SUCCESSFUL IMPLANTATION OF AMPLATZER PFO OCCLUDER FOR LAA CLOSURE IN A CABG PATIENT POST LAA LIGATURE

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Background:

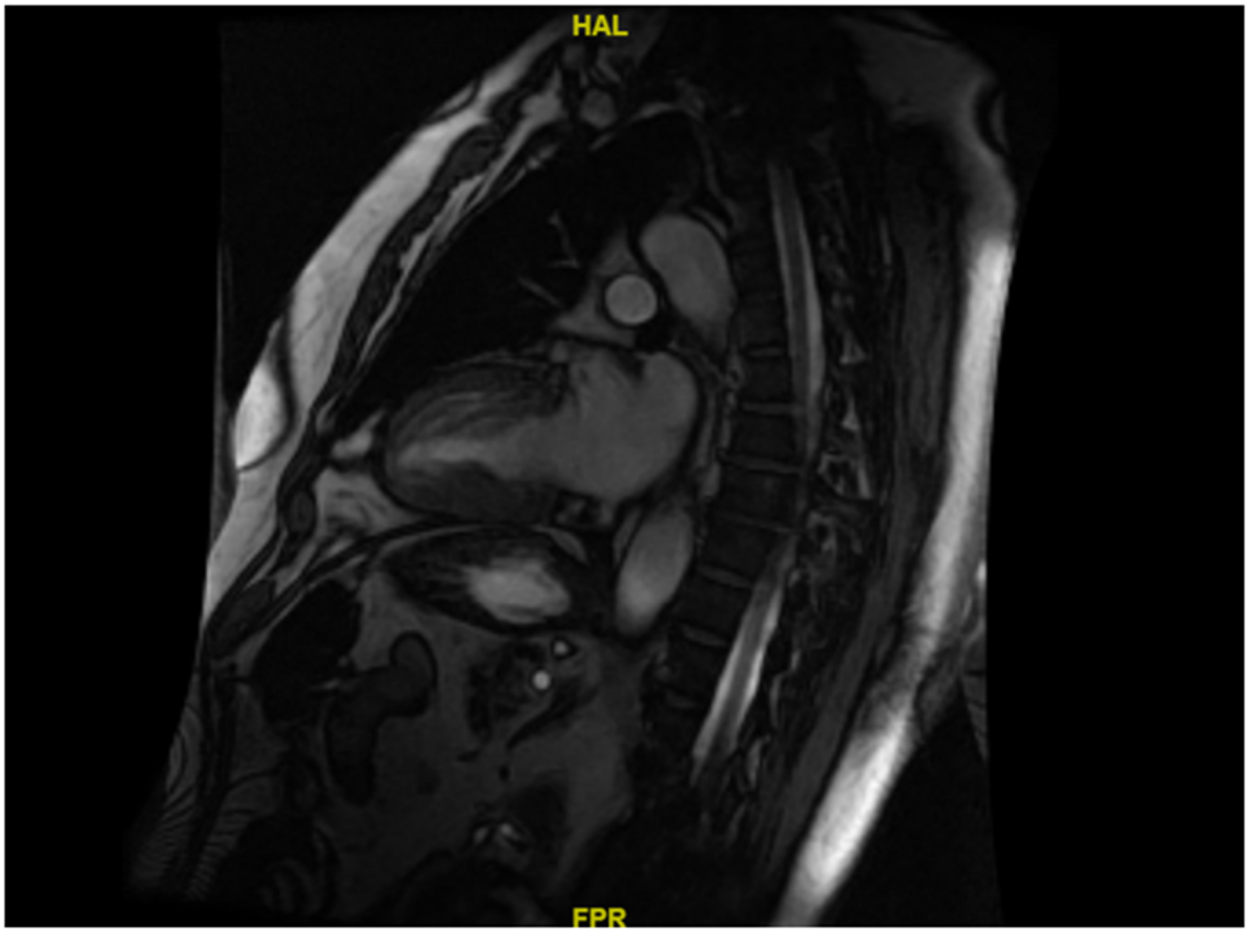
Atrial fibrillation (AF) is the most prevalent sustained cardiac rhythm disorder seen in clinical practice, affecting 2.3 million adults in the United States alone. There is substantial evidence that the left atrial appendage (LAA) is an important source of thrombi in patients with AF and underlying heart disease. Consequently, prophylactic exclusion of the LAA from the systemic circulation during cardiac surgery has been proposed as a means of reducing the risk of future thromboembolic events in patients with AF. Although exclusion of the LAA as a potential source of thrombi from the systemic circulation seems to be a logical alternative to conventional anticoagulation therapy in patients with AF, this proposition has not yet been proven conclusively. Historically, surgical techniques including off pump suturing, endocardial suturing and stapling have been associated with significant incomplete closure, stumps and increased risk of systemic thromboembolism. We present a rare case of LAA occlusion with off-label use of AMPLATZER PFO device in a patient who has had a CABG with LAA ligation years ago.

