Patient-oriented Information about Wolf-Ohtsuka Procedure

Toshiya Ohtsuka MD, PhD

[Introduction of Dr. Ohtsuka]

Dr. Toshiya Ohtsuka is currently a consultant atrial-fibrillation (afib) surgeon, chief of Wolf-Ohtsuka Minimally Invasive Afib Surgery Center, New-heart Watanabe International Institute, Tokyo, Japan. He has developed Wolf-Ohtsuka Procedure (WOP) from Wolf Mini-maze Procedure and, starting Oct. 2008, experienced over 2,500 cases of WOP. He is everyday treating afib patients coming from not only nationwide but other countries, and training the selected surgeons in Japan who are qualified to learn the WOP.

He graduated from Tohoku University Medical School in 1986, and received clinical residency for general surgery and advanced training for cardio-thoracic surgery at Tokyo University Hospital and its affiliated institutes to acquire the Japanese board of general surgery and cardio-thoracic surgery. He also had a research opportunity to be awarded PhD by Tokyo University and contributed to educational service there as associate professor.

In 1996-8, he gained a clinical fellowship to stay in Cincinnati, OH, USA, and study minimally invasive cardio-thoracic surgery under the guidance of Drs. Randall K. Wolf and John B. Flege. A close relationship with Dr. Wolf has never ceased and they communicate with each other and exchange professional opinions about the afib procedures privately and openly to improve their therapeutic efficacies.

In academic accomplishment, he has presented his works countless times in not only Japanese but also international symposia, and authored and published papers profusely in major cardiology, cardio-thoracic surgery journals, most of which were dedicated to clinical investigations in the field of minimally invasive endoscopic surgery.

He acts as councilor of many medical societies, ranging from cardiothoracic, endo-surgical, cardiological, to arrhythmiological academia, in Japan, and responsible for major minimally invasive cardiac-surgery groups. He is a founder of the Japan Left Atrial Appendage Club, which is a quite unique society organized to study left atrial appendage management in afib patients.

He is married with a daughter. His hobby is magic, golf and reading English whodunits. He is a professional of English-Japanese translation of English novels and a holder of national license of English-speaking tour guide.

[What is WOP done for?]

WOP has two major objectives. One is rhythm-control: conversion of your atrial fibrillation (afib) into stable, sustainable sinus rhythm (SR). Surgical epicardial ablations contribute to this purpose. The other is prevention of cardiogenic stroke and elimination of blood thinners, attained by resection of the left atrial appendage (LAA).

WOLF-OHTSUKA PROCEDURE

[How is WOP done?]

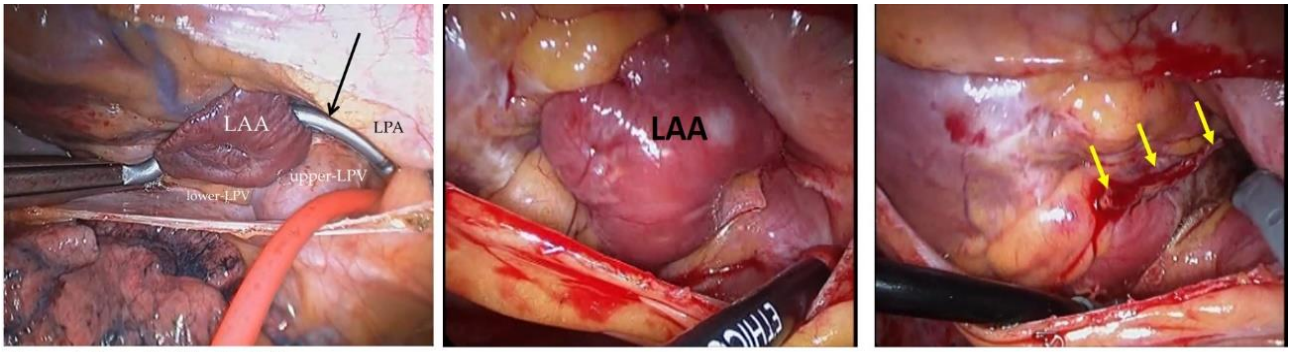
WOP is a totally endoscopic surgery; 1 cm port, four each at both axillae, is used for entry into the thoracic cavity and the procedure is completed through the ports by the surgeon watching endoscopic images.

