TOPOGRAPHIC ANATOMY IN THE MODERN WORLD

Tukhtanazarova Shavkya Ibadovna
Ph.D., Associate Professor
ZARMED University, Samarkand, Uzbekistan
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Annotation. Topographical anatomy is undergoing rapid development due to the introduction of innovative technologies and an in-depth understanding of the structure and functions of the human body. The article considers new and promising directions of operative surgery and topographic anatomy. It presents data on robotic systems, endoscopy, and laparoscopy, which allow performing complex operations with less trauma and faster patient recovery.

Keywords: operative surgery, topographical anatomy, technology, minimally invasive surgery, 3D visualization, bioprinting, artificial intelligence, personalized medicine.

Relevance. Topographical anatomy are inextricably linked disciplines that play a key role in medicine. Ever-evolving technology and the advancement of our knowledge of the human body are opening new horizons for these fields.

The role of technology

Minimally invasive surgical techniques:

- Robotic surgery: more precise manipulation, less traumatic, faster patient recovery. Robotic surgeons such as da Vinci provide greater precision of movement, improved visibility of the surgical field, and less traumatization of tissue. This is particularly important in areas such as urology, gynecology and cardiac surgery.

- Endoscopic surgery: access to internal organs through small incisions, reducing the risk of complications. Allow complex interventions to be performed through small incisions, which shortens recovery time and reduces the risk of complications.

- Laparoscopic surgery: Widely used in various fields of surgery, including general surgery, gynecology and urology.

3D visualisation:

- Preoperative planning: 3D modeling allows the surgeon to study the patient's anatomy in detail and plan the operation with high precision.

- Intraoperative navigation: Real-time navigation systems help the surgeon navigate the surgical field and avoid damage to important structures.

Bioprinting:

- Creating tissues and organs: Bioprinting technology holds promise for creating artificial tissues and organs for transplantation, which could solve the problem of organ donor shortage.

Artificial Intelligence

- Medical Image Analysis: Analysing big data to uncover new anatomy and surgical practice patterns. AI enables fast and accurate analysis of medical imaging results, identifying pathological changes.

- Robotic Surgical Systems: Developing algorithms to automate routine operations and improve diagnostic accuracy. AI is being used to control robotic surgeons and optimize surgical procedures.

New directions in topographical anatomy

Personalised anatomy:

- Personalised Anatomy: Creating individual patient anatomical atlases using medical imaging data allows for more accurate surgical planning. More accurate surgical planning.

Functional anatomy: The study of the relationship between anatomical structures and their functions opens new opportunities for the development of more effective surgical methods. Development of new methods of surgical treatment that take into account the functional features of organs and tissues.

Developmental Anatomy:

* Study of changes in human anatomy throughout life.

* Development of new approaches to the treatment of congenital anomalies and diseases associated with developmental disorders.

Challenges and Perspectives

- Ethical issues:

* Application of new technologies in surgery requires addressing ethical issues related to artificial intelligence, genetics and other areas.

Training of professionals:

* The need to constantly update the knowledge and skills of surgeons and anatomists.

* Development of new educational programs that take into account the achievements of modern science and technology.

Availability of technology:

* The high cost of new technologies may limit their availability to many patients.

* It is necessary to look for ways to reduce the cost and increase access to innovative treatment methods.

Recent years have seen rapid advances in operative surgery and topographical anatomy, driven by the introduction of new technologies and an increased understanding of the human body.

Conclusion. Topographical anatomy is on the threshold of discoveries. The combination of traditional knowledge and modern technologies will increase the efficiency of surgical treatment, improve the quality of life of patients, and open new opportunities for the development of medicine.

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