

GEORGIAN MEDICAL NEWS

ISSN 1512-0112

NO 1 (334) Январь 2023

ТБИЛИСИ - NEW YORK



ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии
საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

Monthly Georgia-US joint scientific journal published both in electronic and paper formats of the Agency of Medical Information of the Georgian Association of Business Press.
Published since 1994. Distributed in NIS, EU and USA.

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.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

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**. 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 со 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, применявшиеся 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.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - <http://www.spinesurgery.ru/files/publish.pdf> и http://www.nlm.nih.gov/bsd/uniform_requirements.html В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются 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 латиницей. 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. Корректур авторам не высылаются, 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.

6. 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.**

ავტორთა საქურაღებოლ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დაიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx**. შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შედეგების ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფხიხლებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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COMPARATIVE RESULTS OF MODERN EXAMINATION METHODS IN EARLY DIAGNOSIS OF BLADDER CANCER, DETERMINATION OF THE DEGREE OF INVASION AND SELECTION OF RADICAL TREATMENT TACTICS

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Abstract.

Aim of study: This article deals with comparative results of modern examination methods in early diagnosis of bladder cancer, determination of the degree of invasion and selection of radical treatment tactics.

Material and methods: The purpose of the conducted research work is to make a comparative analysis of existing methods of examination related to the stages of development of bladder cancer. The research was carried out on the Department of Urology of Azerbaijan Medical University. In this research work, an algorithm was developed by conducting a comparative analysis among modern methods of radiation examination (Ultrasound, CT, MRI) in determining the location of the tumor in the urethra, the position, size, direction of development and local prevalence of the process, analyzing the results obtained and trying to determine the sequence of profitable examinations for patients.

Results: According to the results of our research in ultrasound examination on specific stages of the process in the diagnosis of bladder cancer T1-100%, T2 - 94.7±2.3%, T3 - 92.2±2.8%, T4 - 96.2±1.7%, and the sensitivity of the study T1 - 93.8±6.1%, T2 - 92.9±3.4%, T3 - 85.0±4.6%, T4 - 83.3±8.8%. The sensitivity of transrectal ultrasound in determining the degree of invasion of the process T1 - 85.7±13.2%, T2 - 92.9± 19.2%, T3 - 85.7±13.2%, T4 - 100%, specificity T1 - 93.3±6.4%, T2 - 87.5±8.3%, T3 - 84± 7.3%, T4 - 95.0±4.9%.

Conclusions: Based on the results of our research, we came to the conclusion that the general analysis of blood and urine, biochemical examination of blood in patients with superficial Ta-T1 stages of bladder cancer, which does not invade deep layers, does not cause hydronephrotic transformation in the upper urinary tract and kidneys, regardless of its size, and is located far from the ureter, the diagnosis is fully specified on the basis of ultrasound examination. At this stage, CT, and MRI methods do not add any information of different importance and can change the surgical tactics.

Key words. Bladder cancer, ultrasound, CT, MRI.

Introduction.

The primary diagnosis of bladder cancer, the determination of the degree of invasion, and the choice of the type of radical treatment remain one of the most urgent issues facing urooncologists today [1,2]. Bladder cancer is ranked after prostate and kidney cancer, which are ill-natured diseases of the urogenital system but are ahead of them in terms of being fatal and taking the first place [3,4]. One of the main reasons for the high number of deaths from the mentioned pathology and the main reason was the failure of patients to refer to specialized clinics on time, the improper selection of the type of radical treatment due to the failure to establish the initial diagnosis in time [3,5]. This is because when most patients enter specialized

clinics, 25-30% already notice the presence of micro metastases in individual organs, 25-35% local spread of the process, serious changes in the upper urinary tract and kidneys, which complicates the choice of the type of radical treatment and affects the postoperative results [6,7]. 33-56% of patients with bladder cancer are diagnosed 1-1.5 years after the onset of the first clinical symptoms, when the process invades the deeper layers, causing severe changes in the upper urinary tract and kidneys, which significantly reduces the importance of effective treatment [6,8-10].

