Magnetic seed for preoperative localization of non-palpable breast cancer: impact on care pathway organization and re-excision rate

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Abstract

The use of magnetic clips for preoperative identification of non-palpable breast cancers is becoming increasingly widespread. In our series of nearly 200 cancer procedures, the use of magnetic clips had two main impacts: a decrease in the rate of surgical revision and a reduction in the length of outpatient hospital stay.

Introduction

Preoperative localization of non-palpable breast lesions, whether performed the day before or on the day of surgery, can be anxiety-inducing for patients. The scheduling in a busy operating theater for short procedures is highly sensitive to even minor delays. Localization appointments may cause such delays, as well as raise potential timing confusions between surgery time, arrival time at the care center, and localization time.

Moreover, wire-guided localization requires specific radiology sessions and coordination with radiologists specialized in breast imaging.

For these reasons, we progressively implemented preoperative localization using a magnetic clip. Placement is done a few days before surgery, which also allows a comprehensive re-review of the radiologic images.

The objective of this study is to describe the organizational impact and the re-excision rate of the systematic use of magnetic seeds in a single institution

Methods and Materials

We conducted a retrospective single-center study.

We describe the characteristics of cases with magnetic seed localization and compare these features, as well as ambulatory stay durations, to a historical control group that underwent wire-guided localization. For this comparison, only consecutive patients who had unifocal, unilateral breast cancer and were treated on an outpatient basis were included.



Figure 1. Period study

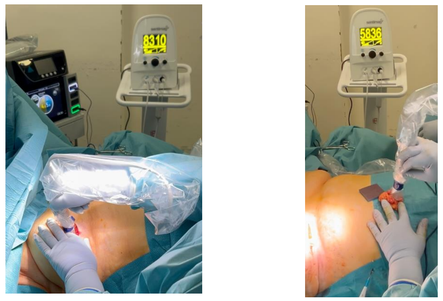


Figure 2. Per operative detection

Results

Between March 2024 and June 2025, 261 patients were referred to the radiology department for magnetic seed placement before surgery. During imaging review, additional lesions were detected in 21 patients (8%), leading to total mastectomy in 5 cases. Excluding 8 patients (3%) who were scheduled for inpatient admission, 232 underwent magnetic seed placement, including 35 (15%) for benign lesions. We compared 197 patients who had magnetic seed localization for cancer between March 2024 and June 2025 to 60 patients in the historical control group who underwent wire localization for cancer between November and December 2023. The median age in both groups was 62 years (p = 0.98). The control group had a higher proportion of in situ ductal carcinoma (n = 18, 30% vs. n = 27, 15%, p = 0.02), while the magnetic seed group underwent more axillary procedures (n = 170, 86% vs. n = 42, 70%, p = 0.009). Tumor size was slightly larger in the magnetic seed group (10 mm vs. 8 mm, p = 0.04). Fewer re-excisions for positive margins occurred in the magnetic seed group (n = 3, 1.5% vs. n = 8, 13%, p < 0.01). This result was confirmed in multivariate analysis : use of magnetic seed reduced independently the rate of re-excision with an OR of 0.37 (IC95%[0.002-0.001], p=0,0018). Operating time was equivalent in both groups (32 min vs. 33 min, p = 0.87), but ambulatory stay was reduced by more than 2 hours in the magnetic seed group (5h 14 vs. 7h 19, p < 0.01).

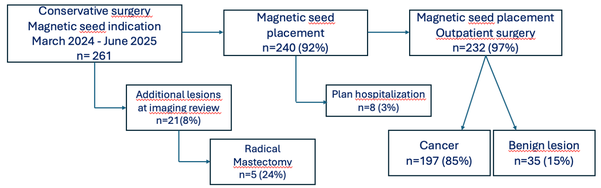


Figure 3. Flow chart

Table 1. Patients and tumor characteristics in cancer cases

MAGNETIC SEED		WIRE LOCALIZATION
n= 197		n= 60
Age : 62 ans (25-91)	p=0.98	Age : 62 ans (36-89)
Invasive ducal n=137 (69%) *Invasive lobular n=33 (16%)* *In situ ductal n=27 (15%)*	p =0.02	*Invasive ducal* n=37 (62%) *Invasive lobular* n=5 (8%) *In situ ductal* n=18 (30%)
Axillary surgery n=170 (86%)	p=0.009	*Axillary surgery n=42 (70%)*
Tumor size : 10 mm (0-42)	p=0,04	Tumor size : 8 mm (0-40)

Table 2. Re-operation rate and hospitalization length stay

MAGNETIC SEED		WIRE LOCALIZATION
n= 197		n= 60
Re-operation n=3 (1.5%)	p<0,01	Re-operation=8 (13%)
Surgery time : 32 min (12-78)	p=0,87	Surgery time : 33 min (11-60)
Hospitalization lenght stay : 5h14 (2h05-10h37)	p<0,0001	Hospitalization lenght stay : 7h19 (4h24-10h07)

Discussion

Re-excision rates described in literature are lower in case of use of magnetic seeds, from 3 to 11% [], even in a comparative study [5].

Conclusions

The use of magnetic seeds enables time savings on the day of surgery, streamlining the operating theater schedule and reducing patient anxiety associated with pre-surgical delays. Re-excision rates is dramatically decreased when using magnetic seeds.

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References

1. Moreno-Palacios J, et al. Magnetic seed localization in breast cancer: review of current evidence and outcomes.Cancers (Basel). 2024;16(3):566.
2. Crèvecoeur J, et al. Clinical implementation of Magseed® localization in breast-conserving surgery: a Belgian single-centre experience. Gland Surg. 2023;12(8):964-972.
3. Depretto C, et al. Magnetic localization of nonpalpable breast lesions: A multicentric experience and clinical outcomes.Clin Breast Cancer. 2023;23(7):e562-e570.
4. Ceccato J, et al. Navigation with magnetic marker (Sirius Pintuition®) for non-palpable breast lesions: surgical accuracy and margin outcomes. Sci Rep. 2025;15(1):3146.
5. Pantiora EV, et al. Comparison of paramagnetic seed localization versus wire-guided localization in breast-conserving surgery: a randomized clinical trial. JAMA Surg. 2024;159(6):e241234

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