



Results of Complex Surgical Treatment of Appendicular Peritonitis in Girls

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ABSTRACT

Acute peritonitis is one of the biggest sequela of abdominal cavity organ diseases. During puberty girls are especially vulnerable forasmuch as peritonitis registered in this age may lead to chronic salpingitis, adhesive process in cavum abdominis and connected with it tubal-peritoneal infertility in 25-33% of cases. The implementation of the suggested surgical treatment and aftercare measures among girls with appendicular peritonitis allows to reduce the risk of adhesive process development from 21, 4% to 8,1% and the quantity of relaparotomy from 5,1% to 0.5%.

KEYWORDS: appendicitis, peritonitis, girls, pediatric surgery.

INTRODUCTION

Acute peritonitis is one of the most severe complications of diseases of the abdominal cavity. The first place among them is occupied by acute destructive appendicitis. At the same time, in girls, the pelvic organs - the uterus and its appendages - are involved in the pathological process. The increase in the incidence of appendicitis statistically coincides with the second phase of puberty, when sensitivity to pathological influences is high in all parts of the reproductive system, which further aggravates the problem. The main purulent-inflammatory process in this case occurs in the pelvic region, which in the future can lead to a violation of the reproductive function in future women [1, 2, 3].

Currently, a concept of the development of the pathological process has been formed in numerous literature, including three groups of unfavorable factors: mechanical, adhesive and humoral. Mechanical factors include foreign materials (knots of threads, blood clots and others), trauma of the peritoneum, hypoxia of tissues as a result of overstretching of the intestinal wall during intestinal paresis. Adhesive factors include infection of the abdominal cavity, deposition of purulent-fibrinous plaque on the loops of the intestine and peritoneum, local decrease in fibrinolytic activity of the tissue. And finally, humoral and cellular factors, which include peritoneal phagocytes, proteins and inflammatory mediators. The main factors of the formation of adhesions are injury to the peritoneum during surgery, foreign

bodies and aseptic disorders during surgical interventions [4, 5].

Analysis of the literature data has shown that in about 40-74% of cases, the cause is the so-called tubal-peritoneal factor, due to previous operations on the organs of the reproductive system and adjacent abdominal organs [6, 7]. Despite many works devoted to this problem, only a few of them have inflammatory processes in the appendages of the uterus of an adult woman they are associated with diseases of the abdominal cavity that required surgical intervention in childhood. Appendectomy and the associated infectious factor are considered to be the most causal factor. The puberty period in girls is particularly vulnerable, since peritonitis suffered at this age, in 25-33% of cases, can lead to chronic salpingitis, the adhesive process of the abdominal cavity and the associated tubal-peritoneal form of infertility [8, 9]. Unfortunately, to date, the existing literature does not pay due attention to the above circumstances, which results in the absence of a coherent system of preventive measures to prevent adhesions in girls who have undergone surgery in the genital and paragenital zone of the abdominal cavity.

OBJECTIVE

Analysis of long-term results of surgical treatment of appendicular peritonitis in girls.

MATERIAL AND METHODS

This work is based on the analysis of the results of diagnosis and treatment of 154 girls who underwent appendicular peritonitis aged 3 to 15 years, operated in the 2nd clinic of the Samarkand State Medical University in the period from 2012 to 2022. The patients were divided into 2 groups. Accordingly, the patients operated in the period from 2015 to 2022 made up the main group – there were 104 (67.5%), they had surgical access with the right oblique variable access of Volkovich-Diakonov, after appendectomy, the abdominal cavity was sanitized in the so-called "dry way", intra- and postoperative period (for 3 ozone therapy was performed, in the early postoperative period, anti-adhesive therapy was used (ultraphonophoresis with Iruzol ointment or collazine electrophoresis on the anterior abdominal wall and kuprenil inside). The comparison group included 50 (32.5%) children

operated on between 2012 and 2019, who were operated on and treated according to traditional conventional approaches: median laparotomy, administration of antibiotics after washing the abdominal cavity with antiseptic solutions, peritoneal lavage through abandoned drainage tubes for 3-6 days.

