

**Ministry of health of Ukraine  
Higher state educational establishment of Ukraine  
“Ukrainian medical stomatological academy”**



**«Approved**

At the sitting of the chair of oncology  
The minutes №2 from September 1, 2018.  
Manager of chair of oncology  
MD, professor V.P.Bashtan

**METHODICAL POINTING  
FOR INDEPENDENT WORK OF STUDENTS  
DURING PREPARATION TO PRACTICAL EMPLOYMENT**

<i>Educational discipline</i>	<i>Oncology</i>
<i>Module №</i>	<i>I</i>
<i>Semantic module №</i>	<i>I</i>
<i>Theme of employment</i>	<b>Rectum cancer</b>
<i>Course</i>	<i>V</i>
<i>Faculty</i>	<i>Medical №1, №2</i>

## **Theme: “Rectum cancer”**

**Amount of hours** – 2 educational hours.

### **1. Actuality of theme.**

The level of morbidity and distribution of rectum cancer is one of the greatest among malignant new formations of gastrointestinal tract and yields only to the cancer of stomach and colon. For this pathology characteristic high morbidity in the countries of Western Europe and countries of North America and low in the countries of Asia and Africa. Level of morbidity on the cancer of rectum in Ukraine on 2009 y. made to 18,5 cases on 100 thousands of population, more high at men, than at women (accordingly 20,3 cases and 16,7 on 100 thousands of population). In this connection the task to learn reasons which conduce to the cancer of rectum and to set the ways of prophylaxis appears before doctors. Precancerous diseases of rectum: polypuses, ulcerous colitis, chronic paraproctitis et al., is observed at a surgeon and proctologist. In accordance with etiologic factors there are the groups of risk of disease on the cancer of rectum. That is why knowledge of these features it is important for the students of a 5 course, which study oncology, and knowledge and ability is acquired by them will help them in the future to decide the question of prophylaxis of cancer, or diagnostics of him on an early stage when possibly treatment on the radical program.

### **2. Educational aims of employment:**

#### **To know (M – II)**

- etiology and pathogeny of rectum cancer (RC);
- epidemiology of RC;
- clinical forms of RC;
- pathoanatomy of RC;
- classification by system of TNM;
- clinic and obligatory methods of inspection of patients on RC;
- basic methods of treatment of patients: surgical, combined, radial, chemotherapy.
- risk groups.

#### **To be able (M – III)**

- to determine the stages of distribution of tumor process;
- to conduct the common objective and special inspection of patients;
- to define the value of additional methods of inspection at patients (dactylar inspection, recteromanoscopy, colonoscopy, irrigoscopy, ultrasonic researches, and other);
- to appoint individual treatment depending on the stage of tumor, common state of patients and their age.

### 3. Materials to audience independent work.

#### 3.1. Intradisciplinary integration (base knowledges, abilities, skills are themes necessary for the study themes)

Disciplines	To know	To be able
Anatomy	Anatomic structure of rectum.	To explain possibility of origin of those or other metastases.
Physiology	Circulation of blood and ways of taking of lymph. Physiology of function rectum.	To explain the value of clinical inspections.
Therapy	Review of patients with complaints about pathology in an abdominal region and cavity of small pelvis (palpation, collection of anamnesis).	To be able to analyse the results of the got inspections.
Radio-therapy	To know preparation to the endoscopy and roentgenologic inspections of rectum and colon.	To be able to read sciagrams.
Surgery	To know the volume of surgical interferences on rectum	To conduct the clinical review of patients (dactylar inspection of rectum, recteromanoscopy, endoscopy researches of rectum)

#### Epidemiology.

Morbidity on the cancer of rectum in Ukraine is annually increased on 2,4%, mainly due to the increase of frequency of cancer at men (4,7%). The peak of morbidity is observed in age 60-75 years.

Morbidity in the Poltava region is 21,9% on 100 thousands of population. About 5,5 thousand of persons annually dies in Ukraine from the cancer of rectum; a death rate makes 11,7 cases on 100 thousands of population, thus during one year 38,5% primary patients die from the moment of establishment of diagnosis. An index is high enough, if to take into consideration that the cancer of rectum behaves to visual localizations.

