

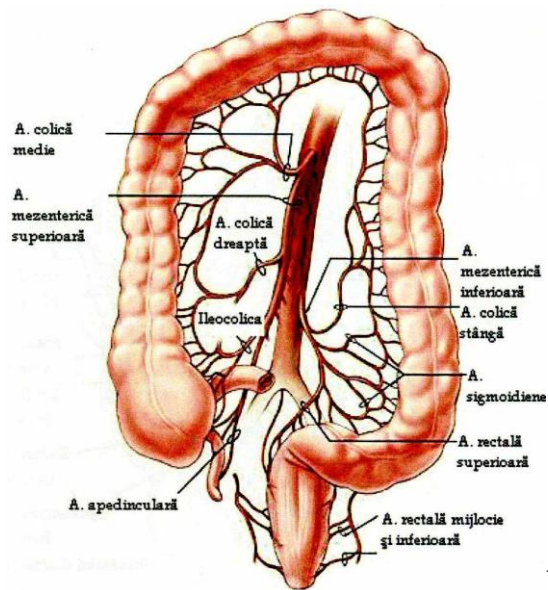


Fig.1 Vascularization of the colon

The inferior mesenteric artery vascularizes the left colon and part of the rectum, having the following branches:

- superior left colic artery;
- the middle left colic artery which often forms a common trunk with the sigmoid arteries;
- the trunk of the sigmoid arteries intended for the ileocolic colon;
- the superior (left) sigmoid artery that crosses the ureter and the left genital vessels anteriorly;
- the superior hemorrhoidal artery which is the terminal artery of the inferior mesenteric or the main artery of the rectal ampulla;

Sometimes there is a second left colic artery originating in the superior mesenteric artery, which in these cases forms a "central intermesenteric anastomosis" (Huard)

The sigmoid arteries originate in the inferior mesenteric, frequently through a common trunk. Sudeck claims that the only anastomosis between the inferior sigmoid artery and the inferior mesenteric artery or its terminal branch, the superior rectal artery, is achieved only through the sigmoid artery. This anastomosis was also called the critical point described by Sudeck because a ligation of the upper rectum below it would produce ischemia and necrosis of the upper part of the rectum. The ligation performed on the lower mesenteric artery, so above the anastomosis, allows good irrigation for the rectum, with the blood source from the lower sigmoid artery, which passes further, through the anastomosis to the upper rectal. In order to maintain a good irrigation, it is necessary to ligate the sigmoid arteries as close as possible to the origin and to avoid deperitonization of the paracolic arches and the artery, which remains as the source of blood

supply in rectal resections and descent of the sigmoid colon. That is why Gregoire talked about the existence, in this region, not of a critical point but of a critical zone.

The inferior mesenteric vein collects blood from the left half of the large intestine and a large part of the rectal ampulla. It starts with two branches arranged anteriorly and posteriorly to the rectal ampulla and becomes the superior hemorrhoidal vein. It ends by anastomosing with the splenic vein to form the spleno-mesenteric trunk that flows into the portal vein.

The branches that flow into the inferior mesenteric vein are:

- superior hemorrhoidal vein;
- the trunk of the sigmoid veins;
- lower left colic vein;
- middle left colic vein;
- left superior colic vein participating in the "venous arch of Riolan".

Lymphatics of the large intestine

From the mucosa of the colon, the lymphatic vessels gather in a muscular network and then in a subperitoneal network. Related lymphatic vessels start from the paracolic or marginal network leading to the intermediate, central, preaortic, retropancreatic and portal lymph nodes.

The ganglia along the right colic artery and vein are few in number, while the ganglia along the course of the middle colic vein are numerous and continue almost directly with the group of central superior mesenteric ganglia. This fact explains the possibility of much faster metastasis and the more reserved prognosis of cancer of the right colonic flexure compared to cecal cancer and of the initial part of the ascending colon, with slower metastasis.

1.5. INNERVATION OF THE LARGE INTESTINE

Sympathetic innervation

The cecum, ascending colon and transverse colon (right portion) receive nerve fibers from the superior mesenteric plexus and the vagus nerve.

The transverse colon (left portion), the splenic angle of the colon, the descending colon and the ileo-pelvic colon are innervated by branches from the inferior mesenteric plexus.

Parasympathetic innervation

The small intestine and the right colon are innervated by the cranial parasympathetic.

The left and terminal colon are innervated by the sacral parasympathetic.

2.2. The ascending column :

- anterior: loops of the small intestine and the external edge of the great omentum. When it is distended from gases or solid and liquid matter, it is in direct contact with the anterior abdominal wall;
- posterior: the iliac muscle, the iliac crest, the external edge of the quadratus lumborum muscle, the lower half of the anterior face of the right kidney and the transverse muscle;
- medially: the psoas muscle, the right ureter, the genital vessels and the loops of the small intestine;
- lateral: the abdominal wall and the right parieto-colic space.

