

INFORMATION FOR GPs:

Reconstructive and Oncoplastic Options for Patients with Breast Cancer

Introduction

Surgical resection of breast malignancy (invasive cancer or in situ disease) was traditionally by mastectomy (without reconstruction) or breast conserving surgery with a simple geometric pattern (wide local excision with an ellipse or segmentectomy). For many women, these techniques provide good results, but increasingly there is recognition that an endpoint of a near-symmetrical pair of breasts (reconstructed or natural) following breast cancer treatment gives improved quality of life for these patients.

Is breast reconstruction really valuable in terms of women's well-being?

Breast reconstruction has been recognised as being beneficial for reducing the psychosocial impact of mastectomy since the early 1980s.[1, 2] The more recent advent of measurement of outcomes using the Patient Reported Outcome Measurement tool the BREAST-Q [3] has allowed for a much better understanding of the magnitude of the impact of reconstruction following mastectomy. Here are the BREAST-Q scores from a cohort of 162 Australian women, (scores are out of 100) before and after reconstruction.[4]

Average Score	Pre-op	Post-op	Change in score
Breast Satisfaction	44.99	64.92	↑19.93
Psychosocial Well being	55.44	71.47	↑16.03
Physical well being - chest	69.83	74.78	↑4.95
Sexual well being	38.74	54.17	↑15.43

N.B. two thirds of patients were delayed or mixed timing of reconstruction, whilst one third were immediate reconstruction. Post-op scores are ≥6 months following breast mound reconstruction. A change in score of 10 points is considered clinically meaningful in BREAST Q literature.

What are the options?

- I. Tumour size amenable to breast conserving surgery
 - a. Standard (geometric pattern) BCS resection (usually with radiotherapy to follow)
 - b. "Oncoplastic" BCS resection – this involves resection of the affected part of the breast and rearrangement of the remaining breast parenchyma to leave a more natural shape than would result from a standard geometric pattern BCS (usually with radiotherapy to follow). There may be adjustment of the contralateral breast at the same time or at a later date. Therapeutic mammoplasty (removal of a tumour using a breast reduction technique) is one oncoplastic option which has been shown to be superior to mastectomy and reconstruction [5].
 - c. Mastectomy and reconstruction (sometimes bilateral). This is not normally offered as standard care but maybe the best option for women with high genetic risk for further cancers. Some women who have reservations about radiotherapy may also prefer this option if it means they can avoid radiotherapy. Some women have a deep seated fear of further cancer within the breast and express a preference for bilateral mastectomy for this reason. Although such cases need to be considered with caution, they should certainly not be dismissed out of hand.

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2. Tumour size not amenable to breast conserving surgery
 - a. Mastectomy with “immediate” reconstruction. This most commonly involves insertion of an implant (one stage reconstruction) or a tissue expander (first stage of a two stage reconstruction) under the mastectomy skin flaps (+/- under pec major or serratus muscle +/- under manufactured matrix). Autologous flaps (where tissue is transferred from one part of the body to another, either leaving the blood supply connected (pedicled flap) or where the blood vessels are disconnected and reconnected again with microsurgery (free flap)) can also be used to reconstruct the breast in the immediate setting and have been found to give superior results, but involve more extensive surgery [4, 6-8].
 - b. Mastectomy and completion of adjuvant therapy then reconstruction at a later date. This can be with tissue expander / implant or with autologous flaps.

What are the pros and cons of different types of post-mastectomy breast reconstruction?

Details of the different types of reconstruction are in the attached **Table**. Breast reconstruction is a more complex field than one might expect. A key message to patients should be that there is never a single “best” type of reconstruction – different types suit different people. Another vital message is that any reconstruction will not be a replica of the lost breast and that having a reconstruction will not completely avoid the “grieving” associated with mastectomy. General practitioners can really assist the woman by helping to manage her expectations.

Overall, autologous flaps result in a higher quality end-result and avoid the maintenance issues and concerns over implant-related risks. However, implant reconstruction usually means less recovery time, less impact on the rest of the body and often a very satisfactory result. When considering timing, immediate reconstruction is often considered preferential. Immediate reconstruction probably assists in mitigating against post-mastectomy depression and also allows preservation of the native breast skin in skin-sparing mastectomy patterns. Delayed reconstruction, however, is also a valid choice and can sometimes yield better end outcomes in terms of patient satisfaction and well-being [7].