#### Etiology.

Reasons which result in the cancer of rectum, the same, as well as at the cancer of rectum: character of feed (type of diet), high maintenance of albumens and fats in a meal, harmful habits (smoking, alcohol), declines of physical activity, inherited factors.

##### Precancerosis diseases:

- polyposis (total);
- heterospecific ulcerous colitis;
- single adenomatous polyposis.

## **Anatomic features**

In a rectum distinguish three portion: low portion of ampulle (5sm from anus), middle portio (5 – 10 sm), upper portion (10 – 15sm). Frequency of defeat of these parts is 25, 50, 25 accordingly %. Consequently, in 75 % cases the lower portion of rectum are struck. The tumors of anal area are selected in a separate nosology group (MKKH S21).

## **Pathoanatomy**

The macroscopic forms of growth of tumors of rectum (exophytic, endophytic, mesophytic is mixed form, that meets more frequent all) and histological classification the same, as well as at the cancer of colon.

## **Histological classification of tumors of rectum.**

### **I. Adenokarcinoma**

- High-differentiated
- Moderato differentiated
- Lower differentiated

### **II. Mucus (colloid) cancer**

### **III. Undifferentiated cancer**

- Solid cancer
- Skir

Undifferentiated tumors (undifferentiated adenokarcinoma , the unclassified cancer is undifferentiated) more sensible to radial and medicinal treatment and at the same time prognostic less favourable, because differ greater invasive, quick give metastases.

## **Ways of metastases:**

- ✓ Lymphogenous is basic way of metastatic. Lymphnodas are in the mesentery of colon, and then lymphnodas after motion of main vessels are foremost struck .
- ✓ Gematogenniy – metastases more frequent all in a liver, lung, cerebrum, bones. Possible also remote metastases of Virkhov, Shnicler, Krukenberg.
- ✓ Implantasic is implantation of tumors mews in the wall of bowel below from localization of the first tumor.

Basic way of metastases is lymphogenic, although possible gematogenniy and implantation metastasis. More frequent all there are metastases in a liver (at the defeat of upper and middleampular part of rectum). At the defeat of lowampular and metastases are possible an anal part in the lymphatic nodes of inguinal.

## **Classification of rectum cancer**

(code of MKKH-10 C18 – C20) by system of TNM (6th editions, 2003 years).

## **TNM Clinical classification**

### **T – the Primary tumor**

T<sub>x</sub> — it is not enough information for estimation of primary tumor

T<sub>0</sub> – is a primary tumor does not determined

T<sub>is</sub> — carcinoma in situ: inwardly epithelial tumor or invasion of basal membrane

T<sub>1</sub> – a tumor infiltration a submucous layer

T2 – a tumor infiltration a muscular layer

T3 – a tumor penetrates through a muscular layer in a serous layer or in fabric around rectum

T4 – a tumor directly spreads on nearby organs

**N – the regional lymphatic nodes.**

N<sub>x</sub> —not enough information for the estimation of the state of regional lymphatic nodes

N<sub>0</sub> — there are no signs of defeat of regional lymphatic nodes

N<sub>1</sub> – there are metastases in 1-3 regional lymphatic nodes

N<sub>2</sub> – there are metastases in 4 and anymore regional lymphatic nodes

**M – metastases are remote**

M<sub>x</sub> —not enough information for determination of remote metastases

M<sub>0</sub> – remote metastases do not determined

M<sub>1</sub> – present remote metastases

### **p TNM патоморфологічна classification**

**The categories of p T, p N and p M answer the categories of T, N and M**

pN<sub>0</sub> – Material for histological research after regional lymphadenectomy must include not less than 12 lymphatic nodes.

