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ALGORITHM FOR DIAGNOSIS OF EXTRAORGAN RETROPERITONEAL CYSTS

In order to determine the optimal diagnostic tactics in patients with extra-organ cysts of the retroperitoneal space, the results of examination of patients who received treatment at the Tver Regional Clinical Oncological Dispensary in 2013 - 2020 were analyzed. The informative value of a set of diagnostic methods was assessed according to the following criteria: determination of the type of cystic formation and identification of complications. It was found that the optimal set of diagnostic methods: ultrasound, CT and / or MRI of the abdominal cavity, small pelvis and retroperitoneal space, diagnostic cyst puncture under ultrasound control followed by cytological examination, excretory urography

Keywords: extraorgan cysts of the retroperitoneal space, true and false cysts, diagnostic puncture under ultrasound control, cytological examination.

Background. Extraorgan cysts of the retroperitoneal space (ECRS) are cysts located in the retroperitoneal fatty tissue that are not associated with any mature anatomical structures, except for loose connective tissue [1, 2]. There are true ECRS with epithelial lining, and false ones, the wall of which is not lined with epithelium [4]. Until now, there are no unified approaches to the choice of diagnostic tactics and treatment method [3, 5].

The development of diagnostic capabilities in medicine makes it possible to increase the detection rate of rare pathological conditions, to which numerous researchers refer to ECRS [3, 5, 6]. At the same time, there is a tendency towards an increase in the incidence [1- 3]. It is important to note that the increase in incidence is mainly due to false cysts.

The aim of the study is to determine the optimal diagnostic tactics in patients with ECRS.

Material and methods. The results of examination of 61 patients aged 31 to 70 years were analyzed, of which 39 (63.9%) were men, 22 (36.1%) were women who received treatment at the Tver Regional Clinical Oncological Dispensary in 2013 - 2020. The age group from 51 to 70 years old accounted for 54/61 (88.5%) patients. The age structure of patients is presented in more detail in table. 1.

In accordance with the research methods, the patients were divided into 3 groups: 32 (52.5%), 19 (31.1%) and 10 (16.4%) people (Table 2). In the first group, patients underwent ultrasound, CT and / or MRI of the abdominal cavity, small pelvis and retroperitoneal space. In the second group, in addition to the methods of examining the patients of the first group, diagnostic puncture of the cyst under ultrasound control and cytological examination of the cystic contents were also performed. In the third group, in addition to the examination methods, patients from the first and second groups also underwent excretory urography (EU). The informativeness of a set of diagnostic methods was assessed according to three criteria: determination of the type of cystic formation; identification of complications of the disease; determination of the belonging of cysts to extraorganic formations at the diagnostic stage.

Results. When assessing the dynamics of the incidence of CKD, attention is drawn to the fact of an increase in the number of detected false cysts, mainly due to lymphocele (Fig. 1).

Complaints were noted in 14 (23%) patients, of which the most frequent was abdominal discomfort (6 (9.8%) patients), urinary retention was also noted (3 (4.9%) patients), body temperature rise to 38 ° C and higher (2 (3.3%) patients), pain syndrome (2 (3.3%) patients), of which 1 pa-

Table 1

The age structure of patients with extraorganic retroperitoneal cysts

Age	Gender of patients				Total	
	Males		Females			
	n	%	n	%	n	%
31 – 40	-	-	1	1.6	1	1.6
41 – 50	2	3.2	3	5	5	8.2
51 – 60	20	32.8	15	24.6	35	57.4
61 – 70	16	26.2	3	5	19	31.2
70 and older	1	1.6	-	-	1	1.6
Total	39	63.9	22	36.1	61	100

Table 2

The distribution of patients in the comparison groups

Research method	Comparative groups			Total n (%)
	I n (%)	II n (%)	III n (%)	
Ultrasound	32 (52.5)	19 (31.1)	10 (16.4)	61 (100)
CT	22 (36.1)	11 (18.0)	8 (13.1)	41 (67.2)
MRI	10 (16.4)	8 (13.1)	4 (6.6)	22 (36.1)
Diagnostic puncture	-	19 (31.1)	10 (16.4)	29 (47.5)
Cytological examination	-	19 (31.1)	10 (16.4)	29 (47.5)
Excretory urography	-	-	10 (16.4)	10 (16.4)
Amount of patients in the group	32 (52.5)	19 (31.1)	10 (16.4)	61 (100)

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tient had girdle pains, another 1 had pain in the left iliac and lumbar regions with irradiation to the right lower limb.

By localization, most of the cysts were pelvic (below the iliac arteries) - 39 (63.9%) cases. Among other localizations, infrarenal left-sided - 9 (14.7%), infrarenal right-sided - 6 (9.8%), suprarenal left-sided - 2 (3.3%), peripancreatic (prevailing component in the retroperitoneal space) - 2 (3, 3%), suprarenal right-sided - 1 (1.6%), parapancreatic (the prevailing component in the abdominal cavity) - 1 (1.6%) and central - 1 (1.6%) observation.

