

Automated breast volume scanning: a case demonstration of a breast invasive ductal carcinoma

Xuehong Diao, Yue Chen, Yun Pang

Department of Ultrasound in Medicine, Huadong Hospital, Fudan University, Shanghai, China

Corresponding to: Yue Chen. Department of Ultrasound in Medicine, Huadong Hospital, Fudan University, Shanghai, China.

Email: ultrasound_drchen@163.com.



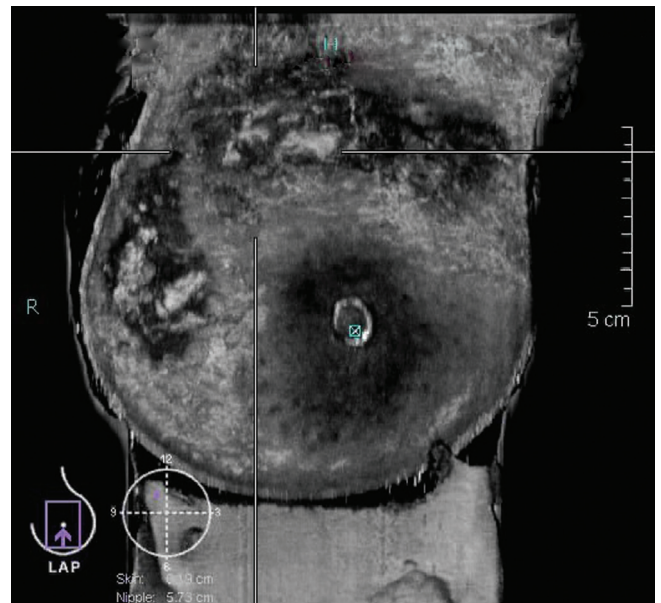
Submitted Jan 26, 2013. Accepted for publication Feb 22, 2013.

doi: 10.3978/j.issn.2223-4292.2013.02.04



Scan to your mobile device or view this article at: <http://www.amepc.org/qims/article/view/1671/2554>

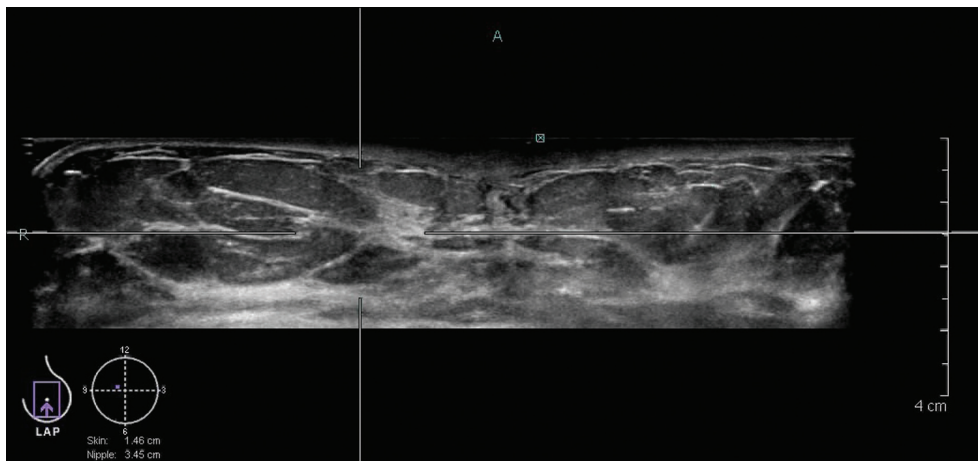
Automated breast volume scan (ABVS) ultrasound is one of the first representatives of automated ultrasound systems which is developed to help identify potential pathologies by acquiring full-field volume of the breast automatically. The system utilizes a high-frequency 14 MHz transducer to automatically sweep over the breast, producing a 15.4 cm × 16.8 cm × 6 cm field of view volume. This technique can image the breast lesions from coronal, sagittal, and transverse planes, providing all the information needed for precise documentation and depiction of the lesion. Furthermore, ABVS provides high-resolution 3D-Ultrasound images of breast lesions, multiplanar correlation facilitates lesion assessment. Especially, the coronal plane provides physicians (especially surgeons) a comprehensive view of the breast from the skin line to chest wall in a series of images. This view has an additional value for surgical planning, and provides a more understandable representation of the breast's global anatomy and architecture. Additionally, the automated procedure is operator-independent, standardized and time-saving. This helps to make a quick and confident diagnosis. An ABVS ultrasound demonstration of a breast invasive ductal carcinoma is demonstrated as below (*Figures 1,2, Videos 1,2*).



