

**Placement Accuracy of a New Ultrasound (US) Visible Breast Biopsy Marker in US-Guided 11 Gauge Directional Vacuum Assisted Biopsy (DVAB)**

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**Purpose:** To evaluate the placement accuracy of a new US visible biopsy marker for use in US-guided 11 gauge hand held DVAB biopsy cases.

**Methods and Materials:** Of the ultrasound-guided breast biopsies performed between April 2001 and March 2002, 50 patients received markers and had films documenting the marker position available for retrospective review. All biopsied lesions were masses that were visualized both on mammography and ultrasound. Of these 50 cases, the Gel Mark marker (SenoRx, Aliso Viejo, CA) was used in 25 and the MicroMark marker (Ethicon Endo-Surgery, Cincinnati, OH) was used in 25. The Gel Mark delivers 11 air-containing bioresorbable pellets, with the center one embedded with a stainless steel wireform. The pellets can be visualized during US-guided deployment. Using a standard film mask technique, the center of the target lesion and the metal biopsy marker were traced from the pre and immediate post biopsy mammograms on to a single set of CC and lateral masks. The distance from the center of the target lesion to the metal markers was measured using both the long axis of the biopsy cavity (along the sample notch, i.e. z-axis) and the short axis of the cavity (perpendicular to the probe, along the xy axis).

**Results:** On both views, the Gel Mark metal wireform deployed within 1 cm of the lesion center in 60% of cases vs. 48% for the MicroMark. Both distances were  $\leq 5$  mm in 44% of Gel Mark and 28% of MicroMark cases. In the z-axis, the metal marker was  $\leq 1$  cm from the lesion center in 96% of Gel Mark and 60% of MicroMark cases.

**Conclusions:** Use of the Gel Mark marker provided more accurate localization of the center of the biopsy site on the immediate post biopsy mammogram. This is consistent with the design of the Gel Mark pellets, which tend to distribute the wireform within the cavity. Furthermore, the ability to visualize the marker on US allows the operator to adjust the probe position during deployment to optimize placement accuracy and confirm successful marker deployment prior to probe removal.