

# Removing 2mm around breast cancer tumors prevents residual disease in 98 percent of patients

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Removing an extra two millimetres around an area of invasive breast cancer is sufficient to minimise any residual disease in 98 per cent of patients, according to research published in the November issue of IJCP, the *International Journal of Clinical Practice*.

Surgeons from the Department of Breast Surgery at Good Hope Hospital, Sutton Coldfield, UK, studied 303 women who had undergone breast conserving surgery at the hospital between 2002 and 2008.

"Breast conserving surgery followed by radiotherapy is a well-established alternative to breast removal and studies have demonstrated similar survival rates in patients undergoing these procedures" explains lead author Dr Stephen Ward.

"However patients undergoing breast conserving surgery are more likely to have recurrent cancer and the amount of tissue removed around the tumour, known as the free margin, remains controversial.

"A survey of 200 UK breast surgeons published in 2007 revealed wide variations in what they considered to be an adequate margin, with 24% wanting a clear margin of 1mm and 65% wanting a margin of 2mm or more. This study highlighted differences in practice across different units and the need for evidence-based guidelines."

The Good Hope team carried out further excision specimens on 31% of the women who had received breast conserving surgery to check for residual disease, obtaining 139 samples from 93 patients. Of these, 52 samples were from patients who had received surgery for non-invasive cancer, where the cancer is confined to the milk ducts or lobules, and 87 were from patients who had had invasive cancer, where the cancer had spread to the surrounding [breast tissue](#).

They found that in the women who had received surgery for invasive cancer, the amount of residual disease, defined as the presence of invasive or non-invasive cancer, reduced as the free margin increased - from 35.3% with no margin to 2.4% with a margin of more than 2mm.

However, when it came to the women who had received surgery for non-invasive cancer, residual disease was higher and the pattern was less than clear. Incidence ranged from 0% at more than 5mm to 57% when the margin was between 0.1 to 0.9mm, but 44% where no margin was involved.

The research team also looked at the characteristics of the 202 women who had had a close free margin of less than 2mm and the 101 women who had had a clear free margin of 2mm or more.

They found that women with a close margin of less than 2mm were more likely to be associated with large grade three tumours than the clear margin group (46% versus 42%) and with lymphovascular invasion (52% versus 40%) and nodal involvement (48% versus 33%).

In addition to the women who underwent wider re-excision to determine any residual disease, 13% went on to have a mastectomy and the remaining 56% did not have further surgery.

"Our research found that the overall probability of finding residual

disease was 2.4% if a woman had surgery where the free margin was 2mm or more from the invasive cancer. But the same pattern was not observed when the woman had surgery for non-invasive cancer, where the incidence of residual disease was higher.

"Based on these results, we feel confident that a free margin of 2mm from the area of invasive cancer is adequate to minimise residual disease, but the equivalent free margin for non-invasive cancer remains unclear.

"Eliminating the possibility of residual disease during breast conserving surgery is very important as nearly 50 per cent of patients with local recurrence go on to develop secondary [breast cancer](#), which is a progressive incurable disease."

**More information:** A two-millimetre free margin from invasive tumour minimises residual disease in breast-conserving surgery. Ward et al. IJCP. 64.12, pp1675-1680. (November 2010). [DOI: 10.1111/j.1742-1241.2010.02508.x](#)

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