

Laparoscopic surgery

Laparoscopic surgery is a modern branch of surgery in which surgical procedures are performed with the help of optical instruments, the instruments being inserted through small incisions (usually 0.5-1.5 cm).

The operation takes place by first introducing an *insufflation cannula* (Veress needle) around the navel, which is connected to an insufflation pump via a tube. Filling the abdominal cavity with CO₂ is achieved pneumoperitoneum. The gas lifts the abdominal wall and creates space for the free movement of laparoscopic instruments. Surgical instruments (various forceps and handpieces) together with a digital camera with a light source guided by optical fibers are introduced through the other openings in an airtight manner using trocars. The image is transferred to the monitor.



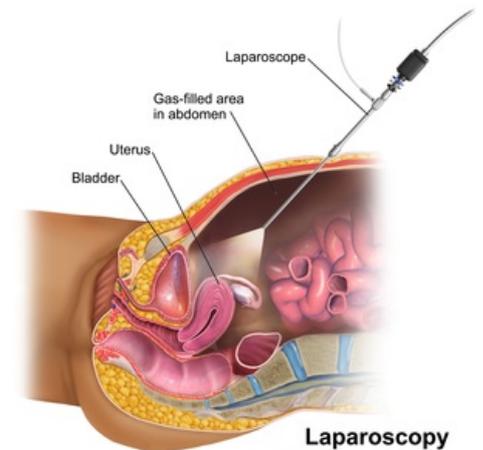
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Advantages of laparoscopy compared to classic invasive surgery

- reduced bleeding
- smaller incisions, reducing recovery time after surgery
- less soreness
- less exposure of internal organs to the external environment and thus reduced risk of infection

Risks

- injury to vessels or intestines with a trocar, which is usually inserted blindly
- insufflation puts pressure on the n. phrenicus, which leads to shoulder pain
- the risk of hypothermia due to the introduction of cold gas into the abdominal cavity (can be reduced by preheating the gas)
- more difficult breathing due to residual gas



Laparoscopy

Robotic operations

Closely related to laparoscopic surgery are robotic operations, which are performed by a robot controlled by joysticks. The most famous robot at the moment is **Da Vinci**. Robotic operations are mainly used in hard-to-access or small places, where a classic operation would risk damaging the surrounding structures. The robot eliminates hand tremors and is much more precise, allowing a greater range of tool movements. Unlike classic laparoscopy, thanks to the double image, the operator is given a "three-dimensional view" of the body.

Robotic operations minimize the patient's return time to normal life. In our country, the Da Vinci system is used most in urology (prostate and kidney surgery), abdominal surgery (resection of the stomach, intestines and rectum) and vascular surgery (reconstruction of the abdominal aorta and pelvic arteries).

Links

Related articles

- Laparoscopic cholecystectomy
- Laparoscopic hysterectomy

References

- NAVRÁTIL, Leoš – ROSINA, Josef. *Medicínská biofyzika*. 1. edition. Grada, 2005. 524 pp. ISBN 80-247-1152-4.