Efficacy and safety of endiocardial radiofrequency catheter ablation of interventricular septal hypertrophy in the treatment of hypertrophic obstructive cardiomyopathy

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Introduction

- Hypertrophic obstructive cardiomyopathy (HOCMP) is characterized by abnormal thickening or enlargement of the left ventricular myocardium mass, and no hemodynamic causes are present, with obstruction in left ventricle outflow tract a maximal gradient of ≥30 mmHg at rest and/or after provoce maneuver
- Patients with HOKMP and high left ventricle outflow tract gradient (LVOTG) despite of maximal pharmacological therapy are indicated to interventional method of treatment of HOKMP

Introduction

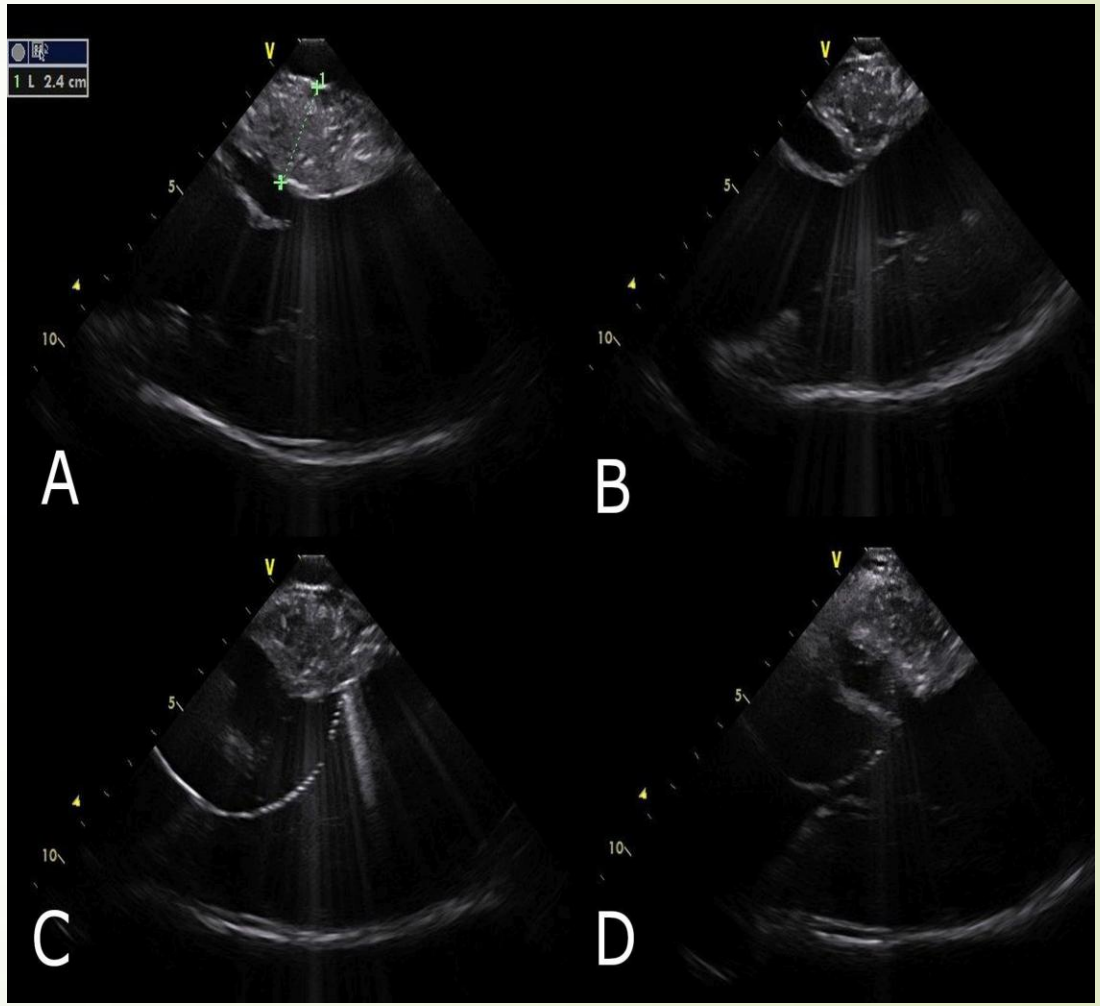
- Septal myectomy – surgical method - worldwide well-known method for ages

