ГЕОРИАН МЕДИКАЛ НЕСС

ISSN 1512-0112

НО 7-8 (340-341) ИЮЛЬ-АВГУСТ 2023

ТБИЛИСИ - NEW YORK

ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

Медициинскі новостн Грузині

სამედიცინო გამოკვეთილი იურნალი

Медицинские новости Грузии

Медициинскі новостн Грузині

სამედიცინო გამოკვეთილი იურნალი
GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

Website
www.geomednews.com
К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра в три сантиметра. Используемый компьютерный шрифт для текста на русском и английском языках - Times New Roman (Кириллица), для текста на грузинском языке следует использовать AcadNusx. Размер шрифта - 12. К рукописи, напечатанной на компьютере, должен быть приложен CD с статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применяющиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста в tiff формате.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.


В конце каждой оригинальной статьи приводится библиографический список. Список литературы включается все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латынью. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.
REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or computer-printed on a single side of standard typing paper, with the left margin of 3 centimeters width, and 1.5 spacing between the lines, typeface - Times New Roman (Cyrillic), print size - 12 (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles. Tables and graphs must be headed.

Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author’s name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in tiff format. Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html

http://www.icmje.org/urm_full.pdf

In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title “References”. All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author’s original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.
სახელმწიფო სეროტონინის ფაქტორების პროდუქციის კავშირი და რთული შემთხვევა.

1. ჰემი თავი ჰომოლიდვლით 2 ჯერი, რომლებიც არ იმწონდნენ მინიმალური სეროტონინის ფაქტორების უკრების 1 ადგილზე. 3 სა ჰემი მაქსიმა უდრის და ქსიჟონება 1.5 სემიმეტრის გარეშე. ქვირის ლიდვლით დიაგნოზის დახვრეხი ჰომოლიდვლით პროტო თავი და ჰემი ბლოკის ნევროპოლმეტრიულ მეთოდში - Times New Roman (კირილიკა), ჰოლო ჩარტირული მშვიდობი ჰაერით ჰომოლიდვლით AcadNusx. წინადადებია თქვენ - 12. ჰემი თავი აწეს აღდგენ CD ჰემით.

2. ჰემი თავის არ იმედმდევება 10 სემიმეტრზე ჩრევის და 20 სემიმეტრში ქსიჟონების ალკოჰოლური გადაწყვეტის (ნეოლითი, ბოლო და ქსიჟონი უჯრედი).

GEORGIAN MEDICAL NEWS
No 7 (340) 2023

Hasanov N.H, Istomin A.G, Istomin D.A.
MATHEMATICAL JUSTIFICATION OF THE CHOICE OF RODS FOR EXTERNAL FIXATION DEVICES FOR POLYSTRUCTURAL PELVICINJURIES..........................6-13

B. Todorova, I. Bitoska, A. Muca, O.Georgieva Janev, T. Milenkovic.
A RARE CASE OF A PATIENT WITH HYPERTHYROIDISM AFTER HYPOTHYROIDISM........................................14-16

Satyaapir Sahu, Shabir Ahmad Shah, Supriti, Apurva Kumar R Joshi, Devanshu Patel J, Asha Yadav.
THE GUT-BRAIN AXIS: IMPLICATIONS FOR NEUROLOGICAL DISORDERS, MENTAL HEALTH, AND IMMUNE FUNCTION..17-24

Sara Mohammed Oudah Al-Saedi, Israa Hussein Hamzah.
THE ROLE GENE EXPRESSION OF PD-1 AND PD-L1 IN NEWELY DIAGNOSED AND TREATED PATIENTS WITH ACUTE MYELOIDLEUKEMIA...........................................25-29

Stepanyan L, Lalayan G, Avetisyan A.
AN INVESTIGATION OF PSYCHOLOGICAL AND PHYSIOLOGICAL FACTORS AFFECTING PERFORMANCE IN ADOLESCENT JUDOKAS..........................................................30-36

Takuma Hayashi, Nobuo Yaegashi, Ikuo Konishi.
EFFECT OF RBD MUTATIONS IN SPIKE GLYCOPROTEIN OF SARS-COV-2 ON NEUTRALIZING IGG AFFINITY............................37-46

