SentiNot: Utilization of a Novel Tracer for Patients with Ductal Carcinoma In Situ to Avoid Unnecessary Sentinel Lymph Node Biopsy

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INTRODUCTION

• Sentinel lymph node biopsy (SLNB) is routinely performed with mastectomy or large oncoplastic resections for DCIS patients.
• However, SLNB is unnecessary for the majority of DCIS patients and increases the risk of lymphedema.
• We report results of our institutional experience using a novel iron oxide nanoparticle dual tracer (Magtrace™) to avoid SLNB in DCIS patients.

METHODS

• Patients with DCIS on core needle biopsy undergoing mastectomy or large oncoplastic resection who received Magtrace™ injection were identified from a prospectively maintained database.
• Figure 1 outlines the SentiNot procedure. After Magtrace™ injection and confirmation of uptake, breast surgery was completed but sentinel lymph nodes were left intact.
• Patients with upgrade to invasive disease on surgical pathology were left intact.

RESULTS

• 22 female patients underwent mastectomy and 1 patient underwent large oncoplastic resection.
• 5 (22%) patients had prior breast cancer histories: 3 previous ipsilateral partial mastectomy and radiation; 2 contralateral disease.

DCIS Only: 17 cases
SLNB avoided in 100%

SLNB avoided in 3 cases with microinvasive disease

Upgrade: 6 cases

SLNB performed in 3 cases

The upgrade rate was 26.2% (6/23), including 2 cases with invasive disease, 2 cases with microinvasion, and 2 cases suspicious for microinvasion. The 2 patients with pathology suspicious for microinvasion and 1 patient with a single focus of microinvasion did not return to the OR for SLNB after consensus at multidisciplinary tumor board (Fig. 2).

SLNB was avoided in 87% (20/23) of total cases, and 100% of cases in which only DCIS was found on surgical pathology (Fig. 2).
• Tumor and nodal pathology for the 3 patients who completed SLNB are shown in Figure 3.

CONCLUSIONS

• The number of sentinel nodes removed was 1, 1, and 9; all were negative for malignancy. The only complication was a seroma after SLNB in one patient.
• SLNB was successful in all 3 cases at mean 19 days (range 14-21) after injection using only Magtrace™ (Fig. 4), yielding a 100% lymph node identification rate.

• The novel iron oxide nanoparticle dual tracer Magtrace™ detected SLN successfully up to 21 days after injection, even for patients with recurrent disease who had previously undergone breast conserving therapy.
• Delayed SLN in DCIS patients undergoing mastectomy or large resections is safe and feasible.
• Further, the SentiNot procedure avoids the expense and potential complications of axillary surgery for the majority of DCIS patients who do not require SLNB.