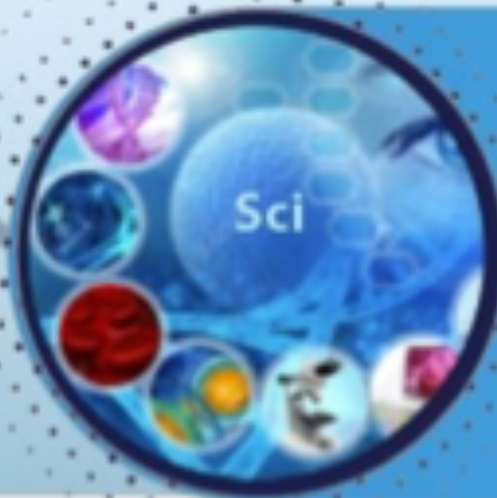




TASHKENT MEDICAL ACADEMY



# Journal of Educational and Scientific Medicine



**Special Issue 5  
Volume 2 | 2024**



OAK.UZ  
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Science Education Commission of the Cabinet  
Ministry of the Republic of Uzbekistan

**ISSN: 2181-3175**



Monitors:

**giz** Deutsche Zusammenarbeit für Internationalen Zusammenarbeit (GIZ) GmbH

ISSN: 2181-3175

Special Issue of  
«**JOURNAL OF EDUCATION AND  
SCIENTIFIC MEDICINE**»

Volume 2, Issue 5

ISSN: 2181-3175

# «**YUMSHOQ TO'MALAR XIRURGIK INFEKTSIYASI DOLZARB MUAMMOLARI**»

**Ilmiy-amaliy konferentsiyaning tezislari  
to'plami**

Special Issue  
Volume 2

**Toshkent, 28 oktyabr, 2024**

OAK.UZ  
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Source: <https://www.oak.uz>  
Ministry of Health of the Republic of Uzbekistan



# Clinical Effectiveness of Local Negative Pressure Method in the Complex Treatment of Purulent Wounds

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## BACKGROUND

In recent years, the problem of treating acute and chronic purulent processes (PP) has become increasingly urgent. Despite developing new antibacterial and immunological preparations, purulent-septic diseases have not decreased. In the structure of population mortality from infectious pathology, purulent-septic diseases occupy the first place in all developed countries of the world. Currently, patients with purulent pathology make up to 30% of all surgical patients. Strengthening of virulence of microorganisms, growth of their resistance to antibiotics and antiseptics, a decrease of the immunological status of macroorganisms, accession of fungal lesions, frequent development of purulent-septic diseases on the background of diabetes mellitus requires the introduction of new pathogenetically grounded and sparing methods of treatment of purulent-septic diseases becomes an integral task of purulent surgery—the purpose of the study. The study aimed to determine the effectiveness of the local negative pressure (LNP) method in treating purulent wounds.

## MATERIAL AND METHODS

In the clinics 'Med-Expert' and 'INNOVA' of LLC 'Versus Medical', 70 patients with PP on hospital treatment from 2020 to 2024 were examined (34 leading group and 36 patients - comparison group). Among the examined patients, 37 (52.8%) patients were male. The patients' ages ranged from 40 to 72 years, most of which 56 (80%) were patients aged 41 to 69. In 39 (55.7%) of all examined patients, there was a severe form of DM, type 2. The character of the purulent process was: phlegmons (23 patients - 32,8%); abscesses (18 patients - 25,7%); purulent-necrotic wounds (15 patients - 21,4%); purulent fistulas (11 patients - 15,7%); sternomediastinitis (3 patients - 4,2%). The depth of destructive disorders was determined according to the classification of Achrenholz D.H. (1991). All patients had changes corresponding to the 3-4th level of soft tissue lesions. Patients' wound area (RA) ranged from 100 to 500 cm<sup>2</sup>. The duration of GP from the onset of the disease to hospitalisation averaged  $15.4 \pm 2.5$  days. The investigated patients were divided into two groups. The main group included 34 patients who received complex treatment using LNP, considering the peculiarities of the patholog-

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ical process. The comparison group included 36 patients who received standard surgical treatment. The methods of investigation included conventional clinical and laboratory research methods, and instrumental research methods included soft tissue ultrasound (if necessary, duplex scanning of lower limb vessels), MSCT and MRT if indicated. An endocrinologist and a general practitioner examined all patients. The results of blood examination and examination of narrow specialists showed the following: 1) in 56% of patients, fasting glycaemia level on admission fluctuated within  $9.7 \pm 0.8$  mmol/l; 2) in 12% of patients, DM was complicated by diabetic nephropathy; 3) 52% of patients had anaemia of 1-2 degree; 4) in 63% of cases hypertension was concomitant with the primary disease. Microbiological study of microflora showed that the following microorganisms were the most frequent among aerobes: *Staphylococcus aureus* 33.4%, *Pseudomonas bacillus* 22.1%—associations of pathogens in the form of dicultures and bacteria with fungi - 10.1% of patients. Radiological examination of the feet revealed: 1) changes in soft tissues - spread of inflammatory process; 2) presence of foreign bodies; 3) presence of destruction of bone structures. Conservative treatment was aimed at 1) antibacterial therapy (considering the sensitivity of microflora); 3) carrying out detoxification infusion therapy; 4) drug therapy of blood rheology; 5) symptomatic therapy considering concomitant diseases (simultaneous correction of haemoglobin indices, nitrogenous blood toxins, therapy of hypertension, compensation of glycemia in the presence of diabetes mellitus, etc.). The spectrum of surgical treatment included wide dissection, drainage and stage sanation of purulent foci. Anaesthesiological treatment included intravenous and conduction anaesthesia. In addition, complex surgical treatment in the main group included using modern technologies, such as applying LNP (vacuum therapy). A vacuum-assisted dressing consisting of a

sterile polyurethane foam sponge with a pore size of 35-45 ppi and silicone drainage, sealed with incisional film, was placed in the wound. This dressing was applied in 34 cases (all central group patients). Vacuum therapy was carried out by the device 'FORYOU NPVT PRO', with pressure from -125 to -175 mm Hg on the open wound and from -75 to -95 mm Hg on the sutured wound (after cleansing) in a constant mode, duration 6-12 days, depending on the volume of wound discharge. Vacuum therapy sessions were carried out for 48 to 96 hours. At the end of one session, the wound was sanitised, and the sponge element was replaced. In total, 3-4 changes of vacuum therapy courses were carried out. The control group used traditional means of local treatment - gauze swabs, ointments based on polyethene glycol, povidone-iodine and other antiseptics.

## RESULTS

The analysis of the results of the treatment of patients showed the following: application of the LNP method together with antibacterial therapy improves the effectiveness of the conducted treatment; the LNP method promotes rapid rejection of necrotic masses and accelerates the process of wound cleansing; treatment of wounds with negative pressure accelerates the process of granulation and epithelialisation of tissues, which leads to a rapid reduction in wound volume.

## CONCLUSION

Thus, the conducted research has shown that adequate and timely surgical treatment of HP with the use of the LNP (vacuum therapy) method allows for the acceleration of the processes of sanation and tissue repair, thus improving the quality of treatment.