Reoperation rates in breast conserving surgery: a challenge for the multidisciplinary team

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Introduction

- Breast surgery is associated with low mortality (< 1%) and low major complications but low mortality does not reflect high quality in this surgery
- Breast conservative surgery is associated with a high rate of reoperations
- These reoperations are mainly due to inappropriate surgical margins or incomplete axillary surgery

Reoperation after BC surgery has various undesirable consequences

- Poorer cosmetic results
- Increased infectious risk
- Increased rate of mastectomies
- Increased delay for adjuvant treatments
- Impairment of patients' quality of life : psychological distress, extended recovery period, economical difficulties
- Increased treatment cost and lower level of productivity for the health care system

Main circumstances leading to reoperation

- Failure to achieve appropriate margins mandating reexcision
- Completing axillary surgery
- Discordance between preoperative biopsy and final pathological status
- DCIS or extended in situ component
- Lobular type
- Multifocal disease

The lack of consensus concerning adequate surgical margins (1)

- There is strong evidence that positive margins (tumor touching the ink) are associated with high risk of local recurrence *,**
- There is no consensus to what constitutes optimal negative margins width (absence of prospective randomized trial)

  - *Van Dongen et al EORTC trial J Natl Cancer Inst 2000
  - **Veronesi et al Word J Surg 1994

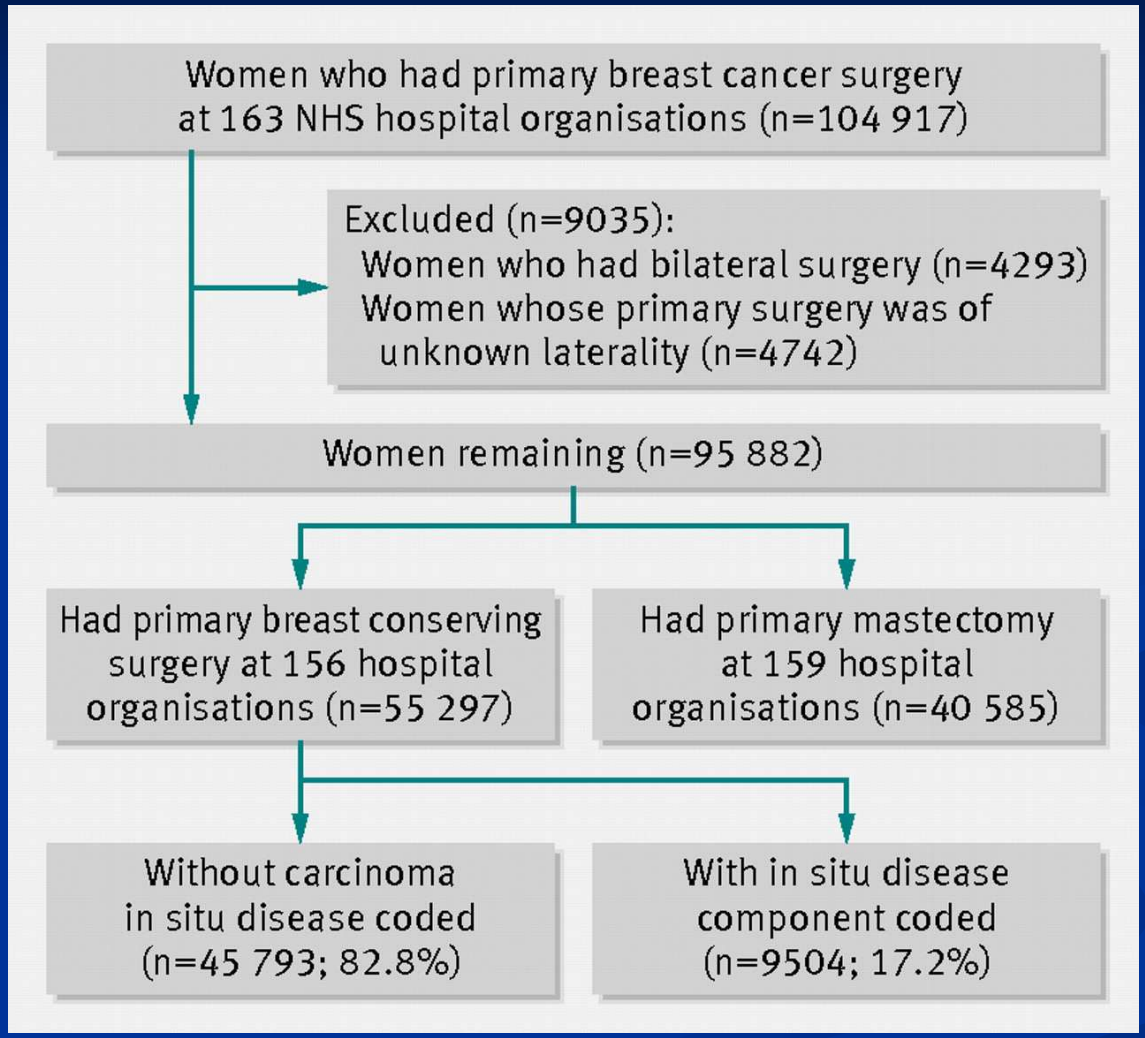
The lack of consensus concerning adequate surgical margins (2)

