80	76.09	
Total	184	$P<0.001$, $\chi^2=18.17$	
Simple mastectomy	70	117.69	Age Group 3
Breast reconstruction	35	103.69	
Wide local excision	90	80.47	
Total	195	$P<0.001$, $\chi^2=20.46$	
Simple mastectomy	69	87.23	Age Group 4
Breast reconstruction	3	79.42	
Wide local excision	69	57.17	
Total	141	$P<0.001$, $\chi^2=21.25$	

Table 4
Sexuality results. Have you been feeling less sexually attractive as a result of your surgery?

	Not at all *n* (%)	A little *n* (%)	Quite a bit *n* (%)	Very much *n* (%)
Simple mastectomy ($n=202$)	12 (6)	53 (26)	79 (39)	58 (29)
Breast reconstruction ($n=121$)	38 (31)	53 (44)	24 (20)	6 (5)
Wide local excision ($n=254$)	112 (44)	97 (38)	35 (14)	10 (4)

Table 5
Details of sexual attractiveness in each age group

No. of cases	(*n*)	Mean rank	
Simple mastectomy	16	47.22	Age Group 1
Breast reconstruction	26	21.96	
Wide local excision	15	21.77	
Total	57	$P<0.001$, $\chi^2=29.69$	
Simple mastectomy	47	128.50	Age Group 2
Breast reconstruction	57	82.23	
Wide local excision	80	74.89	
Total	184	$P<0.001$, $\chi^2=36.2$	
Simple mastectomy	70	134.91	Age Group 3
Breast reconstruction	35	79.39	
Wide local excision	90	76.53	
Total	195	$P<0.001$, $\chi^2=50.76$	
Simple mastectomy	69	95.0	Age Group 4
Breast reconstruction	3	70.17	
Wide local excision	69	47.42	
Total	141	$P<0.001$, $\chi^2=49.97$	

Table 6
Results of anxiety and depression scores (HAD scale)

	Anxiety				Depression			
	Normal: 0–7 *n* (%)	Mild: 8–10 *n* (%)	Moderate: 11–14 *n* (%)	Severe: 15–21 *n* (%)	Normal: 0–7 *n* (%)	Mild: 8–10 *n* (%)	Moderate: 11–14 *n* (%)	Severe: 15–21 *n* (%)
Simple mastectomy ($n=202$)	63 (31)	94 (47)	36 (18)	9 (4)	182 (90)	19 (9)	1 (0.5)	0 (0)
Breast reconstruction ($n=121$)	55 (45)	46 (38)	16 (13)	4 (3)	118 (98)	2 (2)	1 (1)	0 (0)
Wide local excision ($n=254$)	157 (62)	65 (26)	30 (12)	2 (1)	235 (93)	15 (6)	4 (2)	0 (0)

dysfunction with BCS [4–8] could have been due to worry about a cancer recurrence because only a small portion of the breast is excised. However, some investigations [18] reported no difference between the BCS group and the mastectomy group with regard to worry of recurrence and psychological morbidity. The suggestion that the diagnosis of breast cancer may well have a bigger role to play in psychological adjustment, regardless of the operation carried out [18] is also possible.

We felt that this subject needed to be revisited, so we conducted this retrospective survey with a large sample of patients taking account of the fact that surgical and radiotherapy techniques of BCS have been improved over time and probably now achieve better cosmetic results. The cosmetic results in our own series, which were recently assessed, show that over 70% of the patients who had a wide local excision achieved a good or excellent result [15]. The better cosmesis has been shown to promote a greater psychological well-being [17]. The increasing role of the specialist breast care nurse and counselling during the last decade may also help psychosocial adjustment at diagnosis and during treatment. Furthermore although BCS was sometimes more troublesome to patients, as it required 5 weeks of radiotherapy and was more costly than mastectomy, the body image, patient satisfaction with cosmetic outcome and psychosocial morbidity were better in this BCS group, with statistically significant differences in this study (Tables 3, 5, 7).

This study also compared the psychological outcome from the different procedures when the patient was offered a choice of the primary procedure and the age of the patient appeared to make a big difference with regard to whether they chose wide local excision or mastectomy.