If your afib is <u>paroxysmal</u>:
Afib is treated with bilateral en-bloc pulmonary isolations, and superior vena cava isolation if necessary. Operative time is about 1h on average.

If your afib is <u>persistent</u>:
Prior to surgery, just after general anesthesia has been established, you undergo direct-current cardioversion, called DC challenge. If your SR is awaken and steadily appears on EKG, you will receive surgical ablations including bilateral pulmonary vein isolations and the box-shaped isolation at the back wall of the left atrium. If the DC challenge fails, only producing negative or extremely poor outcomes, you might undergo LAA resection alone. Operative time is 1h plus on average. LAA-resection-alone version takes about 20min.

With either type of afib, you always receive resection of the LAA.

Technologies used for WOP: Atricure Clamp (and Pen) for the epicardial ablations and Ethicon cut-and-staple instrument for the LAA resection.

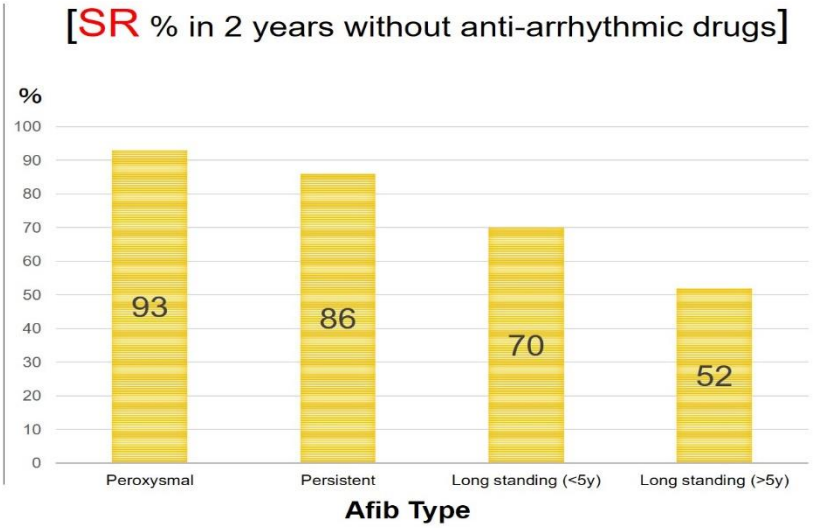


Thoracoscopic view of en bloc LPVs and LAA Isolation:
LAA = left atrial appendage; LPV, A = left pulmonary vein, artery; ↓ = Clamp Isolator

[What benefits can YOU gain from WOP?]

1. SR:

The cure rate mainly depends on your afib type, remodeling of your heart (dilation of the left atrium, leakage of mitral/tricuspid valves, etc) and a history of the treatment you have received in the past. Nevertheless, after WOP, 2-year cure rate was as high as 93% in paroxysmal, 86% in persistent, 70% in long-standing (<5 y) persistent, and 52% in very-long-standing (>5y) persistent afib cases.



2. Prevention of cardiogenic stroke and elimination of blood thinners:

WOP cases with high risks of stroke and of anticoagulation were retrospectively studied and the clinical outcomes were analyzed and published in the major cardiology journal*. In the 4 year follow-up period, only 0.26 stroke-events/100 patient-years occurred despite the fact that the patients quit blood thinners immediately after WOP. This outcome is the best record ever in the world when compared with other methods including simple anticoagulation and transcutaneous implant of the LAA plug such as Watchman device. Immediately (or 4 weeks for some) after surgery you can get out of blood thinners unless you have suffered extremely poor heart function, hematological disorders or other extra reasons. Antiplatelet drugs, routinely used after Watchman implant, are not required.