History and Physical:

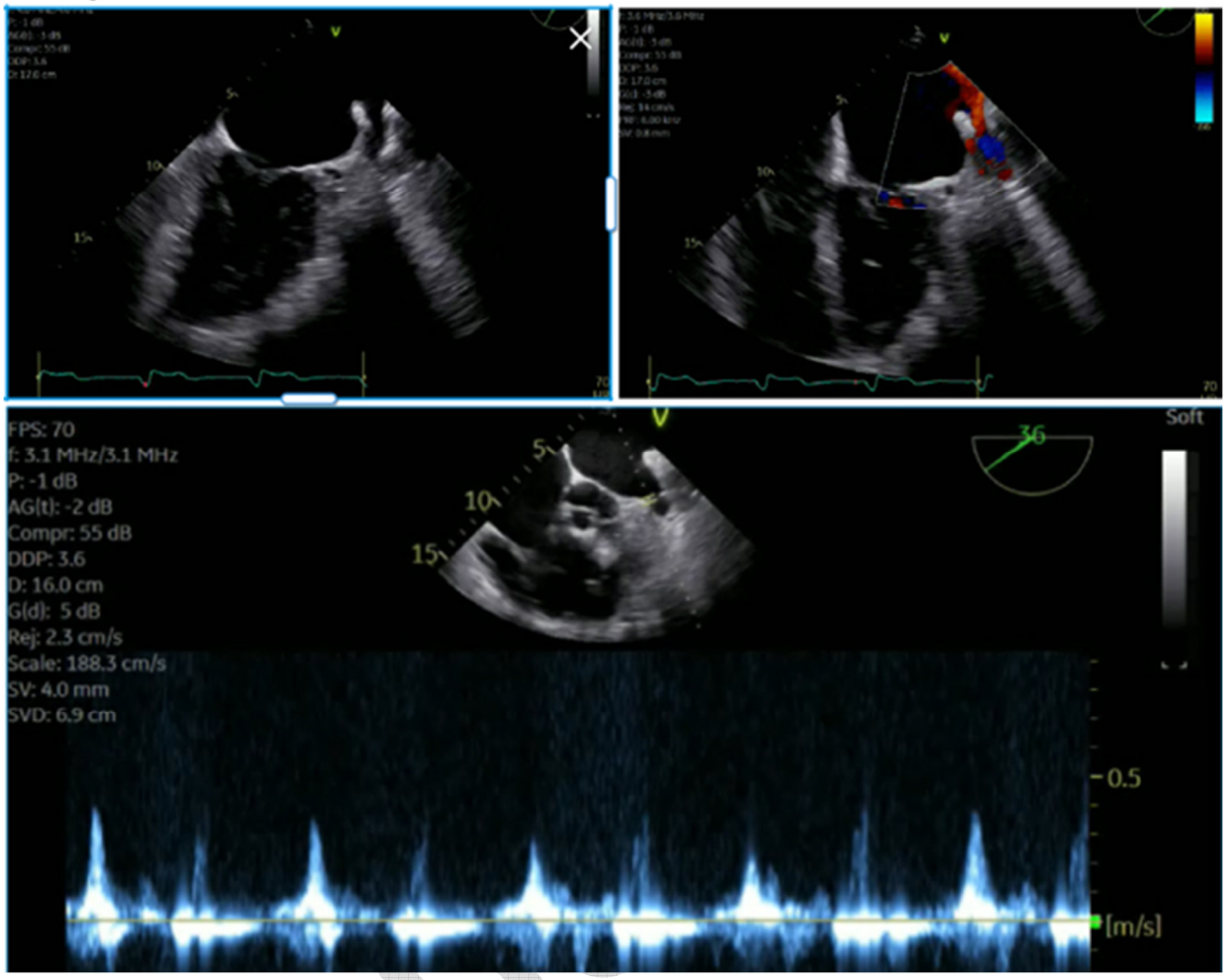
Our patient is a 73 year old male with a history of chronic atrial fibrillation who presented for elective LAA closure with watchman device. Physical exam was normal. He had a CABG 14 years ago during which a LAA ligature was performed. Cardiac MRI obtained 2 months after the CABG showed a ligated LAA. During evaluation for WATCHMAN, a preoperative TEE showed small LAA with mildly reduced emptying velocity.

