Single-Institution Comparison of Wire versus Radioactive Seed Localization for Non-Palpable Breast Tumors

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Introduction

- The widespread use of screening mammograms has increased the number of non-palpable breast masses requiring excision.
- Localization for non-palpable breast tumors is most commonly achieved with a needle or wire localization (WL).
- Alternative methods are being sought to improve operating room throughput, minimize complications associated with wire placement and decrease rates of re-excision.
- One method is radioactive seed localization (RSL). In RSL, the seed can be placed days prior to surgery. It is located intra-operatively with a gamma probe allowing for direct feedback on location of mass.
- RSL’s proposed benefit is to improve operating room throughput, improve margin negative excisions and decrease the volume of normal breast tissue removed.²³
- The aim of this study was to compare WL and RSL for localization of non-palpable breast masses with regard to margin status, need for re-excision, length of procedure and complications related to localization technique.

Methods

- A single institutional cancer registry at The James Comprehensive Cancer Center at The Ohio State University was queried to identify patients who had undergone excisional breast biopsy or partial mastectomy using RSL or WL for a 3 year period between February 2012 and 2015.
- Patients were grouped into those who underwent RSL, those who underwent WL during the same time period as RSL (WL 1), and those who underwent WL performed one-and-a-half years before the introduction of RSL (WL 2).
- Charts were retrospectively reviewed for localization technique, final pathologic margins, volume of tissue removed, OR time, need for re-excision and complications related to localization technique.

Results

- When comparing WL 1 vs. WL 2, there was no significant difference in positive margins, re-excision, complications volume of tissue removed or OR time.

Figure 1: There was no significant difference in positive margins between RSL and WL 1 (p=0.360).

Figure 2: There was no significant difference in complication rates between RSL and WL 1 (p=0.785). In RSL group there were 7 complications (5 hematomas and 2 dislodged markers). In WL 1 there were 20 complications (13 hematomas and 7 dislodged markers).

Figure 3: Operative time was significantly longer in the RSL group (p=0.000).

Conclusions

- RSL is comparable to WL in this single institution series.
- Operative time was shorter in the WL group, likely related to the extra time associated with learning a new technique.
- A smaller volume of tissue was removed with the performance of RSL. This may result in an improved cosmetic outcome.
- Further study is needed to evaluate if operating room throughput is improved and effect of RSL on cosmesis.

Bibliography