Isolated perimembranous ventricular septal defect: cardiac surgery or watch and wait strategy?

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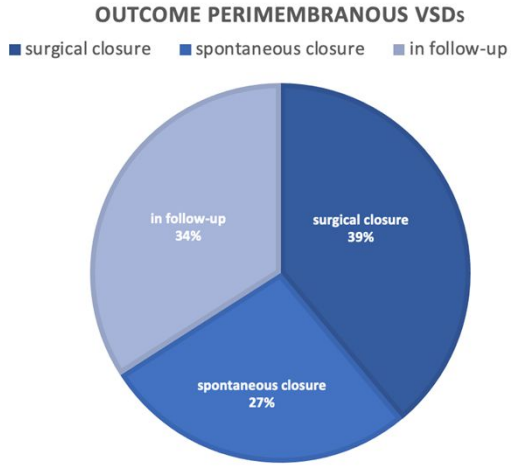
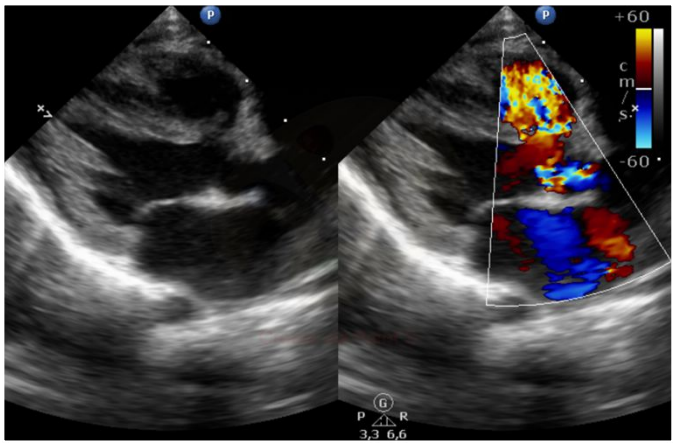
Introduction

Isolated ventricular septal defects (VSDs) are the most common congenital cardiac anomaly in children. The most frequent type of isolated VSD is muscular VSD whereas perimembranous ones are the least frequent. The aim of our study is to carry out an in-depth evaluation of the isolated perimembranous VSD and analyse its evolution through time in order to identify the best follow-up strategy and predictable outcomes.



Methods

We searched our database containing 596 patients diagnosed with isolated VSD in the Pediatric Cardiology Clinic in the period between 1995 and 2020. Among these patients we selected 185 of them being diagnosed with isolated perimembranous VSD within the first 60 days of life.



Results

39% of patients (n=72) underwent surgical closure (average age of procedure 346 days old) with most cases being large defects (n=51). 27% of patients (n=50) experienced spontaneous closure of the defect (average age of closure 838 days old) which occurred more frequently in presence of small defects. Remaining 34% of patients (n=63), were followed up on outpatient basis. The mean follow-up length was 3.9 years. 28% of overall patients (n=52) required anti-decompensation therapy which was used more frequently in patients with medium and large defects. Of these 52 patients, 54% (n=28) were treated with cardiac surgery, whereas the remaining 46%, (n=23) were managed conservatively and placed on follow-up according to a watchful waiting strategy. Notably, 18% (n=6) of conservatively managed patients experienced spontaneous closure of VSD.

Conclusions

Perimembranous VSD have a heterogeneous outcome. We identify defect size as a possible outcome predictor since small defects were less associated with requirement for anti-decompensation therapy and were more prone to spontaneous closure (overall spontaneous closure in 50 patients whose 52% had small size defects, 44% had medium size defects and 4% had large size defects). Furthermore, of all patients who underwent surgery, 70.8% had a large defect. From our register it is deductible that spontaneous closure of isolated perimembranous VSD tends to occur around the average age of 2.3 years of life (later compared to average age of 0.9 years of life when surgical closure is generally performed). Moreover, among patients who presented decompensated (n=52), watchful waiting strategy was adopted for 46% cases (n= 24) with a favourable observed outcome. Notably, among these patients managed conservatively, 6 of them experienced spontaneous closure of the defect and the remaining ones, despite the unresolved defect, did not report any complications such as aortic insufficiency or endocarditis in the follow-up period. Conservative strategy thus seems feasible and safe especially in selected patients who are not in advanced heart failure or who don't have large defects. In these types of patients, cardiac surgery approach can be spared, but it has still to be considered for patients presenting with advanced heart failure or bearing large size defect which are unlikely to experience spontaneous resolution.