Radiotherapy can affect the outcome of breast reconstruction, and so if radiotherapy is needed for cancer treatment, it needs to be factored in when making decisions about breast reconstruction.

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What should I look for in a breast cancer service when considering referrals?

Breast cancer services have different models in different places. In some centres breast surgeons work with plastic surgeons to offer oncoplastic BCS and the full range of reconstructive options following mastectomy; in others, some breast surgeons perform implant-based reconstruction and sometimes pedicled flap surgery, but work with plastic surgeons when more complex or free autologous flaps are the most appropriate and the preferred patient option. Centres where there are a full range of reconstructive options available, through one sort of provider or another, and which provide access to multidisciplinary discussion through multidisciplinary team (MDT) meetings, allow patients the best choices for their care. Centres where there are only a limited range of options or limited links between different sorts of surgeons may not offer your patients the best choice. Although the focus of this information sheet is on reconstructive surgery, it is also important for the centre to have integrated medical and radiation oncology services.

BreastSurgANZ and ASPS believe that patient choice should be at the centre of the model of care of any modern breast unit and that referral mechanisms should be available so that patients can access a full range of reconstructive options.

How to encourage informed choice in your patients

Associate Professor Meagan Brennan FRACGP has published an excellent resource on this. [REF 9]-

The key steps as she sees it are:

1. Start the conversation early
2. Refer to a MDT that includes an oncoplastic breast surgeon and/ or plastic surgeon
3. Continue the conversation
4. Refer for support

The link to her article is here: <https://www1.racgp.org.au/ajgp/2020/july/gps-key-to-low-rate-of-breast-reconstruction-in-au>

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Table of pros and cons of different types of post-mastectomy breast reconstruction. Note: For all types of breast reconstruction the techniques below refer to reconstruction of the breast “mound”. A nipple reconstruction is not usually performed at the same time but can be performed later, once the reconstructed breast mound has healed and attained a stable shape and size. The most suitable reconstruction technique depends on patient circumstances, such as body habitus, co-morbidities and cancer treatments. Decision about reconstruction should be made in consultation with the patient and their reconstructive surgeon.

	What’s involved?	Pros	Cons	Who does these reconstructions?
Mastectomy and immediate one stage reconstruction (with implant)	Mastectomy may be in an ellipse or in a skin-sparing pattern. Then there is careful dissection of a pocket to sit the implant in, usually deep to the pec major muscle. It may also involve elevation of part of the serratus anterior muscle or use of a manufactured matrix to hold the implant in the right position. In some cases, implants are placed entirely on top of the pec muscle “prepectoral” and are held in position by biological or synthetic matrix.	<ul style="list-style-type: none"> • Any reconstruction offers reduced risk of post-mastectomy depression • Logistical –single operation appeals to many especially those with work or family commitments • Psychological –pts often fear the idea of “waking up with nothing there” – immediate recon avoids this • Implant reconstructions require no donor site scars • Potential for nipple sparing mastectomy 	<ul style="list-style-type: none"> • Higher risk of mastectomy skin healing problems • Implant reconstructions produce patient-reported outcomes that are less favourable, but still very acceptable than those for autologous reconstructions, • Implants may need replacement over time and have specific risk profiles • Radiotherapy may adversely affect the outcome in up to 50% of cases 	Breast Surgeons perform the mastectomy in nearly all cases. Dissection of the pocket and Insertion of the implant maybe done by the same breast surgeon who did the mastectomy if they have oncoplastic training, or by a plastic surgeon