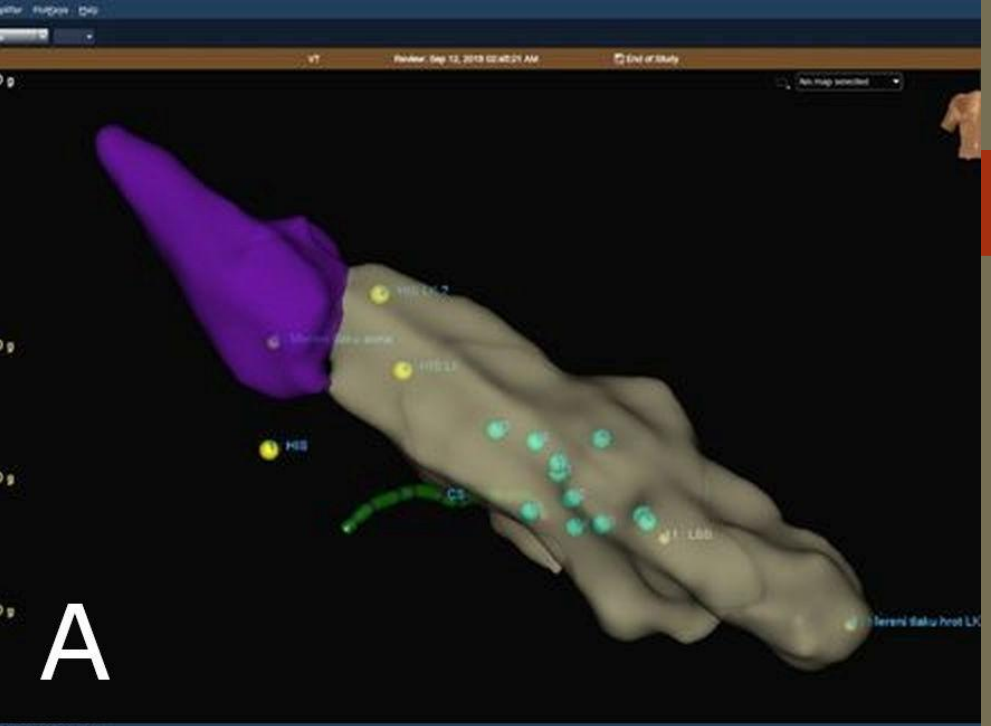
- Alcohol septal ablation (ASA) has been used from 90ties – in case of patients with suitable anatomy of coronary arteries

