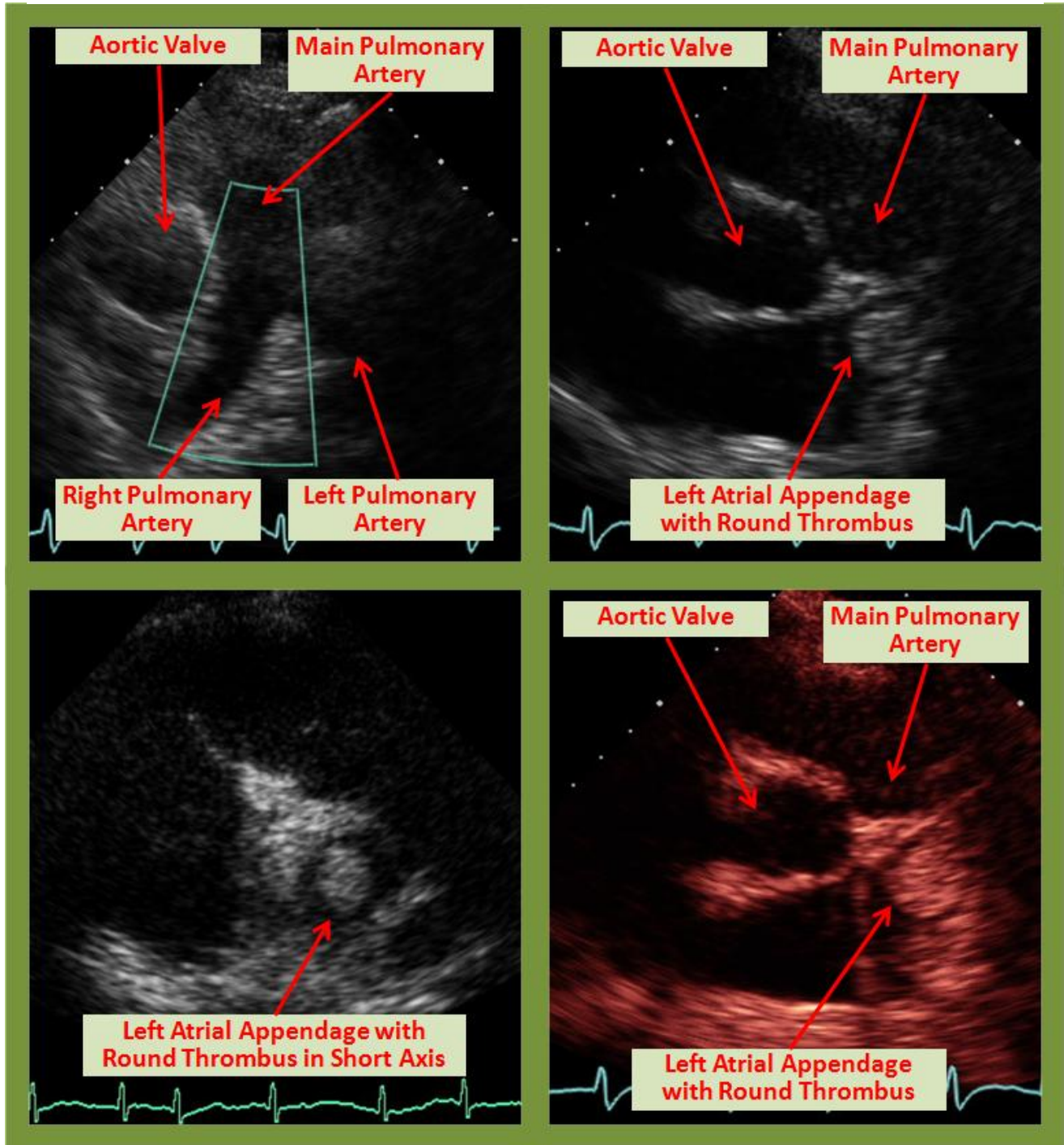


### Left Atrial Appendage Thrombus! *On TTE!*

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## **Description**

The left atrial appendage (LAA) is rarely visualized on transthoracic echocardiography (TTE) with sufficient clarity to exclude thrombi. Usually transesophageal echocardiography (TEE) is required for this purpose. The image shows a surprisingly clear LAA thrombus in the body of the LAA in the long axis (including B-mode color) and short axis TTE views.

## **Introduction**

The left atrial appendage (LAA) is a long, tubular, hooked structure with a narrow base which lies within the pericardium close to the free wall of left ventricle. It is the remnant of the embryonic left atrium which develops during the third week of gestation and has a trabecular surface [1]. The smooth walled left atrial cavity develops from the extension of the pulmonary veins.

## **Function**

The LAA serves as a decompression chamber during left ventricular (LV) systole or in certain circumstances when the left atrial pressure is elevated [2]. Due to the proximity of the LAA to the free wall of the left ventricle, the emptying and filling of the LAA is affected by the LV. As the LV dilates during diastole, it fills the intrapericardial space which helps in appendageal emptying by compressing the inferomedial wall of the LAA. This finding also supports the higher incidence of stroke-related events in patients with atrial fibrillation who have LV dysfunction [3].

## **Evaluation**

The LAA has a predilection for thrombus formation due to its shape and structure, particularly in patients with atrial fibrillation who are not on anticoagulation therapy. LAA is best evaluated by transesophageal echocardiography (TEE), [4] which permits a detailed examination of its structure, whereas TTE merely shows an outline of the LAA. However, occasionally

thrombus in the LAA can be visualized on transthoracic echocardiography (TTE) as in the images above, especially large thrombi that extend into the body of the left atrium [5]. Similarly, in one multicenter study, there were two atrial appendage thrombi identified on TTE using harmonic imaging and left-sided echocardiographic contrast [6]. Based on a study in patients undergoing mitral valve surgery, TEE was noted to be 93% sensitive and 100% specific for thrombus detection, while the sensitivity of TTE was only 53% [7].

## **CONCLUSION**

LAA is a unique structure which acts as a decompression chamber for the left atrium and ventricle. Due to its anatomy and physiology, it has the tendency for thrombus formation. TEE is the preferred diagnostic tool for the evaluation of LAA and detection of thrombi within it. However, TTE may have a role in detection of LAA thrombi using different techniques such as harmonic imaging and left-sided echocardiographic contrast.

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**KEYWORDS:** Left Atrial Appendage; Transesophageal Echocardiography; Transthoracic Echocardiography; Left Ventricle

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