G – Gistopatologic gradation

G<sub>x</sub> – Degree of differentiation can not be certain

G<sub>1</sub> – the High degree of differentiation

G<sub>2</sub> – the Middle degree of differentiation

G<sub>3</sub> – the Low degree of differentiation

G<sub>4</sub> – the Undifferentiated tumor

### **Groupment after stages**

<b>Stage 0</b>	<b>Tis</b>	<b>N<sub>0</sub></b>	<b>M0</b>
<b>Stage I</b>	<b>T1</b>	<b>N<sub>0</sub></b>	<b>M0</b>
	<b>T2</b>	<b>N<sub>0</sub></b>	<b>M0</b>
<b>Stage II</b>	<b>T3</b>	<b>N<sub>0</sub></b>	<b>M0</b>
	<b>T4</b>	<b>N<sub>0</sub></b>	<b>M0</b>

<b>Stage III</b>	<b>Any T</b>	<b>N<sub>1</sub></b>	<b>M0</b>
	<b>Any T</b>	<b>N<sub>2</sub></b>	<b>M0</b>
<b>Stage IV</b>	<b>Any T</b>	<b>any N</b>	<b>M1</b>

### Plan and organizational structure of employment

<b>№ п/п</b>	<b>Basic stages of employment their functions and maintenance</b>	<b>Educational aims in the levels of mastering</b>	<b>Methods of control and studies</b>	<b>Materials methodical providing: control, evidentness and intensity.</b>	<b>Division time in minutes</b>
1.	<b>PREPARATORY STAGE</b> Organizational measures.				
2.	Educational goals setting and motivation.	Control of presence	Individual verbal questioning.	II.2 “Educational aims”.	5min.
3.	Control of initial level of knowledges of skills and abilities: ➤ etiology, pathogeny and epidemiology of rectum cancer; ➤ precancerosis diseases of rectum and risk group; ➤ clinical classification of rectum cancer and TNM; ➤ clinical picture of rectum cancer; ➤ modern methods of diagnostics of rectum cancer. ➤ basic methods of treatment of rectum cancer (surgical, combined).	Actuality of theme (I)  (II)  (II)  (II)  (II)  (II)	Testing of initial level of theoretical knowledges.	II.1 actuality of theme. Tables, pictures, plaster casts, preparations. Tests of initial level of knowledges. Methodical developments for students. Reference card. Structurally are logical charts. Tool.	20min.

4	<p><i>BASIC STAGE</i></p> <ul style="list-style-type: none"> <li>➤ to conduct the common objective inspection of patients;</li> <li>➤ to conduct rectal research;</li> <li>➤ to define the stage of distribution of process;</li> <li>➤ to conduct the biopsy of tumor (at rectoromanoscopy);</li> <li>➤ to conduct differential diagnostics of tumors of rectum;</li> <li>➤ to appoint treatment of patients on rectum cancer depending on a stage.</li> </ul>	<p>(III)</p> <p>(III)</p> <p>(III)</p> <p>(III)</p> <p>(III)</p> <p>(III)</p>	<p>Methods of forming of skills: practical training.</p> <p>Methods of forming of abilities: professional training in the decision of offtype clinical situations.</p>	<p>Algorithms for forming of practical skills.</p> <p>Equipment.</p> <p>Algorithms for forming of professional abilities.</p> <p>Patients.</p> <p>Hospital charts.</p> <p>Texts situatioonal offtype tasks.</p> <p>Imitations games.</p> <p>Equipment.</p>	50min.
5.	<p><i>FINAL STAGE</i></p> <p>Control and correction of level of professional abilities and skills.</p> <p>Working out the totals of employment.</p> <p>Domestic task.</p>	<p>(III)</p>	<p>Methods of control of abilities: the analysis and estimation of results is clinical works, laboratory researches, untiing of offtype tasks, test control of a III level.</p>	<p>Clinical job performances + hospital charts.</p> <p>Tasks of a III level.</p> <p>Results of laboratory research.</p> <p>Reference card for work with literature.</p>	15min.

## **Clinic.**

Clinical displays tumors of rectum depend on localization of tumor in a bowel and stage of distribution.

