

---

# Rates of Reexcision for Breast Cancer after Magnetic Resonance Imaging–Guided Bracket Wire Localization

Anne Marie Wallace, MD, Bruce L Daniel, MD, Stefanie S Jeffrey, MD, FACS, Robyn L Birdwell, MD, Kent W Nowels, MD, Frederick M Dirbas, MD, FACS, Pamela Schraedley-Desmond, PhD, Debra M Ikeda, MD

---

**BACKGROUND:** We performed this study to determine rates of close or transected cancer margins after magnetic resonance imaging–guided bracket wire localization for nonpalpable breast lesions.

**STUDY DESIGN:** Of 243 women undergoing MRI-guided wire localizations, 26 had MRI bracket wire localization to excise either a known cancer ( $n = 19$ ) or a suspicious MRI-detected lesion ( $n = 7$ ). We reviewed patient age, preoperative diagnosis, operative intent, mammographic breast density, MRI lesion size, MRI enhancement curve and morphology, MRI Breast Imaging Reporting and Data System (BI-RADS) assessment code, number of bracket wires, and pathology size. We analyzed these findings for their relationship to obtaining clear margins at first operative excision.

**RESULTS:** Twenty-one of 26 (81%) patients had cancer. Of 21 patients with cancer, 12 (57%) had negative margins at first excision and 9 (43%) had close/transected margins. MRI size  $\geq 4$  cm was associated with a higher reexcision rate (7 of 9, 78%) than those  $< 4$  cm (2 of 12, 17%) ( $p = 0.009$ ). MRI BI-RADS score, enhancement curve, morphology, and preoperative core biopsy demonstrating ductal carcinoma in situ (DCIS) were not predictive of reexcision. The average number of wires used for bracketing increased with lesion size, but was not associated with improved outcomes. On pathology, cancer size was smaller in patients with negative margins (12 patients, 1.2 cm) than in those with close/transected margins (9 patients, 4.6 cm) ( $p < 0.001$ ).

Reexcision was based on close/transected margins involving DCIS alone (6, 67%), infiltrating ductal carcinoma and DCIS (2, 22%), or infiltrating ductal carcinoma alone (1, 11%). Reexcision pathology demonstrated DCIS (3, 33%), no residual cancer (5, 55%), and 1 patient was lost to followup (1, 11%). Interestingly, cancer patients who required reexcision were younger ( $p = 0.022$ ), but breast density was not associated with reexcision.

**CONCLUSIONS:** To our knowledge, this is the first report of MRI-guided bracket wire localization. Patients with MRI-detected lesions less than 4 cm had clear margins at first excision; larger MRI-detected lesions were more likely to have close/transected margins. Reexcision was often because of DCIS and was the only pathology found at reexcision, perhaps because MRI is more sensitive for detecting invasive carcinoma than DCIS. (*J Am Coll Surg* 2005;200:527–537. © 2005 by the American College of Surgeons)

---

In 1987, Silverstein and colleagues<sup>1</sup> first reported the technique of x-ray mammography-guided bracket

wire localization. This involved placing multiple wires at the periphery of large areas of suspicious microcalcifications to better delineate the extent of the abnormality, with the intent of aiding surgeons in removing the lesion en toto. In 2001, Liberman and associates<sup>2</sup> first reported surgical margin outcomes data using x-ray mammography-guided bracketing techniques. They looked at parameters thought to have an impact on reexcision rates, including breast density on x-ray mammography, surgical intent based on preoperative percutaneous biopsy, lesion size, and

Competing interests declared: None.

Supported in part by the Susan G Komen Foundation Grant for Fellows.

Received August 26, 2004; Revised November 23, 2004; Accepted December 9, 2004.

From the Departments of Surgery (Wallace, Jeffrey, Dirbas), Radiology (Daniel, Birdwell, Schraedley-Desmond, Ikeda), and Pathology (Nowels), Stanford University School of Medicine, Stanford, CA.

Correspondence address: Anne Marie Wallace, MD, 1 University of New Mexico, MSC 08 4630/CRTC, Albuquerque, NM 87131-0001.

