



TOBB ETU MEDICAL FACULTY HOSPITAL DEPARTMENT OF CARDIOVASCULAR SURGERY

The Cardiovascular Surgery Department has been established by obtaining the newest technologies and carefully selected specialists who provide services within the area of cardiovascular diseases. The department was established when the hospital was first founded in 2005. It provides routine services such as bypass surgery, cardiac valve, aortic surgery, atrial ablation, minimally invasive (keyhole surgery), congenital cardiac surgeries and also operates on complex and risky cases with perfect

clinical results. Approximately 1100 heart surgeries are performed and 9000 patients are examined and treated in a year. The mortality rate of the last 10 years is 1,36 % and for coronary artery bypass grafting, it is 0,4%. (Please see below table demonstrating American and German databases of STS for the last 4 years.) The clinic has made headlines worldwide for off-pump coronary artery bypass surgery, minimally invasive heart surgery, endoscopic heart surgery, and heart valve repair surgery.

- Coronary "Bypass" Surgery (Off-pump) • Cardiac Valve Surgery • Minimally Invasive Cardiac Surgery • Cardiac Arrhythmia Surgery • Surgery for Congenital Heart Disease • Major Blood Vessel Surgery (Aortic Surgery) • High-Risk Patient Surgery

RESULTS

<i>Complications after CABG (%)</i>	<i>2014</i>	<i>2015</i>	<i>STS Database*</i>
Mortality	0.6 %	0.4 %	1.9 %
Deep Infection	0.2 %	0.2 %	0.4 %
Bleeding	1.2 %	1.0 %	2.2 %
Stroke	0.4 %	0.2 %	1.2 %
Prolonged Hospital Stay (>6 days)	2.0 %	1.8 %	5.2 %

CABG = Coronary Artery Bypass Grafting

**Society of Throacic Surgeons, USA, 2009*

SERVICES



Translation services



TV in the room



Parking



Restaurant



Rehabilitation



Mall in walking distance



Airport pick-up



Dietary Service



Dietary Service



Private room



Phone in the room



Free Wi-Fi

Specialized staff is present 7/24 in the Cardiovascular Surgery Clinic.

OUTPATIENT HOURS:

- Examination 09:00 am – 06:00 pm
- Control 10:00 am – 01:00 pm



The Cardiovascular Surgery Department of TOBB ETU Medical Faculty Hospital consists of an internationally renowned team. The team possesses the experience and infrastructure required to perform any and all types of surgeries in Adult Heart Surgery.

Prof. Tayfun Aybek, MD completed his career as an academician at Frankfurt University in Germany. He performs heart surgery with a robot without

opening the chest wall. He is the head of the team, which closely follows new methods and new technologies regarding Cardiovascular Surgery. The

team performs heart surgeries through 3-5 cm. incisions and they welcome colleagues from around the world as well; they have invited guests who are recognized by the International Cardiovascular Surgery Community

Our hospital provides all these quality services in Cardiovascular Surgery in areas such as:

- Coronary "Bypass" Surgery (Off-pump)
- Cardiac Valve Surgery
- Minimally Invasive Cardiac Surgery
- Cardiac Arrhythmia Surgery
- Surgery for Congenital Heart Disease
- Major Blood Vessel Surgery (Aortic Surgery)
- High-Risk Patient Surgery

CORONARY BYPASS SURGERY

If the "Coronary Artery Disease" which manifests itself with stenosis or complete obstruction of heart vessels does not respond to medication or cannot be opened with a balloon, surgical intervention would be necessary. In Standard Bypass Surgery, the chest wall is opened from the front side. Using vessels obtained from other parts of the body (like arteries or veins) to bridge the stenotic heart vessels, the blood flow to the heart is improved. Thus the heart receives oxygen again and a possible heart attack is prevented. During this procedure, normally a heart and lung machine is used. During the surgery, this machine directs the blood in the body to an external pump system and pumps the oxygenated blood back to the body and organs. In other words, it undertakes the functions of the heart and lungs and enables inactivating said organs. Afterward, the surgeon sutures the obstructed vessels on the surface of the heart individually. This surgery is generally known as "vessel replacement". In TOBB ETU Medical Faculty Hospital Hospital, Cardiovascular Surgery team perform the

above-mentioned bypass surgery on a beating heart without a heart and lung machine.