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<p>Mastectomy and immediate reconstruction (insertion of tissue expander as first stage of two stage reconstruction)</p>	<p>Similar to above, but a device with an adjustable volume is used to insert into the dissected pocket instead of a definitive implant. Volume is then added later in several “fills” before a second operation to swap to the definitive implant</p>	<ul style="list-style-type: none"> • Any reconstruction offers reduced risk of post-mastectomy depression • Reduced risk of skin healing problems • Opportunity to adjust volume and position of pocket in a planned way • Patient can be involved in deciding final volume • Implant reconstructions require no donor site scars • Potential for nipple sparing mastectomy 	<ul style="list-style-type: none"> • Logistical – two operations • Implant reconstructions produce patient-reported outcomes that are less favourable, but still very acceptable than those for autologous reconstructions, • Implants may need replacement over time and have specific risk profiles • Radiotherapy may adversely affect the outcome in up to 50% of cases 	<p>Breast Surgeons perform the mastectomy in nearly all cases. Dissection of the pocket and Insertion of the tissue expander may be done by the same breast surgeon who did the mastectomy if they have oncoplastic training, or by a plastic surgeon.</p>
<p>Mastectomy and immediate reconstruction with an autologous flap</p>	<p>Mastectomy followed by import of a flap of tissue from a different part of the body.</p> <ul style="list-style-type: none"> • Back (lat dorsi) • Abdomen (TRAM or DIEP) 	<ul style="list-style-type: none"> • Any reconstruction offers reduced risk of post-mastectomy depression • Better outcome than implant reconstruction as measured by PROMs 	<ul style="list-style-type: none"> • Medical - Longer anaesthetic / surgery may be problematic for those with multiple comorbidities • Longer recovery from surgery • Small risk of flap failure • Donor site scar and potential 	<p>Breast Surgeons perform the mastectomy in nearly all cases. Autologous flaps are most commonly performed by plastic surgeons. Oncoplastic-trained breast surgeons may offer pedicled flaps but rarely offer</p>

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	<ul style="list-style-type: none"> • Gluteal or thigh flaps Can involve disconnection and reconnection of blood supply (microsurgery) in a free flap or leaving blood supply connected (pedicled flap) 	<ul style="list-style-type: none"> • Less need for “replacement or revision” surgery down the track • Does not hold the risks associated with implants • Potential for nipple sparing mastectomy 	<p>morbidity where flap has been taken from</p> <ul style="list-style-type: none"> • Radiotherapy may affect the outcome 	microsurgical free flaps.
Delayed reconstruction with tissue expander then implant	The mastectomy scar is re-opened and a pocket is formed to accept a tissue expander. Once the skin has healed the patient undergoes multiple “fills” of the expander. Once the appropriate volume has been achieved the patient has a second operation to swap to the definitive implant	<ul style="list-style-type: none"> • Patient has completed all cancer treatment prior to reconstruction • Minimal risk of mastectomy skin flap necrosis • Implant reconstructions require no donor site scars 	<ul style="list-style-type: none"> • Exposed to higher risk of depression in the immediate post-mastectomy period • Logistic – delayed nature means longer period before reconstruction completed • More limited skin envelope can impact shape / aesthetics of reconstruction • Prior radiotherapy can lead to increased complication profile 	Plastic Surgeons or Oncoplastic-trained breast surgeons
Delayed reconstruction with autologous flaps	The mastectomy scar is re-opened and a pocket is formed followed by import of a flap of tissue from a different part of the body.	<ul style="list-style-type: none"> • Patient has completed all cancer treatment prior to reconstruction 	<ul style="list-style-type: none"> • Exposed to higher risk of depression in the immediate post-mastectomy period • Medical - Longer anaesthetic / surgery may be problematic for 	Autologous flaps are most commonly performed by plastic surgeons. Oncoplastic-trained breast surgeons may offer pedicled flaps but rarely offer



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	<ul style="list-style-type: none"> - Back (lat dorsi) - Abdomen (TRAM / DIEP) - Gluteal or thigh flaps <p>Can involve disconnection and reconnection of blood supply (microsurgery) in a free flap or leaving blood supply connected (pedicled flap).</p>	<ul style="list-style-type: none"> • Better outcome than implant reconstruction as measured by PROMs 	<p>those with multiple comorbidities</p> <ul style="list-style-type: none"> • Longer recovery from surgery • Risk of flap failure • Donor site scar and potential morbidity where flap has been taken • Logistic – delayed nature means longer period before reconstruction completed 	<p>microsurgical free flaps.</p>
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