Yahya Qasem Mohammed Taher, Muna Muneer Ahmed, Hakki Mohammed Majdal.
A CLINICO-EPIDEMILOGICAL STUDY OF MULTIPLE SCLEROSIS IN MOSUL CITY, IRAQ........................................47-52

Simona Kordeva, Georgi Tchernev.
THIN MELANOMA ARISING IN NEVUS SPILUS: DERMATOSURGICAL APPROACH WITH FAVOURABLE OUTCOME...........53-55

Buthaina H. Al-Sabawi, H. S. Sadoon.
HISTOCHEMICAL CHANGES OF THE PULMONARY HYDATID CYSTS IN SHEEP INFECTED WITH CYSTIC ECHINOCOCCOSIS.........................................................56-60

Rocco De Vitis, Marco Passiavore, Vitale Cilli, Massimo Apicella, Giuseppe Taccardo.
SARS-COV-2 INFECTION AND INVOLVEMENT OF PERIPHERAL NERVOUS SYSTEM: A CASE SERIES OF CARPAL TUNNEL SYNDROME AGGRAVATION OR NEW ONSET WITH COVID-19 DISEASE AND A REVIEW OF LITERATURE......................................................61-66

L. Dzyak, K. Miziakina.
NEURAL PROTEINS AS MARKERS FOR DIAGNOSING STRUCTURAL DAMAGE TO BRAIN MATTER IN POST-TRAUMATIC NEUROCOGNITIVE DISORDERS.................................67-70

PURIFICATION, CHARACTERIZATION, AND IN VITRO ANTITUMOR ACTIVITY OF A NOVEL GLUCAN FROM PHOENIX DACTYLIFER A. FRUITS..........................................................71-75

Natalia Stepaniuk, Oleh Piniazhko, Olesia Poshyvak, Tetiana Bessarab, Natalia Hudz, Irina Gavriluk.
MANAGEMENT OF RISKS OF ADVERSE DRUG REACTIONS ACCORDING TO ADR REPORT FORM DATA FROM LVIV REGION HEALTHCARE FACILITIES IN 2022........................................76-80

Ghazwan M. Radhi, Nihad N. Hilal, Mohammed M. Abdul-Aziz.
TESTOSTERONE AND SERUM ZINC LEVELS IN MEN WITH BENIGN PROSTATIC HYPERPLASIA........................81-86

Zora Khan, Deepthi Krishna, Surya Shekhar Daga, Nitin Kumar Rastogi, Rekha MM, Komal Patel.
ADVANCEMENTS IN MINIMALLY INVASIVE SURGERY: A COMPREHENSIVE ANALYSIS OF ROBOTIC SURGERY, ENDOSCOPIC TECHNIQUES, AND NATURAL ORIFICE TRANSLUMENAL ENDOSCOPIC SURGERY (NOTES)............87-92

Aditi Janc, Manoj Rameshachandra Vyas, Anil Kumar, Anurag Verma, Giresha AS, Devanshu Patel J.
LIVER FIBROSIS: PATHOPHYSIOLOGY, DIAGNOSIS, AND EMERGING THERAPEUTIC TARGETS FOR A COMMON COMPLICATION OF CHRONIC LIVER DISEASES..............................................93-100

INNOVATIONS IN ARTIFICIAL ORGANS AND TISSUE ENGINEERING: FROM 3D PRINTING TO STEM CELL THERAPY......101-106

Nada HA. Al-Nuaimi, Saher S. Gasgoos.
EFFECT OF CHICKEN EGGSHELL PASTE ON ENAMEL SURFACE MICROHARDNESS AND COLOUR CHANGE OF ARTIFICIAL CARIOUS LESIONS CREATED ON PERMANENTLY EXTRACTED TEETH.............................................................107-112

Ali Sabah Abbas, Hind Taher Jarjees.
EVALUATION THE EFFECT OF THE ADDITION OF ZIRCONIUM OXIDE AND TITANIUM DIOXIDE NANOPARTICLES ON SHEAR BOND STRENGTHS OF ORTHODONTIC ADHESIVE: IN-VITRO STUDY..................................................113-121
PECULIARITIES OF USING A NEUROVASCULARIZED FLAP ON THE SURAL ARTERY IN PLASTIC SURGERY OF GUNSHOT
DEFECTS ON THE FOOT AND LOWER LEG ........................................................................................................... 232-236

