FOCUS

Robotic surgery – precision with safety

Advanced technology now offers surgeons with ultra-efficient hands and eyes, making surgical procedures simpler and more accurate

Robotic-assisted surgery is a minimally invasive procedure that involves the use of robotic arms with wristed instruments. The robotic system enables the surgeon to view the organs and use the instruments even without a conventional open surgery.

The telescope used in robotic surgery has two eye pieces, thereby capturing the vision as naturally as our eyes. It transmits the visuals electronically to the console of the operating surgeon. They are displayed as natural three-dimensional (3D) images for exact depth perception, so that the operating surgeon can execute precise movements with the robotic arms.

Apart from the accurate 3D image, this technology also provides magnification that aids the fine dissection of tissues to precisely carry out the surgical procedure. The wristed instruments are almost the size of a pen in diameter and have three dimensional pulleys at the operating end. They work better than the human wrist as they are nearly 10 times smaller with larger freedom of movement. Thus very precise cutting and stitching can be carried out.

Using robotic technology, one can operate upon organs placed in remote locations within the abdomen quite precisely without disturbing the other organs. Patients with cancer of prostate, who have been diagnosed at an early stage, require removal of prostate gland and reconstruction of urinary passage.

The prostate gland is located at the bottom of the pelvis and apart from removing it without much blood loss, the aim is to preserve the muscles of control of urination and the nerves responsible for male sexual function. After removal of prostate along with all its coverings, the urinary bladder has to be stitched to the urethra, the tube that carries the urine to the exterior.

This is done with precision by the use of robotic technology. The outcomes of robotic-assisted surgeries have tremendously improved patients' acceptance of the treatment of prostate cancer at early stages. The operations for bladder and kidney cancers are now increasingly being done with robotic technology.

The other major use of robotic technology is to repair and reconstruct internal urinary passages. Certain birth defects involving the kidneys and ureters can now be precisely corrected using robotic technology.

Almost all procedures done using laparoscopy or open surgery can be done robotically. Thanks to the magnified 3D images and the wristed instruments, surgical procedures within the abdomen can be done with improved precision, safety and quicker recovery of the patient.

Using robotic technology, one can operate upon organs placed in remote locations within the abdomen quite precisely without disturbing the other organs.

Dr. Rajesh Taneja

MBBS (1985, MAMC,New Delhi)
MS General Surgery (1990,MAMC, New Delhi)
MCh Urology (1994, AIIMS, New Delhi
Senior Consultant
Urology,Andrology and Robotic Surgery
Indraprastha Apollo Hospitals,
New Delhi
www.drrajeshtaneja.com