

THE AFIB REPORT

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NUMBER 76

FEBRUARY 2008

8th YEAR



In this first issue of our 8th year of publication we complete the evaluation of responses to the 2007 Ablation/Maze Survey. A total of 98 afibbers reported on their experiences with procedures other than the standard radio frequency ablation procedure. It is clear that a right atrial flutter ablation, on its own, is unlikely to be successful in curing afib associated with the flutter.

It is also evident that the full maze is the most effective way of curing afib with one single procedure. However, as this procedure has the potential of serious side effects, particularly associated with the use of the heart/lung machine, it should not be considered first-line therapy for paroxysmal afibbers with no underlying heart disease. The mini-maze is also, based on limited data, quite successful, especially if performed by a top-ranked surgeon.

However, the main, inescapable conclusion from this survey is that the all-important variable determining success or failure is the skill and expertise of the EP or surgeon performing the procedure. The type of procedure would appear to be significantly less important.

Finally, if you need to restock your supplements, please remember that by ordering through my on-line vitamin store you will be helping to defray the cost of maintaining the web site and bulletin board. You can find the store at <http://www.afibbers.org/vitamins.htm> - your continuing support is truly appreciated.

Wishing you good health with lots of NSR,

Hans

2007 Ablation/Maze Survey – Part 2

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Overview of Procedures

The procedures used to cure atrial fibrillation can be divided into two groups – **catheterization procedures** and **surgical procedures**. Both types involve the creation of lesions on the heart wall (right and/or left atrium) in order to stop the propagation of impulses not involved in conducting the heart beat “signal” from the sino-atrial (SA) node to the atrio-ventricular (AV) node.

Catheterization procedures create the lesions from the inside via an ablation catheter threaded through the femoral vein and are performed by electrophysiologists (EPs). Surgical procedures create the lesions from the outside and access is either through incisions between the ribs or may involve open-heart surgery and the use of a heart/lung machine. Surgical procedures are carried out by cardiothoracic surgeons.

The overwhelming majority of catheterization procedures use radiofrequency (RF) energy to create the lesions, but some EPs prefer the use of nitrogen-cooled catheters (cryoablation) rather than RF-powered ones due to their reduced risk of creating pulmonary vein stenosis.

The original surgical procedure, the full maze or Cox procedure, used a cut and sew protocol for creating lesions forming a “maze” that conducted the electrical impulse from the SA to the AV node, while at the same time interrupting any “rogue” circuits. The cut and sew method has now largely been replaced by the use of RF-powered devices, but cryosurgery, microwave application, and high-intensity focused ultrasound (HIFU) have all been tried as well and are preferred by some surgeons.

The so-called mini-maze procedure also involves lesions on the outside of the heart wall, but access to the heart is through incisions between the ribs rather than via open-heart surgery. The mini-maze may involve the creation of the full maze set of lesions, but usually focuses on pulmonary vein isolation. The procedure does not involve the use of a heart/lung machine.

Most of the rogue electrical impulses that create afib originate in the area where the pulmonary veins join the left atrium. Thus, all catheterization procedures aimed at curing afib involve electrical isolation of the pulmonary veins from the left atrium wall. Depending on the origin of the afib, catheterization procedures may also involve ablations of the superior vena cava and coronary sinus (thoracic veins), linear ablation of the left atrial roof, and a standard cavotricuspid isthmus (right flutter) ablation.

Surgical procedures, except for the full maze, also focus on isolating the pulmonary veins, but in addition may involve lesion creation at specific spots located by mapping, removal of the left atrial appendage, and disconnection of the ligaments of Marshall – a potent source of vagal input.

The catheterization procedures covered in this part of the survey are left atrial flutter ablation, right atrial flutter ablation, SVT ablation, cryoablation, and AV node ablation + pacemaker installation. The surgical procedures covered are the maze procedure and the so-called “mini-maze” or minimally invasive maze procedure. The main difference between the full maze and the mini-maze procedure is the method of access to the heart. The maze involves a 6-12” long cut through the breastbone, while the mini-maze provides access through two or more 2” incisions between the ribs. Another important difference is that the maze procedure requires the use of a heart/lung machine, while the mini-maze does not.

Statistical Terms

- **N** – The number of respondents in a sample.
- **Mean** – The average value for a group of data, i.e. the sum of the values of all data points divided by the number of data points.
- **Median** – The value in the middle of a group of data, i.e. the value above which half of all individual values can be found and below which the remaining 50% can be found.

