Novel Approach to LAAC Procedure Using 4D ICE

Images courtesy Carlos Sanchez, MD, Ohio Health Riverside Methodist Hospital, Columbus.

This case of left atrial appendage closure (LAAC) with a Watchman device (Boston Scientific) demonstrates the advantages of using 4D intracardiac echocardiography (ICE) over transesophageal echocardiography (TEE) and 2D ICE. An 87-year-old female with a history of paroxysmal atrial fibrillation was referred for LAAC. She received a contrast-enhanced preprocedural computed tomography (CT) scan to evaluate the LAA's dimensions and anatomy. 4D ICE measurements (18.9 mm) of the LAA ostium correlated well with CT (18.2 mm). Since the patient could not tolerate long-term anticoagulation medication due to her condition, she underwent a Watchman procedure. Precise measurement of the landing zone predeployment and PASS (Position-Anchor-Size-Seal) criteria was performed using 4D ICE (ACUSON SC2000 PRIME ultrasound system, Siemens Healthineers). The Watchman device was deployed with the 4D ICE catheter positioned in the mid left atrial view displaying multiplanar reconstruction imaging, rather than with multiple views using 2D ICE. Device implantation occurred under conscious sedation and was free from complications; the patient was discharged the same day. ■

The Watchman device was deployed with the 4D ICE catheter positioned in the mid left atrial view displaying multiplanar reconstruction imaging.

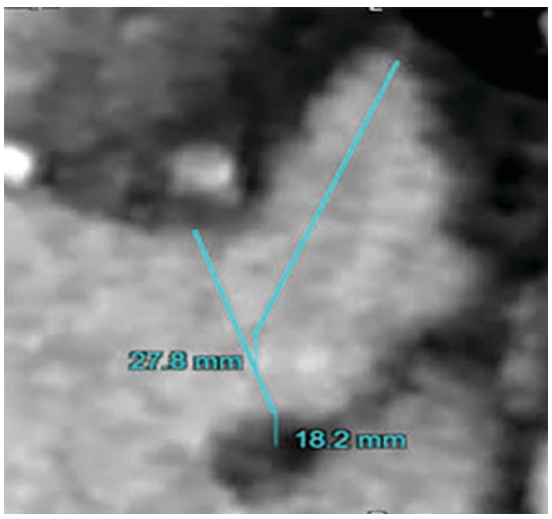


Figure 1. CT reformatting revealed the LAA ostium to be 18.2 mm in diameter.