Thus, it is not necessary to stop the heart during the surgery. Furthermore, potential damages caused by a heart and lung machine, which can affect several organs (especially in old patients), are eliminated.

Veins taken from the leg are not preferred by our team due to the short duration of use. Only arteries are used for Bypass operations.

This technique, which is known as "Full Arterial off-pump Coronary Revascularization", has been adopted and used by the Cardiovascular Surgery team of our hospital for years. It has aroused great interest among other surgeons at an international level. The technique of bypass operation on the beating heart has minimized the surgical risk and in addition, it has been understood that the inserted bypass vessels protect the operated hearts for a long time

CARDIAC VALVE SURGERY

Valve repair is presented as the most ideal method for patients with heart valve disease. Thanks to newly developed techniques and progress in technology, many heart valves can be repaired now. Therefore, the patients can maintain their lives with their original valves and do not need blood diluents to be used for a lifetime. Each heart valve coming to surgery is evaluated in the most detailed way with Transesophageal Echocardiography, which uses three-dimensional technology.



(Minimally Invasive Mitral Valve Repair, post-op, 4th day.)

Thus certain reasons for the defect in the valve are found shortly before the surgery and the surgical method to be used is

planned in accordance with this.

The quality of surgical treatment is checked immediately after the repair with the same technique. Thanks to these technologies, valve patients are treated through a small wound of 5 cm, body esthetic is preserved and also the recovery period in the postoperative course becomes shorter. In the female patient shown in the picture below, two valves were repaired by opening the rib cage through a small wound which is named as "Keyhole" method. The cut can be made on the frontal side or under the breast according to the position of the valve. While aortic valve repair is regarded as one of the difficult and rare surgeries; repair methods are routinely applied in our clinic particularly in aortic valve disorders in which aortic root repair and aneurysm exist together. Also, leaflet extension techniques and pericardial patch repairs for the aortic valve can be performed routinely. These repair techniques enable young female patients to be pregnant after surgery, since they may not use lifetime medication (especially warfarin

CARDIAC ARRHYTHMIA SURGERY

Pathology of the heart valve patients do not remain only in the valves; it leads to several damages by affecting surrounding tissues as well. Heart arrhythmia disorders can be resolved by utilizing the most modern devices. The patients who have

had palpitation for years can return to their homes with a normal heartbeat after the surgery. In the same way, growing heart is scaled back through surgical methods, thus stroke or embolism risk after the surgery is minimized.

SURGERY FOR CONGENITAL HEART DISEASE

Our team also performs surgical treatments for heart diseases of children. Atrial Septal Defect, Ventricular Septal Defect, Fallot, Patent Ductus, Coronary

fistula, etc. can be counted among the most important ones. Small wound treatment is used in these patients as well.

MAJOR VESSEL SURGERY (AORTIC SURGERY)

This surgery, which is regarded as one of the biggest surgeries in heart surgery, is applied in cases that main artery (Aortic), which carries blood to the whole body, is grown and burst risk increased.

Normally, the patients are cooled down to 18°C by using a heart and lung machine during the surgery. In this way, preservation of brain tissue and organs is enabled during the surgical intervention for a certain period. The diseased and

grown artery is replaced and an artificial vessel is inserted into the place of it. The patients are operated on without cooling because it is found as a result of the scientific studies of our team that the cooling process leads to several side effects (stroke, bleeding, heart and lung failure, etc.) in the patients. Prof. Tayfun Aybek, MD. and his team, perform major aortic surgeries 30-32°C (Celcius) without cooling down patients to 18°C. In this



way, with hot perfusion technique, surgery durations become shorter and brain circulation becomes safe. Prof. Tayfun Aybek, MD. and his team use this technique for 18 years and they performed hundreds of surgeries with this concept. Many other hospitals and clinics started to use this method as the neurological results

are better. The most important benefits of this warm surgery are that it significantly reduces the operation length and many complications such as clotting disorder, blood clot flowing in the blood and obstruction of brain vessels is prevented