- **Statistical significance** – In this study average values are considered different if the probability of the difference arising by chance is less than 5 in 100 using the two-tailed t-test. This is expressed as “p” being equal to 0.5 or less. Lower values of p are indicative of a greater certainty that observed differences are truly significant.

All statistical tests were carried out using the *GraphPad InStat* program (GraphPad Software Inc, San Diego, CA).

Definition of Success

The success of the procedures is (unless otherwise noted) judged at least 6 months after the last reported ablation (initial or touch-up). It is defined in two ways:

Subjectively – The afibber’s own opinion as to whether the procedure was completely successful, partially successful, or not successful at all

Objectively – The following criteria are used to define success objectively:

- Complete success – No afib episodes, no antiarrhythmics, consistent sinus rhythm
- Partial success – No afib episodes, but on antiarrhythmics
- Failure – Afib episodes still occurring
- Uncertain – Cases where insufficient data was available or where less than 6 months had gone by since the procedure.

Afib burden – The number of episodes over a 3-month period multiplied by their average duration.

Evaluation of Background Data

Ninety-eight afibbers had undergone a surgical procedure (maze or mini-maze) or a flutter, SVT, AV node, or cryoablation as their first procedure. Another 33 respondents had undergone one or more of the above procedures following one or more RF ablation procedures (PVI). All told, results were available for 152 procedures as detailed in Table 1.

TABLE 1
Distribution of Procedures

<u>Procedure</u>	Number of Procedures				
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>Further</u>	<u>Total</u>
Cryoablation	6	3	1	0	10
Maze procedure	16	3	1	2	22
Mini-maze procedure	26	3	6	1	36
Right atrial flutter	37	12	4	1	54
Left atrial flutter	6	6	3	0	15
SVT ablation	0	2	1	0	3
AV node ablation + pacemaker	7	2	1	2	12
Total	98	31	17	6	152

General Background of Respondents

The general background data for the 98 respondents whose first procedure was a surgical one or a flutter, SVT, AV node, or cryoablation is given in Table 2.

TABLE 2

<u>Demographics</u>	
Male respondents	81%
Female respondents	19%
Average (median) age*, yrs.	59
Median age at diagnosis, yrs.	50
Age range at diagnosis, yrs.	10-73
Years since diagnosis (median)	8
Years since diagnosis (range)	1-45
AF confirmed by diagnosis	97%
Underlying heart disease	17%
Median age at last procedure, yrs.	57
Age range (last procedure), yrs.	34-73

* At time of completing questionnaire

There were no statistically significant differences between this group and the group whose first procedure was a RF ablation (PVI), although the incidence of underlying heart disease was considerably higher (17% vs. 6%) in the former group.

A total of 93 respondents had provided detailed information regarding their type of AF (adrenergic, mixed, vagal). The majority of respondents (78%) had paroxysmal afib. Mixed (random) AF was the most common type of paroxysmal AF at 70% followed by vagal at 24%, and adrenergic at 6%. These percentages are similar to those found in the RF ablation group covered in Part 1.

Most paroxysmal afibbers (83%) experienced episodes at least once a week and 36% had episodes every day. Only 8% of those seeking a cure through catheterization or surgical procedures had episodes less frequent than once a month. This indicates that most afibbers only opt for a procedure when the frequency becomes intolerable or permanent AF becomes a reality.

The median duration of paroxysmal episodes was 6 hours with a range from 1 to 36 hours.

Ninety percent of respondents were taking one or more drugs on a continuous basis to reduce their episode frequency and duration, or ameliorate the effects of their permanent afib. The most popular drug was flecainide used by 20% of respondents, sotalol used by 16%, and beta-blockers by 15%.

Catheterization Procedures

Right Atrial Flutter Ablation

Fifty-four respondents had undergone a right atrial flutter ablation either as an initial procedure (37 respondents) or as a follow-up procedure after a PVI, mini-maze or unsuccessful right atrial flutter ablation. In addition, 158 afibbers had undergone a right atrial flutter ablation as an integral part of their PVI isolation procedures.

Thirty of the 37 respondents who underwent a right atrial flutter ablation as their first procedure reported the outcome at least 6 months after their procedure. In 95% of the cases the right atrial flutter ablation was unsuccessful in eliminating afib. Somewhat surprisingly, 22% of afibbers who underwent a first atrial flutter ablation underwent a second and even a third one in further attempts to cure their afib. In this regard, it should be mentioned that only 2 of the original 37 initial procedures were carried out at top-ranked RF ablation institutions and both were followed by standard PVI ablations. All told, 51% of initial right atrial flutter ablations were followed by standard RF pulmonary vein ablations.

