

# Study of susceptibility to peritoneal adhesions after surgical operations in children.

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## Resume

**To study the predisposition to diseases of peritoneal adhesions after surgical operations in children.**

The pathogenesis factors of the individual tendency of adhesion process of each patient (53) have been investigated individually by the authors. The results of research showed that 50 percent of patients have a tendency to adhesion process. The indexes defining this process are blunt oppression of fibrinolysis and the rising concentration of fibrinogen in the blood of operated sick children. In virtue of that the corresponding measures have been taken for an early prophylactic of the adhesion process.

**Keywords:** disease with adhesions, fibrinolysis, children, laparoscopy, determination of predisposition

**The urgency of the problem:** Despite modern advances in medical science, postoperative adhesion process in the abdominal cavity and peritoneum adhesion disease remain one of the urgent problems of general surgery. Damage to the peritoneum mesothelium is the main cause of the development of postoperative adhesions. Despite hundreds of scientific publications, which reflect the results of hundreds of experiments and clinical studies on adhesion disease, this problem is far from being solved.

One of the unsolved problems of modern clinical surgery is the treatment and prevention of intestinal obstruction. Over the past decade, the number of patients with adherent bowel obstruction has increased and is 48-60% more common than other bowel obstructions (4-5). It is known that each person differs from each other in terms of his individual anatomical structure and the structure of his physiology, psychology and nervous system. This idea is confirmed in practice.

Results of patients who underwent abdominal surgery in 2011-2021 were analyzed. Conclusions showed that 780 (12.0%) of 6,506 children who underwent surgical procedures for various diagnoses presented with clinical signs of intestinal obstruction. Among them, 1280 (19.7%) children presented with abdominal pain. These data indicate that not all patients undergo the same process of adhesion. Therefore, the parents of 86 children were examined, and it was found that 53 of them (61.1%) had undergone abdominal surgery. Of these (with appendectomy-42, with perforation of duodenal ulcer-5, with gastric resection-3, with damage to abdominal organs-3).

**The goal of our research-** is to study individual susceptibility to peritoneal adhesions in patients who underwent abdominal surgery.

## Materials and styles

Disruption of the tissue fibrinolysis system plays an important role in the pathogenesis of adhesions in peritoneal adhesions after abdominal surgery. (1,2,3).

We aimed to study the goals - the state of fibrinolysis, the amount of fibrinogen before surgery, during surgery, and within 5 days after surgery.

Out of 53 patients, 34 were boys and 19 were girls, their age ranged from 7 to 17 years. In the first group, there were 29 (54.7%) children, who were informed that surgery was planned. In the second group, there were 24 (45.2%) children, who were not informed about the surgical procedure, but were informed that scheduled examinations would be carried out. Venous blood was taken from both groups of children after 2 hours to check the amount of fibrinogen and blood fibrinolytic activity.

### Inspection results and conclusions

In the first group of 29 (54.7%) children, 11 (37%) had an increase in the amount of fibrinogen, from 394 to 488 mg%, the average was  $412 \pm 18.4$  mg%, 3 of them (10.3%) had fibrinogen showed an increase from 468mg% to 488mg%. In the remaining (18) patients, the amount of fibrinogen was 364 - 400 mg%. But these indicators were also higher than the norm (average of  $338 \pm 26$  mg% of the norm).

There were 24 (45.2%) patients in the second group, and in two of them, an increase in the amount of fibrinogen by 394 mg% was observed. In the rest, he established normative norms. These results show that if the patient knows that surgery is planned, the body prepares for it, and protective reactions gradually appear in it.

Ochsner (1930) stated in his time that abdominal surgery would not have developed if peritoneal adhesions had not been formed after abdominal surgery.

During endovideolaparoscopic surgery, blood was submitted to the laboratory for analysis of coagulological parameters. In this case, the increase in the amount of fibrinogen in all patients varies from 480 mg% to 1240 mg% and the average is  $844 \pm 28$  mg%, and the blood fibrinolytic activity drops quickly and reaches 96 to 158 mg, (normally  $310 \pm 8.7$  mg%) with an average of  $136 \pm 7.6$  mg %.