*Ohtsuka T, et al. Thoracoscopic stapler-and-loop technique for left atrial appendage closure in non-valvular atrial fibrillation: Mid-term outcomes in 201 patients. *Heart Rhythm* 2018:15;1314-20.

[Risks of WOP and its possible variation/alterations]

Starting in 2008, as of Nov. 2022, Dr. Ohtsuka has experienced more than 2,000 cases of WOP, the largest case-volume of this kind in the world. His unmatched experience has made the procedural risk, mortality/morbidity, extremely rare, but not zero. The possible major complications associated with the WOP would be:

1. Massive bleeding
2. Stroke
3. Phrenic nerve palsy
4. Serious infection
5. Others

The port-access endoscopic procedure might be converted to open-thoracotomy approach for trouble shooting, or handling of unexpected problems such as tight and diffuse scars in the pleural or pericardial cavities which would be generated for various reasons. If such problem is too serious to overcome, the epicardial ablations might be omitted or abandoned in half way, although the LAA resection can be accomplished in all cases. Cardiopulmonary bypass machine stays near the operating table, which is used only in emergency circumstances. To solve each problem, any problem, surgical team will share the information with you and your family and take any possible counter-measures: medications, surgical methods, and whatever. Homogenous blood products, biological glue, are routine stand-by items to cope with serious anemia, bleeding events or other critical situations, although the blood loss is usually negligible and therefore they have been extremely rarely used before.

[Postoperative course and follow-up protocol]

After WOP, you fully wake up on the operating table and have the respiratory tube taken out before carried to the ICU to stay there for a day or two. Although the intensity varies in patients, you will feel pain due to not wounds but the chest tube placed intraoperatively on the diaphragm. It is an important monitor to check for postoperative bleeding and drain out extra pleural fluids which will otherwise accumulate in the chest and cause shortness of breath or other uncomfortable symptom. The tubes are usually taken out on Day 1 or 2. Until then, you can request intravenous or oral pain killers. Once the tube is out, you will be liberated from most pains and very likely can walk around the floor. You will be discharged on Day 5 to 7. Before discharge, stiches or skin-staplers are all removed and you are allowed to take shower once or twice in the hospital. After discharge, Dr. Ohtsuka recommend you stay in Tokyo for another 2 weeks or longer to see you in the out-patient clinic so that he can examine the heart-rhythm on EKG and the residual pleural effusions on chest X-ray, and accordingly adjust medications. A low dose of prednisone may be used for a week or so to reduce the effusions. Your heart-rhythm may fluctuate between SR and afib for a while after surgery. This period, 1-3 months in general, is called “Blanking Time” and considered a healing process from heat-ablations: your heart has actually suffered burns. In this specific time, anti-arrhythmic drugs may be temporarily added and, most importantly, you should be gentle to your heart: restrain yourself from stressful work, hard exercise, much alcohol or caffeine not to accelerate your heart beats. If your afib had been persistent, following Dr. Ohtsuka’s instructions, you would have started to take amiodarone 1 month prior to surgery. You will continue to take it for a while following a weaning protocol. There are some patients who will undergo DC to treat difficult afib or atrial flutter. You may still feel soreness from time to time on the chest, usually your front or back. That sensation is most likely associated with the intercostal nerves and the resulting muscle spasm. It will be gone in time, so just relax and use a pain-killer of your choice if you like to take. After you go home, Dr. Ohtsuka will continue to communicate with you on e-mail, virtual consultation and so on.

[How to Contact Dr. Ohtsuka or New-heart Watanabe International Institute?]

Contact Dr. Ohtsuka first with e-mail, ootsukadr@sd6.so-net.ne.jp . Please describe the minimum information below. He will reply as soon as possible.

1. Age and gender
2. Body height and weight
3. Afib type (paroxysmal? Persistent? How long?) and the history of treatment (medications, catheter ablation, etc)
4. Past history of other illness and its treatment
5. Clinical data, if possible (Chest X-ray, echo-cardiography, etc)

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We'll fight afib to get the patients' life back!