**Abbreviations and Acronyms**

BI-RADS	= Breast Imaging Reporting and Data System
DCIS	= ductal carcinoma in situ
IDC	= infiltrating ductal carcinoma
IEL	= incidental enhancing lesion

extent and morphology of calcifications. Only breast density was statistically significant; specifically, dense breast tissue was correlated with increased reexcision rates.

Because contrast-enhanced breast MRI shows high sensitivity for breast cancer, it has been postulated that MRI might have an advantage over x-ray mammography or ultrasonography in detecting the full extent of noninvasive or invasive breast cancer.<sup>3-12</sup> Single-wire MRI-guided needle localization has been used at least since 1994 for aiding in excisional biopsy of suspicious breast masses, and has become a feasible technique at centers where this expertise is available.<sup>13-15</sup> Large, suspicious lesions in patients with dense breast tissue may be better delineated by MRI, and the idea of MRI bracketing was described by Liberman and coworkers.<sup>2</sup>

An important and controversial issue surrounding breast MRI is the dilemma in managing additional unexpected incidental enhancing lesions (IELs) found by MRI, but undetected by physical examination, mammography, and ultrasound.<sup>16,17</sup> It has recently been put forth that MRI justifies more aggressive surgical management (mastectomy) when additional areas of disease are demonstrated.<sup>18</sup> Others have used MRI for preoperative cancer staging to plan for single-stage resections,<sup>19</sup> while still others have argued that MRI can overestimate the extent of disease and result in higher mastectomy rates without improving longterm patient outcomes.<sup>20</sup>

At our institution, our reason for performing MRI in breast cancer patients is as a tool to identify all suspicious areas within the breast to help assess whether the patient is a good candidate for breast-conservation surgery. MRI scans are only performed in patients who have complicated cases of known cancer and desire possible breast conservation, those with high risk factors and dense breast tissue who are undergoing screening,<sup>21</sup> or those with suspicious physical or imaging findings that need further evaluation. Although it is true that MRI detects IELs that may or may not represent cancer, and may result in biopsies of findings that might be otherwise undetected,<sup>20</sup> we have used MRI to help us make more

informed decisions about possible breast conservation rather than to promote mastectomy.<sup>22</sup> In our facility, we have had the ability to remove IELs by MRI-guided preoperative needle localization since 1997,<sup>14</sup> and have recently added the ability to sample IELs by percutaneous MRI-guided vacuum-assisted core biopsies.

Since we started using MRI to preoperatively locally stage the breast<sup>19,23</sup> in patients at a higher risk for multiple foci of disease,<sup>24</sup> we have been able to consider performing breast conservation in the face of multiple foci of cancer<sup>25</sup> when they are small and located in close proximity to each other, as defined by MRI alone or in combination with other imaging. This additional information makes it possible to do better preoperative planning and perform a one-stage procedure.<sup>19,23</sup> To this end, we began to use bracket MRI-guided preoperative wire localizations to define the extent of the MRI abnormality with the intent of aiding surgeons in removing the lesion en toto.

To our knowledge, there is no earlier report of outcomes data on the combination of bracket wire localization and MRI-detected lesions. The intent of our study was to evaluate the efficacy of MRI-guided bracket wire localization, identify preoperative factors that may be associated with likelihood of need for reexcision, identify patients who are good candidates for one-stage breast-conservation procedures, and determine the rates of close or transected cancer margins after MRI-guided bracket wire localization for MRI-detected nonpalpable breast lesions.

**METHODS**

We retrospectively reviewed 243 contrast-enhanced breast MRI wire-localization procedures performed at our institution between September 1997 and February 2004 under a protocol approved by the Stanford Human Subjects Committee. Of these women, 26 patients underwent bracket wire localization for assistance with excisional biopsy or lumpectomy to establish clean margins at first excision for breast preservation in patients with known cancer, or to completely and accurately remove suspicious MRI-detected lesions that were to undergo excisional biopsy. MRI-guided preoperative needle localization was done by a method previously described.<sup>14</sup> Bracket wire localization was defined as two or more wires placed at the edges of a lesion with the intent of facilitating the en bloc removal of all abnormal tissue suspicious for cancer. For patients with two wires,

Download English Version:

<https://daneshyari.com/en/article/10103869>

Download Persian Version:

<https://daneshyari.com/article/10103869>

[Daneshyari.com](https://daneshyari.com)