These indicators show that the rapid decrease in fibrinolytic activity of the blood creates conditions for the conversion of fibrinogen to fibrin, allowing the conversion of fibrin to collagen, which indicates the rapid onset of the adhesion process. In addition, it should be said that in some patients, an increase in the amount of fibrinogen was observed by 1.5 times, and in some, it increased up to 3 times. Blood fibrinolytic activity and fibrinogen content corresponded to each other. These results show that in some patients, fibrinolysis inhibitors are normal, the amount of fibrinogen increases by 1.5-2 times, and blood fibrinolytic activity increases accordingly. Only 17 patients had an increase in the amount of fibrinogen and a sharp decrease in blood fibrinolytic activity as a result of the lack of inhibitors. this is from the data leads to the conclusion that in some patients, an increase in the amount of fibrinogen, a decrease in fibrinolysis, indicates a tendency to adhesive processes of the peritoneum. Timely correction of blood fibrinolytic activity in such patients, if possible during surgery, prevents the formation of early peritoneal adhesions. For these purposes, a fibrinolytic mixture (heparin 10,000 ED + fibrinolisin 20,000 ED + hydrocortisone 125 mg + gentamicin 80 mg + novocaine 0.25%-200) was injected every 6-8 hours through a microirrigator left in the abdominal cavity at the end of the surgical procedure. After 6 hours, venous blood was examined. It was found that a decrease in the amount of fibrinogen was observed, compared to the previous analysis ( $614 \pm 14$  mg% and in the previous analysis it was  $844 \pm 28$  mg%), the increase of blood fibrinolytic activity was ( $284 \pm 8.4$  mg%). But when these indicators are compared with the previous indicators, it was found that the amount of fibrinogen is somewhat higher with the improvement of fibrinolysis. A high fibrinogen content was accompanied by a decrease in fibrinolysis. Based on the above, the fibrinolytic mixture was injected into the abdominal cavity 2 times a day. At the end of the second day, at the beginning of the third day, a gradual decrease in the amount of fibrinogen was observed, and these indicators were different in all patients. A high fibrinogen content was accompanied by a decrease in fibrinolysis. Based on the above, the fibrinolytic mixture was injected into the abdominal cavity 2 times a day. At the end of the second day, at the beginning of the third day, a gradual decrease in the amount of fibrinogen was observed, and these indicators were different in all patients. A high fibrinogen content was accompanied by a decrease in fibrinolysis. Based on the above, the fibrinolytic mixture was injected into the abdominal cavity 2 times a day. At the end of the second day, at the beginning of the third day, a gradual decrease in the amount of fibrinogen was observed, and these indicators were different in all patients.

In 38 of 53 patients (71.7%), the amount of fibrinogen decreased to the norm, the average was  $402 \pm 12$  mg%, and in the remaining 15 (28.3%), the amount of fibrinogen remained high compared to the norm, and the average was  $486 \pm 16$  mg%. formed The increase in blood fibrinolytic activity was  $288 \pm 18$  mg% in the first

group of patients, and  $212 \pm 14$  mg% in the second group. Complex treatment with fibrinolytic mixture was continued. After the surgery, the intestinal peristalsis improved in the first group of patients from the 2nd day, and in the second group from the 3rd day, and the bowel passage became normal.

In the repeated analyses, it was observed that the amount of fibrinogen came to the norm and was on average  $386 \pm 16$  mg%, while the blood fibrinolytic activity also increased and became the norm (on average  $302 \pm 6.0$  mg%). These values did not differ from normal values. Thus, based on the obtained results, it can be concluded that blood fibrinolytic activity, fibrinogen content, is one of the important links in the pathogenesis of peritoneal membrane adhesion processes. Depending on the amount and index of fibrinogen and blood fibrinolytic activity during surgical operations, it is possible to determine the degree of tendency to formation of peritoneum adhesions in patients. For the early prevention of peritoneal adhesions, starting from the time of surgical operations, in the complex treatment, a fibrinolytic mixture is administered to the abdominal cavity, it is advisable to send under the control of fibrinogen indicator and blood fibrinolytic activity. Then, the balance of fibrinolysis is observed on 5-6 days. This is important in the early prevention of peritoneum adhesion disease, which leads to the rapid recovery of intestinal motility and a sharp reduction in the adhesion process.

### Conclusion

1. It is important to determine in advance the degree of adhesion process in the abdominal cavity of each patient, to prevent adhesion disease of the peritoneum.
2. The fibrinolytic mixture acts at the time of adhesion disease and prevents the formation of adhesions. This is extremely important in the early prevention of adhesions, and leads to a sharp reduction in the incidence of peritoneum adhesions.

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