Most frequent symptom is presence of pathological excretions from a rectum, admixtures of blood in stool which appear before defecation or during defecation, is observed in 75 –90 % patients. Other group of symptoms – constipation, change of form of excrement, urges to emptying (tenesmus) is related to the parafunction bowels. Tenesmus appears at excrescence of tumor in the middleampular part of bowel with the phenomena of impassability and testify to distribution of process. Pain at the tumors of rectum can have different character and also depends on the row of reasons. Intestinal impassability is observed in 30 % patients with the cancer of rectum.

Violations of the common state of patients with the cancer of rectum arise up only at a widespread process. In initial stages the common state of patients does not change. The high temperature of body is related to the inflammatory process round a tumor or metastases in a liver, which are in 10 – 15 % patients.

## **Risk factors.**

The important value for early diagnostics and prophylaxis of cancer of rectum has determination of risk factors.

To them belong:

- 1) use of meal with high maintenance of fats, albumens;
- 2) lack of vitamins of A, C, E in a meal (multiplies the risk of disease twice);
- 3) frequent use of alcohol, in particular beer (multiplies the risk almost in 2 times);
- 4) obesity;
- 5) diminishing of physical activity;
- 6) smoking;
- 7) decline of genesial function at women;
- 8) operations on an occasion the cancer of colon in the pas (plural cancer);
- 9) patients with the cancer of pectoral gland, saccharine diabetes (identical factors of risk).

## **Diagnostics.**

For diagnostics of rectum cancer it follows to take into consideration complaints, anamnesis of disease and examination of patients.

- Physical inspection.
- Rectal finger research.
- Rectomanoscopy.
- Irrigoscopy.
- Ultrasonic research with the use of rectal sensor.
- Biopsy of tumor for histological research.
- Cytological inspection of embryonal smears.
- Determination a rectum cancer antigen of whey of blood – PEA.

## Treatment.

For treatment of rectum cancer apply surgical, radial and chemotherapy. However, there is radical only a surgical method. The choice of type of operation depends on localization of tumor in a rectum.

- **Types of operations at the rectum cancer:**

*Abdominal-perineal extirpation of rectum (operation of Kenya-maylsa)*

*Sphinctersofety operations*

*Celiac-anal resection of rectum*

*Through the peritoneal resections of rectum*

*Operation of Gartman*

## Radial therapy

At the rectum tumors she is one of obligatory facilities of influence on a malignant process in *the combined treatment*. At widespread tumors (T3-4) two variants can be used: preoperative intensively-concentrated radial therapy and finely factious tele-irradiation and also postoperative irradiation.

## Chemotherapy.

Neoadjuvant (preoperative) and adjuvant (in a postoperative period). Cytostatic therapy is used in recent years all anymore. Inculcated new perspective preparations (kselod, irinotecan, tegafur, ocsyloplatin) are incultated, but basic cytostatic on in treatment of rectum cancer remains for today – 5-fluoruracil.

## Prognosis.

The general 5-years-old survival is 45-55% and in the last few years did not substantially change. At tumors which are limited by a mucus submucous shell (T1), that discover in a preclinical period at preventive examination (tests on the hidden blood or at a colonoscopy), life-span is 80 - 90 %. At tumors with metastases in regional lymphatic nodes life-span folds 30 - 45 only %.

## Terminology

English	Russian	Latin
Rectum cancer	Рак прямой кишки	Carcinoma recti
Adenocarcinoma	Аденокарцинома	Adenocarcinoma
Squamous cell carcinoma	Плоскоклеточный рак	Planae epitelialae
Irrigoscopy	Ирригоскопия	Irrigoscopia
Extirpation of rectum	Экстирпация прямой кишки	Exstirpation rectu

### **3.3. RECOMMENDED LITERATURE**

#### **a) Basic**

1. Oncology / [Edited by prof. I.B.Shepotin, prof. R.T.Evans]. – Kiev: Medicine, 2008. – 496 p.
2. Clinical oncology / [V.Sorkin, A.Popovich, Yu. Dumanskiy and oth.]; under the edit. of the prof. G.V.Bondar. – Simferopol, 2008. – 192 p.

