

WHAT IS ROBOTIC SURGERY?

Robotic surgery is a method applied with a minimally invasive (incision) surgical basis. Surgical procedures performed with Da Vinci are also defined as 'robot-assisted surgery'. As the only example of robotic surgery systems in the world, da Vinci has three-dimensional imaging technology and advanced mobility. Da Vinci Robotic Surgery Systems, which provide recovery in a much shorter time compared to open surgery, are applied in General Surgery, Otorhinolaryngology, Cardiovascular Surgery, Thoracic Surgery and Pediatric Surgery, especially in Gynecology and Urology. In robotic surgery, instruments with wrist movements and rotating 540 degrees are used. These instruments can be easily operated in narrow spaces that the surgeon cannot reach with his own hand. Thanks to the real image obtained by three-dimensional and 16-fold magnification, it allows the tumor to be cleaned with precision, especially in cancer patients.

In addition, due to the closed method of the surgery, smaller incisions are made and it provides cosmetic advantage with less scarring in patients.

Since each incision is smaller than 1 cm (8 mm), the patient heals in a much shorter time and returns to his social life in a short time. Since it is minimally invasive, the risk of infection is also significantly reduced. Prostatectomy is mostly performed in the urology clinic in our hospital. In the second row, general surgery low anterior intestinal surgeries are performed.

Obstetrics were also included in this ranking. We have performed very successful surgeries especially in cancer patients. One of the possibilities provided by the operations performed with robotic surgery is the shortening of patients' hospitalization and transition to daily life. In this way, it provides the opportunity to start these treatments earlier in patients who require chemotherapy or radiotherapy after the robotic surgery system.

WHAT IS THE HISTORY OF THE da Vinci ROBOTIC SURGERY SYSTEMS?

da Vinci® is the world's first and only robotic surgery system.

The da Vinci® Robotic Surgical System was originally developed by NASA to be used by astronauts in space when they need healthcare. In this way, astronauts could be operated remotely using the surgeon console located in the world. The da Vinci® Robotic Surgical System was developed by researchers working at the NASA Research Center, engineers doing scientific research on the virtual reality system, and robot technology experts working at the Stanford University Research Center in California, United States. In 2000, with the approval of the American Food and Drug Administration (FDA), it was first used in Cardiovascular surgery and then widely in urology, general surgery, gynecology, general surgery, ear, nose and throat.

DOES THE SURGERY ROBOT?

No way! The concept of 'robot' has always been attractive to people. When it comes to robotic surgery, the first question that comes to mind is "Does a robot do the surgery?" We can easily say "no" to this question.

It's not a robot that does the surgery, it's a surgeon. In robotic surgery, the surgeon commands the robot, and the arms on the patient console carry out the operation by simultaneously reflecting all the commands received from the surgeon. The most important difference is that the surgeon can see the operation area more clearly and closely, in 3D thanks to the robot's capabilities. The surgeon is less tired because he works by sitting.

WHAT ARE THE BENEFITS OF ROBOTIC SURGERY FOR THE PATIENT?

- Fewer cuts
- Less blood loss
- Less pain
- Faster recovery
- Fewer scars, better cosmetic results
- Returning to current life more quickly
- Less need for blood transfusions
- Less risk of infection
- Less complication rate

BRANCHES USED BY ROBOTIC SURGERY



UROLOGY

Urology is one of the areas where the da Vinci® Robotic Surgery System is most commonly used. As the world's different countries in Turkey, especially radical prostatectomy (removal of the prostate), especially, kidney tumors, opening the stenosis in kidney channel, mesh valve is realized with tumors and many other operations in Vinci® Robotic Surgical System.

CARDIAC SURGERY

The da Vinci® Robotic Surgery System is used for mitral valve repair, coronary by-pass surgery (especially the replacement of vessels on the anterior surface), rhythm disturbances, mitral valve replacement, hole repair, and right and left atrium problems.



GENERAL SURGERY

The da Vinci® Robotic Surgery System can be used in the surgical treatment of many colorectal diseases, especially colon and rectal cancers, diverticula, and inflammatory bowel diseases. Da Vinci® surgery also provides protection of the nerves near the operation area, especially in colon and rectum surgery.

OBESITY SURGERY

The large and thick fat layer in obese patients restricts the surgeon's ability to intervene and makes it difficult to perform the planned intervention.

This problem is eliminated in operations performed with the da Vinci® Robotic Surgery System. Gastric by-pass surgeries, which are considered the gold standard in obesity surgery, come first among obesity surgeries performed with the da Vinci® Robotic Surgery System. This method allows both to reduce the size of the stomach and to reduce the absorption of food by deactivating some of the intestines.