Atrial flutter and AF are similar in that they both involve abnormal, sustained, rapid contractions of the heart's upper chambers (atria). In atrial flutter the atria contract 220 to 350 times a minute in an orderly rhythm. In AF the rate of contraction may be as high as 500 beats/minute and the rhythm is totally chaotic. The two arrhythmias can both occur as a result of an enlarged atrium or in the aftermath of open-heart surgery, but the mechanism underlying them is quite different. Nevertheless, they can coexist in the same patient and one may convert to the other.

There are two major types of atrial flutter – common or type 1 and atypical or type 2 flutter. Type 1 flutter is by far the most common (65-70% of all cases) and is characterized by a specific conduction abnormality in the lower right atrium. Type 2 or atypical flutter, on the other hand, has no easily discernible origin and is therefore harder to deal with.

Because the location of the origin of atrial flutter, at least in the common type, is so well known and consistent from patient to patient radio frequency catheter ablation can be used with considerable success to permanently eradicate atrial flutter. Unfortunately, this procedure is unlikely to cure AF, which may often coexist with atrial flutter. There is also some evidence that atrial flutter patients who have a successful ablation increase their risk of later developing AF by 10-22%. So undergoing RF ablation for atrial flutter may not remove the necessity of dealing with AF.

Because of the close connection between AF and atrial flutter, it was quite common, in the early days of ablation, to perform an atrial flutter ablation in the hope that it would cure the AF. The atrial flutter ablation involves only the right atrium so there is no need to pierce the septum to the left atrium as is done in a PVI.

After the 1998 discovery that 80-90% of paroxysmal episodes originate in the left atrium near the pulmonary veins, the use of the right atrial flutter ablation in an attempt to cure AF became less common, but the procedure is still used as a first attempt in patients with a combination of AF and flutter. It is, of course, also used in patients suffering from right atrial flutter only.

Conclusion – Right atrial flutter ablations, on their own, are generally not successful in eliminating atrial fibrillation, so if an ablation is contemplated for the purpose of dealing with AF, it would make sense to have it performed by an EP who is experienced in entering the left atrium and will perform a standard PVI at the same time.

Left Atrial Flutter Ablation

Six respondents had received a diagnosis of left atrial flutter as the primary problem responsible for their afib and underwent ablation for this condition. Only one of these procedures was partially successful, while the remaining were not. Three respondents went on to undergo another procedure (focal ablation, maze procedure, segmental pulmonary vein ablation). All were successful in eliminating both flutter and afib.

It is estimated that about 10% of afibbers undergoing PVI develop left atrial flutter or tachycardia as a result of the procedure. If the flutter or tachycardia develops within the first week following the procedure, it is usually transient and requires no treatment. However, it may develop as much as 2-3 months post-procedure and, in this case, treatment is required. Treatment may involve re-isolation of the pulmonary veins or the placement of long linear ablation lesions to interrupt the flutter circuit.

Nine respondents developed left atrial flutter after a PVI aimed at curing their afib. They underwent additional ablations of which 3 were fully successful, 3 were partially successful, and 3 were too early to tell.

Conclusion – Left atrial flutter is a fairly common complication of pulmonary vein ablation. Our 2006 ablation/maze survey showed an incidence of 12% of left atrial flutter/tachycardia post-procedure. The condition resolved on its own in about 40% of cases, but ablation was required in persistent cases.

Cryoablation

The cryoablation procedure is similar to the standard RF ablation procedure except that the ablation catheter is nitrogen-cooled rather than electrically heated. The advantage of cryoablation is that it reduces procedure stroke risk and does not create pulmonary vein stenosis even if the ablation is done inside the pulmonary veins.

Six paroxysmal afibbers (5 male, 1 female) had undergone cryoablation as their first procedure. Five knew the outcome of their procedure (the other respondent had not gone 6 months since the procedure). Only one (20%) of these procedures was successful. Two of the respondents whose first procedure was unsuccessful went on to have another cryoablation, one of which was successful. One had two pulmonary vein ablations, which were both unsuccessful. Thus, 2 afibbers out of 5 (40%) achieved complete success after one or more cryoablations.

