

THORACOSCOPIC MINIMAZE PROCEDURE IN PATIENTS WITH PAROXYSMAL ATRIAL FIBRILLATION

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«Maze» procedure plays important role in treating rate-related and hemodynamic complications of atrial fibrillation. The authors analyze their experience of mini-«maze» procedure utilizing thoracoscopy.

Key words: atrial fibrillation, thoracoscopic minimaze procedure.

Since its introduction by Dr. James Cox, the maze procedure [1] is essentially the only intervention capable of treating the rate-related and hemodynamic complications of atrial fibrillation. The maze procedure has traditionally been performed as an adjunct to CABG or valve procedures.

The cure rate of atrial fibrillation by the surgical maze procedure in most series is 85-90% [2]. Recent advancements in the surgical technique allow performance of electrical isolation of the pulmonary veins and removal of the atrial appendage through small incisions utilizing thoracoscopy. Removal of the left atrial appendage has decreased the risk of stroke. Cure rates for the thoracoscopic minimaze procedure are high as well, approaching 90% [3] we analyzed our limited experience of minimaze procedures performed at MacNeal Hospital.

Methods. 4 patients with paroxysmal atrial fibrillation underwent thoracoscopic radiofrequency ablation of the pulmonary veins. The patient age range was 65 ± 8.5 yr. There were 3 men and 1 woman. All patients had preoperative paroxysmal atrial fibrillation, and all

of them were taking Coumadin. All patients had a TEE or CT scan to rule out atrial appendage clot. 2 out of 4 had heart catheterization to rule out coronary artery disease and one patient required intervention with a stent placed in an obtuse marginal artery. Patients were positioned supine and bilateral sequential thoracoscopy was performed first right and then left. Single lung ventilation was employed. After a pericardiotomy, plane was developed between the IVC and right inferior pulmonary vein, the oblique pericardial sinus was entered. Dissection was also carried out to develop a plane between the right superior pulmonary vein and the right pulmonary artery. The Atricure™ dissector was utilized to encircle both right pulmonary veins. Then utilizing Glidepath Isolator (Atricure™) guide, Synergy Ablation clamp was advanced into the chest and applied to the pulmonary veins. An electrophysiologic study was then performed, first to obtain electrogram and then to pace pulmonary veins. Area of the pulmonary veins was considered positive if significant slowing of heart contractions noted. These areas were ablated with the Atricure™ pen. Then radiofrequency lesions were created by applying the Atricure™ Synergy Ablation clamp. On the left side, in addition to the described technique, we also stapled off the atrial appendage with an Ethicon™ 4.8mm no-cut stapling device.

Results. None of the patients experienced major early postoperative complications. All patients were immediately extubated after surgery. There was no bleeding or infection. None of the patients required inotropic support. Chest tubes were removed on postoperative day 2 or 3. Three patients left the hospital in 3 days and 1 in 4 days. 2 of the 4 patients left the hospital with atrial fibrillation. Patients required postoperative pain medications for 7-10 days and one patient for 3 weeks.

All patients were followed by the electrophysiologist with mandatory 5 day event monitoring at 3 months postoperative. Then they were followed every 3 months with EKG. All of the patients at the time of submission of this article are in normal sinus rhythm. One patient had occasional atrial tachycardia at 3 months after surgery. One patient remains on rhythmol; the others do not take any anti-arrhythmic drugs. 2 out of 4 patients are off

Coumadin, and one awaits decision on Coumadin discontinuation and the fourth patient remains on Coumadin for other reasons.

Conclusion. Maze procedure is an effective method to treat atrial fibrillation. Advancements in surgical techniques and instrumentation allow the safe performance of the modified maze procedure via bilateral port incisions and thoracoscopy. Surgical intervention can be achieved with minimal morbidity, short hospital length of stay and without major complications. Durable restoration of normal sinus rhythm is achieved on average at 3 months postoperatively. Future modifications of this technique with inclusion of additional lines of ablation will allow expanding the indication of minimaze to patients with permanent form of atrial fibrillation.

Literature

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ТОРАКОСКОПИЧЕСКАЯ ПРОЦЕДУРА МИНИ-«ЛАБИРИНТ»

У БОЛЬНЫХ С ПАРОКСИЗМАЛЬНОЙ ФИБРИЛЛЯЦИЕЙ ПРЕДСЕРДИЙ

Виталий В.Пилуюко, Чарльз Киндер, Майкл Тучек, Роналд Стелла

Процедура «лабиринт» играет важную роль в лечении фибрилляции предсердий и ее осложнений. Авторы делятся опытом процедуры мини- «лабиринт» выполняемой торакоскопически.

Ключевые слова: фибрилляция предсердий, торакоскопическая процедура

мини-«лабиринт».

ТОРАКОСКОПІЧНА ПРОЦЕДУРА МІНІ-«ЛАБІРИНТ» У ХВОРИХ З ПАРОКСИЗМАЛЬНОЮ ФІБРИЛЯЦІЄЮ ПЕРЕДСЕРДЬ

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Процедура «лабиринт» грає важливу роль в лікуванні фібриляції передсердь і її ускладнень. Автори діляться досвідом процедури міні-«лабиринт», яку вони виконували торакоскопично.

Ключові слова: фібриляція передсердь, торакоскопична процедура міні-«лабиринт».