DIAGNOSIS AND TREATMENT OF THE RETROPERITONEAL EXTRA-ORGANIC TUMORS

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Abstract. Retroperitoneal extra-organ tumors – are neoplasms that do not emanating from the organs developing from soft tissues of retroperitoneal space. More than 40% of cases, after the intraoperative revision the volume and tactic of surgery is changed. That requires improvement of methods of diagnosis and surgical treatment of extra-organ retroperitoneal tumors is the aim of the present study. Department of Abdominal Surgery of NRCO regarding to extra-organ retroperitoneal sarcomas had been 309 patients. From them 208 (67.3%) patients underwent surgery for benign tumors – 46 (22.2%), malignant – 162 (77.9%). The most serious complications are: bleeding (without injury of large vessels or as a result of injury of large main vessels); consequences of a massive blood transfusion (fibrinolysis, DIC). General intra- and postoperative complications were in 16.4%. The intraoperative complications were in 11.5%, and the postoperative complications were in 4.8% patients. Relapses of not organ tumors after radical surgery revealed within five years in 60.8% cases: respectively, in 26.3% of patients with benign tumors and 73.7% – with malignant, and in most patients (52%) tumor recurrence occurred within the period of 18 months after surgery. In conclusion, it should be noted that at extra-organ retroperitoneal tumors, there is no standard operating procedures. Any of them, especially in locally advanced tumors, associated with the possibility of complications.

Keywords: retroperitoneal, tumors, extra-organ, surgery, sarcomas, complications, anastomosis, nephropexy, abdominal, malignant, relapses, Retroperitoneal extra-organ tumors.

The relevance
Retroperitoneal extra-organ tumors (RET) – are neoplasms that do not emanating from the organs developing from soft tissues of retroperitoneal space. RET are soft tissue sarcomas. Among soft tissue sarcomas on the proportion of retroperitoneal tumors comes 10(15% /1.3/. The proportion of RET among cancer pathologies compose 0.2(0.4%. RET is a heterogeneous group of tumors that are classified according to the microscopic features, the degree of differentiation of tissues and biological potential. They are classified in three main groups according to their histogenesis: RET from mesodermal origin, from ectodermal origin and from embryonic remnants.

Diagnosis and treatment of RET is an extremely difficult task. RET of mesenchymal origin characterized by rapid and aggressive growth. If we consider that RET more than in 30% of cases may metastasize to other organs then they often are detected at an advanced stage. Existing methods of diagnosis, review and contrast x-rays of the abdominal cavity, MRI, CT, ultrasound and other tests, which are conducted within the framework of the standard, although they can generally be characterized primary retroperitoneal tumor, but more than 60% give of false positive information on the degree of tumor invasion to adjacent organs and structures, particularly in the main vessels /2.11/.

In this regard, more than 40% of cases, after the intraoperative revision the volume and tactic of surgery is changed. That requires improvement of methods of diagnosis and surgical treatment of extra-organ retroperitoneal tumors is the aim of the present study.

Materials and methods
From 2004 to 2014 at the Department of Abdominal Surgery of NRCO regarding to extra-organ retroperitoneal sarcomas had been 309 patients. From them 208 (67.3%) patients underwent surgery for benign tumors – 46 (22.2%), malignant – 162 (77.9%). Men – 115 (61%), women – 93(39%), age of the patients ranged from 16 – 77 years.
The vast majority of patients were younger than 60 years – 188 (90.4%). This fact – the development of RET, mainly in patients of working age, makes this issue particularly the socio-economic importance. According to the classification in 172 (82.7) patients were revealed mesenchymal, 28 (13.5%), neurogenic and 8 (3.8%) embryonal tumors.

In order to clarify the diagnosis and extent of RET in addition to traditional research, since 2008, our practice is widely used MSCT with contrast the inferior vena cava and the aorta with visceral branches, as well as diagnostic laparoscopy in order to clarify the true involvement of the tumor into adjacent structures, and generally to determine the resectability of the process and the scope of intervention, except for a giant tumor does not allow laparoscopic exploration.