This affects the tactics of treatment and reduces the importance of effective treatment by 35-45%. Early diagnosis of bladder cancer, the local prevalence rate of the primary tumor, choice of surgical treatment tactics, and prevention of minimal complications remain unresolved issues [10,11]. The rapid development of new diagnostic methods has opened up new horizons in the development of new radiation examination technologies and the consistent use of these methods [7,12]. Thus, taking into account the wide possibilities of diagnostic methods (Ultrasound, CT, MRI) in early diagnosis of bladder cancer, determination of the degree of invasion, and selection of the type of radical treatment, we tried to use this complex of examinations in our research work [6,10,13] by using these methods separately and in a comprehensive manner, we set ourselves the goal of choosing a type of radical treatment by assessing not only the detection factor of the tumor but also the local spread, size, direction of development, condition of the curvative, location and presence of regional metastases.

The aim of the research: The purpose of the conducted research work is to make a comparative analysis of existing methods of examination related to the stages of development of bladder cancer, to develop an algorithm among them, and to clarify in what sequence it is advisable to apply important methods.

Material and methods of research.

The research was carried out on the Department of Urology of AMU. The study covered 150 patients treated with a bladder cancer diagnosis from 2006-2016. Bladder cancer diagnosis the age range of the patients was 29-81 (62.3 on average), 121 (80.7%) of them were men and 29 (19.3%) were women. In the research work, we tried to use modern diagnostic methods separately and in a comprehensive manner in the early diagnosis of bladder cancer. Ultrasound examination in the diagnosis of bladder cancer was considered the most leading beam examination method as a convenient, non-invasive, and economically beneficial examination for patients. This examination has greatly reduced the need for other invasive methods in the early diagnosis of bladder cancer. With the help of ultrasound, it was possible to easily determine the location of the tumor in the area of the bladder, its number,

size, curvature, the direction of development, attitude to ureters and degree of invasion of the process, changes in surrounding tissues, upper urinary tract, kidneys and regional lymph nodes due to the influence of pathology [1,5,11]. Taking into account that ultrasound examination has a wide range of possibilities, depending on the location of the tumor tissue; it is carried out by transabdominal, transrectal, transurethral, and transvaginal methods in women. All patients underwent ultrasound as a routine examination. Examinations were selected depending on the location of the tumor, its size, the condition of the crotch, the surrounding tissues and the condition of the upper urinary tract.

We divided the patients under our observation into two groups according to the application of X-ray examinations. The patients in the first group were only subjected to ultrasound examination for diagnostic purposes, while the patients in the second group were comprehensively applied to modern radiation examinations. In 56 patients included in the first group, the appropriate type of treatment was prescribed without additional examinations, complying with only the answer of ultrasound examination, and in 94 patients the examinations were applied in a complex (Ultrasound, CT, MRI). In 11 of the patients included in the first group, the tumor was in the left back side of the bladder, in 7 patients on the left side, in 12 patients in the right back side, in 5-patients on the right side, in 7-patients on the anterior wall, in 8-patients in the neck area, in 6-patients and it was determined that it was located on the posterior wall. In 26 of these patients, the size of the tumor was 2.5-3.0 cm, in 23 it was between of 3.5-4.5 cm, and in 7 it was between 5.0-6.0 cm. The single tumor in bladder was determined in 36 patients, in 15 patients were two tumors, in 5 patients were three tumors. T1-12, T2-33, T2a-22, T2b-11, T3-8, T3a-5, T3b-3, T4-3, T4a-2, T4b-1 stages of tumors were identified in patients.

Since the location of the tumor in the bladder plays an important role in determining the type of surgery to be performed, we thought about it specifically based on an ultrasound examination before the operation. With the help of ultrasound examination, tumor tissue was detected in the left lateral back wall of the bladder in 39 patients, in 14 of them the process infiltrated the superficial muscle layer, in 7 the process only penetrated the mucous and submucosal layers, in 8 the superficial and deep muscle layers, in 5 and infiltrating all layers of the urinary tract and surrounding tissues, in the neck area in 5 patients, it penetrated the prostate gland and seminal vessels. In 11 of 37 patients whose tumors were located on the right lateral back wall, the process infiltrated into the deep muscle layer, in 4 into the mucous and submucosa, into the superficial muscle layer in 10, into all layers in 7 patients, into all layers and the prostate gland in 5 patients. Out of 29 patients in the posterior wall and neck region, the process infiltrated the superficial muscle layer in 6, all layers, surrounding tissues in 5 and the prostate gland in 8, mucous and submucous layer in 3, and superficial and deep muscle layer in 7 patients. In 7 patients, the tumor was located near the orifice of the right ureter, in 6 of the left ureter, and in 5 of both ureters, it caused a hydronephrotic transformation in the upper urinary tract. In 15 of the 32 patients whose tumors were detected in the anterior wall and apex, the process infiltrated the superficial muscle layer, in 2 patients the

