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Robotic surgical tools make way for advanced kidney cancer treatment

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Robotic-assisted kidney cancer surgery is a minimally invasive procedure that allows partial or total kidney removal by multiple keyhole incisions. Dr Hemang Bakshi, Consultant & Head, Department of Uro-oncology & Robotic Surgery, HCG Cancer Centre, Ahmedabad reveals more

Kidney or renal cancer occurs when malignant cells grow uncontrollably, clumping into a tumour. The primary location for most kidney cancers is the lining of the tubules, and it is known as renal carcinoma. Many kidney cancers can be diagnosed at the early stages, and it is possible to avert the chances of spreading or metastasizing to distant organs. Thanks to ever-evolving medical advancements, robotic-assisted surgery for treating kidney cancer has gained momentum, owing to less pain and faster recovery.

Kidney cancer is diagnosed by running various blood tests and coordinating the results with other imaging tests like CT-Scan, MRIs, Ultrasound and PET-CT. Some of the prominent MedTech companies in the robotic surgical space are Intuitive Surgical and the robotic surgical tools used are CMR Versius and Medtronic robot.

Treatment

Unlike other cancers, radiation and conventional chemotherapy usually are not effective in treatment. Thanks to medical advancements, the surgical methods in treating kidney cancer ensure a better prognosis. One of the advanced surgical methods is robotic-assisted surgery for kidney cancer.

Robotic-assisted kidney cancer surgery

Robotic-assisted kidney cancer surgery is a minimally invasive procedure that allows partial or total kidney removal by

multiple keyhole incisions. Before the advent of robotic-assisted partial or total nephrectomy, this procedure was done through a single open incision measuring up to several inches across the side of the abdomen and by partially removing the rib.

During the procedure, the surgeon makes small incisions in the body through which he inserts tiny, robotic instruments with a camera on the tip. The large computer screen at the console projects magnified, high-resolution images allowing the surgeon to perform the surgery. In partial nephrectomy, the kidney's blood flow is halted, the kidney tumour is removed and the remaining kidney is preserved. The tumour is then removed through one of the keyhole incisions, and in some instances, the doctor may also extract lymph nodes as a part of the procedure.

Total removal of kidney or radical nephrectomy is recommended in case of large tumours. It is done by inflating the abdomen with carbon dioxide to provide enough space to move away from the colon from the kidney. The surgeon then stops the blood supply, and the affected kidney is removed by a small incision.

Advantages of robotic-assisted kidney surgery

This precise surgical technique gives the advantage of working with increased accuracy, control, and agility, thus preventing blood loss, and ensuring the repair of delicate blood vessels and tissues of the functioning kidney.

Robotic-assisted kidney cancer surgery also provides lesser pain, faster recovery, and shorter stay in the hospital.

Partial nephrectomy decreases the risk of potential kidney failure and assists the other kidney in functioning. Through robotic-assisted surgery, it is possible to retain healthy kidney tissue as much as possible to avoid dialysis, especially in the case of diabetics and high blood pressure patients.

Reconstructed kidneys avert the risk of kidney failure in the future and also serve in the place of damaged kidneys.