2.3 Hepatic angle of the colon :

- anteriorly: the lower face of the liver, the gallbladder, the right extremity of the great omentum;
- posterior: the lower pole of the right kidney and the duodenum;
- superior: lower face of the liver (right lobe);
- inferior and internal: loops of the small intestine.

2.4 The transverse colon:

Right segment:

- superior: the lower face of the liver to which it is often connected by the hepato-colic ligament;
- lower: loops of the small intestine;
- anterior: the ventral abdominal wall, sometimes the great omentum interposes;
- posterior: the right kidney, the second portion of the duodenum and the head of the pancreas;

Left segment:

- superior: responds to the great curvature of the stomach by means of the gastro-colic omentum;
- lower: loops of the small intestine;
- anterior: ventral abdominal wall;

2.3 REGULATION OF THE MOTILITY OF THE LARGE INTESTINE

Automatic contractile activity is under the control of the myenteric plexus. The proximal colon has greater autonomy, being able to perform its motor function almost normally in the conditions of bilateral vagotomy, while the distal colon presents reduced possibilities in this sense.

Extrinsic parasympathetic stimulating innervation is represented by the vagus nerve for the proximal colon and by the sacral pelvic nerves (S2-S4) for the distal colon. The sympathetic, inhibitory innervation is represented by fibers from the celiac plexus (T5-T12) and superior mesenteric (T12-L1) for the right half of the colon and by fibers from the inferior mesenteric plexus (L2-L3) for the left half of the colon. Both components act at the level of intramural plexus neurons

The humoral factors with a role in stimulating the motility of the large intestine are gastrin (which participates in the gastro-colic and duodeno-colic reflexes), serotonin and cholecystokinin.

3. GROSS DIGESTIVE TRANSIT LA NIVELUL INTESTINULUI

It represents the passage time through the intestinal tract and reflects the efficiency of digestive enzyme activity, absorption and motility of the intestinal digestive tract.

Normally, it takes about 24 hours from the moment of food perception and ingestion to faecal elimination.

Microbial digestion of cellulose and undigested carbohydrates takes place in the cecum and ascending colon. Lactic acid and other organic acids appear which will give the cecal content a slightly acidic reaction. Bilirubin is transformed into stercobilinogen and then into stercobilin. The result is a pasty, rough, yellow-orange, slightly acidic mass. The presence of ammonia and numerous iodophilic bacteria is highlighted. From the transverse colon to the sigmoid, the content begins to take on a fecal character, it will turn into a yellow-brown pasty mass, containing stercobilin. Starch is absent and the reaction is neutral. In the sigmoid colon the stool is formed.

The terminal portion of the colon will be evacuated through the act of defecation, which takes place in two phases, colic-expression and rectal-evacuation. Distension of the sigmoid colon triggers "mass" contractions that propel faecal matter into the rectal ampulla, thereby exciting the local mechanoreceptors that produce the "call for defecation". Related impulses are transmitted to the level of the sacral cord (S2-S4) from where the peristaltic contraction of the rectum and the simultaneous relaxation of the internal anal sphincter are ordered via the pelvic nerves. The ano-

Significant differences between races were found in populations living in Hawaii. Thus, the incidence of colon cancer is lower in Hawaiians and Filipinos, compared to Caucasians living in the same territory. Japanese men have an incidence close to that of Caucasians, while in Chinese men the incidence rate is higher. As for women, the highest incidence rates are found in Caucasians followed by Chinese and Japanese women.

The ethnic and racial differences found in connection with the incidence of colon cancer have brought back the concept according to which some of the environmental factors play an important role in the etiology of colon cancer. For the evaluation of these factors, the study of the populations that migrated has a special value. These studies demonstrated that the incidence of colorectal cancer currently reflects the geographic location and not the country of origin. The conclusion is that environmental factors are more important than genetic orientation, so that patients with high inherited risk can be taken together with those who have lower risk.

Studies carried out especially in the USA and Canada reveal a tendency to change the topographic incidence of malignant colorectal tumors in the sense of decreasing the frequency of these tumors at the level of the distal colon and rectum and increasing the frequency of proximal locations of the splenic angle. A study conducted by Obrand and Gordon on a group of 2169 patients in Canada between 1979 and 1994 revealed an increase from 24% to 35% of cancers located proximal to the splenic angle and a decrease from 70% to 60% of those located distally. .

Fleshner and colleagues highlighted the fact that the average age of patients with right colon cancer is higher than that of those with tumor localization on the left colon.

