

Ultrasound Visibility of a New Breast Biopsy Marker on Serial Evaluations

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Purpose: To evaluate the ultrasound visibility of a new breast biopsy marker immediately after deployment and on serial breast ultrasound exams up to 4 weeks following biopsy.

Methods and Materials: Patients having an 11 G directional vacuum assisted biopsy (DVAB) of a breast lesion and willing to undergo follow-up ultrasound received the new breast biopsy marker. The marker, the Gel Mark Ultra (SenoRx, Aliso Viejo, CA), is composed of 11 synthetic bioresorbable pellets, with the center one containing an embedded stainless steel wireform. These are delivered to the biopsy cavity via a syringe-type applicator. The wireform provides X-ray visibility and air within each pellet provides ultrasound visibility.

Ultrasound images of the biopsy site and the marker were obtained immediately after marker deployment and on follow-up studies at 2 and 4 weeks following biopsy. Ultrasound images were scored for marker visibility on a 3 point scale: 0 = not visible, 1 = adequately visible and 2 = highly visible. Imaging characteristics of the marker were also assessed, i.e. visibility of the marker pellet and visibility of the posterior shadowing caused by the air within the pellets.

Results: Two breast clinics placed the new markers in a total of 20 patients. All markers were placed through an 11 G DVAB device, 18 using stereotactic biopsy guidance and 2 using ultrasound guidance. The average ultrasound visibility score immediately after deployment was 1.4. Four patients exited prior to the two week follow-up scan for personal reasons. The remaining sixteen patients were scanned and averaged 1.7 on the visibility scale. An additional six patients exited prior to the four week follow-up scan, 3 for cancer treatment and 3 for personal reasons. The ten patients remaining in the study were scanned and averaged 1.5 on the visibility scale. Although both the pellets themselves and the posterior shadowing contributed to ultrasound visibility, the shadowing was the more prominent imaging feature. In 2 of the patients requiring wire localization, the procedure was successfully performed under ultrasound guidance, using the imaging features of the marker as the target.

Conclusions: A new tissue marker for breast biopsies, the Gel Mark Ultra, was highly visible on ultrasound imaging immediately after deployment and throughout the duration of the study (4 weeks). This allows for successful wire localization under ultrasound guidance whether the biopsy and marker placement were performed with ultrasound or X-ray guidance.