Mastering Wire Localization: Pros and Cons

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Preoperative localization is essential for excision biopsy of non-palpable lesions, as it ensures precise removal of the target lesion and facilitates adequate surgical margins with acceptable cosmetic outcomes in breast-conserving surgery (BCS). Therefore, careful preoperative planning with appropriate lesion localization is critical for successful BCS. Wire localization has been used as a standard of percutaneous preoperative localization for decades, but recently nonwire localization methods such as dye injection, carbon marking, radioactive seed, radar reflector, magnetic seed, surgical thread localization, etc.

Usually, the imaging modality that best shows lesions is chosen for guiding the localization procedure (mammography, ultrasonography, tomosynthesis, or MRI). Positioning an introducer needle containing a flexible wire through the non-palpable target under imaging guidance; using freehand technique under US guidance or stereotactic technique under mammography guidance (orthogonal views). After removing the needle, wire is left in the breast as a guide. Post procedure mammography obtained with wire is recommended.

Advantage

- Relatively simple and inexpensive
- Retrievable wires
- Visualization of wire in correlation with lesion on mammography.

 - for lesions with calcifications
 - for lesions that need mammographic correlation (density, architectural distortion)

Potential disadvantage

- Patient's discomfort -- This technique requires a good compliance from the patient, who has to keep the wire in position all the time long before the surgery.
- The patient cannot be discharged with the wire in the breast. → must be performed the same day as the breast operation.
- Risk of wire displacement, and fracture or transection before or during the surgical procedure