Healthy Heart

Volume-9 | Issue-106 | September 5, 2018

Price : ` 5/-

Honorary Editor :
Dr. Ajay Naik

From the Desk of Hon. Editor:

The left atrial appendage (LAA) is a muscular pouch connected to the left atrium of the heart. The LAA is a normal part of the heart anatomy and causes no problems in the general population. However, this pouch is a major source of blood clots in patients with atrial fibrillation.

Atrial fibrillation (AF) is the biggest risk factor for blood clots blocking blood flow to the brain and causing a stroke. Stroke can cause temporary or permanent brain or organ damage and is one of the top healthcare costs in many countries.

The prevalence of atrial fibrillation (AF) increases with age.

Approximately 4% of persons 60 years old and older have AF

Approximately 9% of persons 80 years old and older have AF

More than 90% of blood clots are located in the left atrial appendage in patients with nonrheumatic, nonvalvular AF.

Current evidence suggests that catheter-based closure of the left atrial appendage is effective in reducing the risk of blood clot-related complications associated with nonvalvular AF.

CATHETER-BASED PERCUTANEOUS LEFT ATRIAL APPENDAGE OCCLUSION PROCEDURE FOR STROKE PREVENTION IN ATRIAL FIBRILLATION PATIENTS

Background:

Ischemic stroke is the most common clinical manifestation of embolic events from atrial fibrillation. While anticoagulation treatment is the preferred treatment, unfortunately, many patients have contraindications for anticoagulation treatment making this option unavailable to them. Most thrombi (>90%) that form in association with non-valvular atrial fibrillation occur in the left atrial appendage (LAA).

Isolating the LAA from the body of the left atrium might reduce the risk of embolic events and that LAA obliteration may be a treatment option for patients with atrial fibrillation *who are not candidates for anticoagulation treatment.*

CASE PRESENTATION - 1

Patient : 48-year-old gentleman,

History of : Hypothyroidism (2008)
Chronic AF (2012)
TB (2012)
Thalassemia minor

Presentation :

- Atypical Atrial Flutter and Atrial Fibrillation
- Cardioembolic CVA (Recovered Neurologically) on therapeutic INR 2.8
- Restrictive Cardiomyopathy, Severe Biatrial enlargement
- Moderate LV Dysfunction (LVEF 35%), CHF
- Icteric, Congestive Hepatomegaly, Hyperbilirubinimea.
- Unable to tolerate Acitrom and NOACs.
- CVA on therapeutic INR.

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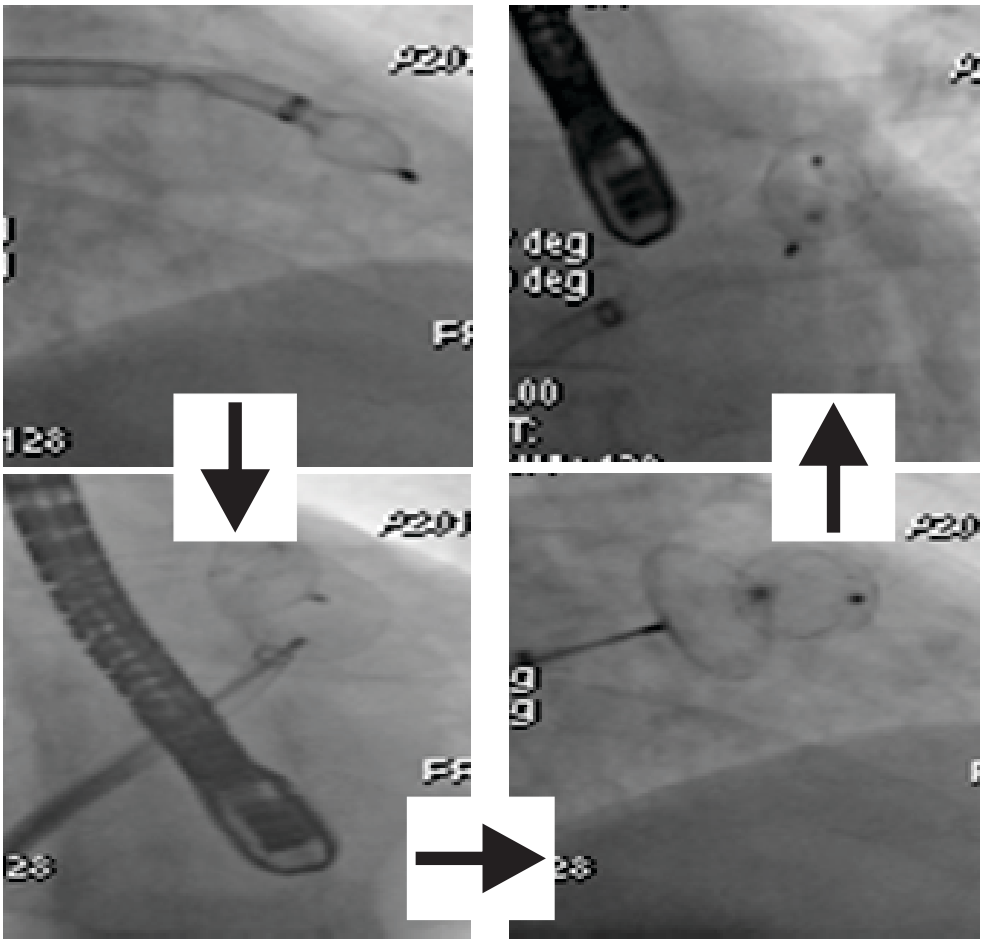


