Dr. Pakhee Aggarwal, Fortis Memorial Research Institute, Gurgaon, India

Host Institution: Sir Mortimer B. Davis-Jewish General Hospital, Montreal, Canada

Robot-assisted Sentinel Node Mapping in Endometrial Cancer

Abstract

My fellowship pertains to the technique of sentinel lymph node (SLN) mapping in endometrial cancer using robotic surgery. Sentinel lymph node is the first lymph node receiving lymphatic drainage from the primary cancer, in this case uterine cancer. It can be seen as the gatekeeper of other nodes in that area. Lymph from the uterus first travels to this node and then via this node to other nodes. Its status on biopsy (positive or negative for metastatic disease), reflects the overall status of all the surrounding nodes as it is the first node in the lymphatic channel that connects to the cancer. The location of this node is not fixed and can depend somewhat on where the cancer is located within the uterus, as well as the type of cancer (high risk or low risk).

There has been a paradigm shift of endometrial cancer surgery towards keyhole surgery such as robotic /laparoscopic surgery. Part of this surgery traditionally involves the removal of all the draining lymph nodes. However, several large research trials have shown that there is no survival benefit of removing all lymph nodes in terms of prevention of recurrence in patients whom the nodes were negative or those who had low risk cancer. Some have advocated not to remove nodes in low risk patients, as surgery to remove all nodes carries its own added risk. This may include lymph swellings in the abdomen, risk injury to blood vessels and nerves, prolonged surgery and delayed recovery.

Here is where SLN mapping comes in. It serves as the balancing act between removing all nodes vs removing no nodes. This is especially relevant in low risk cancer, as sometimes apparent low risk cancer may turn out to be high risk cancer after complete surgery. Thus, it can help to decide which patients need full lymph node surgery and which do not. The advantages for this in terms of avoiding unnecessary surgical complications, reducing cost and early recovery after surgery are immense. To be able to accurately identify this node, several techniques are available. The one that shows the most promise & has been under research for some time now is the use of a special dye to highlight this node. This dye is called ICG & can be detected by the unique robotic camera during surgery. My fellowship involves the detection of this node using robotic platform & ICG dye. Accurately detecting this node requires training and practice, as this node may sometimes be undetectable. And only a trained mind can differentiate between a 'missing' node and a 'missed' node.