According to some authors, one of the explanations for these topographical changes in colon cancer would consist in an improvement in detection, with the help of colonoscopy, of polyps located in the left colon and their timely removal.

On the other hand, Offerhaus and collaborators highlight the increase in the incidence of adenomas at the level of the right colon simultaneously with a decrease in their incidence at the colorectal level. This change in the topographical incidence of colon cancer could be explained by the change in eating habits in terms of increased fat consumption and the ingestion of low amounts of vegetable fibers.

CHAPTER V

etiology

patients with a history of rectocolonic cancer - have a significantly increased risk of developing a second rectocolonic cancer. It can coexist with the first malignancy (SINCRON carcinoma), or it can be later (METACRON carcinoma).

CHAPTER VI

MORPHOPATHOLOGY OF RECTOCOLONIC CANCER

We can talk about a first macroscopic approach to malignant colorectal tumors, the configurations can be divided into: conopidiform (exophytic), ulcerative, stenotic, and circumferential (constrictive). Approximately two-thirds of tumors are ulcerated while one-third are exophytic tumors. Neoplasms in the right colon are usually exophytic, with a tendency to grow towards the lumen and extend along the wall.

Tumors located in the left colon grow in the thickness of the colon with a circumferential appearance, having a typical "apple spine" appearance on barium radiological examination.

It is generally considered that most adenocarcinomas of the large intestine occur at the level of pre-existing adenomas. Adenomas and carcinomas can be considered as stages of a continuous disease, caused by the gradual accumulation of genetic errors.

1. ADENOMA

It is defined as a neoplastic tumor formed by a benign epithelial proliferation that presents different degrees of dysplasia. Histopathologically, according to the WHO classification, adenomas are divided into three subtypes: tubular (75%), villous (5%) and tubulo-villous (20%).

The polyp (adenoma) - cancer transition occurs through a process called dysplasia, being defined as a set of cellular and architectural abnormalities that make the transition between a benign and a malignant lesion. Dysplasia is histologically divided into three grades:

simple dysplasia – lesions can remain unchanged for a long time (several years)

average dysplasia

severe dysplasia - with increased risk of malignancy

In the examination of a malignant adenoma (polyp), the following parameters are followed:
the size of the carcinoma (if it is limited to the body or has invaded the pedicle)

grading (good differentiation) means good prognosis, while high grading (poor differentiation) means unfavorable prognosis.

2.2 SMALL CELL CARCINOMA

It is a rare variety, representing less than 1% of colorectal carcinomas. Histologically, it is identical to small cell carcinoma ("oat grain") of the lung and has an extremely poor prognosis, in all cases having liver and lymph node metastases at the time of diagnosis.

2.3 MUCINOUS ADENOCARCINOMA

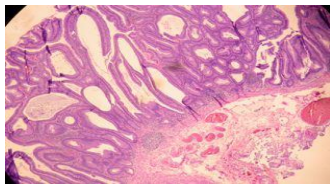


Fig. 8 Adenocarcinoma

It represents approximately 10% of all colorectal carcinomas and is characterized by the presence at the tumor level of areas with mucus in a proportion of at least 50%.

Macroscopic:

the appearance is variable, from a voluminous, vegetative, gelatinous tumor to lesions similar to linitis plastica, with a high degree of malignancy.

on the section it presents a shiny surface, having a characteristic "honeycomb" appearance

Microscopically - there are two types of mucinous carcinomas:

- the extracellular type, more common, characterized by the presence of tumor cells that float freely in large lakes of mucus

- the intracellular type consisting of usually small, spheroidal cells, originating in goblet cells, with accumulation of intracytoplasmic mucus and the nucleus pushed to the periphery ("signet ring" cells)

2.4 ADENOSQUAMOS CARCINOMA

Synonyms: adenoacanthoma, adenocarcinoma with squamous metaplasia, adenosquamous cell carcinoma, polymorphous epithelioma.

2.5 SQUAMOUS CARCINOMA

It is rare in the gastro-intestinal tract, except for the one in the anal canal.

At the level of the cecum, it can appear as a hard, gray-white, ulcerated mass, which completely circumscribes the lumen and infiltrates the entire thickness of the wall, possibly involving the ileo-cecal valve.

At the level of the anus, one can highlight an old fistulous tract with a length of 2.5 cm and a granular, whitish wall.

2.6 MULTIPLE ADENOCARCINOMAS

They can be divided into two groups:

multiple, synchronous or simultaneous tumors, in which one or more additional carcinomas are found at the time of initial examination

multiple asynchronous, or non-simultaneous, metachronous carcinomas, in which additional carcinomas develop later.