mucosa and submucosa, in 9 patients the superficial and deep muscle layer, and in 8 patients all layers. In some patients, transrectal ultrasound was performed in 22 patients, although it was somewhat invasive, considering the weak possibilities of transabdominal ultrasound in the detection of tumors in the anterior wall, apex, and neck in order to eliminate the difficulties arising from the diagnosis. Transrectal ultrasound examination was applied to patients with normal mental status and no rectal pathology. According to transrectal ultrasound examination, in 5 out of 9 (40.9%) patients in whom a tumor was detected in the anterior wall and apex, the process was in the deep muscle layer, in 4 the mucosa and surface in the muscle layer, in 3 out of 6 (27.3%) patients with tumor tissue detected in the neck of bladder, the process was in all layers of the urinary bladder and prostate gland, in 2 out of 4 (18.2%) patients in the anterior wall, the process was in the mucosa and submucosa, it was found that 2 out 3 (13.6%) patients in the apex also had process infiltration into all layers of the bladder, and in 1 patient-into the muscle layer. According to the ultrasound examination, not only the location of the tumor but also the number and size were determined with great accuracy. 79 patients had 1 tumor, 33 had 2 tumors, 21 had 3 tumors, and 17 had multiple tumors. The size of the tumor in 28 of them was 2-3 cm, in 17 it was 3-5 cm, in 42 it was 3-3.5 cm, in 16 it was between 3.5-4.5 cm, and in 39 it was between of 4-10 cm. During the transrectal examination, the size of the tumor was 0.5-1 cm smaller than the size obtained during the transabdominal examination. Due to the wide scope of the examination, not only the location, number, and size of the tumor, but also the stage of the process was determined before the operation, as can be seen in the table below (Table 1).

In some cases, in order to eliminate the difficulty in diagnosing the disease, even though it is economically expensive, we have used computer tomography and magnetic resonance tomography examinations comprehensively.

Although computed tomography is not considered as first examination method in the diagnosis of bladder cancer, we used this examination in 53 (35.3%) of the patients under our observation, as it has a wide diagnostic opportunity in determining the degree of spread of the process, in small-sized and endophytic tumors, and in detecting micro metastases in neighboring organs. 45 (84.9%) of these patients were men, and 8 (15.1%) were women. With the help of the examination, the location of the tumor in bladder, its number, size, and relation to the ureters were determined. In patients who underwent computed tomography, tumor tissue was located in the left posterior wall of the bladder in 18 (33.9%) patients, in the right lateral posterior wall in 16 (30.1%) patients, in the neck in 8 (15.1%) patients, in 6 (11.2%) patients was identified in the posterior wall and 5 (9.4%) in the anterior wall. 5 of the tumors

Table 1. Grouping of bladder cancer patients based on TNM staging.

Stage of Process	Number of Patients (n=150)	
	Absolute	Proportional
T1	16	10,7%
T2	56	37,3%
T3	60	40,0%
T4	18	12,0%

were found on the left lateral posterior wall of the bladder, 3 of the tumors on the right lateral back wall involved the mucous and submucosal layer, 10 patients superficial, 5 deep muscle layers, 7 patients all layers, 7 patients in addition to all layers the surrounding tissue of the bladder, neck in 2 of those detected in the region, the process infiltrated all layers of the bladder, in 3 patients, it infiltrated all layers and the prostate gland. In 4 of the patients found on the posterior and anterior wall, the tumor was located near the outlet of the ureter, and the process infiltrated the superficial muscle layer of the bladder, in 5 patients, it infiltrated the muscle layer completely, and in 2 patients, it infiltrated all layers of the bladder. The size of the tumor was 2-3 cm in 31 (58.5%) patients. In 14 (26.4%) patients 3-5 cm, in 8 (15.1%) patients 5-9 cm, 36 patients had one tumor tissue, 12 had two tumors, and 5 had three tumors. Before the operation, the degree of invasion of the process was precisely determined, as can be seen in the table below (Table 2).