Imaging:

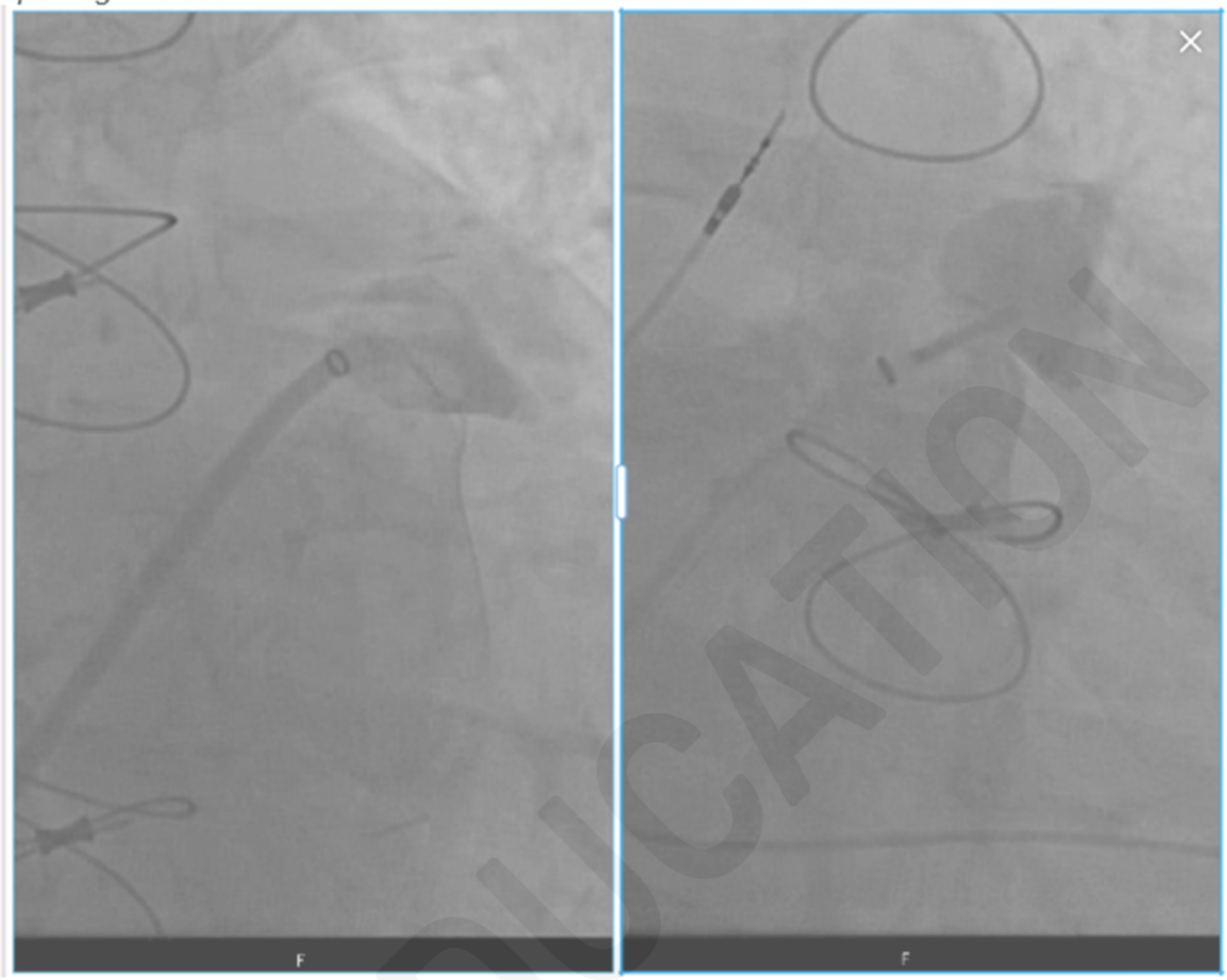
Cardiac MRI 2 months post LAA ligature



