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A survey of general surgeons' attitudes towards breast reconstruction after mastectomy

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Within the last 15–20 years there have been many changes in the management of breast cancer. Along with changes in treatment, possibilities for breast reconstruction have become increasingly sophisticated and commonplace. Despite the availability of breast reconstruction, we have noted large variations in referral patterns. Because the surgical treatment of breast cancer is largely undertaken by general surgeons, we investigated general surgeons' attitudes towards reconstruction using a postal questionnaire.

In 1995, a questionnaire involving hypothetical criticisms was sent to general surgical members of the Association of Surgeons of Great Britain and Ireland. A total of 136 surgeons responded, 79 (58%) of whom had a specialist interest in breast cancer. Each surgeon saw an average of 68 new cases of breast cancer per year (range 0–400).

The general surgeons were concerned about three areas: (1) 32.3% felt that breast reconstruction might adversely delay the detection of local recurrence; (2) 16.6% were worried that breast reconstruction has high morbidity; and (3) 17.4% said that patients did not want breast reconstruction despite being advised of its availability.

To investigate these concerns further, an extensive literature search was undertaken. There is no evidence that breast reconstruction delays the detection of local recurrence. With appropriate patient selection, the morbidity of reconstructive options appears very acceptable. Finally, immediate breast reconstruction has psychological benefits when compared with delayed reconstruction.

Within the last 15–20 years there have been many changes in the management of breast cancer. The efficacy of more conservative operations and the role of adjuvant therapies have, to a large part, been clarified *(1,2)*. Along with these changes in treatment, possibilities for breast reconstruction have become increasingly sophisticated and commonplace. Despite the availability of breast reconstruction, we have noted large variations in referral patterns. Because surgical treatment of breast cancer is largely undertaken by general surgeons (increasingly as a subspecialist interest) we were interested in general surgeons' opinions about breast reconstruction.

Mendelson *(3)* undertook a survey of Australian general surgeons' attitudes to breast reconstruction 16 years ago. He found two-thirds of surgeons sampled were in favour of breast reconstruction, although significant concerns were raised about (1) the possibility of masking local recurrence; (2) disappointing results of reconstruction; and (3) oncologically inadequate mastectomies. With advances in extirpative surgery, adjuvant therapies and reconstruction we wanted to know if these concerns were still a significant factor influencing decisions to undertake, or refer, a woman for breast reconstruction.

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Materials and methods

Based on Mendelson's study *(3)*, a questionnaire was designed. The following questions were asked:

A. Basic questions

1 Do you have a special interest in breast cancer?
2 Approximately how many new cases of breast cancer do you see per year?
3 Do you undertake breast reconstruction yourself?
4 Do you refer patients for reconstruction after mastectomy?

B. Hypothetical criticisms of breast reconstruction

Surgeons were asked to indicate if they thought the following criticisms were valid or not.

1 Reconstructive surgery may interfere with host defences.
2 Reconstruction, by masking the operative site, may delay the detection of local recurrence.
3 This type of surgery is unnecessary, the patient should learn to live with the deformity.
4 The patient has already undergone enough surgery, further surgery for reconstruction is not warranted.
5 The qualitative results of breast reconstruction are not worth the time and effort involved.
6 The oncological soundness of mastectomy may be compromised because reconstruction is under consideration.
7 Patients do not want reconstruction, despite being advised, or being aware of its availability.
8 The reconstructive options available have a high morbidity.

C. Specific questions

1 What would you consider the earliest interval before starting reconstructive surgery for breast cancer?
2 Who should be responsible for advising the patient that breast reconstruction may be a possibility for her and make the appropriate referral?
3 Who should perform reconstructive breast surgery?
4 Have you yourself performed any of the following reconstructive techniques for breast reconstruction? (i) Smooth surface silicone implant; (ii) Rough textured silicone implant; (iii) Permanent tissue expander (eg Becker implant); (iv) Temporary tissue expander and silicone prosthesis; (v) Local muscle flap±prosthesis; (vi) Free tissue transfer.

Each surgeon was also asked how long they had been qualified.

In 1995 the questionnaire was sent to general surgical members of the Association of Surgeons of Great Britain and Ireland.

Results

A total of 136 surgeons responded to the questionnaire, of whom 78 (58%) had a special interest in breast cancer. The average number of new breast cancer cases was 68 per year per surgeon (range 0–400). Their average length of qualification was 24 years (range 12–44 years).

The first set of questions was answered by 136 respondents; the second by 132 and the third by 128.

A. Basic questions

In all, 103 surgeons (76%) usually referred their patients for breast reconstruction and 33 (24%) usually undertook breast reconstruction themselves. Of the respondents to this survey, 79 (58%) claimed a special interest in breast surgery.