- US National cancer institute : absence of tumor cell on the inked surface of the specimen in breast conserving surgery
- UK National Institute of Health recommends a 2mm radial excision margin for DCIS but no margins for invasive disease
- Canada national guidelines recommend clear margins for invasive cancer

Epidemiological data

- Jeevan et all BMJ 07/2012
- Cohort study using UK NHS hospital data base ((2005-2008)
- 55 297 women having BCS as primary procedure in 156 NHS Breast Units
- Do not distinguish reoperations for auxiliary surgery

Fig 1 Inclusion of patients in study.



Jeevan R et al. BMJ 2012;345:bmj.e4505

Results of the UK study

- 20% of patients had at least 1 reoperation
- 92% of these had 1 reoperation
- 40% of patients having at least 1 reoperation ended with mastectomy
- 29.5 % of patients with DCIS or in situ component had at least one reoperation
- Large variation in reoperation rates between the 156 centers (less than10 % to more than 30%)
- No evidence that the reoperation rates were related to the level of activity of the center

Data collection from US institutions

- McCahill Let al JAMA 02/2012
- 2206 women with infiltrating carcinom from 4 US institutions
- US definition of negative margins : no tumor cells on the inked surface of the specimen

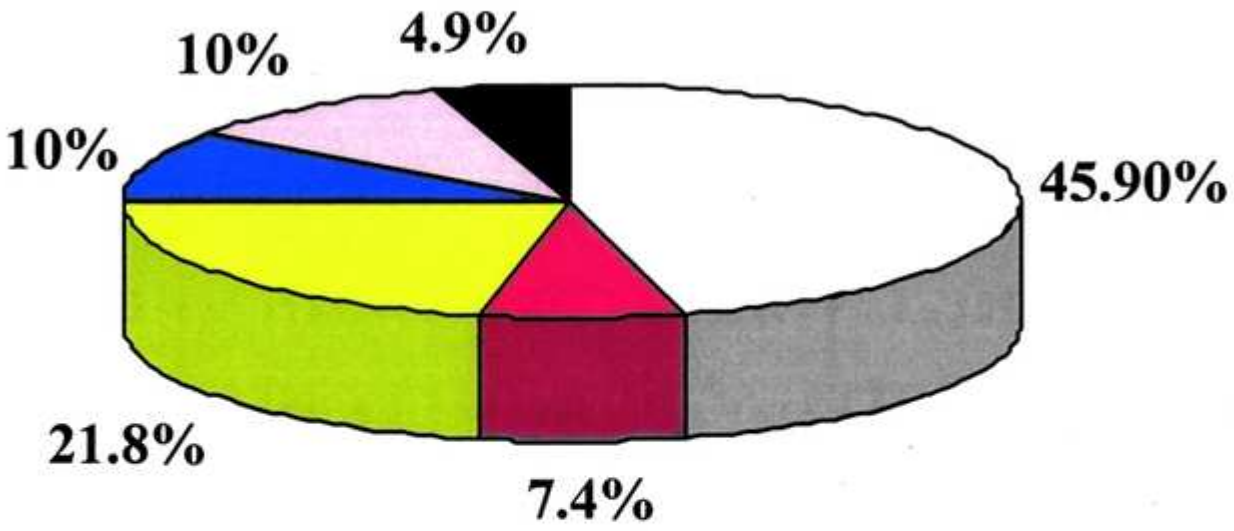
Data collection from US institutions

- Overall reexcision rate : 22.9%
  - 1 reexcision : 89%; 2 : 9.4 %. 3/ 1.7
- 47% performed in patients with negative margins
- In situ component and lobular invasive type influenced reexcision decision
- Reexcision varied significantly by surgeons (0 to 70%) and institutions (1.7 to 20.9 %)

