Cox Maze II

Graeme O'Connell

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Developed in 1987, the Cox Maze procedure was developed as another option to counter act the damaging effects of atrial fibrillation. In this procedure, the heart is bypassed by way of a heart and lung machine that the patient is hooked up to, allowing the doctors to work on an unbeating heart. Incisions are then made in 10 places on the atria in an attempt to disrupt the irregular electronic impulses that cause atrial fibrillations by creating a controlled path for said impulses (hence Maze). This procedure, though effective, is very complex and with the newest incarnation of the procedure (Cox Maze III) the time and performance of the procedure are greatly improved.

Figure 1: Traditional Cox Maze Procedure Sutures

The new procedure boasts the use of radiofrequencies to 'burn' lesions into the atrial tissue, eliminating the need for sutures, and taking away much of the danger associated with the current procedure. This new procedure, developed at the Washington University medical school, cuts the time of the procedure by 2/3, from 90 to 30 minutes. Although alternative-to-scalpel Cox Maze procedures exist (microwaves, lasers, ultrasound and freezing), none are quite as reliable as the radiofrequencies, and no damage is caused to other regions of the heart. Of patients who have received this operation, 90% have had a very successful recovery, where there were no reported post-operatory atrial fibrillations. The cost of the procedure is very expensive at around $60,000; but is covered by most insurance providers if necessary, as this is not considered an experimental surgery.

For the next stage of the Cox Maze procedure, doctors are hoping to determine a way to perform the operation while the heart is still beating, greatly decreasing the complications associated with the procedure as it is today.

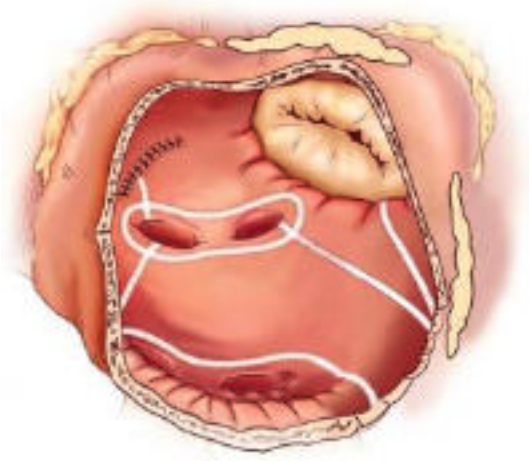

Figure 2: Cox Maze III Procedure Outline

Sources:

Revista Brasiliera Cirurgia Cardiovascular:
http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-76381999000400003
Arrhythmia:
http://www.heartlungdoc.com/heart/arrythmia.htm
Anatomy of the Heart:
http://members.tripod.com/~dgholgate/anatomy.html
High Energy Clamp Simplifies Heart Surgery:
http://www.sciencedaily.com/releases/2006/10/061012185834.htm
Arrhythmia Overview:
http://www.usnews.com/usnews/health/heart/arrhythmia/arr.about.htm?s_cid=8&s_kwcid=ContentNetwork|408524293\
Clinical Connection:
http://www.clinicalconnection.com/PatientViewStudy.aspx?StudyID=748
Wolf Mini-Maze
http://www.wolfminimaze.com/tab05.htm#Maze