All told, 10 afibbers underwent a cryoablation as an initial or subsequent procedure. Nine of these had gone more than 6 months since the procedure. The complete procedural success rate was 22%, the partial success rate (still on antiarrhythmics) was 11%, and failure rate was 67%.

Conclusion – It is clearly not possible to conclude anything definitive about the effectiveness of cryoablation based on a sample of ten. However, the results do not appear to be significantly different from those obtained for RF ablation at an other than top-ranked institution.

Ablation for SVT

Three respondents were ablated for supraventricular tachycardia occurring as an after effect of RF ablations. All the procedures were fully successful.

AV Node Ablation + Pacemaker Implantation

Palpitations, elevated heart rate, and other major symptoms of an atrial fibrillation episode are associated with rapid and irregular contractions of the left ventricle rather than with the actual “quivering” of the left atrium. So, although the root cause of AF is found in the left atrium, its symptomatic effects can, to a large extent, be eliminated by isolating the AV node (the ventricular beat controller) from impulses originating in the left atrium and feeding the ventricles their “marching orders” from an implanted pacemaker. AV node ablation + pacemaker installation is a relatively simple procedure and is therefore mostly successful. It does also provide substantial symptom relief allowing afibbers to live a fairly normal life. Nevertheless, the procedure is considered a last resort for the following reasons:

- It does nothing to stop the fibrillation in the atrium and may, in fact, hasten the progression to permanent AF.
- It does not reduce stroke risk as do PVIs and maze procedures. Thus, the patient must continue on warfarin for life.
- It makes the patient dependent on the pacemaker. If it or the leads malfunction, or the battery runs out the patient may die.
- It does little to prevent the fatigue and reduced exercise capacity felt by some afibbers during an episode.

Twelve respondents (25% female) had undergone the AV node ablation + pacemaker implantation. Seven underwent the procedure as their first and the remaining 5 underwent the procedure after failed PVI (4) or maze (1) procedures. Four out of the 12 (25%) had underlying heart disease, a proportion substantially higher than the 8% in the entire group of survey respondents. Forty percent of the group was on amiodarone vs. only 9% in the overall group. There was one permanent and one persistent afibber in the group and the paroxysmal afibbers carried a median 3-month afib burden of 375 hours – substantially higher than the 180 hours experienced in the overall survey group. Thus, it is clear that the respondents who had opted for the AV node ablation were worse off than most.

Ten of the 12 respondents felt that the procedure had been a complete success even though it provided sympathetic relief only. One went on to have a PVI and one went on to undergo a maze procedure – both partially successful. It is worth noting that only one of the AV node ablations was performed at a top-rated AF ablation institution, perhaps indicating that less experienced EPs and cardiologists opt for this procedure more often than do experienced EPs.

Conclusion – Based on this small sample of 12 respondents, it is clear that AV node ablation + pacemaker installation is usually a successful procedure and provides significant symptomatic relief even though it does not cure AF. Nevertheless, it is still the procedure of last resort.

Surgical Procedures

Maze Procedure

Twenty-two respondents reported having undergone a full maze procedure – 16 as their initial procedure, 4 after failed PVIs, 1 after an unsatisfactory AV node ablation + pacemaker implantation, and 1 after a left atrial flutter ablation. As shown in Table 3 the maze group differed significantly from the total survey group of 516 afibbers in several respects.

TABLE 3

<u>Variable</u>	<u>Total Group</u>	<u>Maze Group</u>
No. in group	516	22
Age at diagnosis, yrs.	48	47
Underlying heart disease, %	8	32
Permanent AF, %	16	33
Paroxysmal with daily episodes, %	24	50
Amiodarone usage, %	9	17

It is clear from the above comparison that respondents undergoing the maze procedure had a higher incidence of underlying heart disease and permanent afib than did the total group.

Three out of the 22 procedures were cryo-maze. In other words, the maze lesions were applied with a nitrogen-cooled catheter rather than with RF energy or the cut-and-sew approach. Only one of these procedures was successful. It is, of course, problematical, perhaps even unwise, to pronounce on success rates with only 22 procedures in the sample. Nevertheless, as with other procedures, there would appear to be a definite trend for procedures performed by top-ranked cardiac surgeons to be more successful than those performed by less prominent ones.

TABLE 4

<u>Surgeon</u>	# of <u>Procedures</u>	Success Rate,%		
		<u>Complete</u>	<u>Partial</u>	<u>Failure</u>
Top-ranked	8	75	12	13
Other	14	36	7	57
Total	22	59	9	32

It is, of course, open to argument who is and who is not “top-ranked”, but I do believe that the surgeons in the above group (Drs. Damiano, Geiss, Gillinov and McCarthy) would all fall in this category.

