A self-retaining retractor for the maze procedure

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Most surgical approaches for cure of atrial fibrillation require exposure of the pulmonary vein orifices and the posterior left atrium. Visualization of the left pulmonary veins and posterior left atrium is challenging, particularly in patients with left atrial enlargement. The maze procedure includes incisions that isolate the pulmonary veins, excise the left atrial appendage, and connect the pulmonary vein encircling incision to the mitral annulus.¹ Recent modifications of the maze procedure recreate some or all of these lesions by using alternative energy sources that include microwave, radiofrequency, cryotherapy, and laser sources.^{2,3} A new set of specially designed atrial retractor blades that affix to a standard sternal retractor attachment⁴ was designed to expose the pulmonary vein orifices and the posterior left atrium (Kapp Surgical, Cleveland, Ohio, and Medtronic, Inc, Minneapolis, Minn).

Technique

After median sternotomy, the patient is started on cardiopulmonary bypass, and the heart is arrested with cold blood cardioplegia. A standard lateral left atriotomy is constructed after dissection of the interatrial groove. The posterior left atrium is exposed by means of placement of 2 retractor blades that are affixed to the bar of a standard self-retaining mitral valve retractor (Figure 1).

The deeper blade is placed such that its leading edge is adjacent to the posterior mitral annulus; the blade is malleable and can be bent to obtain optimal exposure. This blade distracts the mitral valve toward the patient's left, thereby exposing the orifices of the left pulmonary veins (Figure 2). A shorter angled blade is then positioned cephalad to the first blade. This blade retracts the superior portion of the left atrium, exposing the left superior pulmonary vein and the left atrial appendage. In a particularly large left atrium, the superior blade can be placed over the orifice of the left atrial appendage to expose the orifice of the left superior pulmonary vein. The left atrial portion of the operation is then completed.

From April 2002 through August 2002, this retractor system was used to perform 35 operations to treat atrial fibrillation. The

Figure 1. The left atrial blades affix to a standard sternal retractor attachment used for mitral valve surgery. Reprinted with the permission of The Cleveland Clinic Foundation.

Figure 2. A malleable retractor blade distracts the mitral valve toward the patient's left, thereby exposing the left pulmonary vein orifices. A second shorter blade retracts the superior portion of the left atriotomy, improving exposure of the left superior pulmonary vein and the left atrial appendage. Reprinted with the permission of The Cleveland Clinic Foundation.

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malleable blades were easily adjusted to accommodate variability in left atrial size and orientation of the pulmonary veins.

Comment

Development of new operative procedures has caused a resurgence in the surgical treatment of atrial fibrillation. Like the Cox maze procedure, these new operations generally include isolation of the pulmonary veins and excision of the left atrial appendage. Exposure of these structures, particularly in a large left atrium, is challenging.

A series of new atrial retractor blades (Kapp Surgical Inc, Cleveland, Ohio) provides exposure of the posterior left atrium and pulmonary vein orifices. These blades, which are malleable and universally adjustable, attach to a standard mitral valve retractor. This system provides excellent and consistent exposure of the

posterior left atrium and pulmonary veins without the need for surgical assistance, facilitating operations for atrial fibrillation.

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Clopidogrel before urgent coronary artery bypass graft

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The use of platelet aggregation agents, such as aspirin, glycoprotein IIb and IIIa inhibitors, and clopidogrel, has increased in recent years for patients with acute coronary syndromes, not least because of the results of the Clopidogrel in Unstable Angina to Prevent Recurrent Events study.¹ In that study, clopidogrel significantly reduced the risk of cardiovascular death, myocardial infarction, strokes, and other related ischemic events in patients with acute coronary syndromes. Clopidogrel demonstrated benefits that were incremental to and independent of other therapies that the patients might have received, such as anticoagulants, angiotensin-converting enzyme inhibitors, β -blockers, and lipid-lowering agents. The study also confirmed the synergistic effect of the modes of action of clopidogrel and aspirin; clopidogrel inhibits adenosine 5'-diphosphate-induced platelet aggregation, whereas aspirin inhibits cyclooxygenase and reduces thromboxane A₂. The obvious inference from these findings is that all patients with an acute coronary syndrome should benefit from the favorable effects of clopidogrel, without exception and without delay, if possible in the prehospital period.

In this case, patients who have not had the opportunity to undergo coronary angiography with subsequent PCI and who are dependent on thrombolytic therapy, as well as those who require an urgent surgical revascularization, would also be treated with clopidogrel. This raises the question of indications and appropriateness of clopidogrel administration during the immediate preoperative course.

Clinical Summary

During a 12-month period (February 2001–January 2002), we performed 268 isolated coronary artery bypass grafts at our institution. For patients receiving clopidogrel medication, elective surgery was postponed at least 10 days after stopping clopidogrel. Of the 268 patients, however, 13 (4.8%) (8 men, 5 women, mean age 68 years) required urgent operation after clopidogrel administration. All patients had an acute coronary syndrome and had received clopidogrel already before hospitalization (before coronary angiography). In 6 patients (group A), coronary artery bypass grafting was performed within 24 hours of hospitalization because of hemodynamic instability or critical coronary anatomy. These patients all received an intra-aortic balloon pump, a β -blocker, aspirin, and heparin. The remaining patients (group B) were operated after at least 7 days of clopidogrel. During this time they received aspirin, heparin, and a β -blocker, as well as initial treatment with glycoprotein IIb and IIIa inhibitor, but no clopidogrel. Of the 13 operations, 11 were performed without extracorporeal circulation. There were no deaths in this small series. However, there was a statistically significant difference between the two groups with respect to the need for transfusions of packed red blood cells, fresh-frozen plasma, and platelets (Table 1). In addition, 2 of the 6 patients who were operated on while receiving clopidogrel

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