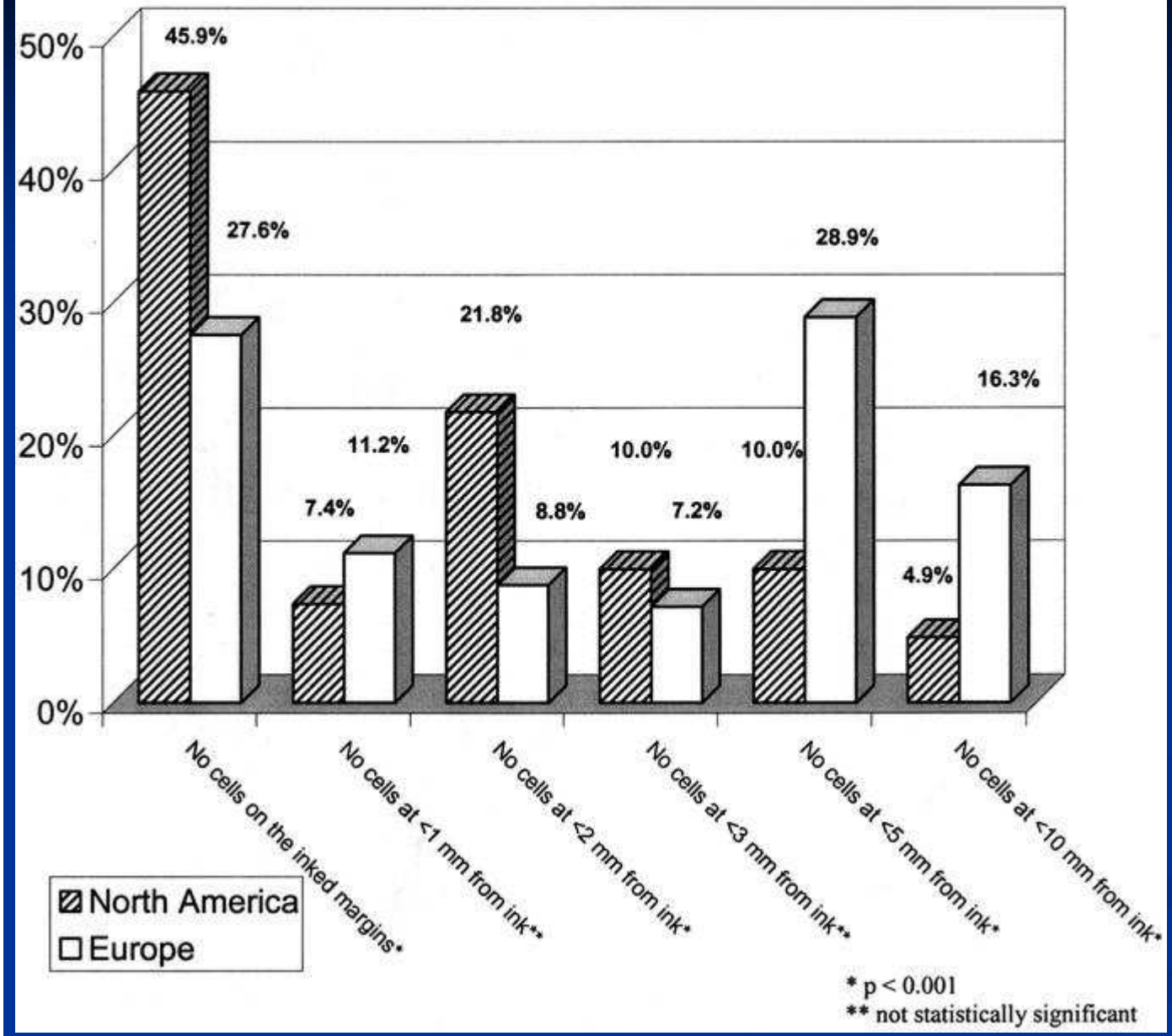
Individual perceptions

- “Current perceptions regarding surgical margins after breast conserving surgery
- Tagahian et al “
- Ann Surg 2005
- Result of a survey among radiation oncologists from Europe and North America
- 702 responses

How do you define negative margins after local excision?: North America



The definition of negative margins



What about individual surgical practices?