Figure 1: Procedural fluoroscopic views of the left atrial appendage are seen with AMPLATZER Cardiac Plug Device.

Case Management with Procedure:

- Transeptal Puncture performed with Brockenbourough needle via SL0 Daig Schwartz sheath
- Amplatzer wire and Marker Pigtail introduced into LAA.
- SL0 Sheath replaced with 13F LAA sheath.
- 13F LAA sheath advanced into LAA. Angiogram Performed
- The LAA morphology was cauliflower shaped with multiple lobes. Multiple repositionings were performed to get optimal deployments.
- 26 mm Amplatzer LAA occluder device deployed fluoroscopic and TEE guidance.
- Post procedure angiogram and TEE showed no residual flow and excellent device position.
- The procedure was uncomplicated and well tolerated.

CONCLUSION :

LEFT ATRIAL APPENDAGE OCCLUSION DONE

RECOMMENDATION :

Antiplatelet drugs x 06 months (NO ANTICOAGULATION NEEDED) SBE prophylaxis x 06 months

FUTURE:

Possible requirement of AF ablation / CRT Implantation.

Percutaneous occlusion of the left atrial appendage (LAA) offers an alternative for stroke prevention in patients with atrial fibrillation (AF) who are contraindicated or intolerant to oral anticoagulation (OAC).

Established benefits of LAA occlusion include:

- Device implantation without major complications in 96% of the cases
- Complete LAA closure in 96% of the implantations
- An observed stroke rate reduced by approximately 60% to 75% compared to the expected rate

Percutaneous LAA occlusion may be considered for AF patients at high risk for stroke (CHADS2 or CHA2DS2-VASc $\geq$ 2) and with a high risk of bleeding.

Specifically, the following conditions may indicate percutaneous LAA occlusion:

- Recurrent ischemic stroke despite well-controlled OAC
- Previous intracranial hemorrhage (ICH)
- Recurrent GI bleeding
- Comorbidities, such as uncontrolled hypertension, cerebral microbleeds and cerebral amyloid angiopathy
- Coagulopathies
- Intolerance to new OAC drugs

LEFT ATRIAL APPENDAGE OCCLUSION PROCEDURE:

Before performing an LAA occlusion procedure, a screening transesophageal echocardiography (TEE) is done to assess anatomical suitability for the procedure, as well as rule out any possible contra-indications (i.e. presence of an LAA clot). Most importantly, the LAA is measured both for the size of its orifice and for its length to assure that dimensions are within the available device range (Figure 4).