Igor Morar, Oleksandr Ivashchuk, Sergiy Ivashchuk, Volodymyr Bodiaka, Alona Antoniv.
MICROBIOLOGICAL FEATURES OF A LAPAROTOMY WOUND COMPLICATED BY POSTOPERATIVE EVENTRATION AGAINST
THE BACKGROUND OF AN ONCOLOGICAL PROCESS .................................................................................. 237-242

Vadim V. Klimentov, Kamilla R. Mavlianova, Jilia F. Semenova, Nikolay B. Orlov.
CIRCULATING PEPTIDES OF THE TNF SUPERFAMILY AND TNF RECEPTOR SUPERFAMILY IN SUBJECTS WITH TYPE 1
DIABETES: RELATIONSHIPS WITH CLINICAL AND METABOLIC PARAMETERS .................................................. 243-248

Rurua Magda, Sanikidze Tamar, Machvariani Ketevan, Pachkoria Elene, Intskirveli Nino, Mikadze Ia, Didbaridze Tamar, Ratiani Levan.
CORRELATIVE ASSOCIATION OF OXYGENATION AND SEPSIS PANELS WITH THE USE OF ACE2 INHIBITORS AND WITHOUT
IT IN THE CONDITIONS OF SEPTIC SHOCK IN COVID-19-INFECTED AND NON-INFECTED PATIENTS (COHORT STUDY) .......... 249-253

Vladyslava Kachkovska.
ASSOCIATION BETWEEN GLN27GLU POLYMORPHISM IN THE B2 ADRENERGIC RECEPTOR GENE AND OBESITY RISK IN
PATIENTS WITH EARLY-ONSET AND LATE-ONSET BRONCHIAL ASTHMA .......................................................... 254-258

Lazarenko H.O, Lazarenko O.M, Shaprinjskii V.V, Semenenko N.V.
INFLUENCE OF VASCULAR STENT SURFACE TREATMENT WITH AN ADAPTIVE COMPOSITION (ADC) FOR IMPROVING ITS
BIOCOMPATIBILITY AND RESTENOSIS PREVENTION ........................................................................................ 259-263

Duve K.V.
THE PREVALENCE OF C3953T IL1Β GENE AND G308A TNFΑ GENE POLYMORPHIC VARIANTS IN THE PATIENTS WITH
DIFFERENT TYPES OF ENCEPHALOPATHIES ........................................................................................................ 264-269

Levandovskyi R, Belikova N, Belikov O, Sorokchan M, Roschuk O.
EVALUATION OF THE CLINICAL CONDITION OF THE ORAL CAVITY BEFORE ADHESIVE SPLINTING OF MOVABLE TEE
TH .......................................................................................................................................................................... 270-274

Bakhtiyarov Kamil Rafaelevich, Ivantsova Margarita Vladimirovna, Kukes Ilya Vladimirovich, Ignatko Irina Vladimirovna, Glagovsky Pavel
Borisovich.
METABOLOMIC MARKERS OF ENDOMETRIOSIS: PROSPECTS ........................................................................... 275-279

Jain SK, Komal Patel, Kavina Ganapathy, Firoz Khan, Satyaapir Sahu, Ashok Kumar Singh.
LAPAROSCOPIC APPROACH TO A GIANT RUPTURED SPLENIC CYST: A CHALLENGING CASE REPORT ..................... 280-283

ManojRameshachandra Vyas, Phool Chandra, Rachit Jain, Devanshu Patel J, Manashree Avinash Mane, Shaily.
CLINICAL AND OBJECTIVE TEST CHARACTERISTICS OF VESTIBULAR MIGRAINE: IMPLICATIONS FOR DIAGNOSIS AND
MANAGEMENT ......................................................................................................................................................... 284-289

