

## Trans-catheter closure of multi-fenestrated aneurysms of interatrial septum in paediatric age

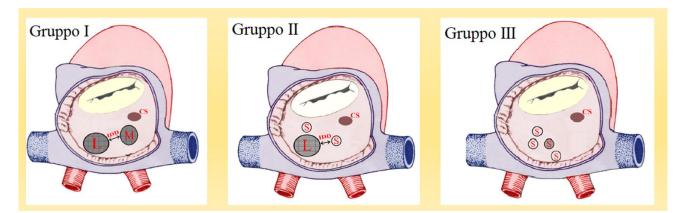
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**INTRODUCTION.** Trans-catheter approach is the first-line treatment to close the ostium secundum atrial septal defects (ASDs) in both paediatric as well as adult age. However, the presence of an aneurysmatic interatrial septum with multiple defects and/or fenestration makes the procedure very challenging, especially in the children. We report our experience about the percutaneous closure of multi-fenestrated aneurysm of interatrial septum (MFA-IS) in paediatric age.

**METHODS.** This is a monocentric, retrospective, observational study that analysed all patients with MFA-IS underwent an attempt of percutaneous closure in our department, from 2000 to 2019. Early outcomes and long-term follow-up were analysed, highlighting procedure-related adverse events and the presence of residual shunt. Therefore, the patients were divided into three different groups, based on the interatrial septum layout: group 1, two or more ASDs; group 2, one ASD with one or more accessory fenestrations; group 3, two or more fenestrations without a predominant ASD (*image*). The groups were compared with each other about procedural complications and residual interatrial shunt.



**RESULTS.** From 2000 to 2019, 61 patients underwent an attempt of MFA-IS percutaneous closure. The trans-catheter closure was effective in 58 patients (95%). In the other 3 cases, the percutaneous approach was not feasible (misaligned interatrial septum, significant residual shunt after device deployment and inadequate posterior-inferior rim). Procedure-related adverse events were detected in four cases (7%): right disk thrombosis, atrioventricular block (AVB) grade I, device dislodgement with development of a supraventricular tachycardia, complete AVB with pacemaker implantation. At a mean follow-up of 3.71±2.78 years, 5 patients (9%) had a mild interatrial residual shunt. The comparison of the three groups showed a statistically higher risk of procedural failure in the group I (16% vs 0% vs 0%,) without significant differences about adverse events and interatrial residual shunts.

**CONCLUSION.** Trans-catheter closure of MFA-IS is safe and effective in paediatric age. The presence of multiple ASDs in the septal layout is associated with a higher risk of procedural failure, although without a major risk of complications and/or residual interatrial shunt.