None of the respondents to this study were within 10 years of qualification. The younger breast surgeons (within 11–15 years of qualification) seemed to undertake breast reconstruction more often and be more likely not to refer patients compared with their older colleagues; however, numbers in each age range were very small and this result may reflect small number bias.

B. Hypothetical criticisms of breast reconstruction

These results are summarised in Fig. 1. From these data it appeared that respondents were most concerned about breast reconstruction masking local recurrence of cancer (34.3%); 17.4% felt that patients did not want reconstruction, despite being aware of its availability, and 16.6% were concerned that breast reconstruction has a high morbidity. Of the remaining criticisms, over 80% of respondents thought they were invalid.

C. Specific questions

The 'earliest' interval after mastectomy before reconstruction varied from immediately to 5 years (mean = 6 months).

The majority of respondents believed the responsibility for suggesting breast reconstruction lay with the general/breast surgeon (73%). The remainder believed that either the surgeon or the general practitioner should suggest or initiate a referral for breast reconstruction.

Most respondents (63%) believed that either a plastic or general surgeon should perform reconstructive breast

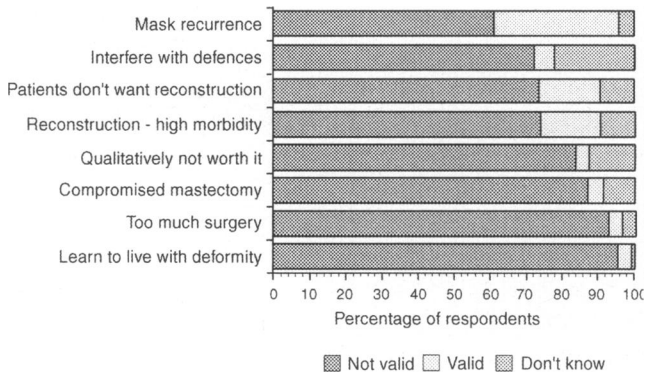

Figure 1. Hypothetical criticisms of breast reconstruction after mastectomy for cancer.

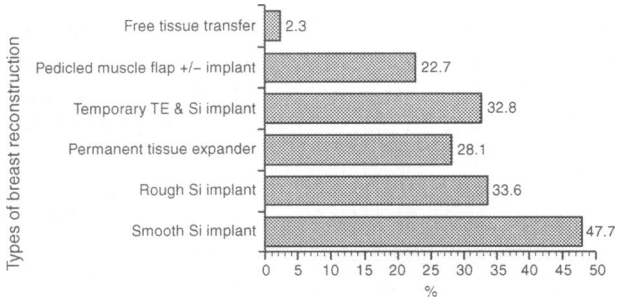

Figure 2. Percentage of 128 general surgeons performing different types of breast reconstruction.

surgery, depending on their training and special interest. Of surgeons, 36% believed that the plastic surgeons were more appropriate and one surgeon said general surgeons should undertake the reconstruction.

The general surgeons surveyed had undertaken all types of breast reconstruction (Fig. 2). As might be expected, the percentage performing the different reconstructions decreased with increasing complexity.

Discussion

From this survey of British general surgeons, there seems to have been an increase in the proportion of surgeons supporting breast reconstruction after mastectomy. When Mendelson *(3)* surveyed Australian surgeons in 1981, only two-thirds were in favour of post-mastectomy reconstruction; 95.5% of our respondents either undertook or referred patients for reconstruction.

There remains concern that post-mastectomy breast reconstruction might delay the detection of local recurrence and that the surgical procedures have a high morbidity. In addition, some surgeons believed that patients did not want reconstruction, despite being advised of its availability.

Over one-third of respondents were concerned that breast reconstruction might adversely delay the detection of local recurrence. Most recurrences occur in the skin and/or subcutaneous tissues; because most implants and tissue expanders are placed submuscularly it is relatively easy to detect local recurrences since the skin and subcutaneous tissue are stretched *(4)*. Submuscular implant placement produces forward projection of the mastectomy plane, which actually facilitates physical examination and follow-up *(5)*. Noone *et al. (6)*, in a series of 185 patients undergoing immediate breast reconstruction, diagnosed all local or regional recurrences while the recurrence was still small; in no patients did the presence of an implant interfere with detection of recurrence. Other groups have not found evidence of autologous breast reconstructions interfering with detection of local recurrence *(7,8)*. Petit *et al. (9)* found that the risk of local recurrence and second primary cancers were the same in reconstructed and non-reconstructed patients; surprisingly, the risk of distant metastases and death were lower in those who underwent breast reconstruction.

Concern about morbidity of breast reconstruction was evident in our series. Complications associated with breast reconstruction include: implant extrusion; infection; capsular contracture; fat necrosis; flap loss and donor site problems (eg seroma formation; abdominal hernias). It is difficult to produce accurate figures of complications, but it appears that the overall complication rate depends on type of reconstruction and patient selection.