Our results also showed that breast reconstruction offers another option with possible psychological benefits to patients with operable breast cancer, as the patients who had breast reconstruction recalled less psychological distress than those who underwent simple mastectomy without reconstruction. In a previous report [19], our findings support the recommendation

Table 7
Details of anxiety, depression, body image and self-esteem of all age groups of the three different operations

		Mean rank				
	No. of cases	Anxiety	Depression	Body image	Self-esteem	
Simple mastectomy	16	38.19	35.66	47.13	36.47	Age Group 1
Breast reconstruction	26	26.12	24.62	23.29	27.83	
Wide local excision	15	24.2	29.5	19.37	23.07	
Total	57	$P=0.03$, $\chi^2=7.5$	$P=0.09$, $\chi^2=4.7$	$P<0.001$, $\chi^2=27.7$	$P=0.05$, $\chi^2=5.39$	
Simple mastectomy	47	116.49	121.23	140.11	113.66	Age Group 2
Breast reconstruction	57	90.56	81.55	90.01	90.18	
Wide local excision	80	76.32	79.62	62.82	78.24	
Total	184	$P<0.001$, $\chi^2=17.5$	$P<0.001$, $\chi^2=21.7$	$P<0.001$, $\chi^2=64.6$	$P<0.01$, $\chi^2=13.6$	
Simple mastectomy	70	121.07	134.35	143.88	120.1	Age Group 3
Breast reconstruction	35	112.6	84.16	105.56	106.33	
Wide local excision	90	74.38	75.11	59.4	77.57	
Total	195	$P<0.001$, $\chi^2=30.13$	$P<0.001$, $\chi^2=47.3$	$P<0.001$, $\chi^2=89.4$	$P<0.001$, $\chi^2=23.4$	
Simple mastectomy	69	81.27	82.41	103.2	82.68	Age Group 4
Breast reconstruction	3	46.17	32.17	38.67	39	
Wide local excision	69	61.81	61.28	40	60.7	
Total	141	$P=0.01$, $\chi^2=9.06$	$P<0.001$, $\chi^2=12.3$	$P<0.001$, $\chi^2=84.9$	$P=0.003$, $\chi^2=11.94$	

made in other studies [20,21] for immediate rather than delayed breast reconstruction. We believe that the overall lower level of distress observed following immediate reconstruction is likely to have stemmed from the fact that these women did not experience the degree of severe self-consciousness that accompanies loss of the breast.

Although the number of breast conserving procedures and breast reconstruction operations have been increasing, both operations demand much of patients and are costly. For these reasons, the satisfaction with cosmetic outcome and psychological effects of wide local excision and breast reconstruction must be estimated. It was apparent that body image and patient satisfaction was superior in the wide local excision group to that following breast reconstruction, as 91% of the wide local excision group were very much or moderately satisfied with their cosmetic outcome compared with only 80% of the breast reconstruction group. As for the psychological morbidity, 55% of the breast reconstruction group had some degree of anxiety in comparison with 38% of the wide local excision group ($P < 0.05$). A significantly better body image was noticed in the wide local excision group compared with the breast reconstruction group ($P < 0.001$). For some women, the most important psychological factor determining the choice of therapy appears to be the degree of concern about adverse effects, such as disfigurement, that would possibly lessen the sense of femininity [22]. That wide local excision resulted in less changes in body image is probably due to the fact that it is less extensive and disfiguring than breast reconstruction and simple mastectomy. In this study, patient satisfaction with cosmetic outcome following wide local excision was found to be far superior to that with breast reconstruction.

For those patients who require mastectomy, the offer of breast reconstruction should be mandatory. It seems absurd in the 21st century that while no one would consider offering women at risk of breast cancer prophylactic mastectomy without reconstruction, women who do have breast cancer still receive mastectomy without the automatic offer of reconstruction.

In this study, it is possible that the clinical characteristics of the patients and their psychological backgrounds could have been different in the three groups and the pre-morbid personality differences could have contributed to the treatment allocation, as more gloomy patients might chose mastectomy. We showed in a previous study [19] that anxiety and depression are not adversely affected by less favourable prognostic factors, and within a single procedure (e.g. wide local excision) it was the cosmetic outcome which played the main role in determining psychological well-being [17]. However, we can not exclude that having to advocate a mastectomy may be more easily perceived as a poor prognostic factor than any other determinants.

A prospective, randomised trial would serve to decrease the possible selection bias when evaluating the psychological effects of the three different operations. However, this research has been shown to be impossible to perform, as many patients would wish to choose between these options whenever possible.

In conclusion, the psychological well-being and quality of life of the patient is an important goal in the management of breast cancer [23]. In this retrospective sample, patient satisfaction with cosmetic outcome and psychosocial aspects were better following wide local excision than following breast reconstruction or simple mastectomy. Since wide local excision is indicated in only a group of patients, breast reconstruction should be available to all patients who undergo mastectomy.

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