Vipin Kumar, Rakesh Ashokrao Bhongade, Vipin Kumar, Praveen Mathur, Komal Patel, Renuka Jyothi R.
POSTCHEOLECYSTECTOMY SYNDROME: UNDERSTANDING THE CAUSES AND DEVELOPING TREATMENT STRATEGIES FOR
PERSISTENT BILIARY SYMPTOMS AFTER GALLBLADDER REMOVAL .................................................................. 290-296

Georgi Tchernev.
LOSS OF EFFICACY OF ADALIMUMAB IN HIDRADENITIS SUPPURATIVA: FOCUS ON ALTERNATIVES ......................... 297-300
MICROBIOLOGICAL FEATURES OF A LAPAROTOMY WOUND COMPLICATED BY POSTOPERATIVE EVENTRATION AGAINST THE BACKGROUND OF AN ONCOLOGICAL PROCESS

Igor Morar¹, Oleksandr Ivashchuk¹, Sergiy Ivashchuk², Volodymyr Bodiaka³, Alona Antoniv³.

¹Department of Oncology and Radiology, Bukovinian State Medical University, Chernivtsi, Ukraine.
²Department of Family Medicine, Bukovinian State Medical University, Chernivtsi, Ukraine.
³Department of Internal Medicine, Clinical Pharmacology and Occupational Diseases, Bukovinian State Medical University, Chernivtsi, Ukraine.

Abstract.

This article presents the results of a study of the qualitative and quantitative microflora content of the wound exudate of a laparotomy wound complicated by eventration in patients with malignant neoplasms of the abdominal cavity. This study aimed to investigate the peculiarities of the qualitative and quantitative composition of the laparotomy wound microflora in cancer patients with postoperative eventation. After all, postoperative event is always accompanied by the occurrence of purulent-septic complications from the laparotomy wound. These microbiological features should be taken into account in order to timely prevent or treat postoperative event in cancer patients, that is, in the appointment of antimicrobial therapy, features of purulent wound treatment, etc. We studied 34 patients with surgical diseases of the abdominal cavity with postoperative eventation. We studied the species content of microorganisms, their population level, the index of constancy, the frequency of species detection, the index of significance, and the index of quantitative dominance. The microbiological spectrum of the laparotomy wound exudate, in case of postoperative eventation in patients with malignant neoplasms of the abdominal cavity, is characterized by a probable predominance of the number of cultivated strains of the genus Proteus, Pseudomonas aeruginosa, the appearance of yeast-like fungi of the genus Candida and the absence of S. aureus growth in the early stages. There was an increase in the population level of E. coli, Pseudomonas aeruginosa, and microorganisms of the genus Proteus, with a prevalence of the latter compared to non-cancer patients, and a lower number of Staphylococcus aureus colonies. The dominant microorganisms of wound exudate are E. coli and Enterococcus faecalis; in patients with malignant abdominal neoplasms, the highest coefficient of quantitative dominance is observed in microorganisms of the genus Proteus. The presence of secondary immunodeficiency, cachexia, anaemia, etc. in patients with malignant neoplasms of the abdominal cavity causes a ‘sluggish’ purulent-inflammatory process in the laparotomy wound area in the event of postoperative eventation.

Key words. Microorganisms, eventration, laparotomy wound, wound exudate, oncological process.

Introduction.

The problem of eventration still remains extremely relevant, since the mortality rate of this postoperative complication does not tend to decrease and reaches up to 24%, and according to some authors - up to 65% [1-4].

The key role in the development of postoperative eventation belongs to purulent and septic complications of the laparotomy wound. The incidence of laparotomy wound septicaemia reaches a maximum after operations accompanied by a disruption of the integrity of the hollow organs, as well as in purulent inflammatory diseases of the abdominal cavity [5-9].

It is well known that oncological abdominal pathology is associated with secondary immunodeficiency, cachexia, anaemia, etc., which certainly affects the rate of regeneration and the risk of developing purulent and septic complications of the laparotomy wound [10-13]. Postoperative entrapment is a postoperative complication that is always accompanied by purulent-septic complications of the postoperative wound.

To date, however, there is no clear data on the microbiological characteristics of the laparotomy wound in the development of eventation, specifically in the case of abdominal cancer.

The study of microbiological features of postoperative eventation against the background of malignant abdominal neoplasm will allow to better understand the etiopathogenesis of this complication and develop effective methods of its prevention.

