

Mastectomies of healthy, contralateral breasts in patients with breast cancer

Breast cancer remains the most common malignancy for women in the UK and the leading cause of death for women aged 34–54 years. Since the 1990s, the paradigm shift in surgical treatment has been away from mastectomy towards breast conservation. This remains the gold standard in appropriate patients in terms of oncological and aesthetic outcomes.

Contralateral risk-reducing mastectomy

Contralateral risk-reducing mastectomy is the removal of the opposite, healthy breast in patients with breast cancer. It is a highly contentious procedure, as rates of contralateral risk-reducing mastectomy in the USA have almost trebled in patients with both invasive and in situ disease in recent years (Yao and Winchester, 2010). There are growing concerns that after the initial struggle for the acceptance of breast conservation in the 1990s, we are slowly drifting towards increasing mastectomy rates again, even of normal healthy breasts.

This increase is somewhat surprising given that rates of contralateral breast cancer are decreasing following the widespread use of adjuvant treatments. Tamoxifen, aromatase inhibitors, cytotoxic chemotherapy agents and even herceptin have all been shown to reduce the incidence of breast cancer on the unaffected side (Early Breast Cancer Trialists' Collaborative Group, 2005).

When a contralateral breast cancer does occur, it tends to be prognostically less relevant than the index cancer (Ciatto et al, 2004). Regular surveillance of breast cancer patients with modern day imaging modalities accounts for the smaller, less advanced stage presentation of a contralateral breast cancer. In addition, the risk of death of the index cancer usually outweighs that of the contralateral breast cancer.

Patients choosing contralateral risk-reducing mastectomy may not have

improved survival rates (Chung and Giuliano, 2012) and their reasons for requesting contralateral surgery may be complex. Patients' perceptions of risk and anxiety about recurrent disease are probably the strongest factors. At the time of diagnosis of an index breast cancer, most women will significantly overestimate their risk of developing contralateral breast cancer (Tuttle, 2011). The fear of dying may distort the decision-making process. The challenge for health professionals therefore is to objectively assess a woman's risk of developing a contralateral breast cancer, to make recommendations that are evidence based, and yet also to take into account the broader patient context.

In the UK, there is a paucity of data regarding contralateral risk-reducing mastectomy and until recently no formal guidelines for preoperative assessment and counselling. Although the National Institute of Health and Care Excellence made a number of recommendations in June 2013 no formal protocol was proposed. In contrast, there is a wealth of experience in the management of high-risk patients with breast cancer gene mutations and family history requesting risk-reducing mastectomy before any cancer diagnosis. These patients are assessed in specialized family history clinics by geneticists and psychologists before evaluation for surgery. There are formalized National Institute of Health and Clinical Excellence guidelines (since 2004) and an accepted protocol – neither of which is currently in place for the breast cancer patient requesting a contralateral mastectomy.

Several studies have evaluated which factors may have contributed to the rise in this procedure (Arrington and Tuttle, 2009). There is an association between contralateral risk-reducing mastectomy and young age, high levels of education, ethnicity – in particular Caucasians – and a positive family history of breast cancer. Failed attempts at breast conservation are seen more commonly in those patients

requesting contralateral risk-reducing mastectomy. In addition, multicentric disease, lobular histology and being treated by a female surgeon are all independent predictors of increased rates of contralateral risk-reducing mastectomy.

The increasing usage of preoperative magnetic resonance imaging has led to the identification of more occult contralateral lesions necessitating more biopsies. This vicious cycle of more invasive investigations perpetuates more anxiety that may account for studies showing that patients undergoing contralateral risk-reducing mastectomy were twice as likely to have undergone a preoperative magnetic resonance imaging scan compared to those undergoing ipsilateral surgery alone (King et al, 2011).

One of the successes of the NHS Breast Screening Programme has been the early identification of patients harbouring ductal carcinoma in situ – although some experts argue that this has led to overdiagnosis and over-treatment. There are clear data from the USA confirming that contralateral risk-reducing mastectomy rates among patients with ductal carcinoma in situ have increased approximately 150% between 1998 and 2005, an alarming statistic given the controversy that surrounds the management of this pre-malignant disease (Tuttle and Virnig, 2009).

Are we becoming victims of our own success?

Modern day reconstructive options means that many women undergoing mastectomy should expect to have a good cosmetic outcome. Patients undergoing immediate breast reconstruction are more likely to choose contralateral risk-reducing mastectomy, which may be supported by the notion of superior symmetry and aesthetic outcomes from the reconstruction of two breasts rather than one.

However, women undergoing reconstruction should be well appraised about the inherent morbidities of these complex

procedures as well as the reality of revision surgery. The UK National Mastectomy Audit (Jeevan et al, 2010) demonstrated complication rates up to 18% in those undergoing immediate reconstruction, which has significant implications for both patient wellbeing and health economics.

A study from the Mayo Clinic evaluated the cost-effectiveness of contralateral risk-reducing mastectomy *vs* routine surveillance (Zendejas and Boughey, 2011) which included visits to the breast clinic, radiological imaging (mammography, magnetic resonance imaging, ultrasound), possible biopsies and subsequent treatment. They concluded that contralateral risk-reducing mastectomy was cost-effective compared to surveillance in breast cancer patients of a younger age and those at high-risk (BRCA carriers). This patient group accounts for 2–3% of all breast cancers and has a 10-year contralateral breast cancer risk up to 40%. Recently the authors showed that there was a survival advantage for BRCA1/2 mutation carriers as a result of this very high contralateral breast cancer rate (Evans et al, 2013). Thus, breast cancer patients harbouring a known genetic mutation who are under the age of 45 years will derive the greatest objective reduction in risk.

As the management of breast cancer has advanced, there have also been subtle changes to patients. This group tends to be well-informed, to use the internet, and to have close ties to social network sites and support groups, and will often enter a clinical consultation with firm, preset views. The onus remains on the clinician to distinguish fact from fiction and to provide

the patient with an unbiased, evidence-based clinical recommendation. The patient must engage in the decision-making process that must take into account her underlying psychosocial context, expectations and concerns. The multidisciplinary team and in particular the breast care nurse are crucial in making these decisions. **BJHM**

**NN Basu/S Littlechild/
DG Evans/GL Ross/L Barr**

*National Oncoplastic Breast Fellow/
Foundation Year 1 Doctor/Professor of
Genetic Medicine/Consultant Plastic
Surgeon/Consultant Surgeon
Nightingale Centre and Genesis Prevention
Centre
University Hospital South Manchester
Manchester M23 9LT*

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KEY POINTS

- Rates of contralateral risk-reducing mastectomy are increasing.
- Recommendations for risk reduction should be evidence based.
- Reasons for requesting risk reduction are multi-factorial.
- Gene mutation carriers (BRCA1/2) have a particularly high risk.
- Decisions regarding surgery should involve the multidisciplinary team and the breast care nurse.

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