

Robotic Surgery in Pakistan: Precision, Progress, and Challenges

Kanza Mehmood, Aakash Kumar

How to cite this Article:

Mehmood K, Kumar A. Robotic Surgery in Pakistan: Precision, Progress, and Challenges. J Bahria Uni Med Dental Coll. 2023;13(4):311
DOI: <https://doi.org/10.51985/JBUMDC2023240>

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non commercial use, distribution and reproduction in any medium, provided the original work is properly cited.

The Da Vinci Surgical (DVS) system, an example of surgery has made significant advancements since its introduction, in 2000. Thanks to state of the art technology surgeons are now able to perform procedures with exceptional precision and minimal invasiveness. These include urological, thoracic and cardiac surgeries, which have revolutionized the field of surgery. One major advantage of this robot is its ability to make incisions leading to reduced operative pain for patients fewer complications and faster recovery. It is important to note that robotic surgery should not be mistaken for robots; rather it empowers surgeons with control, over robotic arms that function as highly advanced surgical instruments.¹

The robotic system comprises three essential components: the patient cart housing robotic arms, the vision cart equipped with camera and lighting controls, and the surgeon's console from where the surgeon directs the robotic arms. These components are interconnected via fiber optics, offering a seamless interface for the surgeon. Furthermore, this technology's potential extends beyond conventional surgery, with the possibility of telesurgery. Notably, the historic transatlantic surgery, Operation Lindbergh in 2001, demonstrated the feasibility of remote surgery using high-speed fiber optic connections. Telesurgery holds promise for addressing medical emergencies during long-duration space missions.²

Robotic surgery has witnessed a surge in utilization over the past few decades, particularly in colorectal surgery. The number of procedures performed with robotic assistance has escalated globally, with numbers surpassing 200,000 cases after 2007. It has revolutionized various medical disciplines, including urology, gynecology, general surgery, cardiothoracic surgery, and colorectal surgery. Surgeons in these fields have leveraged robotic assistance to enhance precision and patient outcomes.³

Robotic surgery adoption in Pakistan initially encountered

difficulties but has advanced significantly. Institutions like Civil Hospital Karachi and The Sindh Institute of Urology and Transplantation have had success with more than 500 procedures, indicating the technology's potential to improve healthcare services in the area. Robotic surgery is being incorporated into the healthcare system, but there are cost obstacles to overcome. In countries with limited resources like Pakistan, public hospitals must carefully weigh the expenses of robotic surgery. While the private sector may offer a more economically viable option, it is essential to ensure equitable access to this advanced technology.^{1,4}

Despite its advantages, robotic surgery presents challenges that warrant consideration. These include the potential for mechanical malfunctions, cybersecurity vulnerabilities, and prolonged surgical durations. Furthermore, the integration of artificial intelligence (AI) introduces complexities related to data security, ethics, and the impact on patient outcomes.⁵

In summary robotic surgery represents an advancement, in technology. It has the potential to improve care expand expertise and tackle healthcare challenges in remote or space constrained settings. To ensure its responsible implementation in countries like Pakistan it is crucial to establish regulations implement quality assurance protocols and raise awareness through campaigns. As we embrace the benefits of surgery we must also prioritize finding an equilibrium, between innovation and ensuring patient safety.

Authors Contribution:

Kanza Mehmood: Idea conception, write up
Aakash Kumar: Proof reading and final approval

REFERENCES:

1. Ullah K, Ochani S, Aaqil SI, Haider R, Nazir A. Current status and challenges of robotic surgery in Pakistan. Int J Surg. 2023;109(3).
2. Ghazanfar S. Robotic Surgery and its use in Pakistan. Vol. 13, Journal of the Dow University of Health Sciences. 2019.
3. Osofsky R, Kamyra C, Hanif H, Phuoc V. A rare cause of lower gastrointestinal bleeding treated with robotic colorectal surgery. Surg Case Rep. 2021;7(1).
4. Ghazanfar S. Robotic Surgery and its use in Pakistan. J Dow Univ Health Sci. 2019 Aug 30;13:53–4.
5. Advanced Urology Institute. Advantages and disadvantages of robotic technology in urology. Advanced Urology Institute 2018. <https://www.advancedurologyinstitute.com/advantages-disadvantages-robotic-technology-urology/> (accessed August 20, 2023).

Kanza Mehmood

4th Year MBBS
Bahria University Health Sciences Campus, Karachi
Email: kanzamhd999@gmail.com

Aakash Kumar (Corresponding Author)

4th Year MBBS
Bahria University Health Sciences Campus, Karachi
Email: akashladdkani@gmail.com

Received: 22-08-2023

Accepted: 19-09-2023