Therefore, the aim of the study was to investigate the peculiarities of the qualitative and quantitative microflora content of wound exudate of a laparotomy wound complicated by eventration in patients with malignant tumours of the abdominal cavity.

Materials and Methods.

To achieve this goal, we studied 34 patients with surgical diseases of the abdominal cavity who developed postoperative eventation during 8 days of the early postoperative period [14-16].

The main group consisted of 16 patients with malignant neoplasms of the abdominal cavity in the III-IV stages of the disease.

The comparison group comprised 18 patients with acute surgical non-cancerous pathology of the abdominal cavity.

The distribution of patients, depending on the abdominal surgery performed, is presented in Table 1.

Of this number of patients, 19 (55.9%) female and 15 (44.1%) male. The average age of the patients was 61.3 ± 2.08 years. Both groups of patients were representative in terms of age and gender.

All patients received standard antimicrobial therapy 30-40 minutes before surgery and during the early postoperative period, according to clinical protocols. Cephalosporins, carbapenems, and fluoroquinolones were used. All patients received standard postoperative treatment during their hospital stay, according to the protocols for the provision of medical care to patients with emergency surgical pathology of the abdomen [17-19].

Biological material was collected on the 3rd - 8th day of the early postoperative period for bacteriological examination of wound exudate during dressing changes.
Methods of microbiological research.

For the qualitative and quantitative assessment of aerobic and optional anaerobic pathogens, peritoneal exudate was inoculated on Endo medium, thioglycolic medium, yolk agar, anaerobic blood agar and cultured at 37°C for seven days. For the biochemical identification of gram-negative flora, test systems Biomern were used on a Mini Api device (France). Sabouraud medium was used to determine the growth of pathogenic fungi.

After incubation, the number of colony-forming units (CFU) detected in the test material was counted and presented in decimal logarithms (lg CFU). The species content of microorganisms, their population level, coefficient of constancy (C%), frequency of species detection (Pi), significance coefficient (S), and quantitative dominance coefficient (QDC) were studied.

Statistical analysis

The statistical analysis of the results was carried out using Microsoft Excel and the PAST statistical processing software package. Shapiro-Wilk criteria were used to check the regularity of data distribution in the samples. Differences between the study groups were determined using the Mann-Whithey criteria. The result was considered reliable if the probability coefficient was ≤ 0.05, which is generally accepted in biomedical research.

Results.

The growth of *E. coli*, *Enterococcus faecalis*, *Staphylococcus aureus* (*S. aureus*), microorganisms of the genus *Proteus* (*P. vulgaris*, *P. mirabilis*, *P. morganii*) and *Pseudomonas aeruginosa* was found in both experimental groups. Also, in the main group, the growth of yeast-like fungi of the genus *Candida* was also noted [20-22].

Analyzing the results of the study of the species content of wound exudate, which are presented in Table 2, it should be noted that the highest coefficient of constancy and frequency of occurrence of the species was in *Enterococcus faecalis*, in both study groups, throughout the observation period.

On day 6-8 of the study, an increase in the number of cultivated *E. coli* strains was observed, with a slight constant prevalence of the coefficient of persistence and frequency of occurrence of the species in the comparison group, but such dynamics and the difference between the two study groups is not significant.

In the comparison group, the number of colonized *S. aureus* strains significantly increased (p<0.05) on days 6-8 of observation, in contrast to the main group, where the growth of these microorganisms only appears in the specified period. The coefficient of persistence and the frequency of occurrence of the species in *S. aureus*, on days 6-8 of the study, in the comparison group is higher than in the main group, but this difference is not significant.

There was an increase in the number of cultivated strains of *Proteus* on days 6-8 of observation, but this dynamics in the comparison group was not significant. The coefficient of persistence and the frequency of occurrence of the species in the genus *Proteus* is consistently higher in the main group, but this difference is not significant.

Table 1. Distribution of patients in both study groups, depending on the surgical intervention performed, abs. %.