At the present time, transverse rectus abdominis myocutaneous (TRAM) flap reconstructions are probably the gold standard for autogenous breast reconstruction. These flaps, whether free or pedicled, are also the most surgically demanding procedures. Hartrampf and Michelow *(10)*, in a series of 475 pedicled TRAM flap reconstructions, found an overall complication rate of 16.2%. Feller *(11)*, in a series of 151 free TRAM flaps, had a total complication rate of 17%. In both series, the most common complication was partial flap loss (6.3% and 2.6%). Grotting *et al. (12)* reported 54 immediate TRAM flap breast reconstructions with a 16.6% overall complication rate. They also compared pedicled immediate TRAM flap with immediate free TRAM flap and found that, in selected patients, free tissue transfer was safer, with less donor site morbidity and improved aesthetic result. Less satisfactory results were reported by Crespo *et al. (13)* with 34% overall complication rate; including partial or total flap loss (7%), seroma requiring aspiration (8%), fat necrosis (4%), haematoma (4%) and infection (3%).

Pedicled latissimus dorsi myocutaneous breast reconstruction, while still a major procedure, is somewhat less demanding than TRAM flap reconstruction. A disadvantage of the technique is that an implant is frequently required. Implantation has been found to induce the same rate of severe capsular contracture as observed in simple implantation and the overall complication rate also appears increased *(14)*. De May *et al. (14)*, in a series of 150 latissimus dorsi flaps with and without prosthesis for breast reconstruction, reported a 25% early complication rate. In this series, the most common early complication was donor site seroma (8.6%), followed by haematoma (6.6%). They reported one total flap loss and five partial flap losses. Prosthesis displacement occurred in four cases; this was eliminated by suturing the deep surface of latissimus dorsi to serratus anterior laterally. Late complications were related to capsular contracture (Baker III 24% and Baker IV 2%); all of these patients underwent capsulotomy. After the introduction of low-bleed, textured implants, the capsular contracture rate fell to 10%. Bostwick *et al. (15)*, in an early series of 60 latissimus dorsi flaps, reported only 1.8% complication rate (two haematomas and one donor site seroma). Of these cases, 48 were for breast reconstruction and none of the patients had implant insertion. Kroll and Baldwin *(16)*, in a series of 325 patients, discussed the differences between myocutaneous flap type reconstructions compared with tissue expansion techniques. They concluded that complication rates are higher in implant-type reconstructions, therefore suggesting that the additional cost and more extensive surgery in the case of

myocutaneous flaps are justified by low failure rate and long-term freedom from complications.

Prosthesis only reconstructions are perhaps perceived as less complex than flap reconstruction with or without implant. While the operation may be less demanding, reported complication rates are very variable and may exceed those seen for flap reconstructions *(16)*. In 1978 Radovan *(17)* introduced a two-stage technique for breast reconstruction in which a temporary tissue expander was replaced by a permanent breast implant. In 68 patients, he reported a complication rate of 16% early and 12% late. The most common early complication was infection (7.3%) resulting in implant removal in half of the infected cases; followed by haematoma (4.4%); then skin necrosis (all had received radiotherapy) (3%). Late complications included capsular contracture (Baker grade III 12%). In 1983, Becker *(18)* introduced a tissue expander that could be left as a permanent breast prosthesis after removing the detachable reservoir. In his initial series of 23 patients he reported an 11% complication rate; the most common being implant adjustment (5.8%) because of insufficient pocket dissection, followed by leaking valve (one case). In 1987, Becker and Maraist *(5)* reported a series of 34 patients undergoing immediate breast reconstruction using the same method. The overall complication rate was similar, 14%; the most common complication was implant adjustment (11%). The incidence of capsular contracture was extremely low (but not reported) and was treated by overinflating the implant for a short period and then reducing its volume. Similar results were reported by Crespo *et al. (13)*. In a series of 115 patients reconstructed with tissue expanders/prostheses, there was a 19% complication rate; the most common being periprosthetic seroma (7%), followed by haematoma (4.3%) and infection (4.3%). The largest series to date of 185 patients for immediate prosthetic breast reconstruction reported 4% prosthesis loss, 2% cellulitis, 12% seromas and 15% minor wound breakdown *(6)*. Implant reconstruction requires careful patient selection, eg high rates of implant extrusion have been reported with the use of Becker expander/prosthesis in previously irradiated patients *(19)*.

All authors agree that morbidity can be minimised by careful patient selection, proper flap design and meticulous surgical technique. Various recommendations have been suggested to further reduce the complication rates of reconstructive options. Radovan *(17)* suggested that contracture rates could be reduced by partial capsulotomy of the implant pocket when the second stage of breast reconstruction is carried out. Becker and Maraist *(5)* treated capsular contractures by implant overinflation for a short period of time followed by volume reduction. Donor site seroma is a common complication with latissimus dorsi reconstructions; a prospective trial from the West Midlands demonstrated that donor site seroma can be reduced to zero by quilting the donor site skin flaps to the underlying chest wall *(20)*.

