

Evaluation of safety and efficacy of Magseed guided excision of non-palpable breast lesions in Chinese women: our institutional experience.

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Objective: To evaluate efficacy and safety in Magseed guided excision of non-palpable breast lesions.

Material and Methods

- Retrospective review Jun 2019 to Apr 2020.
- Magseed guided excision of breast lesions in KWC Hospitals.
- Breast imagings, pathological, operation and clinical records were reviewed for:
 - Placement success: target-to-seed distance <10mm** from post-procedural imaging.
 - Successful Magseed retrieval & complication.**
 - Re-excision rate for therapeutic intent.**

Result

Lesion characteristics and image-guidance

- 22 target lesions in 22 patients.**
- Mean age 59.9, range 38-80.
- 23 Magseeds** placed as one of the **calcifications** required two Magseeds for bracketing.

Image-guidance modality (N=22)

Ultrasound	16
Stereotactic	6

Target types

Masses	16
Calcifications	3
Biopsy marker	1
Architectural distortion (AD)	1
Focal asymmetry	1

Localization outcome

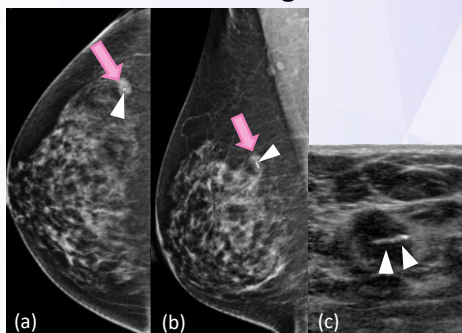
Placement success (N=23)	91.3%
Target-to-seed distance	
≤1mm	18
2-5mm	3
6-9mm	0
≥10mm (significant migration*)	2
Successful lesion localization by Magseeds (N=22)	90.9%

*Included one AD and one calcification for bracketing placed under stereotactic guidance

- Both migration due to **accordion effect**.
- Salvage localization on the day of OT** by Hookwire bracketing for calcifications and USG guided skin marking (case 2) for AD.

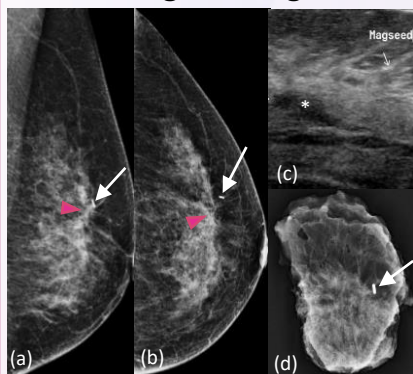
Cases for illustration

Case 1 Successful Magseed localization



(a,b) Biopsy-proven malignant breast mass (arrow) at UOQ of right breast. (c) Magseeds (arrowhead) was placed in the **centre of target lesion** under **USG guidance**, which was successfully removed intraoperatively. Pathology of surgical specimen showed **invasive lobular carcinoma** with clear resection margins.

Case 2: Magseed migration due to accordion effect



(a,b) Architectural distortion in left upper breast (arrowhead) with a corresponding vague hypoechoic mass (asterisk) on USG (c). Magseed was placed under **stereotactic guidance with LM approach**. However, there was **significant lateral migration (13mm) of Magseed** (arrow), **USG guided skin marking** to hypoechoic lesion was done. Magseed (arrow) and target lesion were removed intraoperatively (d).

Discussion: Accordion effect is well known to marker migration from stereotactic biopsy and also found in magseed. It can be **migrated along the direction of compression either proximal or distal to the needle track** when the breast expands to its original size and shape after compression.

Intraoperative detection and successful retrieval

- 9 lesions** with Magseeds placed days before OT.
- Days from Magseed placement to surgery ranges from 1-56.
- No delay migration.**
- 100% successful intraoperative retrieval of Magseeds.**

Surgical intent and outcome

- 4 lesions excised for therapeutic intent.
- Re-excision rate is 25%, comparable to previous studies^{1,2}**
- No complication reported.**

Conclusion: Magseed demonstrates safety and efficacy in Chinese women for non-palpable breast lesion localization and excision. It allows scheduling flexibility by decoupling localization procedure with operation.

References: 1. Evaluation of a nonradioactive magnetic marker wireless localization program. AJR Am J Roentgenol 2018;211(4):940-5.
2. Harvey JR, Lim Y, Murphy J, et al. Safety and feasibility of breast lesion localization using magnetic seeds (Magseed): a multi-centre, open-label cohort study. Breast Cancer Res Treat 2018;169(3):531-6.