The relatively low complete success rate for even top-ranked surgeons is unexpected. The success rate for the full maze procedure is often quoted at 90% or better. However, a recent report issued by the Washington School of Medicine, Barnes-Jewish Hospital (Dr. Damiano’s “home base”) arrived at a complete success rate of 67% and a partial success rate of 24% for an overall success rate of 91%.[1]

It would thus seem that success rates for the maze procedure include patients who are afib-free, but only with the help of antiarrhythmics (at the 12-month check-up). Using this measure the success rate of top-ranked surgeons in our survey was 87%. An overall average success rate of 84% was observed in a study of 3832 patients who had undergone a Cox-Maze III procedure.[2] Thus, while lower than expected, the success rate for top-ranked surgeons found in our survey is not out of line with published studies.

Our results, albeit based on a very small sample, lead to the conclusion that, just as in the case of conventional PVIs, the choice of surgeon or EP is the all-important variable with the type of procedure playing a lesser role in the final outcome.

As reported in the 2006 Ablation/Maze Survey, 7 out of 12 (58%) of patients undergoing the maze procedure experienced one or more adverse events, some of them quite serious. Two suffered a transient ischemic attack (TIA, mini-stroke), one reported excessive fluid retention, and one pericarditis. This rate of serious adverse events is higher than experienced in any other procedure.

A comparison of objective and subjective success rates show that the respondents’ subjective impression of outcome is pretty close to the actual (objective) outcome, except that respondents were more likely to feel that even a failed procedure was at least partially successful.

	<u>Objective</u>	<u>Subjective</u>
Complete success	59%	52%
Partial success	9%	29%
Failure	32%	19%
Total	100%	100%

Only one (9%) of the fully successful maze respondents continued on warfarin, while 78% of unsuccessful ones did continue anticoagulation. Five (23%) continued on a natural stroke prevention program with fish oil being the most popular supplement. Most (73%) of successful patients no longer needed to avoid triggers, but 80% of those whose procedure had failed still needed to do so. There was no indication that resting heart rate increased after a maze procedure whether successful or not.

Conclusion – The full maze procedure performed by a top-ranked cardiac surgeon provides the best chance of being cured of afib with one single procedure. However, full maze procedures performed by less skilled surgeons tend to be considerably less successful. This, combined with the potential for significant adverse effects (especially associated with the use of the heart/lung machine), would lead one to the conclusion that it may be “overkill” for a paroxysmal afibber, with no underlying heart disease, to select the full maze over a conventional radiofrequency PVI or mini-maze procedure.

Mini-Maze Procedure

Thirty-six respondents reported undergoing a mini-maze procedure, 26 as their initial procedure and 10 after one or two failed radiofrequency PVIs. As shown in Table 5 there were no significant differences in 5 key variables between the total group of survey respondents and the mini-maze group, except for a somewhat greater incidence of underlying heart disease, and a somewhat higher incidence of daily afib episodes in the mini-maze group.

TABLE 5

<u>Variable</u>	<u>Total Group</u>	<u>Mini-Maze Group</u>
No. in group	335	36
Age at diagnosis, yrs.	48	49
Underlying heart disease, %	10	19
Permanent AF, %	19	19
Paroxysmal with daily episodes, %	22	32
Amiodarone usage, %	11	11

The final outcome 6 months after procedure was known for 31 procedures. Of these, 13 were carried out by 4 top-ranked cardiac surgeons.

- Dr. Randall Wolf University of Cincinnati Hospital 9 procedures
- Dr. Adam Saltman University of Massachusetts 2 procedures
- Dr. Michael Mack Medical City, Dallas, TX 2 procedures
- Dr. James Cox Ohio State University Hospital 1 procedure

RF-powered catheters or clamps were used for lesion creation in all but one of the procedures (microwave). The outcome results are presented in Table 6.

TABLE 6

<u>Surgeon</u>	<u># of Procedures</u>	<u>Success Rate,%</u>		
		<u>Complete</u>	<u>Partial</u>	<u>Failure</u>
Top-ranked	13	69	15	16
Other	18	47	0	53
Total	31	57	7	36

NOTE: Two of the successful procedures involved the full maze set of lesions

The incidence of adverse events (as per 2006 Survey) tended to be slightly higher than for the conventional PVI and were generally more serious as shown in Table 7.