Video 1 The video allows to visualize the complete volume of tissue from the skin line to the ribs. The tumor with irregular margins is clearly noted in the coronal scan. This greatly assists the plan-ning of surgical intervention

Acknowledgements

Disclosure: The authors declare no conflict of interest.



Video 2 This video shows 3D reconstruction in transverse plane. It clearly shows the hypoechoic tumor with an echogenic halo and the depth of the tumor

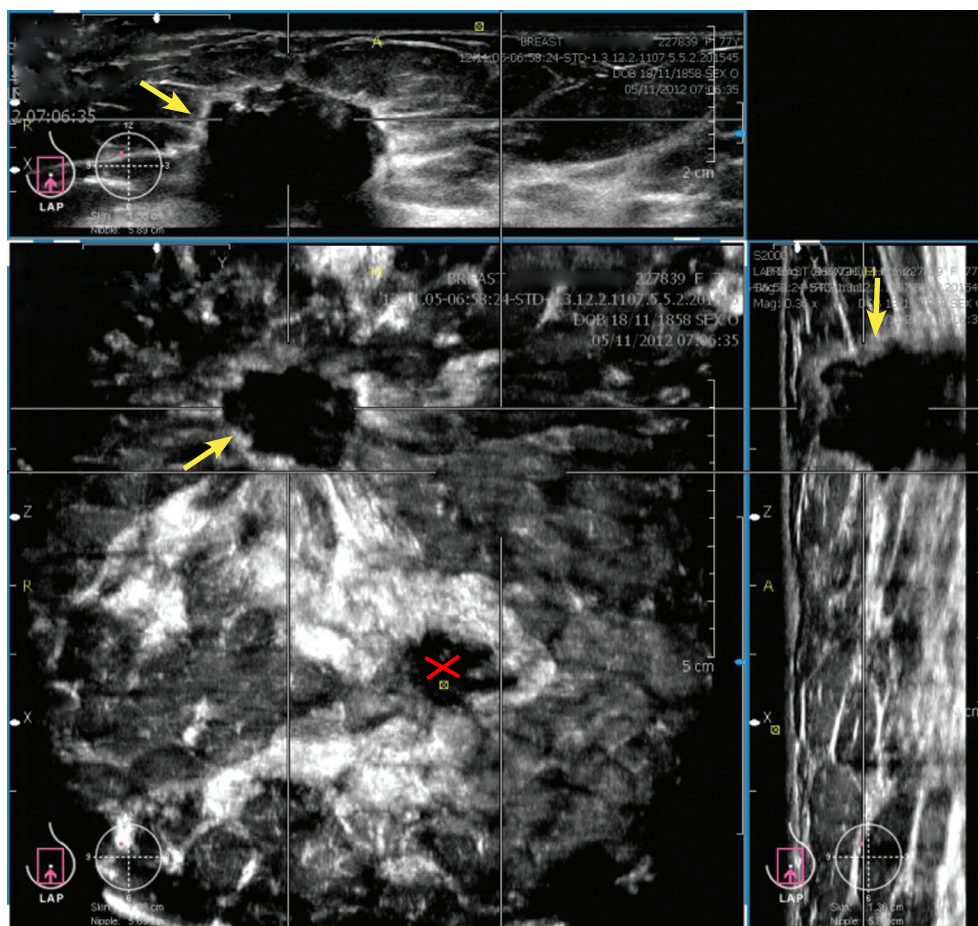


Figure 1 ABVS image of a right breast invasive ductal carcinoma case in three orthogonal planes, transverse (above), coronal (bottom left) and sagittal (bottom right). Three views of the breast demonstrates the location of carcinoma (yellow arrow) in relation to the nipple (red X). An irregular, spiculated, hypoechoic mass is present