Table 2. Groups of patients underwent CT according to the stage of the tumor:

Process of the disease	Number of Patients (n=53)	
	Absolute	Proportional
T1N0M0	8	15,1%
T2N0M0	24	45,3%
T3N0M0	16	30,2%
T4N0M0	5	9,4%

As can be seen from the table, the process was in the T2-T3 stage in most of the patients who underwent computed tomography. Out of 24 patients in the T2 stage, 14 were in the T2a stage because the process moved to the superficial muscle layer of the bladder, and in 10 patients, the process was in the T2b stage because the process invaded the deep muscle layer. 9 out of 16 patients in the T3 stage were in the T3a stage because the process invaded all layers of the bladder, and in 7 patients in the T3b stage because the process moved to the tissue around the bladder, in 3 out of 5 patients in the T4 stage it was in the T4a stage because the process moved to the prostate gland and seminal vesicles, and in 2 patients invasion of the abdominal wall to the peritoneum is defined as stage T4b. Some authors note that the diagnostic capabilities of computed tomography in the early stages of bladder cancer and differentiation of T2-T3 stages are not so high. To eliminate this deficiency of computed tomography in the diagnosis of the above-mentioned pathology, although it is somewhat economically expensive, starting from the 80s, nuclear-magnetic resonance tomography, a new form of radiation examination method, started to be used in urological practice. This examination is distinguished by its high accuracy, sensitivity, and specificity among other radiation diagnostic methods in detecting and determining the stage of bladder tumors [1,2,12]. No special preparation is required from patients for the examination. The possibilities of MRI in the differentiation of all stages of bladder cancer are highly appreciated, and although it is economically expensive, the possibilities of this examination were used to diagnose the disease and determine the degree of invasion in 15 (10.5%) of our observed patients. In

3 of the patients who underwent magnetic resonance imaging, the tumor tissue was identified in the right lateral back of the bladder, in 5 in the left lateral back, in 2 in the posterior, in 2 in the anterior wall, and 3 patients in the neck area of the bladder. In 11 of these patients, single tumor was found in bladder, in 3 of them two tumors, and 1 of them three tumors. The size of the tumor was between 2.5-3.0 cm in 2 patients, 3.0-4.0 cm in 4 patients, 3.5-4.5 cm in 5 patients, and 4.0-5.0 cm in 4 patients. One of the main criteria for determining the type of operation to be carried out was the determination of the degree of invasion of the process, in addition to the location, number, and size of the tumor. With the help of MRI examination, the degree of local spread of the process before the operation, its attitude to neighboring organs, and changes in regional lymph nodes were studied in detail (Table 3).

Statistical analysis of the indicators of all patients included in the study was carried out using discriminant and proven medical methods. Depending on the location, size, direction of development, and degree of invasion of the tumor, appropriate operations were performed on all patients in our observation (Table 4).

Table 3. Groups of patients underwent MRI according to the stage of the tumor:

Stage of the disease	Number of Patients (n=15)	
	Absolute	Proportional
T1N0M0	2	13,3%
T2N0M0	4	26,7%
T3N0M0	6	39,9%
T4N0M0	3	20,1%

Table 4. Types of operations performed for patients with bladder cancer:

The types of the operation	Number of patients (n=150)	
	Absolute	Proportional
Organ preserving	123	82,0%
Radical Cystectomy	21	14,0%
Urinary diversion without radical cystectomy	6	4,0 %