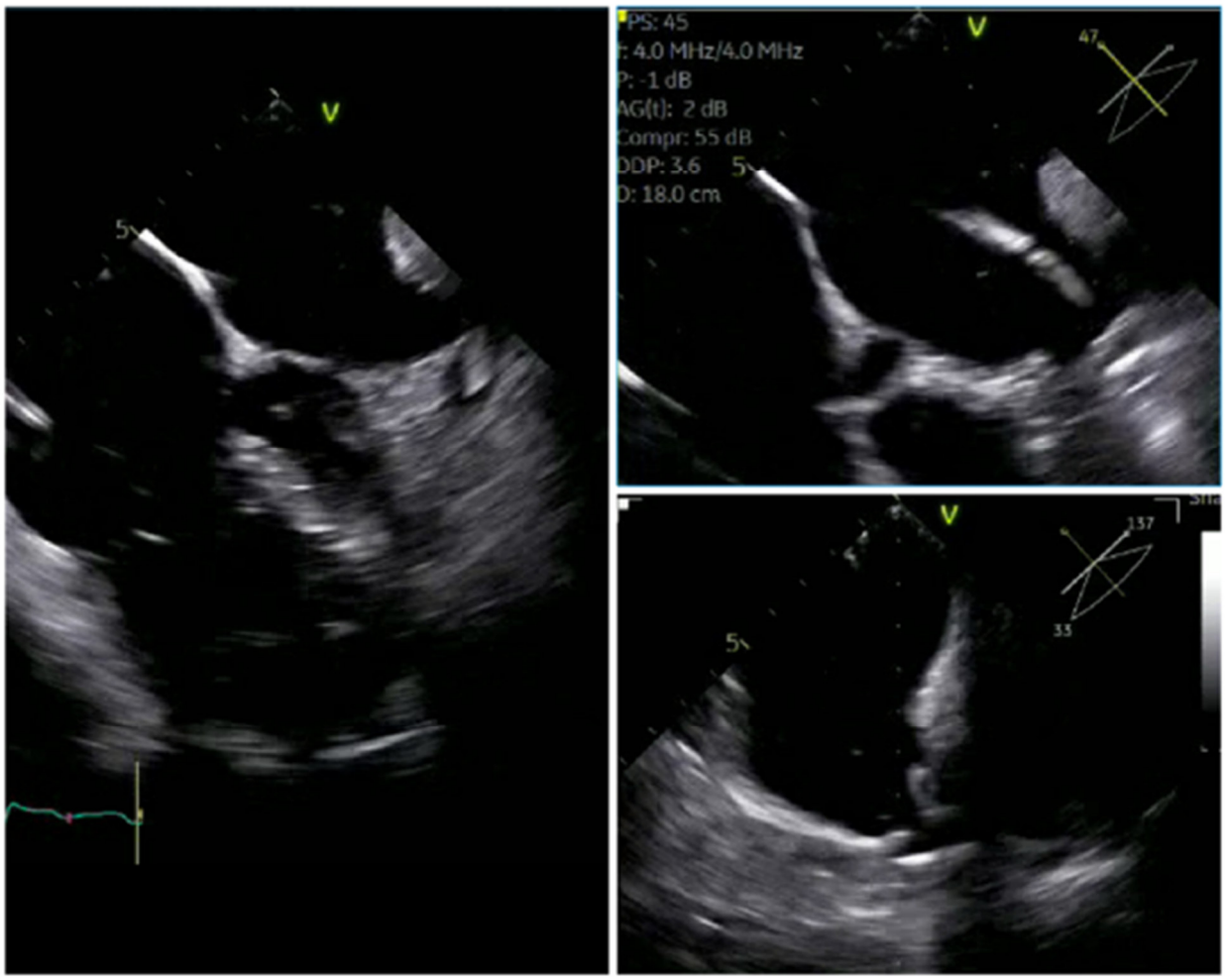
Preoperative Transesophageal echocardiography to assess the LAA size, flow and velocity



