

## PROLONGED DISCRETE ABDOMINAL CAVITY SANATION IN ACUTE SUPPURATIVE PERITONITIS

**Hrynychuk Fedir, Preutesei V., Maksymyuk Vitaly, Tarabanchuk Volodimir**  
**Bukovinian State Medical University, Division of Surgery, Chernivtsy, Ukraine**  
*Email: maxsurg@mail.ru*

### Summary

Results of the treatment of 19 patients with acute peritonitis due to the application of preplanned relaparotomies and repeated sanations of the abdominal cavity, which were implemented every 48 hours, were analysed. All the patients were provided with the basic treatment according to the protocols adopted in Ukraine. In 9 patients, additionally to the basic treatment, was used the developed way of the prolonged discrete abdominal cavity sanitation which consists in the introducing into the area of the greatest lesion of the abdominal cavity a few thin perforated tubes (4-8), the number and length of which is being tailored individually. In the intervals between preplanned repeated sanations through the tubes twice a day the antiseptic solution (Dekasan) was injected. It is demonstrated that the application of the method promotes the acceleration of the patients' rehabilitation. Average duration of the treatment made  $14,71 \pm 1,06$  as compared to  $17,72 \pm 2,71$  (days) in cases where patients were provided with the basic treatment. In two such patients had intra-abdominal masses, and with the application of the prolonged discrete sanitation no complications were observed.

**Key words:** purulent peritonitis, abdominal cavity sanitation.

### Rezumat. Sanarea de durată a cavității peritoneale în peritonita acută supurativă

Sunt prezentate rezultatele tratamentului a 19 pacienți cu peritonită acută prin metoda relaparotomiilor seriate și sanărilor programate ale cavității peritoneale la fiecare 48 de ore. În toate cazurile au fost utilizate principiile de bază de tratament conform protocoalelor adoptate în Ucraina. În 9 cazuri, suplimentar tratamentului de bază, a fost utilizată metoda de sanare prelungită a cavității peritoneale, care constă în plasarea în regiunea focarului primar a drenurilor perforate (4-8), numărul și lungimea cărora este individualizată pentru fiecare caz aparte. În intervalul de timp între sanările programate ale cavității peritoneale, de două ori la 24 de ore a fost introdusă prin drenuri soluția antiseptică Dekasan. A fost demonstrat că metoda permite accelerarea reabilitării pacientului. Durata medie de tratament a constituit

14,71±1,06 vs. 17,72±2,71 (zile) în cazul pacienţilor care au beneficiat de tratament conform protocolului de stat. În două cazuri a fost observată formarea proceselor de volum intraperitoneale, iar în lotul pacienţilor care au beneficiat de relaparotomii seriate cu sanări programate ale cavităţii peritoneale nu au fost observate complicaţii.

**Cuvinte-cheie:** peritonită purulentă, sanarea cavităţii peritoneale

**Резюме. Пролонгированная дискретная санация брюшной полости при остром гнойном перитоните**

Представлены результаты лечения 19 больных с острым перитонитом с применением запрограммированных повторных санаций брюшной полости, которые проводились через каждые 48 часов. Всем больным проведено базовое лечение согласно протоколам, принятым в Украине. У 9 больных кроме базового лечения применен разработанный способ пролонгированной дискретной санации брюшной полости, который состоит во введении в зону наибольшего поражения брюшной полости нескольких тонких перфорированных трубок (4-8), количество и длина, которых моделируется индивидуально. В промежутках между запрограммированными повторными санациями через трубки дважды в сутки вводится раствор антисептика (Декасан). Показано, что использование способа способствует ускорению реабилитации больных. Средняя продолжительность лечения составила 14,71±1,06 против 17,72±2,71 дней у больных, которым проведено базовое лечение. У 2 таких больных возникли внутрибрюшные инфильтраты, а при применении пролонгированной дискретной санации никаких осложнений не было.

**Ключевые слова:** гнойный перитонит, санация брюшной полости

**Introduction.** Adequate debridement of the abdominal cavity is one of the main priorities in the management of acute peritonitis [1]. Intraoperative lavage of the abdominal cavity in some cases is not sufficient, consequently after surgery improved drainage systems [2], peritoneosorption [3], vacuum systems [4, 5], as well as preplanned relaparotomy sanation of the abdominal cavity [1, 6] are used. However such measures do not always achieve the desired effect. Usage of the vacuum systems and rise of the preplanned relaparotomy sanation quantity is connected with the increase of risk of appearing of intestinal fistulas and postoperative hernias [7].

**Purpose:** To investigate the efficiency of the developed way of the discrete abdominal cavity sanation in different forms of acute peritonitis.

**Materials and methods.** The patients [19] with total purulent peritonitis, induced by: acute pancreatitis – 3 patients, colon perforation – 3 patients, peptic ulcer perforation – 2 patients, intestinal obstruction – 2 patients, acute cholecystitis – 2 patients, acute appendicitis – 3 patients, acute mesenteric ischemia – 2 patients, postoperative peritonitis – 2 patients. The patients (8) with diffuse purulent peritonitis, the reason of which was acute appendicitis – 3 patients, stomach ulcer perforation – 2 patients, acute cholecystitis – 3 patients.

All the patients have been provided with the examination and basic treatment in accordance with the protocols, adopted by the Ministry of Health of Ukraine. All the patients with total peritonitis underwent preplanned relaparotomy sanation of the abdominal cavity every 48 hours.

For the drainage of the abdominal cavity of 9

patients was used the developed drainage-sanation apparatus which consisted of 4-8 thin tubes 5 mm in diameter. The perforated side pieces [1] were introduced into a certain anatomically section (area of the greatest lesion, as a rule approximate to the focus peritonitis). Disengaged tube ends [2] were taken out (Figure 1).