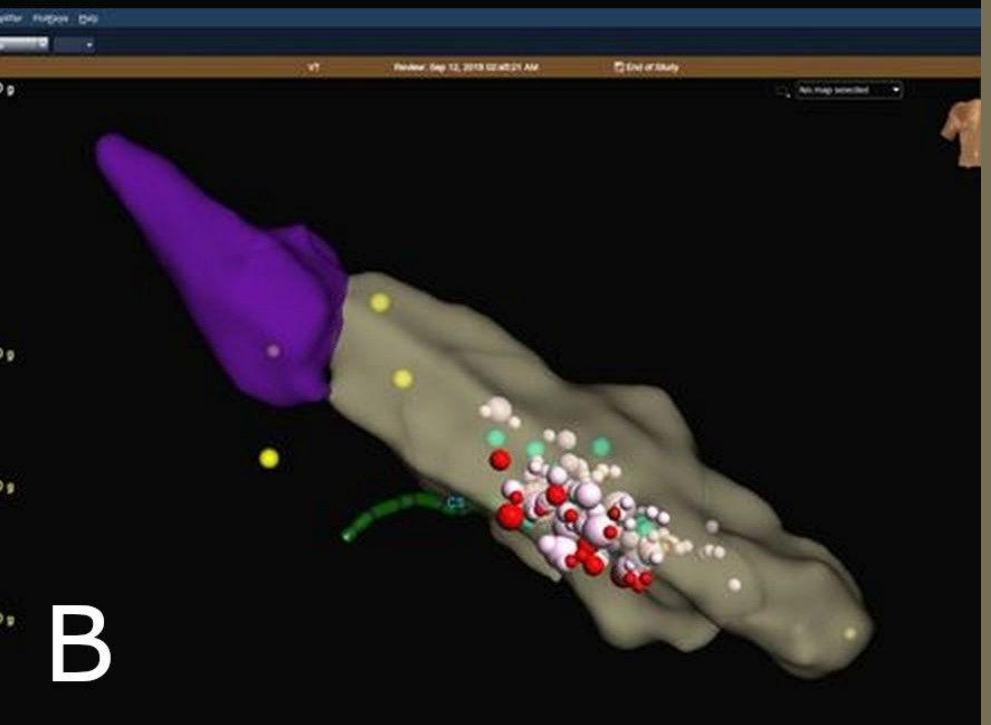
Methods

Endocardial radiofrequency ablation of septal hypertrophy (ERASH) seems to be new promising and comparably effective and safe interventional method in treatment of HOCMP

Main goal is to introduce these new potential method, and also comparison of safety and efficcasy to alcohol septal ablation (ASA) in randomized study which is currently ongoing at our clinic







Methods

- ERASH – method of radiofrequency ablation of septal hypertrophy is performed using an irrigated tip catheter via retrograde approach from left ventricle or transseptal approach
- Three dimensional electroanatomical mapping systems are used

Main goal of our study is to compare efficacy and safety of ERASH vs ASA procedure in study which is currently ongoing on our clinic

Methods

- From september 2018 to june 2022 there were 6 patients with HOKMP who underwent ERASH and 5 patients for ASA group
- All patients have normal systolic function of left ventricle
- Average age was 58 for ERASH group and 55,4 for ASA group
- Average LVOTG was 99mmHg in rest and 115mmHg after provoce maneuver for ERASH group and 76,8mmHg in rest and 113,4mmHg after Valsava maneuver for ASA group
- 2 patients with previous ASA in past underwent ERASH procedure with preexisting right bundle brunch block (RBBB)

Periprocedural complications for ERASH:

- AVB of third degree which required pacemaker implantation was present once
- One temporary pacing had to be used with following need of reposition which led to cardiac tamponade and pericardiocentesis
- In case of one patient AVB of second degree was present with spontaneous restitution to sinus rhythm
- Once cardiac tamponade with need of pericardiocentesis was present
- Atrial fibrilation onset was seen once, and three left bundle brunch block (LBBB) were present

Periprocedural complications for ASA:

- One transistory AVB of third degree was seen with temporary pacing was needed
- Three patients had new onest of RBBB

Follow up

- Average LVOTG after ERASH procedure was 23,5 mmHg in rest and 57,5mmHg provoced already
- Average LVOTG after ASA procedure was 17,2mmHg in rest and 36,8mmHg provoced

Discussion

- The results of our study so far show that ERASH seems to be similarly efficient interventional therapeutic method for treatment of patients with HOCMP comparable to ASA
- The potential advantage of this method is the lower risk of subsequent atrioventricular conduction injury and the repeatability of the ERASH procedure – AVB of higher degree was seen in patients with previous RBBB due to ASA – these patients seem to be unsuitable candidates for ERASH procedure
- Higher number of complications at ERASH group may be caused by learning curve of new method
- Complications could be potentialy eliminate by using intracardial ultrasound, electroanatomical navigation systems, exclude patients with preexisting RBBB

Thank you for your attention