

## Successful Biopsy of Pathologic Lymph Node Using New 12 Gauge Vacuum-Assisted Spring Loaded Core Device

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As one who has used many different breast biopsy devices, I have been looking for one to use in those challenging lesions such as those located in the axilla, near the chest wall, nipple or near implants. Until recently, I had not found such a device with which I felt completely confident. Now, with the Suros Celero™ (Suros Surgical Systems, Inc., a Hologic company, Indianapolis, IN) vacuum-assisted spring loaded core breast biopsy device, I am confident in my biopsies of those difficult lesions.

Take for example, a 47-year old female patient who presented to our center with multiple microcalcifications in her left breast and suspicious areas seen on both mammogram and breast ultrasound. There was also dermal involvement; the skin was sensitive and thickened. In addition, the patient had a pathologic appearing lymph node deep in the axilla.

The clinical plan was to sample the suspicious area under ultrasound guidance with the ATEC® (Suros Surgical Systems, Inc., a Hologic company, Indianapolis, IN), vacuum-assisted breast biopsy system, and then to sample the suspicious lymph node with the Suros Celero handheld device. The Celero handheld is a new vacuum-assisted 12 gauge breast biopsy device. Much like spring loaded core devices, the Celero device is independent of a console, fully disposable, gathers a single sample at a time, and is for use under ultrasound imaging. What is unique about the Celero device is that it collects two to three times larger samples than typical spring loaded core devices, its needle is more echogenic under ultrasound, and the Suros Celero device uses vacuum to hold the tissue sample in place therefore acquiring a larger and more contiguous sample. What is most unique about the Celero handheld is the option to pre-fire the inner cannula outside the breast.

The less trauma we cause to the breast tissue, the more comfortable the patient will be following the biopsy. Especially in cases with dermal involvement, keeping my patients as comfortable as possible is important to me. The Celero biopsy device gets larger cores, so fewer passes into the breast are needed. In fact, Celero samples are large enough to determine what grade of DCIS the patient has in a specific lesion. To date, no single-sample minimally invasive biopsy device has performed this task consistently.

I began the procedure by acquiring samples in the suspected cancerous area of the patient's left breast using the ATEC device. In the left axilla, there was a pathologic appearing lymph node, meaning the lymph node was irregular in shape with a hypoechoic center on ultrasound. To sample this lymph node, I used the Celero device in the post-fire mode to enter the lymph node and acquire two adequate sized specimens. The axilla is typically a sensitive area because of its proximity to several nerve endings as well as other vessels. With this handheld, the physician can either pre-fire the device as I did before entering the breast, or he/she can fire inside the breast. Entering the breast in post-fire position is a good option for challenging lesions such as those near implants, in the axilla, near the nipple, near the chest wall, and even some superficial lesions for which traditional vacuum-assisted devices and typical spring loaded core devices may not be ideal. Another benefit of firing and collecting tissue in two separate steps is that this allows for confirmation of needle position. The physician can place and confirm that the aperture is exactly where desired before firing the outer cannula and taking the sample. Firing outside the breast is excellent when approaching lesions in areas of difficult access. Again, since the inner and outer cannulas fire separately, the physician can adjust the fired needle with the open aperture within the lesion before taking the specimen.

Also contributing to the difficulty of this procedure, the obesity of the patient meant the targeted node was 15cm deep into the axilla, resting on the pectoralis muscle. The Celero device's ability to pre-fire outside the breast, high echogenicity of the needle and trocar tip gave me the confidence to enter this sensitive region. Until now, I had not sampled lymph nodes because of the sensitivity of the region and because of the limitations of the devices available previously. I did not want to fire within the axilla, and the traditional VABB systems could be too traumatic to the area. I would not have done this procedure with any other device on the market.

Firing near the chest wall scares me to death with the currently available 14 gauge spring loaded core device because it dives, and must be fired within the breast. The pre-fire option is nice because it allows sampling of the lymph nodes deep in the axilla without risk to adjacent structures. This includes the vessels of the axilla which can be intimately associated with the lymph nodes. Because of the depth of the lesion, it was also extremely important for me to be able to see the needle well, which would not have been possible with 14 gauge spring loaded core devices, and to have confident control over the device as I placed it through the node before taking the sample. There is another device on the market that has the pre-fire option, but because of its thin design and beveled tip, it tends to dive when traversing the tissue, which makes it difficult to control, especially through 15cm of tissue. The other device is also not visible at that depth under ultrasound imaging.

When we stop and think about what this means to patients, the Suros Celero vacuum-assisted spring loaded core device has very exciting potential. If this patient's node comes back positive, we have saved this woman an additional surgical procedure. The surgeon can skip the sentinel lymph node surgical biopsy and go straight to the axillary dissection. And, if the node comes back negative, I can be sure that I used the most minimally invasive and effective approach for this procedure and the most compassionate approach for this patient.

Further studies are being conducted to determine how many samples are needed with the Celero breast biopsy device to accurately characterize the suspicious lesion and also to stage the tumor. Early findings show that only 1-2 samples are needed for a diagnosis and DCIS staging is possible with as few as two samples. For my patient, I only needed two samples.

The Suros Celero breast biopsy device is a very exciting addition to the breast biopsy market. This may provide staging information of lymph nodes and the ability to access lesions currently not amenable to percutaneous biopsy.