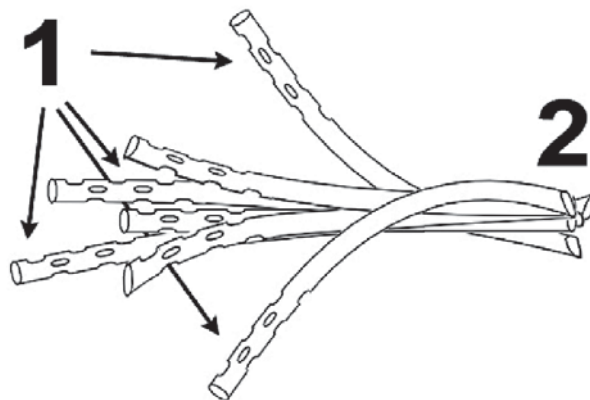


Figure 1. Schematic image of the drainage device.

Number, length and configuration of the tubes were tailored specifically, depending on the individual anatomical peculiarities. The device was introduced into the abdominal cavity through the middle wound or through the additional counter-aperture that depended upon individual peculiarities of the situation. During the post-operative period in the intervals between relaparotomy into the disengaged tube ends the antiseptic (Dekasan) was injected twice a day with the general quantity of 100-200 ml depending on the dimensions of the drainage cavity.

The results of the treatment were compared to the cases of other 10 patients with total peritonitis

who served as a control. Comparison groups were compatible according to the peritonitis severity, the value of the Mannheim peritonitis index (MPI) was  $35,78 \pm 2,15$  and  $36,51 \pm 3,27$  respectively.

The drainage apparatus was applied also to 8 patients with diffusive peritonitis. The lavage with antiseptic was implemented throughout 2-3 days after surgery.

**Results and discussions.** It was established that the application of the developed method of the drainage and abdominal cavity lavage in the intervals between the relaparotomy had resulted into acceleration of the normalization of the fundamental clinical criteria. The body temperature returned to normal up to 4 days after the last preplanned relaparotomy sanitation of the abdominal cavity (as compared to 6 days in the control group). Persistent peristalsis was registered in most cases in 3 days after the last operation, whereas in the control group – in 4-5 days. Blood urea and serum creatinine concentration of 7 patients (77,78%) became normal in 2 days, while in 5 control observations (50%) laboratory and clinical displays of the intoxicating syndrome were retained up to 5-6 days.

The quantity of the repeated preplanned operations formed  $1,89 \pm 0,26$ , while in the control group –  $2,2 \pm 0,29$ .

None of the patients, who were provided with the discrete sanitation, had peritoneal masses or excessive exudates accumulation, whereas in 2 patients (20%) from the control group residual intra-abdominal masses were diagnosed that required the prolonged treatment. The average duration of treatment was  $14,71 \pm 1,06$  vs.  $17,72 \pm 2,71$  days in the control group.

The discrete abdominal cavity sanitation was also applied by us after the operation to 8 patients with purulent diffuse peritonitis. Positive effect is also noted herein. Complications associated with the use of the method were not recorded.

The foregoing testifies that, the developed way of the using of discrete lavage of the greatest lesion of the abdominal cavity with antiseptic solution in the intervals between repeated sanitation in case of total purulent peritonitis and in the post-operational period in case of diffuse purulent peritonitis gives an opportunity to increase the efficiency of the treatment and to prevent the formation of the intra-abdominal

inflammatory masses and residual accumulations of exudation. In our opinion, such a way, apart from the direct, prolonged locally antibacterial action of the introduced antiseptic, increases the efficiency of the abdominal cavity drainage by individual modeling of several drainage tubes within the drained section and by the constant resumption of permeability of tubes during the repeated lavages.

The technical simplicity of the method makes it accessible for used in the surgical hospitals of any level.

### Conclusions

1. Results of the clinical approbation of the developed way of the prolonged discrete abdominal cavity sanitation in case of acute peritonitis testify the efficiency.

2. Due to the application of the prolonged discrete sanitation the acceleration of regression of the abdominal inflammatory process and of the intoxicating syndrome is achieved, the number of the post-operative complications decreases, as well as the terms of the treatment.

### References

1. Strobel O., Werner J., Büchler M.W. *Surgical therapy of peritonitis*. Chirurg. 2011; 82(3):242-8.
2. Degremont R., Brehant O., Fuks D., Sabbagh C., Dhahri A., Browet F., Mahjoub Y., Regimbeau J.M. *Management of supra-mesocolic peritonitis using the Levy helicoid drain (Hélisonde®)*. J Visc Surg. 2011; 148(4):e291-8.
3. Alieva E.A. *Maximal removal of pathogenic microorganisms and their toxins from abdominal cavity in patients with extended purulent peritonitis after the operation*. Klin Khir. 2008; (10):52-4.
4. Kafka-Ritsch R., Birkfellner F., Perathoner A., Raab H., Nehoda H., Pratschke J., Zitt M. *Damage control surgery with abdominal vacuum and delayed bowel reconstruction in patients with perforated diverticulitis Hinchey III/IV*. J Gastrointest Surg. 2012; 16(10):1915-22.
5. Pliakos I., Papavramidis T.S., Michalopoulos N., Deligiannidis N., Kesisoglou I., Sapalidis K., Papavramidis S. *The value of vacuum-assisted closure in septic patients treated with laparostomy*. Am Surg. 2012; 78(9):957-61.
6. Pieracci F.M., Barie P.S. *Management of severe sepsis of abdominal origin*. Scand J Surg. 2007; 96(3):184-96.
7. Scholtes M., Kurmann A., Seiler C.A., Candinas D., Beldi G. *Intraperitoneal mesh implantation for fascial dehiscence and open abdomen*. World J Surg. 2012; 36(7):1557-61.