In the study of the local prevalence of RET it found that 58 (27.8%) took one anatomical area, at 117 (56.2%) – two and 33 (15.8%) – three or more. The size of tumors in greatest dimension on average consisted 20.2 cm. These data clearly indicate that in the clinic concentrated patients with locally advanced cancer.

The main method of treatment of primary extra-organ retroperitoneal tumors is surgical.

In our observations 254 patients were subjected to surgical intervention of which 208 (81.9%) was made the removal of the tumor, in 46 (18.1%) patients the operation have ended with exploratory laparotomy. Malignant tumors accounted for 162 (77.8%), benign – 66 (22.7%). Of these radical surgeries was made at 64.8% of the patients, palliative 26.7% and cytoreductive– 8.3% of patients. Of these at 52.8% operations had carried combined character.

The most crucial moment of the operation is the selection of the tumor and the so-called "a trial mobilization of tumor", during which cautiously is carried out tentative revision, establishes a connection of the tumor with surrounding organs and vital structures, imposing a provisional ligature for large vessels, and in principle solves a question about the volume and nature of surgical intervention (9,10). At the same time a rough dislocation into the wound even a mobile tumor is unacceptable. The famous American surgeon P.H. Sugarbaker (1992) advices to adhere to tactics of "the centripetal direction of dissection", consisting in the fact that "... the surgeon must repeatedly move by the circumference of the tumor, as an employee who uprooting the tree and gradually releasing the root, which in the end will be intersected with an ax." (Fig. 1).

![Fig. 1. a, b. Macropreparations of retroperitoneal tumor.](image)

![Fig. 2. Macropreparations of retroperitoneal tumor after combined surgery.](image)
Radical surgery involves the removal of a single block of primary retroperitoneal tumor and surrounding structures affected by the mobilization of tissue outside the tumor pseudocapsule. With the involvement in the process of tumor adjacent organs (kidney, spleen, pancreas, adrenal glands, stomach, duodenum, small intestine, colon, rectum, bladder, uterus, uterus, vagina), or their feeding vessels, during radical surgery are performed combined intervention with the removal or resection of the said bodies (Fig. 2). In our study, in 52.8% of cases have been made combined surgical interventions. The main components of the combined intervention were: small and large intestine and mesentery, liver, spleen, kidneys, ureters, front and side walls of the abdomen, great vessels, ovaries, bladder, pancreas and others.

Major arterial vessels can be resected with the replacement of the defect with an allograft. The lower hollow Vienna below the renal veins may be tied (if the obstacle to a radical removal of the tumor is the only of its involvement in the process). According to different authors (Morandeira et al., 2008; Lopez-FandoLavalle et al., 2007; Teo, Chow and Soo, 2005), combined radical surgery performed in 17-39% cases of benign or malignant retroperitoneal tumors, while malignant only to 48.1%. With the involvement in the process of tumor adjacent organs (kidney, spleen, pancreas, adrenal glands, stomach, duodenum, small intestine, colon, rectum, bladder, uterus, uterus, vagina), or their feeding vessels, during radical surgery are performed combined intervention with the removal or resection of the said bodies. In our study, in 52.8% of cases have been made combined surgical interventions. The main components of the combined intervention were: small and large intestine and mesentery, liver, spleen, kidneys, ureters, front and side walls of the abdomen, great vessels, ovaries, bladder, pancreas and others. In 12 (16%) cases was detected invasion to the great vessels, in 3 cases invasion to the iliac arteries and veins, in 4 cases to the abdominal aorta, and in 5 cases to the inferior vena cava, in which 2 patients had invasion to above and in 3 patients below the renal veins. In all 3 cases with invasion into the iliac artery was made resection of common and the external iliac artery with iliac-femoral prosthetic repair (Fig. 3).

Fig. 3. Resection and iliac-femoral prosthesis repair during the germination of tumor to the external iliac artery.