<table>
<thead>
<tr>
<th>Surgery performed</th>
<th>Group of patients</th>
<th>Abs.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comparison</td>
<td>Main</td>
<td></td>
</tr>
<tr>
<td>Distal gastric resection</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Gastrectomy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Small intestine resection</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Right hemicolecotomy</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Left hemicolecotomy</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Hartmann surgery</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Total:</td>
<td>18</td>
<td>16</td>
<td>34</td>
</tr>
</tbody>
</table>

Table 2. Species content of laparotomy wound microflora complicated by eventration in oncological pathology of abdominal organs, at different follow-up periods, abs. %.

<table>
<thead>
<tr>
<th>Test Group</th>
<th>M/o</th>
<th>Term after surgery, day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3-5 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>s</td>
</tr>
<tr>
<td>Comparison</td>
<td><em>E. coli</em></td>
<td>8</td>
</tr>
<tr>
<td>n=18</td>
<td><em>Enterococcus faecalis</em></td>
<td>14</td>
</tr>
<tr>
<td></td>
<td><em>Staphylococcus aureus</em></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><em>Strains of Proteus</em></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><em>Pseudomonas aeruginosa</em></td>
<td>2</td>
</tr>
<tr>
<td>Main</td>
<td><em>E. coli</em></td>
<td>5</td>
</tr>
<tr>
<td>n=6</td>
<td><em>Enterococcus faecalis</em></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td><em>Staphylococcus aureus</em></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><em>Strains of Proteus</em></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><em>Pseudomonas aeruginosa</em></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Yeast-like fungi <em>Candida</em></td>
<td>3</td>
</tr>
</tbody>
</table>

1. n - number of observations; 2. m/o - microorganisms; 3. s - number of strains cultivated; 4. C% - coefficient of constancy; 5. Pi - frequency of occurrence of the species.
In both test groups, on days 6-8 of the study, there was an increase in the number of cultivated strains of *Pseudomonas aeruginosa*, but such dynamics is significant only in the main group ($p<0.05$). Also, during the study period, there was a significant ($p<0.05$) predominance of the number of cultivated strains, the coefficient of constancy and the frequency of occurrence of strains in *Pseudomonas aeruginosa* in the main group.

In the main group, in contrast to the comparison, the growth of yeast-like fungi of the genus *Candida* was observed, the number of strains of which significantly increased on days 6-8 of the study ($p<0.05$).

Thus, in case of eventration against the background of the oncological process, the predominance of the number of cultivated strains of the genus *Proteus*, *Pseudomonas aeruginosa*, the appearance of growth of yeast-like fungi of the genus *Candida*, as well as the absence of *S. aureus* growth in the early stages is characteristic.

The results of the study of the population level of wound exudate microorganisms presented in Table 3 indicate a significant increase in the number of *E. coli* colonies on days 6-8 of observation in both test groups. During all the study periods, there was an unlikely difference between the two study groups of patients [23, 24].

On days 6-8 of observation, there was an increase in the population level of *Enterococcus faecalis*, but such dynamics were significant only in the comparison group. The difference between the two study groups was not significant during the entire study period.

The population level of *Staphylococcus aureus* in the comparison group significantly increased on day 6-8 of observation and exceeded that of the main group at this time.

On the 6-th day of observation, an increase in the population level of microorganisms of the genus *Proteus* was noted, with the significant dynamics in the main group. Also, in the above terms, the indicators of the main group were significantly higher than the comparison group.

There was an increase in the population level of *Pseudomonas aeruginosa* in both test groups on days 6-8 of observation, but such dynamics was significant only in the main group. The difference between the two study groups during the entire study period was not significant.

In the main group, during the entire study period, there was an unreliable increase in the number of colonies of yeast-like fungi of the genus *Candida*.

Thus, with the development of eventration in cancer patients, a significant increase in the population level of *E. coli*, m/o of the genus *Proteus*, as well as *Pseudomonas aeruginosa*, with a probable predominance of m/o of the genus *Proteus* and a smaller number of colonies of *Staphylococcus aureus*, compared with non-cancer patients, is noted in the laparotomy wound exudate.

From the point of view of describing microbial diversity, it is important to determine the quantitative dominance coefficient (QDC) of each type of wound exudate microorganism (Table 4).