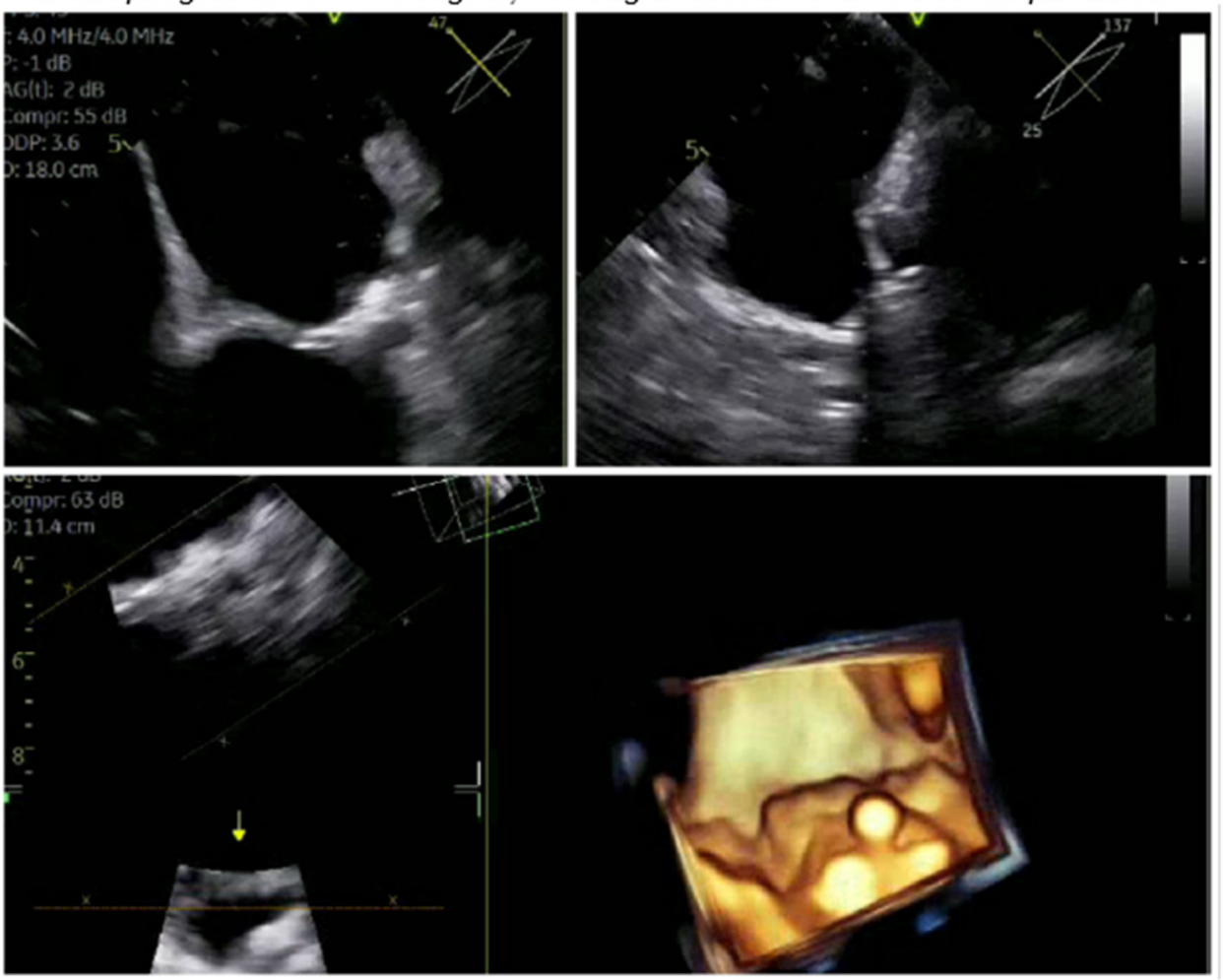
Unsuccessful attempt of WATCHMAN device due to narrowed neck showing leak and opening into the LAA