#### **b) Additional**

1. Ain KB: Anaplastic thyroid carcinoma: a therapeutic challenge. Semin Surg Oncol 1999; 16: 64-69.
2. Scully C, Field JK, Tanzawa H: Genetic aberrations in oral or head and neck squamous cell carcinoma (SCCHN): 1. Carcinogen metabolism, DNA repair and cell cycle control. Oral Oncol 2000 May; 36 (3): 256-63.

### **3.4. MATERIALS FOR SELF-CONTROL**

#### **A. Questions for self-control.**

1. What portion does a rectum have?
2. What sizes of rectum?
3. Supply blood of rectum?
4. Lymph drainage of rectum?
5. Clinical forms rectum cancer?
6. Is there a list of necessary inspections at suspicion on the cancer of rectum?
7. Most frequent histological structure of tumors of anal area?
8. Types of surgical interferences as does apply at the tumors of rectum?

## **B. Testes for self-control.**

1. With most frequent is struck by malignant tumors:
  - 1) rectosigmoid portion;
  - 2) ampulla of the rectum;
  - 3) anal channel.
2. Conducting of finger research of rectum is most effective in position of patient:
  - 1) on the back with arcuated feet;
  - 2) on a side with arcuated feet;
  - 3) in knee-elbow position;
  - 4) squatting.
3. Most index of malignancy is had:
  - 1) hyperplastic polypus;
  - 2) villus polypus;
  - 3) adenomatous polypus;
  - 4) plural adenomatous.
4. A patient appealed to the doctor with complaints about the selection of blood from a rectum, frequent stool with plenty of mucus. Diagnosis is previous and volume of inspection.
  - 1) cancer of rectum;
  - 2) internal piles;
  - 3) villus tumor;
  - 4) finger inspection;
  - 5) rectoromanoscopy.
5. The sick is hospitalized in a emergency order in surgical department with the phenomena of intestinal impassability. What inspection needs to be executed for clarification of diagnosis and decision of question about surgical interference
  - 1) in general lines clinical inspections;
  - 2) irrigoscopy;
  - 3) survey sciagraphy of abdominal region.
6. A patient appealed to the doctor with complaints about a frequent stool (to 10 times per days) with plenty of mucus. Infectious nature of disease is eliminated. About the tumor of what portion of rectum is it possible to think?
  - 1) upperampular;
  - 2) middleampular;
  - 3) lowampular.

## **C. Situations tasks for self-control.**

### **Task № 1**

At a patient 70 years, which constipations, swelling of intestinal suffered long time, sharp intestinal impassability appear. In the emergency surgical department under the common anaesthetizing laparotomy is conducted: ascites is not present, exaggerated distal part of thin bowel and especially is colon to the middle part of sigmoid, where a tumor is 4x5 cm, which fully obturation of bowel. The adduction part department of colon is exaggerated to 8-12 cm, filled by a liquid excrement, taking part of sigmoid of to 3 cm in thick. What a surgeon must re-done? Variants?

### **Task № 2**

A patient 50 years acted emergency to the surgical department on an occasion sharp large intestine impassability. At laparotomy is tumor of descending part of colon. The adduction part moderato distention ascites, in an abdominal region is not present. The large intestine mobile. Diagnosis? What a surgeon must do?

### **Task № 3.**

Patient 60 years on the reception at a doctor complains on constipation admixtures of blood in an excrement. A doctor did not examine a patient, diagnosed: colitis, a piles appointed the reception of extracts of purgative herbares and hip-baths with solution of permanganate to potassium. The state of patient did not become better. In 2 weeks on an occasion bloody excretions from an anus a patient appealed to the surgeon. At the dactylar inspection it is found out haemorrhoidal nodes, and on a glove is excrement with the admixtures of blood. What additional researches does it follow to conduct? Previous diagnosis? Defects of inspection?

