



## A NEW SAFE ECHO-GUIDED APPROACH IN LAAC PROCEDURE: ICE PROBE USED AS ETE PROBE

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### **Introduction:**

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia in adults (1). atrial appendage is the most likely source of thrombus formation in patients with atrial fibrillation (2) and Left Atrial Appendage Closure (LAAC) was non inferior to DOACs as stroke prophylaxis in non-rheumatic atrial fibrillation (3).

### **History and physical:**

An 82-year-old man (V.A.) arrived in our hospital (Umberto I Syracuse) with an intracranial hemorrhage. He had AF, a past medical history significant for coronary artery disease, hypertension, chronic coronary syndrome with reduced ejection fraction (LVEF 45%), chronic kidney disease (creatinine 1,4 mg/dl, GFR 44,4 mg/dl/m<sup>2</sup>). He suffered from esophageal cancer.

### **Indication for intervention:**

Due to the high stroke's risk for this patient (CHA<sub>2</sub>DS<sub>2</sub>-VASc score of 5) and major bleeding risk (HAS-BLED score of 4), he was referred for percutaneous LAAC with Watchman FLEX.

### **Learning points of the procedure:**

Because of his esophageal narrowing, classical ETE was not available. Moreover we want avoid double venous access due to complications of venous access in defied patient. So we decide to use intracardiac echocardiographic (ICE) probe as transesophageal echocardiographic (ETE). We have acquired the patient's consent to perform this new technique. Without anesthesia we excluded the presence of thrombus in LAA using the ACUNAV system (Siemens-Acuson, Mountain View, California), that is steerable and can be orientated in a four-way articulation (A-P and R-L), as a common ETE probe: we descended ACUNAV probe in mid



esophagus and locked the catheter tip; after that we acquired images of the LAAC and interatrial septum, using the four-way articulation. In this way we can perform a classical LAAC procedure: bicaval and aortic short axis planes for transeptal puncture, LAA planes for the final device size selection (diameter, depth) and for device deployment. A 24 mm WATCHMAN device was successfully deployed at the ostium with no residual leak. No peri-procedural complications occurred, the patient was discharged at home on dual anti-platelet therapy (DAPT) consisting of aspirin and clopidogrel until 6 months from the day of the procedure. There have been no bleeding or stroke events. Thanks to this safe technique we have avoided general anesthesia, reduced procedure time and improve patient's compliance during percutaneous LAAC.

### **Conclusion:**

This case shows a new safe usage of intracardiac echocardiographic probe as transesophageal echocardiographic probe for patients with AF referred for percutaneous LAAC with Watchman FLEX. Using this technique we had very good images comparable to those obtained with traditional ETE moreover we have reduced procedure time and usage of anesthesia that can lead complications in particular in the elderly patients. We believe that this technique can be extended to all. A limitation is that there are no standard ecographic views. However, after visualization of heart's structures to get the necessary views, just simple intuitive and small movements are needed. A prospective trial is needed for further evaluating the safety and efficacy of this innovative technique.

### **Figure Lenegds:**

**Figure a to c:** A fuoroscopic illustration of the intracardiac echocardiography (ICE) catheter positions during left atrial appendage Closure (LAAC); a) Transseptal Puncture; b) angiographic image to establish final LAA device size c) device deployment;

**Figure d to f:** ICE imaging of the LAAC procedure. d) bicaval view; This image is used for the transeptal puncture, in this view we can evaluate tenting and next trasenptal passage. e) LAA view that is used to choose device size selection (diameter and depth), an initial device size is chosen to be at least 10 to 20% greater than the maximal diameter. f) 24 mm WATCHMAN device successfully deployed at the ostium of LAA, in this view with color you can check that there are no leaks. IAS= interatrial septa, IVC= Inferior Vena Cava, SVC= superior Vena Cava, LAA= Left Atrial Appendage