GYNECOLOGY

With the Da Vinci Robotic Surgery System, cancer surgeries, removal of the uterus, removal of large diameter fibroids, hanging up the sagging vagina or uterus, and tube surgery can be successfully performed.

EAR NOSE THROAT

The da Vinci® Robotic Surgery System is successfully used in the fields of ear-nose-throat and head-neck surgery. The method, defined as Transoral Robotic Surgery, allows the removal of benign or malignant tumors related to the mouth, throat, tongue and tonsils. With the Robotic Surgery System, surgeries can be performed with the two arms of the system using the oral route, which is the natural entry point, without incision. This technique, which causes less trauma in patients compared to open surgery, provides surgeons with the opportunity to work in a sensitive and narrow area with many nerves and vessels.





THYROID SURGERY

In thyroid gland operations on both sides of the trachea, neck scars can be aesthetically disturbing. With the da Vinci® Robotic Surgery System, it is possible to perform all thyroid surgeries in patients with suitable body mass index, except reaching the thyroid in the neck by entering from the armpit and removing very large goiters. Patients who are operated on with the Da Vinci Robotic Surgery System can return to their homes after 24 hours and take a bath on the same day. These patients do not have any scars except a hidden incision in the armpit.

LUNG (Chest) SURGERY

In the da Vinci® Robotic Surgical System, practical operations of the entire lung (pneumonectomy), a lobe (lobectomy) or a segment (segmentectomy), which are defined as anatomical lung resection today, are performed in thoracic surgery. In addition, robotic surgery is used for esophageal surgeries and masses and cysts in the middle of both lungs, which are defined as mediastinum. If the patients will receive radiotherapy or chemotherapy treatments, these treatments can be started quickly because the recovery time is much shorter.



PEDIATRIC SURGERY

The da Vinci® Robotic Surgery System is also used very successfully in pediatric cases. Thanks to the very small diameters of the instruments used, the patient can move easily within the body. Healing of incisions smaller than 1 cm compared to large incisions in open surgery also enables pediatric patients to recover quickly and return to normal life.

WHY SHOULD ROBOTIC SURGERY BE PREFERRED?



THREE-DIMENSIONAL (3D-HD) IMAGE

The clear images obtained with the robotic surgery system allow the intervention to be performed in the relevant area effectively. The doctor works with a sense of depth in robotic surgery performed with the possibility of a three-dimensional view. Since the camera is under the control of the surgeon, it obtains magnified and clear images of anatomical structures in deep and narrow areas up to 16 times. In this way, complications that may occur during surgery can be minimized.



ADVANCED MOBILITY

The instruments on the arms of robotic surgery can rotate 180 degrees in all directions, similar to the human wrist. These instruments can also be twisted far beyond the mobility of the human wrist and can rotate up to 540 degrees. In this way, it reaches many parts of the body (especially in narrow and small areas) and provides important facilities such as cutting, holding and suturing in critical surgical interventions.



REMOVING THE HAND SHADOW (Tremor Filtration Feature)

The human hand can shake physiologically more or less; However, the sensitive movement ability of robotic surgery's arms eliminates this tremor. In this way, human-made errors can be greatly reduced in interventions in risky areas.



PHYSICAL REQUIREMENTS OF THE SURGERY DURING THE SURGERY

During surgery, surgeons are usually standing, which can make it difficult to stand due to fatigue in long surgical interventions. In robotic surgery, the surgeon manages the operation from the console in sitting position. Meanwhile, while the stress due to physical fatigue decreases, the concentration of the surgeon also increases.



MINIMUM BLOOD LOSS

In the robotic surgery system, blood loss is greatly reduced thanks to the small incisions and the enlargement of even the smallest vessel with a 3-dimensional view. It may even be that there is no need for blood transfusions in some operations. Postoperative pain is greatly reduced in these operations, which are performed with incisions smaller than 1 centimeter.



FAST RETURN TO DAILY LIFE AFTER SURGERY

One of the possibilities of the operations performed with robotic surgery is the shortening of the transition time to daily life. In this way, it provides the opportunity to start these treatments earlier in patients who require chemotherapy or radiotherapy after the robotic surgery system.



SURGERY OF OBESITY PATIENTS WITH ROBOTIC SURGERY SYSTEM

Having a lot of fatty tissue in obese patients can make surgeries very difficult. Robotic surgery system; (urology-cardiology-gynecology-general surgery) is widely used in many fields of medicine and many different operations are easily performed even in morbidly obese patients.

IMPROVEMENT IN PHYSICAL CONDITIONS

The fact that the surgeon manages the surgery while sitting at the console reduces stress due to physical fatigue and increases concentration. This factor is especially important in long-term surgeries.