### **Task № 4.**

Patient 60 years emergency got to the surgical separation on an occasion intestinal impassability: a stomach is blown away, and in the ampoule of rectum is mucus and blood. On operation: tumor in the rectosigmoid portion of bowel which accreted with surrounding fabrics. Sigmoid colon sharply distention by an excrement and gases. It is not found out remote metastases. Diagnosis? What a emergency surgeon must do? Plan of subsequent treatment.

### **Task № 5.**

Sick 63 years appealed to the surgeon on an occasion the permanent admixtures of blood and mucus in an excrement. A blood with mucus appears before the output of excrement. Emptying with propensity to constipations. At dactylar rectal research found out haemorrhoidal knots which slept, and in transparent rectum is mucus and blood. A stomach is soft, painless. Previous diagnosis. What does it follow to differentiate the disease with? Plan of subsequent inspection.

**Task № 6.**

A patient 52 years appealed to the internist on an occasion excretions of blood during the act of defecation. Other complaints are not present. Noticed the selection about 2 months ago. At first a blood was selected now and then in closing dates constantly. To the patient the conducted rectometer. In the distance 15 cm found out a sanguifluous tumor which occupies near the half of neighbourhood of bowel, higher tumors a proctoscope not is conducted through the danger of bleeding. At a biopsy histological is cancer of rectum. A diagnosis is the cancer of rectum. Correctly diagnosed whether? What additional inspections are needed? Plan of treatment.

## **Standards of answers**

### **№ 1**

1. Optimum is operation of Gartman ( to delete the area of bowel, that carries a tumor, to show out a proximal end on a front abdominal wall, distal tight to sew.

### **№ 2**

1. Cancer of idescending portion of colon, complicated by obturation intestinal impassability.
2. Obstructive left-side hemicolectomy (operation as Gartman).

### **№ 3**

1. Rectoscopy with a biopsy, irrigography, sciagraphy of organs of thorax, ultrasound of organs of abdominal region.
2. Cancer of middle part of rectum.
3. The dactylar and instrumental inspection of rectum is not executed in good time.

### **№ 4**

1. Cancer of rectosigmoid part of rectum with complete obturation to the intestine. Complication is sharp intestinal impassability.
2. Operation of Gartman, at impossibility is imposition of inseparable bivalve unnatural anus.
3. Chemotherapy treatment.

### **№ 5**

1. Cancer of rectum (rectosigmoid portion).
2. Ulcerous colitis, piles, crack of anus.
3. Rectoscopy, irrigography.

### **№ 6**

1. More precisely cancer of upper part of rectum of T2NXMX.
2. Irrigoscopy, irrigography.
3. Front resection of rectum or abdominal-anal resection of rectum.

#### **4. MATERIALS FOR AUDIENCE INDEPENDENT WORK**

##### **4.1. List of educational practical tasks which must be mastered on practical employment.**

1. Collection of anamnesis.
2. Review and palpation of patients.
3. Palpation of inguinal lymphonoduss.
4. Rectal research.
5. To know as a recto- and colonoscopy is conducted.
6. To be able to read sciagrams.
7. To work out a plan of treatment of patient with the cancer of rectum.

##### **4.2. Professional algorithm in relation to the capture by skills and abilities**

###### **Task:**

To conduct the review of patient with suspicion on the cancer of rectum

**Note:** to pay attention to the common state of patient, palpation of abdominal cavity, rectal inspection.

3. To take part in the endoscopy inspection of patient (rectoscopy and colonoscopy)

**Note:** to pay attention to the state of mucus, presence and form of tumors formation.

4. To read irrigogramme (at the inspection of rectum)

**Note:** to pay attention to the form of intestinum, presence of gastrulas, filling by the barium of bowels, evacuation of contrast.

#### **Materials after audience independent work.**

1. Study of indexes of morbidity and death rate on a cancer in the Poltava region.
2. Study of possible dependence of increase of level of morbidity on a cancer in the Poltava region from contamination of external environment.

Methodical development is revised and ratified on meeting of department of oncology.

**Manager by a department**  
**MD, prof.**

**V.P.Bashtan**