The dominant microorganism, according to the determined QDC, in both test groups, during the entire study period is *E. coli*, followed by *Enterococcus faecalis*. In the main group, on the 6-8-th day of the study, high values of QDC were observed.

### Table 3. Population level of microflora of laparotomy wound complicated by eventration in case of oncological pathology of abdominal organs, at different observation periods (M±m), lg CFU/cm².

<table>
<thead>
<tr>
<th>Test Group</th>
<th>Term after surgery, day</th>
<th>Day 3-5</th>
<th>Day 6-8</th>
</tr>
</thead>
</table>
| **Comparison**
| n=18 | | | |
| *E. coli* s=6 | 4.1 ± 0.49 | E. coli s=12 | 5.3 ± 0.23 $p<0.05$ |
| *Enterococcus faecalis* s=14 | 3.5 ± 0.19 | *Enterococcus faecalis* s=17 | 4.5 ± 0.19 $p<0.05$ |
| *Staphylococcus aureus* s=4 | 2.5 ± 0.29 | *Staphylococcus aureus* s=10 | 4.3 ± 0.29 $p<0.05$ |
| m/o *Proteus* s=5 | 2.5 ± 0.26 | m/o *Proteus* s=8 | 3.2 ± 0.32 $p<0.05$ |
| *Pseudomonas aeruginosa* s=2 | 2.3 ± 0.35 | *Pseudomonas aeruginosa* s=5 | 2.8 ± 0.28 $p<0.05$ |
| **Main**
| n=16 | | | |
| *E. coli* s=5 | 4.2 ± 0.3 $p<0.05$ | E. coli s=9 | 5.4 ± 0.29 $p<0.05; p>0.05$ |
| *Enterococcus faecalis* s=12 | 3.2 ± 0.23 $p<0.05$ | *Enterococcus faecalis* s=14 | 4.0 ± 0.29 $p<0.05; p>0.05$ |
| *Staphylococcus aureus* s=6 | 3.1 ± 0.38 $p<0.05$ | *Staphylococcus aureus* s=6 | 3.1 ± 0.38 $p<0.05$ |
| m/o *Proteus* s=6 | 2.9 ± 0.31 $p<0.05$ | m/o *Proteus* s=11 | 4.1 ± 0.21 $p<0.05; p<0.01$ |
| *Pseudomonas aeruginosa* s=4 | 2.2 ± 0.17 $p<0.05$ | *Pseudomonas aeruginosa* s=9 | 3.4 ± 0.22 $p<0.05; p>0.05$ |
| Yeast-like fungi *Candida* s=3 | 2.8 ± 0.23 $p<0.05$ | Yeast-like fungi *Candida* s=7 | 3.2 ± 0.21 $p<0.05$ |

1. n - number of observations; 2. m/o - microorganisms; 3. s - number of strains cultivated; 4. p - difference between both test groups; 5. p1 - difference against the values of the 3-5th day of observation.
for Proteus species, and in the comparison group - for Staphylococcus aureus.

Discussion.

Summing up the results of the study, it should be noted that in the development of postoperative eventration, the microbial spectrum of wound exudate during the first 6 days is represented by E. coli, Enterococcus faecalis, S. aureus, m/o of the genus Proteus and Pseudomonas aeruginosa, but in the oncological process there are certain features - no growth of S. aureus and the appearance of growth of yeast-like fungi of the genus Candida. In both test groups, the highest frequency of species occurrence was in Enterococcus faecalis. The lowest frequency of occurrence of the species in the comparison group was in Pseudomonas aeruginosa, and in the main group - in yeast-like fungi of the genus Candida [25].

The highest coefficient of significance and quantitative dominance in both test groups was observed for E. coli. In the comparison group, the lowest coefficient of significance and quantitative dominance is observed for Pseudomonas aeruginosa. In the main group, the lowest coefficient of significance is observed for yeast-like fungi of the genus Candida, and quantitative dominance - for Pseudomonas aeruginosa.

The difference in the population level of the above-mentioned microorganisms between both experimental groups, in the given observation period, is insignificant.

