A breast biopsy tissue marker (CLIP) placed at the time of core needle biopsy serves to mark the target lesion and verify correct site surgical excision on specimen x-ray. Most radiologists describe accurate clip placement as being within 1 cm of the target. However, it is unclear whether this refers to 1 cm distance measured from the center of the target lesion to center of CLIP (CENTER to CENTER) or 1 cm from the edge of the target to the edge of the CLIP (EDGE to EDGE).

The 2014 consensus panel led by the Society of Surgical Oncology redefined clear surgical margins for a subset of invasive cancer specimens as “no ink on tumor”. Therefore an updated CENTER to CENTER description of clip placement accuracy better fit the updated surgical margin definition.

Since non-wire localization devices (I125, SCOUT, Magseed, RFID), are deposited similar to biopsy clips, CENTER to CENTER placement could facilitate clear surgical margins, decrease re-excision rates, improve cosmetic outcomes and decrease treatment costs.

METHODS

For each breast biopsy clip placement procedure 2011, 2012, 2013, 2015, and Q1-3 2016, the radiologist, imaging modality, clip type, and placement accuracy were recorded.

During this time period, accurate clip placement was defined as the clip localized 0 - 10 mm from the target on post biopsy mammography. For each migrated clip, the radiologist assessed whether an additional clip placement was needed (e.g. lack of residual target or if clip placement would impact decisions based on neoadjuvant treatment plans). Consensus review of all images of migrated clips was also performed.

RESULTS

Out of 12,356 clip placements (64% US, 27% ST, 9% MRI) 1.6% clips migrated.

US guidance was the most accurate modality 99.7%, followed by MRI 98.6%, and ST 95.3%.

CONCLUSIONS

Clip marker placement is currently described as placement within 1 cm of the target lesion and is 95-100% accurate in most patients. However, an updated definition of breast biopsy clip or localization placement with distance measured CENTER to CENTER may better fit with the updated surgical margin definition and further:

1. Standardize published results of clip accuracy
2. Standardize published results of non-wire localization accuracy
3. Assess feasibility for future one-step procedures with a Universal (clip/localizer) marker placed at the time of biopsy to serve as both the biopsy CLIP and the non-wire pre-operative localizer.