

Left Atrial Appendage Closure with 9VT-D, mini 4D TEE probe

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Patient History/ Pathology

68-year-old man was admitted due to heart failure after new-onset rapid atrial fibrillation (AF). Despite having a previous episode of paroxysmal AF, oral anticoagulation had been suspended after recurrent hematuria (chronic cystitis resulting from a previous radiotherapy treatment for prostate carcinoma). A transesophageal echocardiography (TEE) was performed to rule out thrombus before electric cardioversion. The patient was discharged with low-dose subcutaneous heparin and, after another episode of hematuria, percutaneous left atrial appendage (LAA) occlusion (LAAO) was proposed.

Challenges

Percutaneous LAAO needs planning with a 3D imaging technique (CT or TEE). Our patient had a previous TEE but without 3D measurements of the LAA and dedicated evaluation. Performing a new imaging test would have implied a delay in treatment as well as additional cost and risk (radiation, esophageal intubation). Alternatively, LAAO with general anesthesia and 3D TEE guiding had to be performed to evaluate the LAA and guide the procedure.

System, probe & device used

As we had available the 9VT-D mini TEE probe with 3D capabilities with the Vivid E95 (206 release) echocardiographic system, we decided to perform LAAO under conscious sedation and on an ambulatory basis with same day hospital discharge. The patient was admitted in the morning, LAAO was performed under conscious sedation and after 6 hours monitoring and a transthoracic echocardiography to rule out pericardial effusion and device embolization, the patient was discharged from the hospital.

Step-by-step procedure

The tolerance of the probe was excellent with only pharyngeal topic lidocaine and conscious sedation (fentanyl 0.05 mg and midazolam 2 mg). 3D measurements of the LAA (ostium 14x23 mm and landing zone 16x21 mm) were performed during LAAO with live MPR and an Amplatzer Amulet 25-mm device was chosen for closure. Transseptal puncture and device implantation were guided with biplane 3D imaging with a successful implantation.

Conclusion

The use of a mini TEE probe with 3D capabilities (9VT-D) allowed us to directly perform a safe and effective LAAO with

conscious sedation and same day hospital discharge. Without this probe it would have been necessary to do a previous 3D imaging technique (TEE or CT) or to perform LAAO with general anesthesia and 3D TEE guiding with the standard probe.

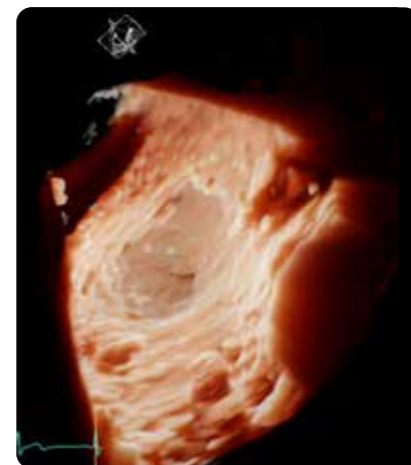
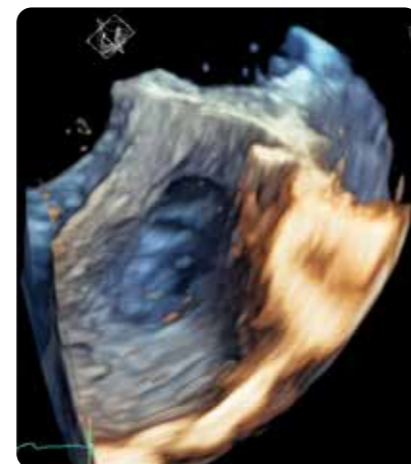


Figure 1. 3D visualization of the LAA ostium.

3D measurement of LAA

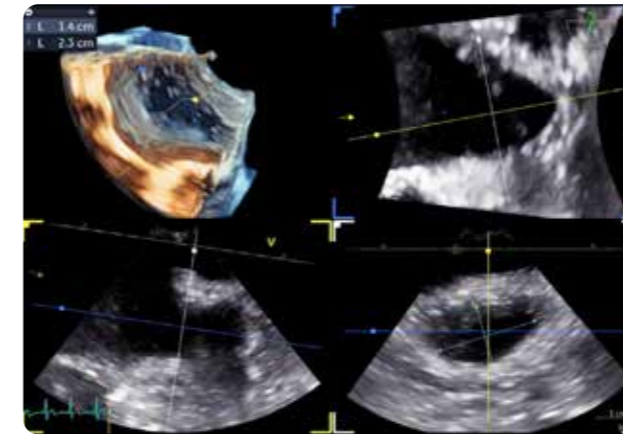


Figure 2. Ostium.