Intraoperatively, phlegmonous appendicitis was detected in 3 (1.9%) girls, gangrenous appendicitis in 19 (12.4%) and gangrenous-perforated appendicitis in 74 (85.7%) children. By prevalence, they were distributed as follows: diffuse was in 55 (52.9%) children of the main group and 27 (54.0%) of the comparison group; diffuse peritonitis was in 49 (47.1%) children of the main group and 23 (46.0%) of the comparison group. The groups compared with each other were comparable ($P>0.05$) by age, nature and severity of the disease (table 1).

Table 1. Characteristics of the compared groups of patients according to the forms and prevalence of the disease

Indicator	Main group, n=104		Comparison Group, n=50		χ^2 -test
	n	%	n	%	
Form of appendicitis					$\chi^2 = 3.423$ df = 2 p = 0.181
phlegmonous	2	1,9	1	4,0	
gangrenous	11	10,6	8	16,0	
perforative	91	87,5	41	82,0	
Prevalence of peritonitis					$\chi^2 = 0.166$ df = 1 p = 0.684
diffuse	55	52,9	27	54,0	
spilled	49	47,1	23	46,0	

RESULTS AND THEIR DISCUSSIONS

Long-term results of surgical treatment of diffuse appendicular peritonitis were studied in 154 patients in the period from 1 to 23 years.

A significant decrease in wound and intra-abdominal complications in the early postoperative period, as well as a decrease in the frequency of relaparotomies in the main group of patients contributed to a significant decrease in the number of patients with postoperative ventral hernias and ligature fistulas.

In the light of our clinical and experimental studies on the prevention of adhesions, the frequency of adhesions in the long-term period after operations for diffuse appendicular peritonitis in girls was of the greatest scientific and practical interest to us. The severity of the disease clinic and episodes of acute intestinal obstruction requiring repeated operations were used as the main criteria for assessing the presence and severity of adhesive disease.

We considered the operated patient to be in good condition when they did not complain, their general physical condition corresponded to their age, and there were no clinical signs of partial adhesive intestinal obstruction. They did not have abdominal distension during an objective

examination, there are no signs of postoperative ventral hernia, the abdomen is soft and painless on palpation, stool disorders and gas discharge are not noted.

Ultrasound of the abdominal cavity showed no signs of thickening of the peritoneal leaves. No X-ray examinations were performed for children of this category. We assessed the patient's condition as satisfactory in the presence of complaints of periodic abdominal pain, dyspeptic disorders associated with errors in nutrition. When examined in these patients, the abdomen, as a rule, of the usual shape, is not swollen, with palpation there is moderate soreness in the area of the postoperative scar. Ultrasound revealed a limited area of expansion of intestinal loops, usually in the area of the postoperative scar. The unsatisfactory condition was stated if the patients had episodes of partial adhesive intestinal obstruction that required hospitalization in the surgical department, where the seizures were stopped by conservative measures. In addition, cases of acute adhesive intestinal obstruction requiring repeated operations were separately classified.

In our observations, the incidence of clinically significant signs of adhesive disease in girls operated on in childhood for diffuse appendicular peritonitis reached 21.4%,

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including 5.2% of cases in which these girls subsequently underwent repeated surgical interventions for acute adhesive intestinal obstruction (table 2).

Table 2. The incidence of adhesive disease in persons operated on for diffuse appendicular peritonitis in childhood

The condition of the examined patients	Main group n=104		Comparison Group, n=50		χ^2	P
	n	%	n	%		
Good	79	76,0	26	52,0	14,34	<0,001
Satisfactory	16	15,4	12	24,0	3,19	>0,05
Clinically significant signs of the adhesive process						
Unsatisfactory	8	7,4	8	16,0	5,11	<0,05
Repeated operation	1	1,0	4	8,0	6,38	<0,05

The clinical application of our proposed set of measures for the prevention of adhesions in the abdominal cavity helps to reduce the frequency of clinical manifestation of the disease by 2.6 times (from 21.4 to 8.1%) (Fig. 31) and repeated operations by more than 10 times (from 5.1 to 0.5%).

CONCLUSION

Thus, diffuse appendicular peritonitis is one of the formidable surgical diseases of the abdominal cavity in children. It especially negatively affects the reproductive function of girls. The introduction of the proposed complex of surgical treatment and postoperative rehabilitation of girls with appendicular peritonitis reduces the risk of developing adhesions from 21.4% to 8.1% and the number of relaparotomies from 5.1% to 0.5%.

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