PATHOLOGICAL EVALUATION OF NIPPLE-SPARING MASTECTOMIES WITH EMPHASIS ON OCCULT NIPPLE INVOLVEMENT: WEILL-CORNELL EXPERIENCE WITH 325 CASES

Breast Journal, Volume 1, January/February 2014
Authors: Rachel E.K. et al

The authors outline the surgical options involved in performing a mastectomy, and the improved cosmetic outcomes offered in the last two decades through skin-sparing and nipple-sparing mastectomies (NSM). Skin-sparing mastectomy was first described in 1991, allowing immediate reconstruction, with comparable local recurrence simple rates to simple mastectomy. In 2003 NSM was described, permitting conservation of the nipple areola complex (NAC). NSM has been made more frequently available to patients with early breast cancers, and particularly those requesting prophylactic mastectomy, and in patients carrying the BRCA germ line mutation.

The main concern related to NSM is that of malignancy occurring, or being left residual, within the nipple areola complex, and the lactiferous sinuses deep to the nipple. The current study is retrospective, and based on the histopathology assessment of retroareolar nipple margins, in NSM, as a proxy for occult involvement of the nipple by malignancy. The study included 325 consecutive NSM patients. Prophylactic NSM patients were not shown to have any nipple margin containing occult malignancy in 117 patients assessed. However from the therapeutic NSM patients, 29 of the 208 patients (14%) showed occult involvement of the nipple by malignancy. The most common malignancy in the nipple margin was DCIS identified in 55% of nipple margin positive cases. The two factors clinically and pathologically leading to an increased risk of nipple margin involvement were firstly, a central tumour location within the breast and secondly, metastatic involvement of four or more regional lymph nodes.

NSM is generally considered unsatisfactory, with increased risk of nipple necrosis, in patients who are particularly obese or have ptosis, a history of smoking or an immune disease or radiation to the breast. The clinical and pathological factors reported in the scientific literature to increased nipple involvement by malignancy include a “short” tumour distance to the nipple and the central location of the tumour and furthermore the “large” size of the primary tumour. Multifocality and multicentricity are also regarded as factors increasing risk together with the presence of lymphovascular and lymph node involvement, and positivity for HER-2.
In the current study, 14% of separately submitted nipple margins from therapeutic NSM showed occult malignancy, the most common form of which was DCIS. A frozen section evaluation of the nipple margin at the time of surgery was generally accurate, with a sensitivity of 64% and a specificity of 99%. The authors make the comment that although recurrences in NSM are rare, close clinical follow up is warranted in all patients after NSM.

Dr Currer's comment.
Nipple-sparing mastectomy remains an option for discussion in the patients requiring a mastectomy. Its value is primarily in prophylactic mastectomy, and even then, there is a risk of a cancer developing in the small amount of breast tissue required to maintain the circulation and viability of the nipple and areolar complex.

Skin-sparing mastectomy (but without nipple preservation) is the choice prophylactic procedure for patients undergoing immediate reconstruction.