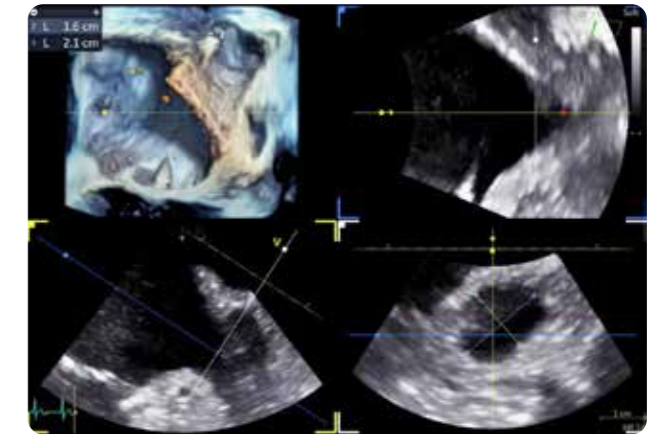


Figure 3. Landing zone.

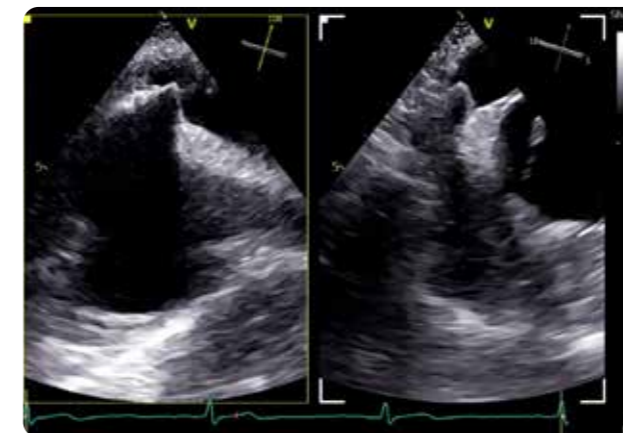


Figure 4. Transseptal puncture.

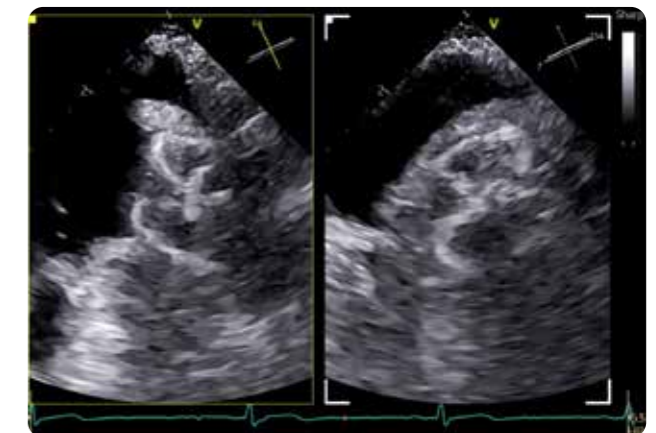


Figure 5. Lobe opening.

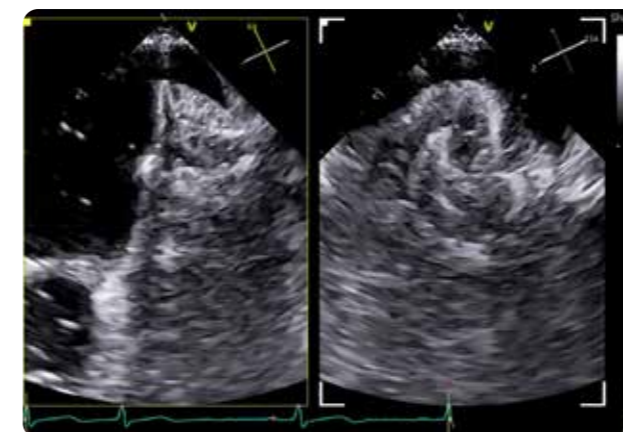


Figure 6. Disc opening.



Figure 7. 3D evaluation of leaks before release.

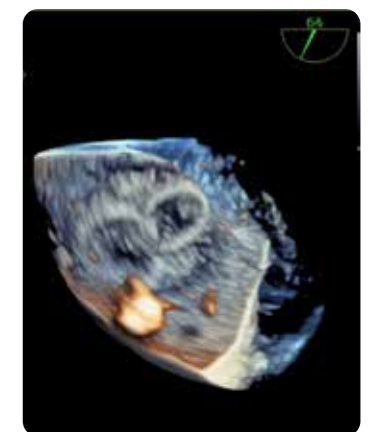


Figure 8. Final result.

9VT-D probe is exclusively available for Vivid E95 and Vivid E90 systems. Vivid Ultra Edition is released as of 25th August 2022. Ultra Edition is not a product name, it refers to the 2022 release of the Vivid portfolio.

Doctors are paid consultants for GEHC and were compensated for participation in this article. The statements described here are based on their own opinions and on results that were achieved in their unique setting. Since there is no "typical" hospital and many variables exist, i.e. hospital size, case mix, etc., there can be no guarantee that other customers will achieve the same results.

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