

Assessment of Left Atrium Appendage Morphology By 3d Transesophageal Echocardiography and Its Relation to Spontaneous Echo Contrast & Thrombus Formation

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OBJECTIVE:

The main objective of this study was to assess different LAA shapes by 3D TEE and to find the relation between the morphology of the LAA and the incidence of SEC and thrombus formation.

METHODS AND RESULTS:

sixty patients underwent 2D & 3D TEE for different indications all in Mansoura specialized medical hospital from February 2017 to February 2018 (mean age was 49 ± 14.46 years, 19 female & 41 males), regarding different shapes of LAA we found 21 windsock (35.1%), 17 cactus (28.3%), 11 chicken wing (18.3%) and 11 cauliflower (18.33%). Thrombus found in 3 cases (5.0%), SEC in 15 cases (25.0%). There is significant association between morphology of LAA and presence of SEC; which noticed only in non – chicken wing shapes (7 in cauliflower, 5 in windsock, 3 in cactus and 0 in chicken wing). There is significant association between morphology of LAA and thrombus formation; the 3 thrombus were found in cactus (100%) and regarding number of LAA lobes that bi lobed were the most common in 41.66% of cases, then single lobed in 33.33% of cases and the least common were multi lobed.

There is significant relationship between shape of LAA and orifice area (p-value = 0.009); cauliflower associated with the largest orifice area 2.5 ± 0.91 & chicken wing with the smallest orifice area 1.27 ± 0.57 . The cauliflower had the largest number of lobes 3-5 (median 4.00), the smallest number of lobes associated with windsock 1-2 (median 1.00), while chicken wing had 2 lobes & cactus had 2-3 lobes (median 2.00). There is no significant relationship between shape of LAA shape with depth.

There is statistical highly significant positive correlation between orifice area & diameters with numbers of lobes (p-value = 0.004, p-value = 0.002)

and also statistical significant positive correlation between left atrium diameter and LAA orifice area (p-value = 0.001), orifice diameter (p-value = 0.038) and depth (p-value = 0.023). Statistical significant negative correlation between left atrium diameter and LAA flow velocity (p-value = 0.029). There is no statistical significant correlation between left atrium diameter of numbers of lobes.

CONCLUSION:

3D TEE provides detailed assessment of LAA shapes and its special anatomical characteristic. In our study, non-chicken wing left atrial appendage shape was associated with higher prevalence of SEC and thrombus formation.