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Editorial

Editorial note on Robotic Surgery

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EDITORIAL

Robotic surgery refers to surgical procedures carried out with the use of robotic technology. The goal of robotically assisted surgery was to overcome the limits of existing minimally invasive surgical procedures and to improve the capabilities of doctors doing open surgery. Instead of moving the instruments directly, the surgeon employs one of two methods to deliver them in robotically assisted minimally invasive surgery. Using a direct telemanipulator or computer control are two options. A telemanipulator is a remote manipulator that allows the surgeon to do all of the regular surgical manoeuvres. To do the actual surgery, the robotic arms use end-effectors and manipulators to carry out those actions. The surgeon utilises a computer to control the robotic arms and end-effectors in computer-controlled systems, while these systems can still require telemanipulators for input. One benefit of adopting the computerised approach is that the surgeon is not required to be present, allowing for remote surgery. The cost of robotic surgery has been criticised, with average expenses ranging from $5,607 to $45,914 per patient in 2007. As of 2019, this approach has not been approved for cancer surgery due to concerns about its safety and use.

The Arthrobot, which was designed and deployed for the first time in Vancouver in 1985, was the first robot to help in surgery. [three] On voice command, this robot assisted in manipulating and positioning the patient's limb. James McEwen, a biomedical engineer, Geof Auchinleck, a UBC engineering physics graduate, and Dr. Brian Day, as well as a group of engineering students, were all directly involved. On March 12, 1984, at the UBC Hospital in Vancouver, the robot was employed in an orthopaedic surgical procedure. In the first year, over 60 arthroscopic surgical procedures were conducted, and the gadget was featured in a 1985 National Geographic movie on industrial robots, The Robotics Revolution. A surgical scrub nurse robot and other related robotic devices were created at the sametime.

In 1985, during a neurological treatment, a robot, the Unimation Puma 200, was utilised to orient a needle for a brain biopsy while under CT supervision. Imperial College in London developed PROBOT in the late 1980s, which was later utilised to perform prostate surgery. The tiny size, accuracy, and absence of tiredness for the surgeon were all advantages of this robot. The latter was the first surgical robot to be approved by the Food and Drug Administration (FDA) in 2008. [7] Integrated Surgical Systems' ROBODOC (developed in collaboration with IBM) may mill accurate fits in the femur for hip replacement. [8] The ROBODOC was designed to replace the old method of carving a femur for an implant, which involved using a mallet and a broach/rasp. With the debut of the da Vinci Surgical System and Computer Motion with the AESOP and ZEUS robotic surgical systems, SRI International and Intuitive Surgical continued to develop robotic systems. [nine] Under the leadership of Robert E. Michler, the first robotic surgery was performed at The Ohio State University Medical Center in Columbus, Ohio. When it was initially released in 1994, AESOP was a game-changer in robotic surgery since it was the first FDA-approved laparoscopic camera holder. The business that makes AESOP, Computer Motion, was initially sponsored by NASA with the purpose of developing a robotic arm for use in space, but the project evolved into a camera used in laparoscopic surgeries.

ZEUS was introduced commercially in 1998, and was started the idea of telerobotics or telepresence surgery where the surgeon is at a distance from the robot on a console and operates on the patient. Examples of using ZEUS include a fallopian tube reconnection in July 1998, a beating heart coronary artery bypass graft in October 1999, and the Lindbergh Operation, which was a cholecystectomy performed remotely in September 2001. In 2003, ZEUS made its most prominent mark in cardiac surgery after successfully harvesting the left internal mammary arteries in 19 patients, all of which had very successful clinical outcomes.

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