AORTIC VALVE SURGERY

A healthy heart contracts 70-80 times in a minute and approximately 100.000 times in a day. In this way, 300 lt. of blood is pumped to the whole body in an hour. In a normal heart, there are 4 cavities. 2 upper cavities are called right and left atriums, lower cavities on the other hand are called left and right ventricles. Heart's duty is to transfer oxygenic blood to whole body. The blood passes through 4 cardiac valves

before it is transferred to the body. These valves are Tricuspid, Pulmonary, Mitral and Aortic Valves.

After lungs clean the blood and it becomes oxygenic, it passes through these 4 cavities, it goes into main artery which is called aorta through aortic valve and it is transferred to the entire body.

What are the duties of Cardiac Valves?

When the heart contracts for pumping, cardiac valves are opened which allows blood flow. Between heart beats they are closed immediately to prevent blood return. If something goes wrong about this regular system, heart's pumping function

is going to collapse. Tricuspid valve is situated between right atrium and right ventricle. Pulmonary valve is between right ventricle and lung artery. Mitral valve is placed between left atrium and left ventricle. Aortic Valve, on the other



hand, is situated between left ventricle and aorta (main artery). It mediates blood flow

Aortic Valve Diseases

Diseases such as fever due to rheumatic diseases at young ages, congenital or age-related valve diseases are mostly seen in Mitral and Aortic valves. They are less seen in Pulmonary and Tricuspid valves.

Severe Aortic Stenosis

Severe Aortic stenosis is the calcification of aortic valve. This makes it become deformed and as a result, it contracts to the highest degree and it cannot relax. This means, while heart pumps the blood to the entire body, it forces the blood to pass through a tightened valve. Cardiac muscle becomes tense. This situation

What causes Aortic Stenosis?

It occurs with aging and calcification on the aortic valve which generally result in valve stenosis and limitations of

from the heart to the all organs.

Degenerative (dependent on aging) cardiac valve diseases are mostly seen as Aortic Valve Stenosis and Mitral Valve Insufficiency. Aortic Valve Stenosis risk increases over the age of 70

causes cardiac muscle to thicken and after some time, it weakens and becomes insufficient to function. This situation destroys one's health, limits movements and it is called Cardiac Insufficiency. Stenosis in the valve and insufficiency of the heart are risky cases and they may become life-threatening

movement. Rheumatic fever, radiotherapy, high cholesterol are some reasons that eases the way of the disease.

What are the complaints of Aortic Stenosis?

Thoracic pain, chest tightness, fainting, imbalance, weakness, shortness of breath

and tachycardia may occur because of a stimulant.

How Aortic Stenosis is diagnosed?

With examinations, planned upon patient complaints, when doctor realizes heart murmur and plans echocardiography after

pre-examinations and with cardiac catheterization if needed and angiography, final diagnosis can be made.



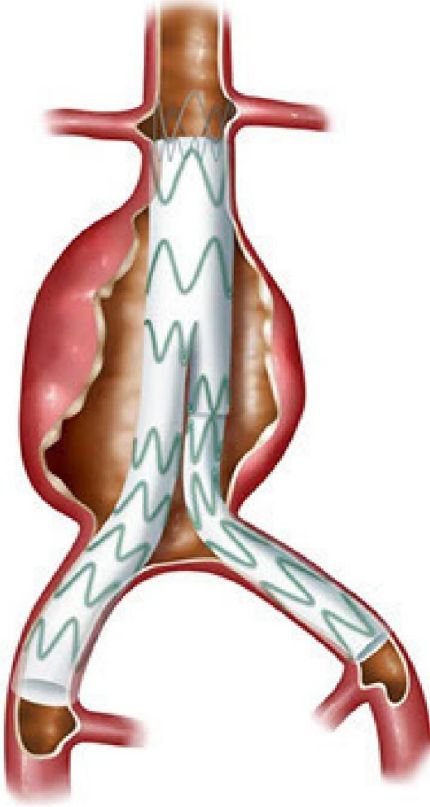
How is Aortic Stenosis treated?

