EXPERIENCE IN PERFORMING 150 OPERATIONS ON THE AORTO-ILIAC-FEMORAL SEGMENT USING THE DA VINCI ROBOT

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Purpose. Evaluation of the effectiveness of robotic surgery for aneurysms, stenoses and occlusion of the abdominal aorta and iliac arteries.

Materials and methods. A prospective analysis of Lerish syndrome treatment (n=108), manifested by chronic arterial insufficiency of the III-IV degree according to A.V. Pokrovsky-Fontaine, and abdominal aortic aneurysm II-III type according to A.V. Pokrovsky (n=42). Indications for surgical treatment were: 1. Critical ischemia of the lower extremities among patients with aorto-iliac segment occlusion (type C and D according to the TACS 2 classification); 2. Calcification of the abdominal aorta, lack of technical possibility of performing aorto-femoral bypass surgery (in cases of thoraco-femoral bypass surgery); 3. Aneurysm of the abdominal aorta and iliac arteries more than 4.5 cm for women and 5 cm for men.
The operations were performed using the da Vinci Xi Robotic Surgical Complex (RSC). Patients got 4 trocars for RSC manipulators and 2 assistant trocars, then transferred to the Trendelenburg position for cranial intestinal movement . During thoraco-femoral bypass surgery (n=17), the patient was on the right side with the left arm withdrawn, the operation was performed in three stages: abdominal, thoracic, and the stage of formation of distal anastomoses. Thoraco-femoral bypass surgery (n=17), aorto-femoral bifurcation bypass surgery (n=21), linear aorto-femoral bypass surgery (n=70) were performed among patients with Lerish syndrome. In 16 cases, distal anastomosis from the common femoral artery was formed using a "sub-groin" approach. Patients with abdominal aortic aneurysm underwent aorto-femoral quadrifurcation prosthetics (n=2), aorto-femoral bifurcation prosthetics (n=22), linear aortic prosthetics (n=14), prosthetics of the common iliac artery (n=4).

Results. In the postoperative period, bleeding from the intercostal artery (n=1) and from the trocar opening (n=1), thromboembolism of the arteries of the lower extremities (n=4) were observed. These complications required repeated surgical intervention. One case of fatal outcome was recorded after performing toracofemoral bypass surgery. The results of this method of treatment were confirmed by triplex scanning of the arteries of the lower extremities and control CT angio.

Conclusion. 1. The use of da Vinci RSC in vascular surgery allows to preform reconstructions on the abdominal aorta and iliac arteries, thereby reducing traumatization, risks of infection complications, the volume of blood loss and reduces the duration of hospitalization and improves the rehabilitation period. 2. Due to the short learning curve, the duration of robotic operations on the aorto-iliac segment and the time of compression of the aorta and arteries does not exceed those for open reconstructive operations. 3. The blood loss volume and the period of rehabilitation in patients after performing robot-assisted operations is significantly lower than with open interventions. 4. The disadvantages of this method include the lack of tactile feedback and the high initial cost of the surgical complex.