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Modern Approaches to the Removal of Large Benign Tumors by Minimally Invasive Techniques

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Abstract
Background:
Despite the considerable clinical experience of endoscopic polypectomies and the variety of specially developed techniques (EMR, ESD, ligature resection, etc.), there are disagreements about the possibilities and limits of the use of endoscopic interventions in thoracoabdominal surgery, relating mainly to the permissible size of benign tumors and the width of their base.
The aim of the work is to study the possibilities and prospects of application of fragmentary and stage-by-stage removal of large size benign tumors by using minimally invasive endoscopic technologies.
Methods:
The examination included 36 patients with large respiratory and digestive system tumors, who were treated and operated with flexible endoscopic technique in the Department of Operative Endoscopy of the state institution "Zaitsev IGES of the NAMS of Ukraine". The majority were patients with pathology of the digestive tract (32 patients), some of whom were hospitalized by urgent indications with the clinic of acute violation patency of organ (esophagus – 3 and large intestine – 5).
Justification for fragmentary removal of the tumors was such cases: a tumor size is bigger than the diameter of the tool (loops); the inability to complete capture of the tumor; the absence of visibility across the surface of the tumor with the risk of thermal damage of the adjacent wall of the organ; the broad base of the tumor with absence or inability of formation of the "legs" of the tumor.
The research established the following justification to phased tumor removal: surgical interventions for urgent indications, the purpose of which on the first phase is a relief of manifestations of acute surgical pathology; poor visualization of the surgical field after the removal of the part of the tumor; the absence of a total confidence in the purity of the tumor; the maintenance of optimum of the duration of surgery for patients with high anesthetic risk.
The conditions for the possibility of minimally invasive intervention were: comprehensive and maximally complete examination of the patient (as for open surgery); preoperative prediction of the risks of minimally invasive intervention and possible complications after it (necrosis of the organ wall, bleeding, etc.); preoperative prediction of the risk of conversion (endoscopic to thoraco-laparoscopic or to open surgery) and their tolerability by the patients; manning endoscopic, surgical and anesthesiological teams with prediction of instantaneous conversion in case of impossibility of minimally invasive tumor removal or in case of occurrence of acute complications that are not corrected endoscopically; availability of the possibility of endoscopic intervention in a specially equipped operating room that meets the needs of endoscopic, surgical and anesthesiological teams with a full set of appropriate equipment.
Results:
The goal was achieved with all patients – a large tumor was removed, including the purpose of restoration of patency of the corresponding organ. Fragmentary one-stage removal of tumors was carried out in 12 patients with mandatory subsequent histological examination of the fragments. Two- and three-stage removal was carried out in 24 patients with periods between sessions of interventions from one day to several weeks.
Conclusions:
In case of large tumor sizes, the fragmentary removal with the possibility of performing intervention in two or more stages in terms of several days to several weeks is justified. It is expedient to concentrate patients with this pathology in specialized departments of operative endoscopy, staffed by a trained staff of endoscopic surgeons, the necessary high-tech endoscopic equipment and tools and the availability of round-the-clock opportunities for urgent open surgical interventions.

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