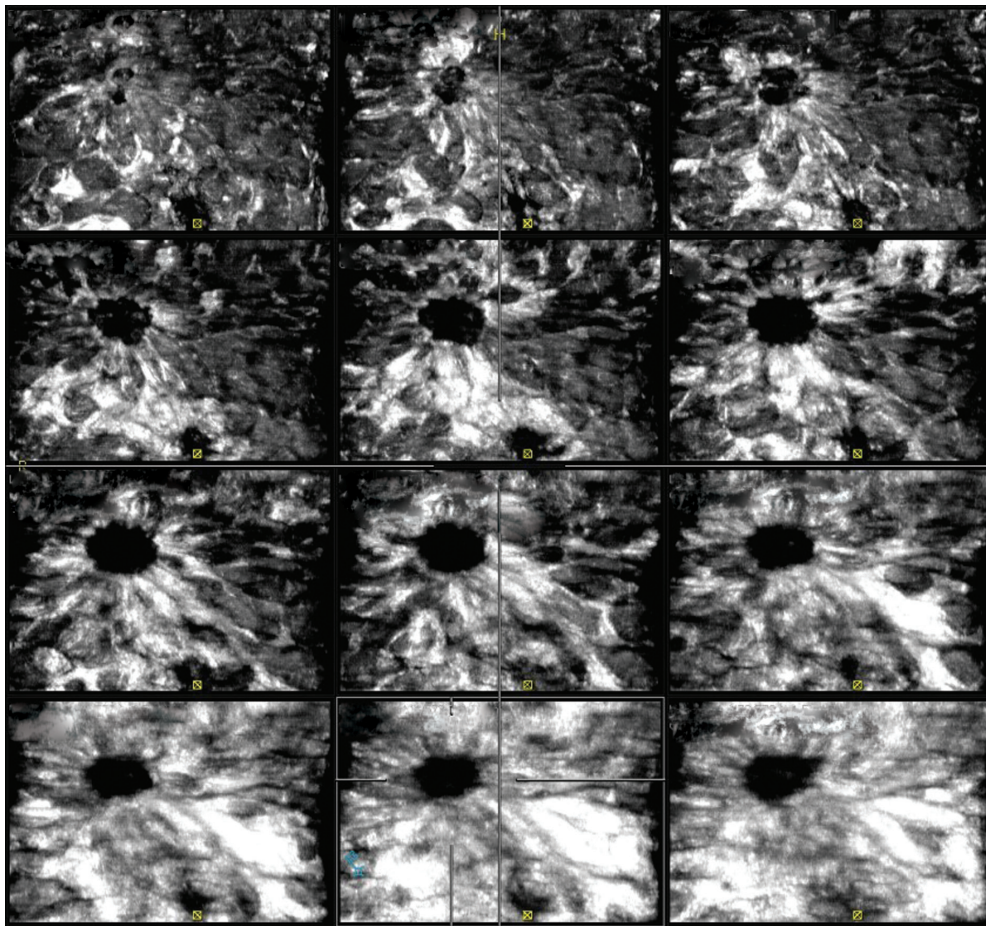


Figure 2 Same case as *Figure 1*, multi-slice display of coronal reconstruction image at 0.5 mm slice interval shows the tumor at various depth levels. Typical retraction phenomenon of the mass is demonstrated in the coronal planes

Cite this article as: Diao X, Chen Y, Pang Y. Automated breast volume scanning: a case demonstration of a breast invasive ductal carcinoma. *Quant Imaging Med Surg* 2013;3(2):126-128. doi: 10.3978/j.issn.2223-4292.2013.02.04