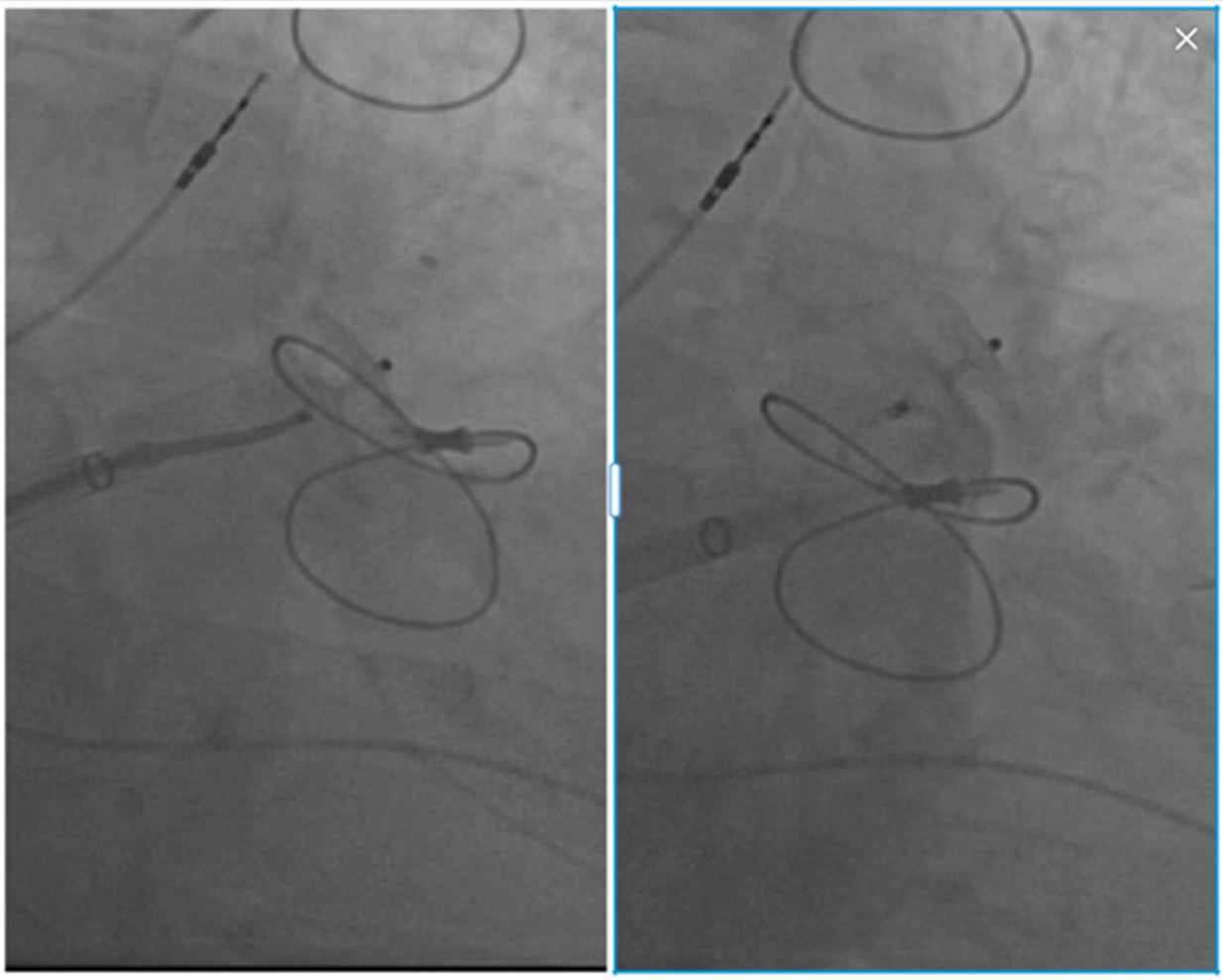
Transesophageal views of PFO occluder procedure showing sheath in the LAA and views at 45 degree and 135 degrees before the device placement