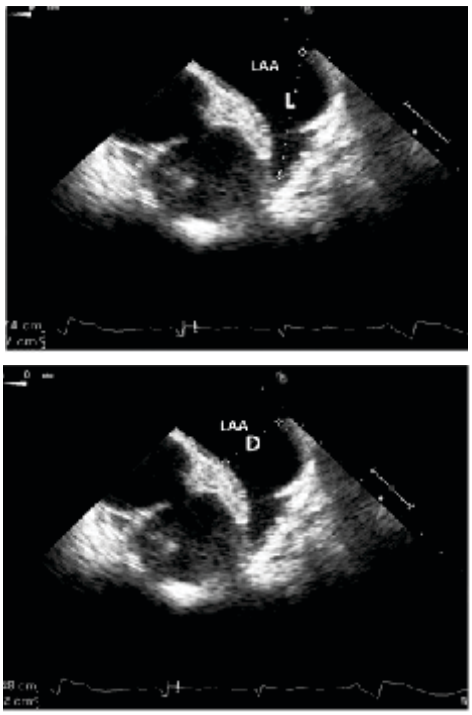


Figure 4:

Pre-procedure measurements. A biplane, two-dimensional view of the left atrial appendage is seen. Measurements are performed at every view; the left atrial appendage opening diameter (D) and the left atrial appendage length (L). These are performed to verify suitable appendage dimensions for device implantation (LAA, left atrial appendage).

The occlusion procedure is performed in the catheterization laboratory, often with the patient under general anaesthesia, TEE guidance and fluoroscopic guidance.

Access to the left atrium is achieved via central venous access (through the femoral vein) and a transseptal puncture. A guiding catheter is then passed through the transseptal puncture and a pigtail catheter is advanced towards the LAA. An angiogram of the LAA is then performed with contrast injection. The pigtail catheter is replaced with the delivery system carrying the closure device. The device is advanced towards the LAA opening and proper positioning is verified by echocardiography. Once the location is verified, the device is expanded to occlude the LAA orifice. If no flow is detected and the LAA appears completely isolated from the main left atrium, the device is deployed and the catheters removed. If, however, the position is suboptimal, the device can be repositioned until satisfactory occlusion of the LAA is achieved. Once the device is deployed, repeat assessment of the device position is performed to verify the complete occlusion of the LAA and lack of residual communication around the device (Figure 5).

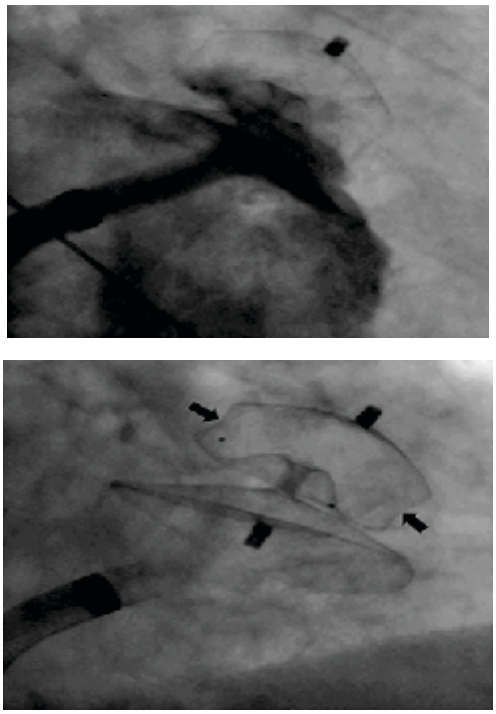


Figure 5:

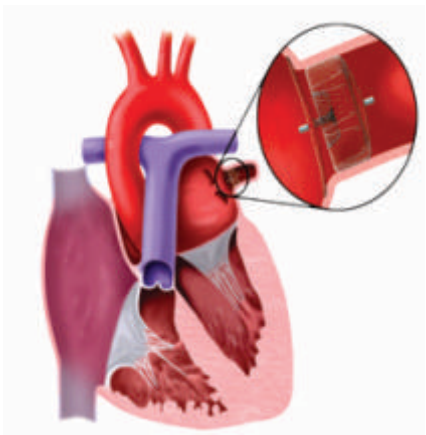
Left atrial appendage angiogram. A fluoroscopic view of the left atrial appendage is seen with AMPLATZER Cardiac Plug Device. There is an introducer (INT) and a pigtail catheter (PGT) in the left atrium. The tip of the pigtail catheter is in the opening of the left atrial appendage and a contrast injection is performed, delineating the appendage anatomy (LAA, left atrial appendage; PPM, permanent pacemaker wires).