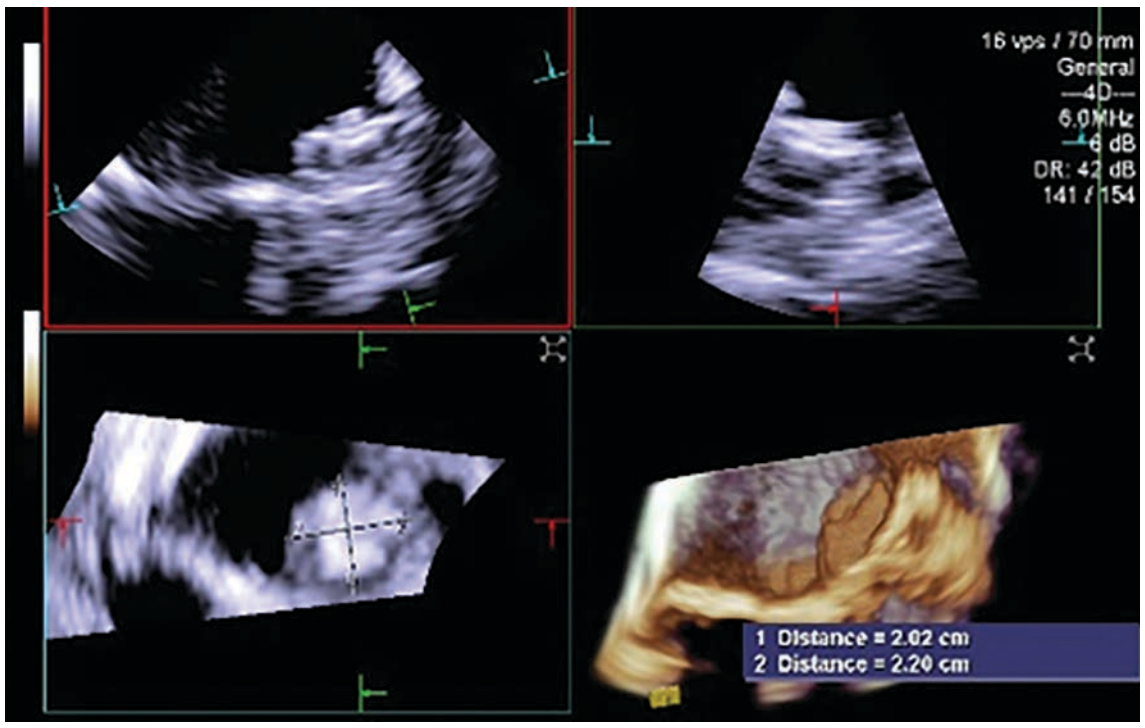
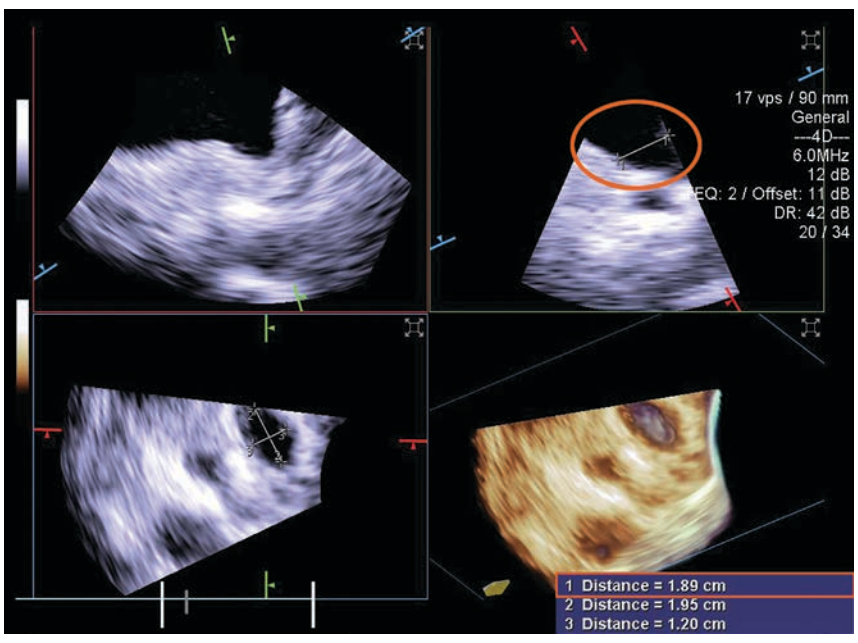


Figure 3. Precise measurement of Watchman compression diameter in the coronal plane using 4D volume ICE.



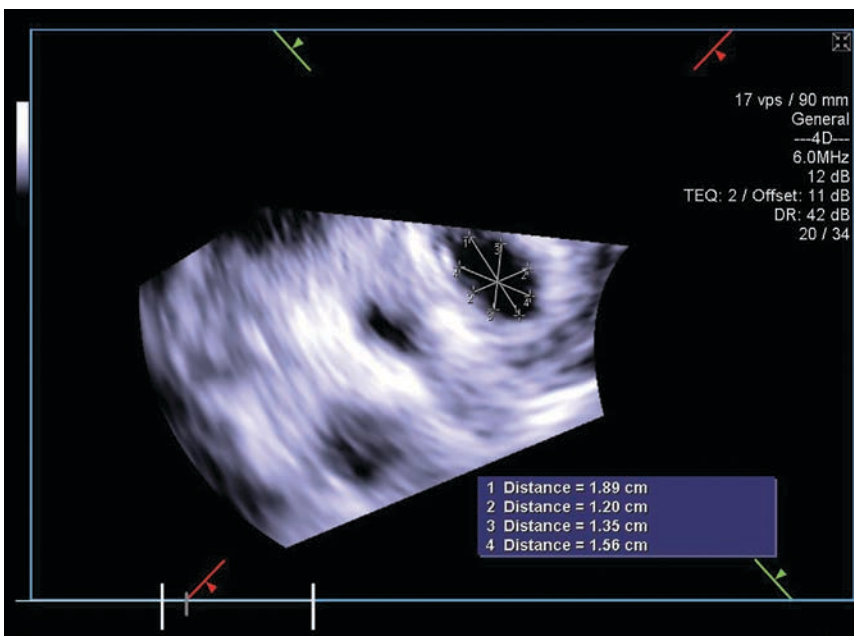


Figure 2A-B. 4D ICE imaging revealed the LAA ostium to be 1.89 cm in diameter. Measurements were then obtained using multiplanar reconstruction planes, including the en face view of the LAA ostium in the coronal plane.