TABLE 7

<u>Adverse Event</u>	<u>Patients Involved,%</u>
Left atrial tachycardia/flutter	17
Right atrial flutter	13
Pneumonia	9
Tamponade	4
Serious hemorrhage	4
Subcutaneous nerve pain	4

The chance of a successful outcome with one single procedure is clearly better for the mini-maze than for the standard RF ablation (57% vs. 34%). Even when the single procedure success rates for such top-ranked institutions as the Cleveland Clinic, Bordeaux, and Marin General is compared to the complete success rate for the top mini-maze surgeons, the mini-maze still comes out ahead (69% vs. 57%).

The standard RF ablation can, of course, be repeated, whereas I have not seen any example of full maze and mini-maze patients being given the option of undergoing a second procedure if the initial one fails. The complete success rate after repeat ablations is 64% in the 14 top-ranked RF ablation institutions (73% when results for the Cleveland Clinic, Bordeaux, and Marin General are combined). This compares to 69% obtained by top surgeons after one mini-maze procedure – not a statistically significant difference. The overall mini-maze success rate of 57% is also comparable to the 52% obtained by all RF institutions combined.

None of the patients whose outcome had been completely successful continued on warfarin after their procedure, but 28% continued on a daily aspirin. None of the successful mini-maze patients still had to avoid previous afib triggers.

Four of the patients whose mini-maze procedures had failed went on to undergo RF pulmonary vein isolations. None of these were immediately successful, but one patient regained normal sinus rhythm after a repeat procedure.

There was, based on this very small sample, no indication that success was associated with an increased resting heart rate post-procedure and there was no statistically significant difference in resting heart rate overall when comparing patients pre- and post-procedure.

Conclusion – A mini-maze procedure performed by a top-ranked cardiac surgeon provides the second-best chance of being cured of afib with one single procedure. It is also likely that even a mini-maze performed by a less than top-ranked surgeon will have a substantially better outcome than a standard RF ablation performed by a less than top-ranked EP. However, the risk of adverse events accompanying the mini-maze procedure is somewhat higher than for RF ablation procedures.

Summary

A total of 152 procedures, other than the conventional RF PVI, was performed in order to eliminate AF or flutter. The following observations were made:

- Right atrial flutter ablations are generally successful in eliminating right atrial flutter, but only very rarely (5% of cases) do they cure AF as well.
- Left atrial flutter or tachycardia occurs fairly frequently as a sequel to a RF PVI or mini-maze. In most cases it resolves on its own, but in some cases a repeat ablation is necessary to correct it.
- There were only 10 responses from afibbers who had undergone cryoablation, so it is not possible to draw conclusions as to the effectiveness and safety of this procedure. However, it does appear that post-procedural heart rate elevation is not a problem with cryoablation.
- Based on a small sample of 12 respondents it would appear that AV node ablation + pacemaker installation is usually a successful procedure and provides significant symptomatic relief even though it does not eliminate the fibrillation of the atria.
- The full maze procedure performed by a top-ranked cardiac surgeon provides the best chance of being cured of afib with one single procedure. However, full maze procedures performed by less skilled surgeons tend to be considerably less successful. This, combined with the potential for significant adverse events (especially associated with the use of the heart/lung machine), would

lead one to the conclusion that it may be “overkill” for a paroxysmal afibbers, with no underlying heart disease, to select the full maze over a conventional RF ablation or mini-maze procedure.

- A mini-maze procedure performed by a top-ranked cardiac surgeon provides the second-best chance of being cured of afib with one single procedure. It is also likely that even a mini-maze performed by a less than top-ranked surgeon will have a substantially better outcome than a standard RF ablation performed by a less than top-ranked EP. However, the risk of adverse effects accompanying the mini-maze procedure is somewhat higher than for RF ablations.

This concludes the evaluation of the 2007 Ablation/Maze Survey. Again, my sincere thanks to all those who participated.

References

- [1] Melby, SJ, et al. A new era in the surgical treatment of atrial fibrillation: The impact of ablation technology and lesion set on procedural efficacy. *Annals of Surgery*, Vol. 244, No. 4, October 2006, pp. 583-92
- [2] Khargi, K, et al. Surgical treatment of atrial fibrillation: A systematic review. *European Journal of Cardiothorac. Surgery*, Vol. 27, No. 2, February 2005, pp. 258-65

THE AFIB REPORT is published 10 times a year by:

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