- "Size does not matter : high volume breast surgeons accept smaller excision margins for wide local excisions : a national survey of surgical management of wide local excisions in UK cancer patients"
- Hassani et al the Breast 01/1013
- Survey among surgeons members of the Association of Breast Surgeons (UK)
- 281 answers
- Surgeons operating more than 50 cancers per year accepted smaller margins than those operating less than 50 ($p < 0.2$)
- Acceptable adequate anterior and radial margins ranged from 0 to 10 mm for DCIS and 0 to 5 mm for invasive carcinoma

Measures to reduce reoperation rate

- Preoperative core biopsy
- Preoperative MRI?
- Ultrasound or mammographic guided surgery with wire localization
- Specimen and SLN frozen sections
- Use of guidelines
- The need for a breast surgery unit

Preoperative MRI

- Is increasingly used for further evaluation of newly diagnosed BC for screening multifocality and contra lateral disease, in lobular carcinoma or dense breast
- Has not proved effectiveness in reducing reoperation rate in BCS in randomized or retrospective studies

Comparative effectiveness of MRI in breast cancer (COMICE) trial :a randomized controlled trial Turnbull et al Lancet 2010

- UK
- 1623 patients
- 816 with preoperative MRI, 807 without
- 19 % of patients needed at least one reoperation in the MRI group versus 19 % in the non MRI group !!!
- 2% of pathological avoidable mastectomies in the MRI group

Selected preoperative MRI in women with breast cancer : no reduction in reoperation rate Weber and all Arch Surg 09/2012

- Retrospective study in one single institution, one single experimented surgeon
- 313 patients, 120 preoperative MRI following the guidelines of the American Society of Breast Surgeons
- Reoperations rate :
  - MRI group 19.1%
  - No MRI group : 17.6%
  - No difference also for lobular carcinomas
- 25.5% of patients in the MRI group had pathological avoidable mastectomies

Intraoperative frozen sections for sentinel node and margins

- Studies show a significant decrease in reoperative rate by use of FS for SLNB and tumor margins*
- False positive rate is low (2% to 3%)
- Lobular subtype and tumors larger than 2 cm are associated with a larger failure rate
- This procedure requires
  - A good technical level
  - Greater resources (pathologists)
  - More operating room time
- Seems to reduce treatment cost
    - * Jorns et al Am J Clin Pathol 11/2012
    - **Sabel MS and al Am J Surg 07/2012

How to minimize reoperation rate for SLNB

- **Systematic use of preoperative core biopsies**
- **Preoperative axillary US +/- node cytology or biopsy**
- **Peroperative assessment of SN status** : FS seems better than touch imprints*, ongoing trials concerning one step nucleic amplification (OSNA) method (the SAGE study in France)
- **Abstention of ALND (ASCOSOG Z0011)**
  - For micro metastases ≤ 2mm
  - In patients with 2 or 3 positive nodes receiving systemic treatment + radiation therapy
- **Use of clinico pathological predictors**
  - MSKCC nomogram
  - Tenon score
  - Association of both (the NOTEGS study)

- Sabel and al Am J Surg 07/2012

Developing quality measures for breast surgery : challenge for the breast units

- Breast surgery has largely been excluded from cancer surgical procedures for which quality measures have been developed *probably because of its negligible risk of major adverse events
- Reexision rate for positive margins does not appear to be a pertinent criteria because of
  - The lack of consensus on the definition of clear margins
  - The difficulties of pathological assessment
  - The impossible challenge to define which rate is right
  - Variability of surgeon's opinions and practice and behaviors
- Its application could have negative consequences on patients' care (i.e greater use of mastectomy, increasing delay for treatment, potential surgical overtreatment

  - *Morrow M JAMA 02/2012

By what means can Breast Units improve quality of breast surgery

- Multidisciplinary meetings
- Data collection and evaluation of local practices
- High quality pre operative imaging
- Local guidelines approved and respected by the community
- Patients information