In 2 cases of 3 during the germination the aorta was made resection of the aorta with a prosthetic repair, and 1 case of resection margins with the plastic of wall of the aorta. In all five cases, the tumor invasion into the inferior vena cava had been made resection and plastic of vessel walls. 10 (4.8%) of patients had resection of the ureter as element of combined operation, length of resection was from 2 to 10 cm, on the right – 6, left – 4. In 5 cases it was possible due to the mobilization of the ureter urethra to overlay urethra-urethra anastomosis. In 3 other cases, when the defect of the ureter, is from 8 to 10 cm, we have developed unique ways to restore the defect. In the event of a defect in the 8 cm of the right arm was cut off the appendix from the cecum with preservation of the mesentery, using mobile the ileocecal angle the urethra defect restored by appendicular appendage forming appendicitis-urethral anastomosis. (Fig. 4)

In 2 cases with 6 sm defect was performed the full mobilization the left kidney with renal artery, vein and the proximal end of the ureter, due to this has been bring down the left kidney as a whole by 6 cm and to form urethra-urethra anastomosis with nephropexy. In the third case, a similar situation with 5cm defect of the urethra, the urethra continuity is restored, through the mobilization of the right corner of the bladder. (Fig. 5)
Fig. 4. Replacement of ureter defect Figure. 5. Bringing down of the left with appendicular appendage. kidney for the recovery of defect of ureter.

**Discussion of the results**

Quite important question of the operative complications that can occur in every fourth or fifth patient, the postoperative lethality according to various authors is 8-25%. The most serious complications are: bleeding (without injury of large vessels or as a result of injury of large main vessels); consequences of a massive blood transfusion (fibrinolysis, DIC). When adjacent vessels could be injured and it causing diffuse bleeding from the tumor bed, especially during intra-capsular separation the standard tactics is missing. Frequently attempt to stop the bleeding by electrocoagulation or suturing bed, surgeons are losing precious time, during which time there is a considerable bleeding. In our practice, in 16 cases, especially in allocation intracapsular we observed diffuse bleeding. Attempt to coagulate and stitch up the wound bed, ended unsuccessfully. To successfully stop bleeding we used tight tamponing tumor bed with meter long swab, depending on the diameter of the tumor bed – end of the tampon is displayed on the front abdominal wall through counterpuncture sequentially and labeled. Tampons we leaved for 6-7 days, depending on the reaction of the organism and the emergence of the sliming. Tampons are removed sequentially, first the most superficial, afterwards in the middle and in the end the lowermost.

Out of the 16 patients who used the method of tight tamponade, one patient died as a result of DIC syndrome. To the others 15 patients after tamponade has been provided stable stop bleeding. Tampons as indicated, were removed at 6-7 hours under short no inhalation anesthesia. No complications were observed.

General intra- and postoperative complications were in 16.4% (34 patients). The intraoperative complications were in 24 (11.5%), and the postoperative complications were in 10 (4.8%) patients. The intraoperative complications: in 16 patients there was diffuse bleeding from the tumor bed during the mobilization and removal of the tumor, in 2 patients was massive bleeding as a result of damage to major vessels, in 3 cases – the damage of the integrity of the intestine, in 2 – bladder and 1 – spleen. During the postoperative period complications structure directly related to the operation itself was as follows: bleeding from the resected tumor bed-3, external colonic fistula was formed from colo-colo anastomosis-1, paralytic ileus in 2, pancreatitis in 2 in 1 thromboembolism, acute cardiovascular failure in 1 patient. Intraoperatively died 1 (0.4%) patient from the acute cardiovascular failure, due to the continuous bleeding and disseminated intravascular coagulation syndrome. During the postoperative period died 5, 2 cases from the intra-abdominal bleeding, 1 – from thromboembolism, 1 – from myocardial infarction, and 1 patient after relaparotomii to close the intestinal fistula. Postoperative mortality was 2.4%. In our observations, the five-year survival in retroperitoneal tumors after radical surgery was 41.3%, after non-radical – 9.6%.

Relapses of not organ tumors after radical surgery revealed within five years in 60.8% cases: respectively, in 26.3% of patients with benign tumors and 73.7% – with malignant, and in most patients (52%) tumor recurrence occurred within the period of 18 months after surgery.
Conclusion

In conclusion, it should be noted that at extra-organ retroperitoneal tumors, there is no standard operating procedures. Any of them, especially in locally advanced tumors, associated with the possibility of complications. Surgical team that performs such an operation must equally possess skills in all abdominal and retroperitoneal space and on the vessels. These operations are possible only with highly professional resuscitative-anesthetic service and adequate logistical support.

References