AMPLATZER CARDIAC PLUG DEVICE:

The AMPLATZER™ Cardiac Plug (ACP) is designed to provide optimal occlusion with full cross-sectional orifice coverage, flexible braided nitinol mesh and controlled, precise deployment. The AMPLATZER Cardiac Plug is engineered to occlude the left atrial appendage (LAA) at the base of the orifice, regardless of the LAA anatomy. ACP device consists of a self-expandable device with a distal lobe and proximal disk connected by an articulating waist (Figures 2 and 3).

Figure2. AMPLATZER Cardiac Plug Device

White arrow=distal lobe; long black arrow=proximal disk; Short black Arrows=stabilizing wires.



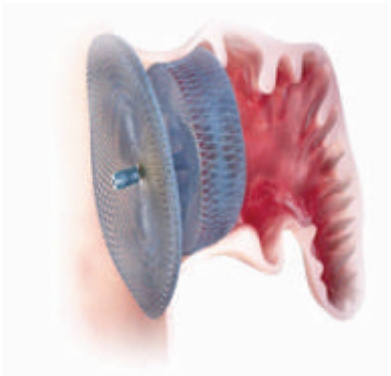


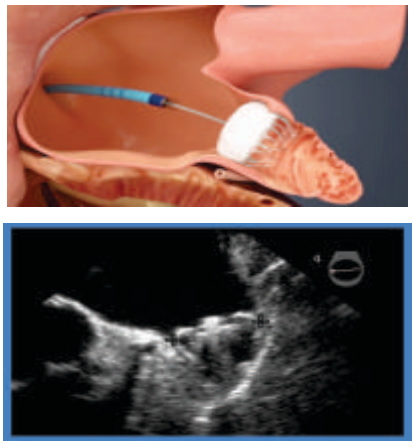
Figure3. Release of the AMPLATZER™ Cardiac Plug after proper placement has been confirmed

WATCHMAN LAA Closure Device:

- The WATCHMAN Implant procedure is typically performed under general anesthesia in a catheterization laboratory setting
- using a standard transseptal technique
- After the interatrial septum is crossed using a standard transseptal access system, the WATCHMAN Access Sheath is advanced over a guidewire into the left atrium. The Access Sheath is then advanced into the distal portion of the LAA over a pigtail catheter
- The WATCHMAN Delivery System is prepped, inserted into the Access Sheath, and slowly advanced under fluoroscopic guidance. WATCHMAN is then deployed into the LAA. The device release criteria are confirmed via fluoroscopy and TEE prior to releasing the device

Figure 6 : A Watchman Device

B.WATCHMAN Device is deployed into the LAA



Case Presentation - II

Patient: 56-years-old lady.

History of :

S/P Permanent Pacemaker (St. Jude Medical VVI 2008), CV Stroke (ischemic) on 11th Sep 2017 Aphasia (partially recovered)

Presentation :

- Persistent Atrial Fibrillation Patent Foramen Ovale
- Cardioembolic CVA, recurrent TIAS
- Intolerant to anticoagulation
- S/P Permanent Pacemaker (St. Jude Medical VVI 2008)
- Dilated cardiomyopathy
- Mild LV dysfunction
- LVEF~45%

CASE MANAGEMENT WITH PROCEDURE:

1. 13F LAA sheath advanced into LAA 26 mm Amplatzer LAA deployed. Post procedure angiogram and TEE showed no residual flow
2. PFO device closure done with Amplatzer PFO device 25 mm size using 8F delivery system under fluoroscopic and TEE guidance.
3. Post device deployment TEE showed device in situ. No residual flow.
4. Successful LA appendage closure performed with Amplatzer LAA occluder
5. Successful PFO closure performed with Amplatzer PFO device

