

Heart Congress 2017- Left Atrial Appendage Morphology, does it Matter? - Abdul Wajd Khan Faisal Punjab Institute of Cardiology, Pakistan

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Introduction

Stroke is a disabling condition and every effort must be made to find out its causes and treat them to save one's life from this ailment. Hromboembolism is a major cause of stroke especially in patients of mitral stenosis. Approximately 90% of thrombi in the left atrium are formed in the left atrial appendage. Left atrial appendage morphology is an important determinant of clot formation. There are four different shapes of LAA, Chicken wing, cactus, cauliflower and windsock. It is known that chicken wing morphology is less likely to have stroke. Cactus morphology has 4 times increased risk, windsock morphology 5 times increased risk and cauliflower shape 8 times increased risk of stroke or TIA. LA appendage outflow velocity is another determinant for clot formation. LA appendage outflow velocity more than 40 cm/s is normal. The velocity less than 20 cm/s is associated with sluggish flow and clot formation. Atrial fibrillation, valvular as well as nonvalvular is associated with clot formation in left atrium. Therapeutic left atrial appendage isolation is made isolated from left atrium so that clot once formed in LA appendage must not be embolized. Left atrial appendage closure by WATCHMAN device by percutaneous technique has recently proved its safety. Which LA appendage must be closed is not studied yet. We first must know that what type of LA appendage morphology predisposes to clot formation. On TEE images, whether deeper LA appendage with narrow opening into left atrium or shallow LA appendage with wide opening into LA is associated with clot formation? Needs to be studied and we planned to do that in our study.

Material and Methods:

HLs cross sectional observational study was conducted at Punjab Institute of cardiology between February 2015 to November 2016. Patients admitted for percutaneous transvenous mitral commissurotomy (PTMC) already consented for transesophageal echo (TEE) were studied. All TEE tests were performed on GE Vingmed Vivid 7 machine using 6T probe. Left atrial appendage (LAA) morphology was noted in midesophageal short axis view between 25° to 45° angle where best LAA view was obtained. Depth and width as shown in Figures 1A and 1B were noted. Ratio of width to depth was calculated. Presence or absence of clot in LAA was also noted. Patients' heart rhythm whether atrial fibrillation or sinus rhythm was also recorded. Patients included were belonging to both sexes and of any age. Patients on warfarin, INR \geq 1.5, presence of clot other than LAA were excluded from the study.

Results:

Sixty-four patients having mitral stenosis underwent transesophageal echo 8 (12.5%) patients had LAA more wide than deep, 4 (6.25%) patients had width and depth of LAA equal, 52 (81.25%) patients had depth of LAA greater than width. 20 (31.25%) patients were having clot in LAA. Eight (40%) of them were in atrial fibrillation while 12 patients (60%) were in sinus rhythm. Four patients who had clot in LAA, had LAA more wide than deep, one of them was in atrial fibrillation, while remaining three were in sinus rhythm. In 15 patients LAA was more deep than wide, 7 were in atrial fibrillation and 8 were in sinus rhythm. One patient had clot in LAA who had width and depth equal and that was in sinus rhythm. Out of 11 patients in atrial fibrillation 8 (72.7%) had clot in LA appendage and out

of 53 patients in sinus rhythm 12 (22.64%) were having clot.

Conclusion:

LAA is deep or shallow, it does not predispose to clot formation when in sinus rhythm but if the patient is in atrial fibrillation the deeper LAA with narrow opening into LA has more chances of clot formation.