Complications developed in 8 (13.1%) patients: unilateral subrenal block - in 4 (6.6%), bilateral subrenal block - in 2 (3.3%), cyst suppuration - in 2 (3.3%), secondary pyelonephritis - in 1 (1.6%) patient with unilateral hydronephrosis.

Instrumental studies are presented in table. 3. The dimensions of the VKZP varied from 39 mm to 152 mm in the largest dimension. Large cysts (more than 100 mm) were noted in 4 (6.6%) cases.

Puncture and cytological examination made it possible to obtain data on the type of neoplasms (primary or secondary cyst): 18/19 and 9/10 patients. Without puncture, the cyst type was identified only in 13 (40.6%) / 32 patients. The belonging of formations to extraorgan cysts at the diagnostic stage was determined in 27 (87%) / 31, 16 (84.2%) / 19, 8 (80%) / 10 cases, respectively (p> 0.05).

The belonging of formations to extraorgan cysts at the diagnostic stage in the first group was determined in 27 patients, in the second group - in 16, in the third - in 8 (p> 0.05).

In 1/29 (3.4%) of cytological examinations of cystic contents, atypical cells of the transitional epithelium were revealed, which was an indication for the appointment of a number of additional examinations: plain radiography and CT of the lungs, as well as cystoscopy. No pathology of the bladder or lungs was found.

Discussion. In the previously encountered works of both domestic and foreign authors, the diagnosis and treatment of ECRS is presented in the form of sporadic observations [7, 8, 9]. Some clinicians consider ECRS either in combination with extra-organ retroperitoneal tumors, or with cysts of the retroperitoneal space, which have an organ affiliation, which does not allow tracing the optimal diagnostic algorithm [3, 5, 7].

It should be noted that the absence of early symptoms creates difficulties in diagnosis [8]. Today, modern diagnostic capabilities provide us with full information about the patient's condition, using mainly non-invasive research methods [9]. However, not always the correct diagnosis can be made before surgery [1, 11, 12]. Due to the anatomical features of the retroperitoneal space and the absence of a specific clinical picture of its cystic lesion, differential diagnosis of retroperitoneal cysts remains difficult even during surgical intervention, and in some cases the answer to the question of the organ belonging of the cyst can only be provided by histological examination.

Diagnostic laparotomy was one of the first methods for diagnosing ECRS, widespread at the beginning of the 20th century [13]. Ultrasound is widely used to diagnose liquid formations of the retroperitoneal space, both organ and extraor-

Table 3

Diagnostic tools conducted before treatment

Research method	Gender				Total	
	Males		Females			
	n	%	n	%	n	%
Ultrasound	39	63.9	22	36.1	61	100
CT	26	42.6	15	24.6	41	67.2
MRI	11	18.0	11	18.0	22	36.0
Excretory urography	4	6.6	6	9.8	10	16.4
Diagnostic puncture with ultrasound	16	26.2	13	21.3	29	47.5
Cytological examination	16	26.2	13	21.3	29	47.5

