

Comparison of methods of left atrial appendage exclusion during surgical ablation of atrial fibrillation

Abstract

Atrial fibrillation is the most common heart arrhythmia affecting a significant part of the population over 60 years of age and it is an eminent source of cardio-embolic events. Leading source of intra-cardial thrombi is the left atrium of the heart, specifically the left atrial appendage. Randomised studies show significant reduction of cerebral ictus by the use of Warfarin in patients with atrial fibrillation, however the use of anticoagulation has its restrictions, side effects and contraindications. There are several surgical techniques of excision or exclusion of the left atrial auricle. This dissertation thesis is focusing on the comparison of the two most common surgical techniques – resection of the left atrial appendage using a stapler and the exclusion of the left auricle using a clip applied from the pericardial side. At the same time, we've set an objective of confirming the electrical insulation of the left atrial appendage as a significant source of fibrillation impulses when using the clip for the left appendage exclusion.

In a group of 30 patients with atrial fibrillation and who underwent the surgical atrial fibrillation ablation using a clip or stapler amputation during complex cardiac surgery operation, exclusion efficiency was checked using intraoperative transesophageal ECHO with color doppler measuring and 1 month after the operation using transthoracic ECHO as the most commonly used and commonly available diagnostic tool. After application of the clip, the electrical activity and the possibility of transmitting electric impulses from the left atrial appendage to the left atrium was measured using a special external pacing probe and pacemaker.

The subject of follow-up was postoperative evaluation of the success of the left atrial appendage closure - completeness of the occlusion and the effect of the reduction of the left atrial volume on the left ventricular ejection fraction. The evaluation of complications in terms of the surgical source of bleeding, the safety of both techniques and the application speed of these two methods of exclusion was performed including the possible recommendations for practice.

Key words: atrial fibrillation, left auricle, surgical ablation, exclusion