Nearly 20% of general surgeons believed patients do not want reconstruction, despite being advised of its availability. This was surprising because it challenges a common assumption, that mastectomy without reconstruction automatically results in psychiatric morbidity caused by an altered body image *(21)*. In 1952, Renneker and Cutler *(22)* first described the psychological reaction caused by radical mastectomy as a grief response which they believed to be because of the loss of the breast. Numerous studies have since been carried out in an attempt to measure the psychological morbidity after treatment of breast carcinoma. It has been shown that psychiatric morbidity (anxiety and depression) is a common problem for patients treated for breast cancer, although its levels are mild to moderate and tend to reduce during the first year after treatment *(23)*. It has also been shown that deterioration in sexual relationships, sexual problems related to altered body image and self-consciousness of abnormal appearance occur in 30–50% of patients *(24)*. Although there is evidence that there are psychological benefits with immediate breast reconstruction *(25)*, especially if reconstructive options are discussed at the time of first consultation *(23)*, there are other studies which indicate that 'post-mastectomy women' have already developed positive attitudes towards themselves and life in general; breast restoration has no apparent impact on these attitudes and a significant proportion of them cope very well with an external prosthesis *(21,26)*. This population of patients perhaps represents those who either had already had enough surgery or did not perceive the mastectomy as a negative threat but as a positive step towards life and do not wish to undergo breast reconstruction.

The majority of general surgeons (55%) favoured immediate reconstruction after mastectomy; of those preferring delayed reconstruction the mean time was 6 months. The timing of reconstruction should be such that adjuvant therapy is not delayed and the results are lasting *(27)*. It appears that reconstruction has an acceptable morbidity when done either as an immediate or delayed procedure *(25)*. There is no evidence to date to suggest that immediate breast reconstruction increases complication rates or interferes with adjuvant therapy *(7,28)*. Vinton *et al. (29)* have shown that mastectomy with immediate breast reconstruction appeared as safe as modified radical mastectomy alone with respect to wound complications. In a series of 128 patients undergoing immediate breast reconstruction with TRAM flaps, Elliot *et al. (8)* found that chemotherapy was delayed in only one patient, because of delayed healing. Immediate reconstruction requires a well-informed and highly motivated patient able to comprehend the reconstructive options and the potential complications. It also requires absolute co-operation between excisional and reconstructive surgeon *(27)*. Before undertaking immediate autogenous tissue reconstruction the oncological surgeon must feel confident that adequate margins have been resected. If doubt exists, reconstruction should be delayed until complete microscopic examination of the resected specimen has been obtained; delayed reconstruction can then proceed later *(7)*.

Immediate reconstruction may also have psychological benefits. Dean *et al. (30)*, in a controlled randomised trial, compared one group receiving immediate breast reconstruction after mastectomy with a control group to whom breast reconstruction was offered 12 months later. They found immediate breast reconstruction reduced psychiatric morbidity 3 months after surgery.

Our survey found a mixed view on who should undertake breast reconstruction; most felt that either a general or plastic surgeon was appropriate, depending on their training. However, we found that surgeons who responded to our survey were only able to offer a limited repertoire of reconstructions; despite 58% having a special interest in breast cancer. We believe that to obtain optimal results, and to provide the patient with informed choice, the reconstructive surgeon should be able to offer a full range of appropriate reconstructive procedures. Until (and if) breast surgeons are trained in both excision and reconstruction, this may necessitate a combined approach by appropriately trained general and plastic surgeons. A two-team approach also provides an opportunity for simultaneous excision and reconstruction in cases undergoing immediate reconstruction. We believe this scenario may produce better results in terms of oncological management, design of mastectomy flaps and aesthetic appearance with lower complication rates.

Conclusion

In our survey, almost all respondents were in favour of breast reconstruction in principle. One-third of them were concerned that reconstructive options might adversely delay the detection of local recurrences. Although this percentage is significantly lower than in Mendelson's original paper *(3)* (35% *versus* 59%) it is still high. Current evidence from the literature does not support this attitude; on the contrary breast reconstruction, either immediate or delayed, with prosthesis, autologous tissue, or in combination is safe and does not delay the detection of local recurrence.

Reconstructive options have an acceptable morbidity and produce psychological benefits. Women who are not in favour after adequate counselling most probably have already had enough surgery or learned to live with external prostheses and have developed positive attitudes. It appears that immediate breast reconstruction produces psychological benefits compared with delayed procedures. Our respondents reflected the trend for immediate breast reconstruction after mastectomy, and we believe that these procedures should be undertaken by surgeons alone, or in combination, who can offer a patient the full range of diagnostic, excisional, reconstructive and oncological treatments if better results are to be achieved.

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