As can be seen from the table, organ-preserving surgery was performed in most of the patients. 102 (68.0%) patients underwent partial cystectomy, transurethral resection (TUR) was performed in 21 (14.0%) patients. Numerous treatment methods have been proposed to reduce the incidence of relapse after organ-preserving surgery. Some researchers have preferred preoperative radiation and chemotherapy to reduce the recurrence rate, while other researchers have preferred 10-15 consecutive sessions of radiation and drug therapy after surgery. However, unlike them, we considered the endovesical chemical treatment, which was processed in our clinic, experimented with in practice, and obtained satisfactory results, as an important matter. The incidence of relapse was reduced to a minimum in patients who regularly contacted us receiving endovesical drug treatment after surgery. Pathohistological examination of the macro preparation which was removed during the operation was carried out in all patients: Transitional cell cancer 55-patient

(G1-21, G2-13, G3-15, G4-6), flat cell cancer 36-patient (G1-16, G2-12, G3-8), adenocarcinoma 19-patient (G1-8, G2-4, G3-3, G4-4), malignant papilloma was in 13 patients. In 21 (14,0±2,8%)-) of patients, hydronephrotic transformation developed in the upper urinary tract, producing organic functional changes in the kidneys, depending on the location and size of the tumor in the bladder. In invasive forms of bladder cancer, in patients with such changes in the upper urinary tract and kidneys, no matter how severe and traumatic for the body, cystectomy surgery was considered a radical treatment. One of the main issues facing oncologists at present is the issue of tumors in ureters after cystectomy. Taking into account them, radical cystectomy-bilateral closure of internal iliac arteries, lymphadenectomy, ureterosigmoidoplasty in 9 patients under 60 years of age, without serious changes in the upper urinary tract and kidneys, and somatic diseases in the gastrointestinal tract, removal of the left kidney at the same time, taking into account the lack of function of the left kidney in 2 of these patients, cystectomy-bilateral, lymphadenectomy, as well as the removal of the right kidney and curvature in one patient was performed. Although it is mentioned in various works of literature that the operation of cystectomy- curvature transplantation of ducts to the skin and intestine is difficult and traumatic, the duration of the operation takes 5-6 hours, and the blood loss during the operation is high, the high experience of our clinic in this field shortens the duration of the operation 3-3,5 hours and led to blood loss of 150-300 ml [3,11]. Pathohistological examination of the macro preparation removed during surgery was performed in all patients. Pathohistological response: transitional cell carcinoma in 10 patients (G1-2, G2-3, G3-4, G4-1), squamous cell carcinoma in 6 patients (G1-2, G2-1, G3-3), adenocarcinoma in 5 (G1 -1, G2-1, G4-3) was present in the patient. T3bN0M0-6, T3bN1M0-3, T4aN0M0-10, T4aN1M0-2 patients. In 6 (4.0±1.6%) patients, taking into account the seriousness of the patient's condition, the palliative operation was performed: bilateral ureterocutanestomy, internal iliac artery ligation, and lymphadenectomy. Pathohistological response: transitional cell cancer was in 3 patients (G1-1, G2-1, G4-1), squamous cell cancer was in 2 patients (G2-1, G3-1), adenocarcinoma was G3-1 in 1 patient.

Results and Discussion.

In our research work, an algorithm was developed by conducting a comparative analysis among modern methods of radiation examination (Ultrasound, CT, MRI) in determining the location of the tumor in the bladder, the localization, size, direction of development and local prevalence of the process, analyzing the results obtained and trying to determine the sequence of profitable examinations for patients.

In patients with superficial Ta-T1 stages of bladder cancer, who do not invade the deep layers, do not form hydronephrotic transformation in the upper urinary tract and kidneys, regardless of their size, located far from the arteries, the diagnosis is fully clarified on the basis of general analysis of blood and urine, biochemical examination of blood, ultrasound examination. At this stage, CT, MTR methods do not add any information of different importance and can change the surgical tactics.

In other patients (T2-T3-T4), in order to put an end to the

controversial issues arising in the diagnosis and selection of radical treatment, although the preoperative CT and MRI examinations are economically expensive, they are considered important in terms of obtaining effective results.