During the subsequent observation periods, the microbial spectrum in the comparison group did not change, while in the main group, an increase in S. aureus was observed. In both test groups, the highest frequency of occurrence and the coefficient of persistence was also observed for Enterococcus faecalis. Pseudomonas aeruginosa had the lowest frequency and coefficient of persistence in the comparison group, and S. aureus in the main group.

In both test groups, the highest coefficient of significance and quantitative dominance was observed for E. coli. In the comparison group, the lowest coefficient of significance and quantitative dominance was observed for Pseudomonas aeruginosa, and in the main group - for S. aureus.

In these terms of the study, a significant difference in the population level of microflora between both test groups of S. aureus and m/o of the genus Proteus was noted.

The probable dynamics of growth of the population level of microorganisms should be mentioned, in the comparison group - E. coli, Enterococcus faecalis, S. aureus, and in the main group - E. coli and m/o of the genus Proteus.

These microbiological features of the wound exudate in case of eventration in patients with malignant neoplasms of the abdominal cavity can be explained by the phenomena of secondary immunodeficiency, cachexia, anemia, etc. that occurs in the oncological process and causes a ‘sluggish’ purulent inflammatory response [26].

This feature should be considered for the purpose of timely prevention or treatment of postoperative eventration since this category of patients has certain microbiological features of purulent-septic complications [27].

As already mentioned, wound infection has always developed. According to the results of the study, against the background of the oncological process, the predominant number of strains of m/o of the genus Proteus, Pseudomonas aeruginosa, and the appearance of yeast-like fungi of the genus Candida were characterized. Also, in the early stages, the absence of S. aureus growth was noted. Purulent-septic complications that occur against the background of malignant neoplasms of the abdominal cavity, especially in the advanced stages (III-IV stages of the oncological process) have certain features, as they occur against the background of existing pathological changes caused by cancer itself. These are the phenomena of secondary immunodeficiency, cachexia, anemia, hypoproteinemia, etc. This leads to a hyporesponse of the body to microbial pathogens, i.e., the course of the wound process is sluggish, with low adhesive (separating) ability. Therefore, S. aureus appears in more distant terms, and the wound exudate contains m/o of the genus Proteus, Pseudomonas aeruginosa, yeast-like fungi of the genus Candida, which is more characteristic of a chronic, sluggish purulent-septic process.
Conclusion.
1. The microbiological spectrum of laparotomy wound exudate, in case of postoperative eventration in patients with malignant neoplasms of the abdominal cavity, is characterized by a probable predominance of the number of strains of the genus *Proteus*, *Pseudomonas aeruginosa*, the appearance of yeast-like fungi of the genus *Candida* and the absence of *S. aureus* growth in the early stages.
2. During the development of postoperative eventration in patients with malignant neoplasms of the abdominal cavity, a significant increase in the population level of *E. coli*, *Pseudomonas aeruginosa*, as well as microorganisms of the genus *Proteus* is noted, with a probable predominance of the latter, compared to non-cancer patients, and a significantly lower number of *Staphylococcus aureus* colonies.
3. In patients with malignant neoplasms of the abdominal cavity in case of postoperative eventration, the dominant microorganisms of the wound exudate are *E. coli* and *Enterococcus faecalis*, but, among other microorganisms, the highest coefficient of quantitative dominance is observed in microorganisms of the genus *Proteus*.
4. We did not study the results of treatment in this article. We studied the peculiarities of the qualitative and quantitative composition of the laparotomy wound microflora in cancer patients with postoperative ventilation. In the treatment of postoperative enteritis in cancer patients, in addition to surgical treatment, it is necessary to take into account this microbial spectrum and prescribe appropriate antibiotics, taking into account the culture of wound exudate.

Conflict of interest.
The authors declare no conflict of interest.

Ethical approval.
This study was approved by the Ethics Committee of Bukovinian Medical University and Bukovinian Clinical Oncology Center (approval ID: 04-11.02.2021). Our study was conducted according to the Declaration of Helsinki adopted in 1975 and revised in 2008, and the ethical principles were entirely respected.

Data availability.
The data of this study is available by request.

Authorship.
IKM contributed to conceptualizing the study and contributed to data collection.
OI contributed to the methodology. VYB contributed to writing the original draft. SII contributed to editing the manuscript.

REFERENCES