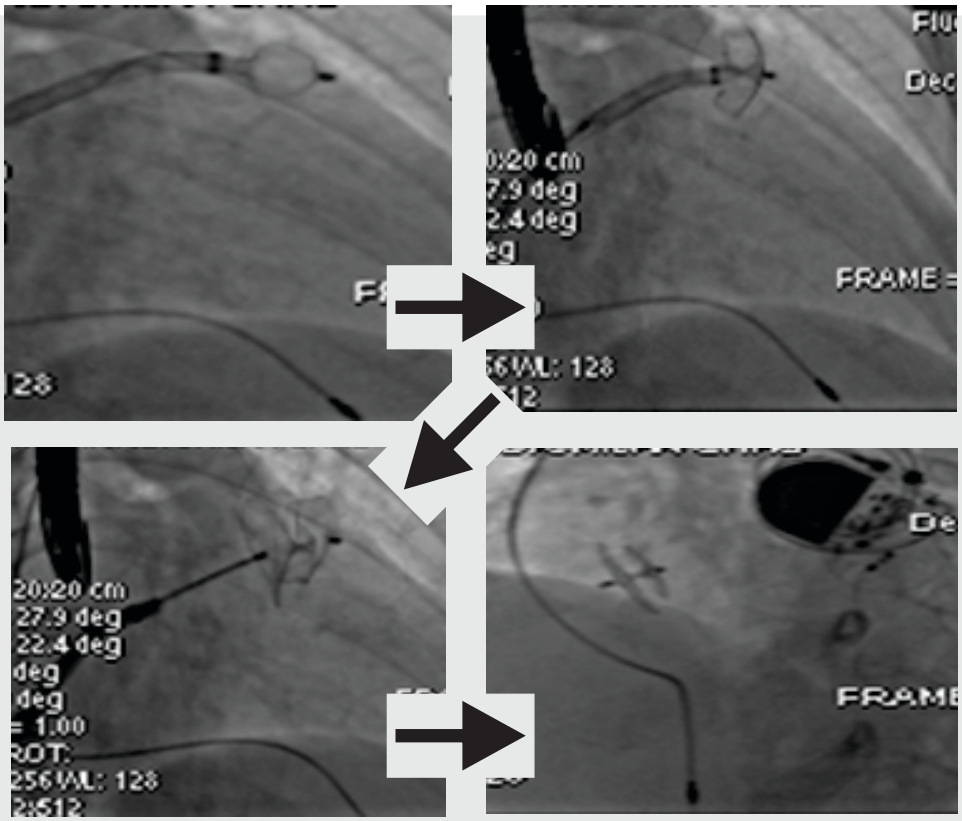


Figure 7: Procedural fluoroscopic views of the left atrial appendage are seen with AMPLATZER Cardiac Plug Device.

CONCLUSION:

LEFT ATRIAL APPENDAGE OCCLUSION DONE

SUCCESSFUL PFO DEVICE CLOSURE DONE

RECOMMENDATION:

Antiplatelet drugs x 06 months (NO ANTICOAGULATION)

SBE prophylaxis x 06 months

SUMMARY

- Catheter-based LAA occlusion procedures are becoming a possible alternative for the treatment of patients with atrial fibrillation and contraindications to oral anticoagulation therapy.
- This procedure is done utilizing TEE surveillance and guidance. The currently available real-time three-dimensional (RT3D) imaging is a powerful additional tool that may help in improving the safety profile of the procedure. It allows accurate assessment of LAA anatomy, suitability for device implantation, continuous visualization of all intracardiac devices and catheters during the procedure, and clear delineation of device positioning in the LAA.

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Satellite Session

- An Evening of Pharmacology & Therapeutics-I
- An Evening of Pharmacology & Therapeutics-II
- An Evening of Cardiology Guidelines (10 Points to Remember for Physicians)

DAY 2 — JANUARY 5, 2019, SATURDAY

Main Session

- Introduction Session
- Coronary Artery Disease / Acute Coronary Syndrome
- All You Need to Know
- Clinical Case Based Approach : Hypertension Lipids & Cardiovascular Risk Management

Satellite Session

- Heart Failure (Case Base Session)
- An Evening of Cardiology Guideline (10 Points to Remembers for Physicians)
- 10 Point to Remembers

Oncology Symposium

DAY 3 — JANUARY 6, 2019, SUNDAY

Main Session

- Interactive ECGs / Arrhythmia / Heart Failure
- My Approach in 2019
- Interesting Cases by Physicians

Oncology Symposium

Neuro Symposium

Critical Care in Chronically ill Symposium

Endocrinology Symposium

IVF & Gynaec Symposium

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Printed, Published and Edited by Dr. Keyur Parikh on behalf of the CIMS Hospital
Printed at Hari Om Printery, 15/1, Nagori Estate, Opp. E.S.I. Dispensary, Dudheshwar Road, Ahmedabad-380004.
Published from CIMS Hospital, Nr. Shukan Mall, Off Science City Road, Sola, Ahmedabad-380060.