According to the results of our research in ultrasound examination on specific stages of the process in the diagnosis of bladder cancer T1-100%, T2 - 94.7±2.3%, T3 - 92.2±2.8%, T4 - 96.2±1.7%, and the sensitivity of the study T1 - 93.8±6.1%, T2 - 92.9±3.4%, T3 - 85.0±4.6%, T4 - 83.3±8.8%. The sensitivity of transrectal ultrasound in determining the degree of invasion of the process T1 - 85.7±13.2%, T2 - 92.9± 19.2%, T3 - 85.7±13.2%, T4 - 100%, specificity T1 - 93.3±6.4%, T2 - 87.5±8.3%, T3 - 84± 7.3%, T4 - 95.0±4.9%. Although the results of the T1-T4 phase of the transrectal ultrasound examination were consistent, certain errors were found in the differentiation of the T2-T3 stages. Despite the emergence of these shortcomings, in general, the capabilities of transrectal ultrasound have been highly appreciated. The invasive nature of the examination somewhat limits its application in practice. 90.9% of the response of transrectal ultrasound examination in determining the degree of invasion of bladder cancer was correct. The stages of the process of transabdominal ultrasound examination in the diagnosis of bladder cancer are T1-93.7% correct, 6.3% incorrect, T2-94.3% correct, 5.7% incorrect, T3-89.6% correct, 10.4% incorrect, T4-91.3% correct, 8.7% incorrect answers were received. When comparing the results of transabdominal ultrasound according to stages in all patients who were under our observation and were operated on according to bladder cancer after the operation, it was determined that 92.1% were correct and 7.9% were incorrect. Although there was a mistake in the number of tumors in 7 (4.6%) patients when the corresponding operation was performed on the patients, the number of tumors was correct in 143 (95.3%) patients. In 8 (5.4%) patients there was a mistake in the location of the tumor. According to the CT response, the location, number, and size of the tumor were consistent in 88.6% of the operated patients, and only 11.4% had discrepancies in the responses. In the diagnosis of CT bladder cancer, the sensitivity for stages is T1-87.5±11.7%, T2-75.0±8.8%, T3-100%, T4-80.0±17.9%, and the specificity is T1- 95.6±3.1%, T2-96.6±3.4%, T3-86.5±5.6%, T4-100. CT response according to the degree of local spread of the process, i.e., by stages T1-87.5% correct, 12.5% incorrect, T2-83.3% correct, 16.7% incorrect, T3- 81.3% correct, 18.7% was wrong. In 13 (86.7%) of the 15 patients who were examined by MRI, the location, number, and degree of invasion were correct. In only 2 patients, the number of tumors was two and three. Although it was noted that the process invades all layers of the urinary tract and the prostate gland, during the operation, the presence of a number of tumors, and the infiltration of the process into the superficial muscle layer has been confirmed. In patients with bladder cancer, the specificity rate of MRI examination T1-100%, T2-100%, T3-85.7±13.2%, T4-71.4±12.1%, and sensitivity T1-100%, T2- 75.0±21.7%, T3-50.0±17.7%, T4-100%. Based on the results of our research, we came to the conclusion that the general analysis of blood and urine, biochemical examination of blood in patients with superficial Ta-T1 stages of bladder cancer, which does not invade

deep layers, does not cause hydronephrotic transformation in the upper urinary tract and kidneys, regardless of its size, and is located far from the ureter, the diagnosis is fully specified on the basis of ultrasound examination.

According to the CT response, the determination of the degree of invasion was consistent in 88.6% of the operated patients, only 11.4% had a discrepancy in the responses, and in 86.7% of the MRI patients, the degree of invasion was correct, only 13.3% had a discrepancy.

The difference between the final diagnosis and the preoperative diagnosis is based on the surgical results. Test sensitivity (Sn) is the ratio of true positive results to the number of positive results in the final diagnosis, specificity (Sp) is the ratio of true negative results to the number of negative results in the final diagnosis, and the total value of the test is found as the ratio of the sum of true positive and true negative results to the cumulative total number of tests.

At this stage, CT, and MRI methods do not add any information of different importance and can change the surgical tactics. Therefore, in this group of patients, it is possible to clarify the diagnosis by conducting general examinations, US examination, and excretory urography in patients with changes in the upper urinary tract, which ensures a reliable solution to surgical tactics. In other patients (T2-T3-T4), in order to put an end to the controversial issues arising in the diagnosis and selection of radical treatment, although the preoperative CT and MRI examinations are economically expensive, they are considered important in terms of obtaining effective results.

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