Transesophageal views at 45 degree, 135 degree and 3D after the device placement



Sealed off LAA with the AMPLATZER PFO 18/25mm occluder device



Indications for Intervention:
History of Atrial Fibrillation with incomplete closure of LAA status post LAA ligation

Intervention: Placement of the WATCHMAN FLX was not successful as the patient was noted to have narrowing of the LAA neck consistent with previous suture placement. Intraoperative TEE showed a LAA with previous suture and noted a leak > 5mm with connection into the distal tip of the LAA. CT chest with contrast was obtained to quantify the LAA dimensions. The LAA opening measured approximately 1.9x1.9 cm AP by craniocaudal and 3.6 cm in depth. Decision was made to attempt LAA closure with an AMPLATZER PFO 18/25mm occluder device. During the procedure, intracardiac ultrasound and TEE was used for further imaging guidance. Trans-septal access was obtained and was exchanged over a long wire for an CRYOFLEX sheath. Then a Cordis was advanced across the LAA and various cine views were taken. The LAA leak was again demonstrated and confirmed >5mm with connection into the distal tip of the LAA. Using the de-sheathing technique, the device was extruded and advanced into position. The tug test and contrast images confirmed correct placement. After confirming device position, stability, and the absence of a leak, AMPLATZER PFO was released through the Cordis.

Learning Points of the Procedure:

Surgical exclusion of the left atrial appendage (LAA) can be performed at the time of cardiac surgery as a potential modality to decrease cardioembolic risk attributable to atrial fibrillation (AF). Based on the recent LAAOS III trial, among patients with atrial fibrillation undergoing cardiac surgery, left atrial appendage occlusion was superior to no occlusion. But, the method of exclusion is crucial as few older techniques caused incomplete exclusion leading to stroke risk as compared to the newer techniques with atriclip which resulted in more complete closure. Therefore, repeat follow up with TEE is necessary to assess for the flow across the LAA due to risk of incomplete closure or minimal leaks. In patients with incomplete appendage ligation after CABG with minimal leak or anatomic features which do not meet the manufacturer's requirements for LAA occluding device, off-label use of AMPLATZER PFO Occluder seems to be a great alternative.