Factors Which Determine Compression of Surrounding Structures in Amplatzer Septal Occluder Following Transcatheter Closure of Atrial Septal Defects
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Background: Cardiac erosion and perforation after ASD closure with device have been reported. Some reports suggest that cardiac erosion may have been associated with compression of surrounding structures following deployment. However, the risk factor of the compression of surrounding structures has not yet been clarified. The aim of this study is to evaluate factors which may determine compression of surrounding structures following deployment.

Methods: We conducted a retrospective review of all patients with isolated ASD treated using ASO in our center, until the end of 2013. Various factors in the patient profile and TEE findings were compared between the groups with and without change in compression of surrounding structures following deployment using ANOVA and logistic regression analysis. Linear regression analysis was performed to assess the correlation. All p values less than 0.05 were considered significant.

Results: Thirty four patients with isolated ASD treated using ASO in our center. The average age at deployment was 38.1 ± 23.6 with an average long axis defect size of 15.5 ± 5.0mm. There were no multiple and malaligned ASD, but one aneurysmal ASD. Shorter anterior rim length was associated with compression of aortic wall (P < 0.05). Shorter atrial length and larger ratio of defect size and atrial length were associated with compression of atrial wall to by the RA disk in the superior side (P < 0.05). All comparisons between the devise size, the existence of flimsy rim, and compression of surrounding structures following deployment showed no significant difference.