Prof. Tayfun Aybek, MD. and his team performs stenotic aorta surgeries through various surgical methods. Besides mechanical and biological valve replacements, for appropriate cases, they perform eustachian method in which aortic valve is replaced with patients' own pericard. Aortic valve surgeries are performed through minimally invasive method by Prof. Tayfun Aybek, MD. and his team.

(Bentall Procedure, Replacement of Ascending Aorta, Aortic Valve Replacement and Coronary Reimplantation, post-op, 4th day)

“CLOSED” METHOD AORTIC ANEURYSM ENDOVASCULAR STENT TREATMENT: “EVAR” and “TEVAR”

Endovascular Aortic Surgery is one of the best inventions in Cardiovascular Surgery



during recent years. It reduced surgery risks and hospital stay considerably.

Before the 2000s, Aortic Surgery was the most severe operation with the highest risk of complications. As technology is developing day by day, now, Aortic Surgeries can be performed with the closed method, easily.

An aortic Aneurysm is one of the most dangerous illness in Cardiovascular Surgery. Aortic aneurysms generally, bursts (rupture) and causes bleeding outwards or it causes dissection which bleeds inwards. They both have a high risk of death. For protecting patients from the disease, aneurysms should be detected and recovered. In the open-heart surgery method, thoracic cage or abdominal region is opened through big incisions and aneurysmal aorta is replaced with an artificial vessel.

Closed-method Aortic Surgeries are generally performed in angiography room or hybrid surgery room conditions. In this method, instead of the open-heart surgery method, for appropriate aneurysms, it can be treated without making an incision through the thoracic cage or abdominal



region. Using catheter or other respected tools to reach an aneurysm through inguinal region provides endovascular repair. In this way, aneurysms can be treated through a single incision which is the inguinal incision. This method should be performed with x-ray tests and in a sterile operating room. This operation takes generally 1-2 hours and can be made with local anesthesia too. Hospital stay is 1-2 days and intensive care unit is not always required. However, if a complication (stent prolapse, emboli, bleeding etc.) occurs during the operation, the surgeon may change the plan to an open-heart surgery. This is a rare case however, it depends on the anatomical structure and the experience of the team. This operation should be made at hospital

or clinic in which there are experienced doctors and nurses who have the ability to change the operation plan to an open heart surgery and most importantly, this kind of operations and surgeries must be performed by a Cardiovascular Surgeon.

Plus, patients need to be followed periodically. The area of the artificial vessel may start to bleed even many years after the operation. Endovascular intervention or surgery may be needed to treat the leakage which we call “Endoleak”. Not all aneurysms are treated with Endovascular methods, some of them can only be treated with the safest method which is the open-heart surgery method.

HIGH-RISK PATIENT SURGERY

The average age in Turkey gradually increases due to new developments resulted from progress in medicine and in particular, implementation of technological innovations in medicine. While the new developments, especially in the field of cardiology (Stent, Balloon Dilation, Valvuloplasty, etc.), have become widespread, the patients coming

for heart surgery have become older with additional diseases (diabetes, peripheral vascular impairment, an excessive heart failure $EF < 25\%$, etc.). All these factors increase surgical risk. In order to accept the high-risk cases for surgical intervention, not only surgeons but also all team members and especially postoperative intensive care unit staff



must possess the required knowledge and skills. The teams of operating room and intensive care unit, as well as doctors and nurses, are working hand-in-hand so that such patients can be examined 24 hours a day. In parallel with developing

technologies, regular updates for knowledge and staff training is necessary for the intensive care unit as well.



You may add or view Patient Testimonials through Prof. Tayfun Aybek, MD's website. Please visit www.tayfunaybek.com.



Prof. Dr. Tayfun Aybek
Cardiovascular Surgery [♂]



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