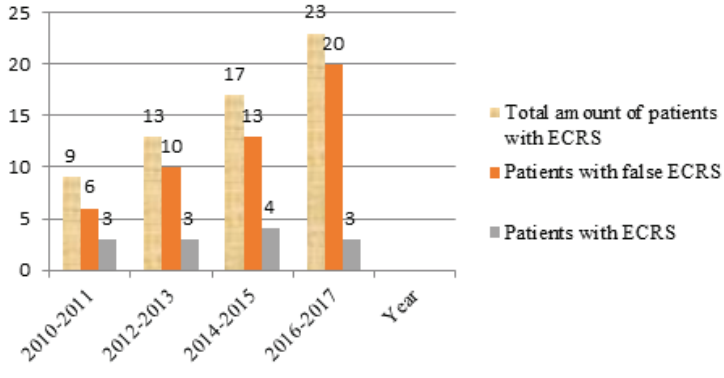

Fig. 1. The dynamics of the incidence from 2010 to 2017

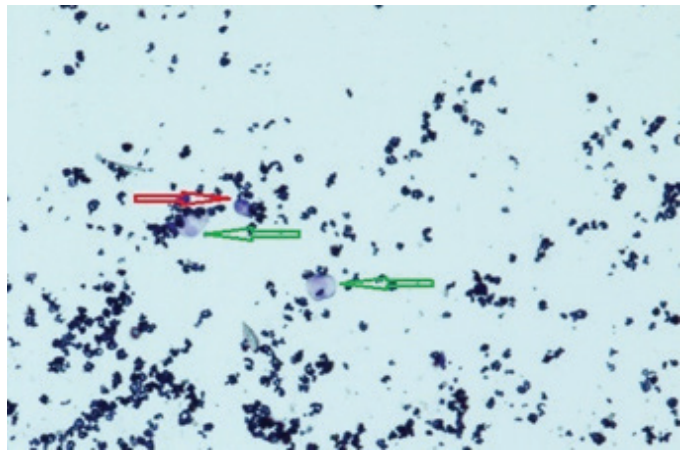

Fig. 2. Photocytogram of the cystic content of a secondary EORC. Coloring by Pappenheim. Magnification × 200. Among a large number of erythrocytes the single macrophages (green arrows) and neutrophils (red arrow) are found. Epithelial cells are absent.

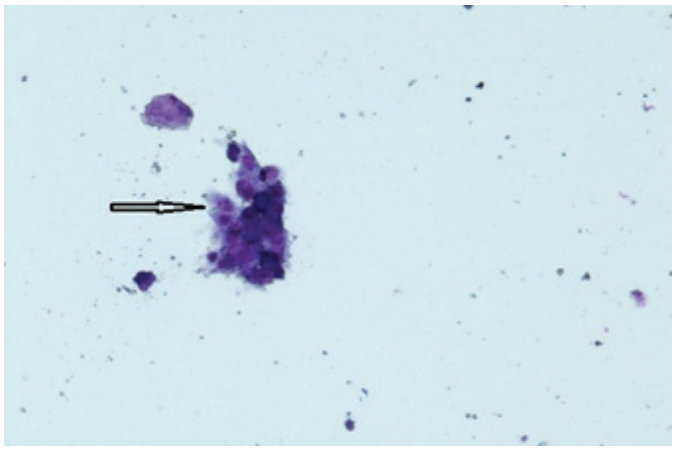

Fig. 3. Photocytogram of the cystic content of a primary EORC. Coloring by Pappenheim. Magnification × 200. The arrow indicates the accumulation of cells of the cubic epithelium, indicating the presence of an epithelial lining

ganic origin [3]. The advantages of ultrasound are undoubtedly the possibility of multiple studies (dynamic observations), availability and relatively high information content [4]. The widespread use of CT and MRI in medicine has significantly improved the diagnosis of neoplasms, namely, to determine their more accurate localization, relationship with surrounding organs and structures, density and size, which made it possible to increase the detectability of retroperitoneal cysts [1, 2, 13]. Another research method is excretory urography (EU), which has minimal diagnostic value, but with large cysts it helps to assess renal function [1, 8, 13].

Undoubtedly, conducting a diagnostic puncture of ECRS under ultrasound control followed by cytological examination before starting treatment of the patient in most cases allows to determine the nature of the cystic formation. In the studied literature sources, the puncture of the ECVP is described in one of the observations [8]. The rare use of puncture at the diagnostic stage may be due to the lack of a unified diagnostic algorithm.

There were no differences between the groups in the diagnostic aspect of identifying complications of ECRS ($p > 0.05$).

From the results obtained, it should be noted that diagnostic puncture under the control of ultrasound and cytological examination of cystic contents (groups II and III) significantly increases the reliability of determining the presence or absence of the epithelial lining of cystic formation: 18 (94.7%) and 9 (90%) observations against 13 (40.6%) ($p < 0.05$).

The cellular composition of the cystic contents makes it possible to assess the type of cyst - true or false (Fig. 2 and 3). Thus, the presence of epithelial cells during cytological examination indicates the presence of an epithelial lining.

Diagnostic puncture under ultrasound control followed by cytological examination of the cystic contents did not improve the rates of complications detection and determination of the formation belonging to ECRS at the diagnostic stage. It is important to note that the results of EU (group III) did not affect the determination of the type of cyst, its complications or organ affiliation, but supplemented the information picture when choosing the scope of treatment.

Conclusion. The results obtained showed that for clinical use in the diagnosis of ECRS, the most appropriate is a list of studies of diagnostic groups II and III, namely ultrasound of the abdominal cavity, small pelvis and retroperitoneal space, CT and / or MRI of the abdominal cavity, small pelvis and retroperitoneal space. diagnostic puncture of the cyst under ultrasound control, cytological examination of cystic contents and EI, which made it possible to obtain more accurate information about the nature of cystic formations.

Particular attention should be paid to diagnostic puncture under ultrasound control, followed by cytological examination of the cystic contents, since this study allows you to determine not only the origin of the cyst, but also the presence or absence of atypical cells.

EI, although it did not affect the definition of the main diagnosis, significantly supplemented the information picture of the functional state of the kidneys.

The above diagnostic measures can become the basis of a modern diagnostic algorithm for detecting cysts of the retroperitoneal space.

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