Appendix 1: Technical guidelines for visualized percutaneous breast tissue clip placement

I. Preparation before placement of tissue clips

1. Preoperative preparation and assessment:
   (1) Verification of patient information (Time-out); (2) Complete imaging data; (3) No contraindications to surgery; (4) Signed informed consent.
   2. Body position: The principle of convenient is recommended.
   3. Qualification of operator: Surgeons, ultrasonographers, and radiologists specialize in breast disease specialties.
   4. Product inspection before placement: The sterile packaging of the tissue marker clip and its contents are intact and undamaged, and the product expiration date and all mechanical devices are normal.

II. Imaging-guided percutaneous tissue clip placement

1. Placement process:
   (1) Routine disinfection and local infiltration anesthesia;
   (2) Using breast US and MMG to locate the target lesion in the breast or axilla;
   (3) Referring to the scale markings on the puncture needle (1 cm as scale), place the puncture needle to the target lesion under imaging direction, strictly placing the tip of the puncture needle in the center of the target lesion and avoiding the blood vessels;
   (4) Release the tissue clip by pressing the excitation button;
   (5) Remove the puncture needle slowly.
   At the end of the operation, use breast US or MMG to clarify that the tissue clip is in the target lesion and record accordingly (especially if there exist multiple lesions).

2. Post-insertion documentation:
   The brand and type of the tissue marker clip, the location of the tissue clip (e.g., lateral, nipple-centered and distance from the nipple), the puncture situation, time and operator should be recorded in the medical record. If multiple tissue clips are inserted, they should be recorded separately.
Figure 1. Visualized Percutaneous Breast Tissue Clip Placement Process