2.7 ADENOCARCINOMA OF THE APPENDIX

It is a rare entity, less than 1%. It is located in the proximal or middle part of the appendix and produces different degrees of narrowing of the lumen and its distal dilation.

It expands and invades the cecum through direct continuity, unlike cecal carcinoma that rarely invades the appendix.

2.8 CARCINOID TUMORS

They are tumors that come from Kuttshitzky granular cells located in the depth of the mucous glands (Lieberkuhn crypts) at the level of the intestine.

They can appear in any part of the gastrointestinal tract that stretches between the cardia and the anus, including at the level of Meckel's diverticulum. Most primary carcinoid tumors are located in the appendix, being the most common neoplasms of this organ. Location in the rectum is extremely rare. In the colon, the preferred location is at the level of the ileocecal valve.

Microscopically, carcinoid tumors are composed of nests and cords of typical silvery cells, monomorphic ones on the periphery having a palisadic disposition.

2.9 TUMORS OF THE LYMPHOID TISSUE WITH COLONORECTAL LOCATION

contrast irrigography. This has the advantage of fully exploring the colon. The combination of flexible sigmoidoscopy is recommended to increase sensitivity diagnosis by iriography at the level of the rectum and sigmoid. The irrigographic aspect can be a polypoid or flat lesion, an ulcerated mass, complete obstruction or a circumferential infiltrative-stenotic lesion "in the spine of an apple". Double-contrast irrigography has a detection sensitivity of about 83% for colorectal cancer.

Total colonoscopy with biopsies is the essential method ("gold standard") for the diagnosis of colorectal cancer, having the highest detection sensitivity among all available examination methods (97%). The method allows taking biopsies for histopathological diagnosis, as well as the endoscopic treatment of coexisting adenomas at the time of the initial colonoscopy.

EXPLORATION FOR STABILIZATION

The noninvasive staging of rectocolonic cancer is necessary to assess the prognosis and establish the therapeutic strategy. Staging methods in rectocolonic cancer are represented by computed tomography, nuclear magnetic resonance, echoendoscopy, immunoscintigraphy and tumor markers.

computerized tomography aspects described are: thickening of the intestinal wall, irregular internal contour/with spicules, the presence of a tumor mass, the presence of locoregional adenopathies with a diameter of more than 5mm and the presence of metastatic lesions, especially liver. The tomographic examination has a sensitivity of 55% in the assessment of local invasion, 73% for the assessment of lymph node metastases and 80% for the detection of liver metastases.

It inadequately evaluates the microscopic invasion of the colonic wall and lymph node involvement and therefore does not correlate with the Dukes classification, except for the Dukes D stage. Tomography is not useful for the diagnosis of the primary tumor, being useful for identifying complications (perforation, obstruction), synchronous lesions as well as of postoperative recurrences.

Spiral computed tomography is a recent investigation, increasingly used in the imaging exploration of the colon because it has the advantage of non-invasiveness, and on the other hand, the great accuracy gives it a second name of "virtual colonoscopy".

Nuclear magnetic resonance has similar accuracy to tomography in evaluating local extension and lymph node metastases.

Echoendoscopy has the highest accuracy in specifying the staging of tumor invasion (T) and lymph node metastases (N) in rectal cancer, being superior to tomography .

about 30% survival for those with 4 or more nodes involved

1.5 PARTICULAR PROBLEMS

Obstructive cancers

Most are located on the left hemicolon. The classic attitude provides for a surgical intervention in three stages:

- solving the intestinal occlusion through a colostomy to release proximal to the colonic tumor
- resection of the tumor after 10-14 days, during which the patient was explored and the metabolic imbalances following intestinal occlusion were corrected
- closing the colostomy

If the intestinal occlusion is at the beginning and the patient's condition is satisfactory, the Hartmann operation can be performed: the tumor is resected, the distal stump of the colon is closed by suture and left in the abdominal cavity, and the proximal stump of the colon is externalized in the form of a colostomy. After the general metabolic correction and re-evaluation of the patient, the intestinal transit will be restored through the anastomosis of the two colic stumps. If there are contraindications, the intervention in time I will be the definitive one.

If possible, the resection-anastomosis operation will be performed in one time.

If the obstructive tumor is located at the level of the right hemicolon, an internal derivation will be performed: the transversoanastomosis that solves the intestinal occlusion, and in the following time the resection of the tumorous colon can be performed.

Perforated cancers

Perforation occurs through tumor necrosis and can evolve in two ways: through the formation of a pericolic abscess with clinical signs of localized suppuration or, more rarely, through the externalization of the intestinal contents into the peritoneum producing fecaloid peritonitis which can evolve logosymptomatically and is particularly serious. Surgical interventions will address peritonitis - extensive lavage and drainage of the peritoneal cavity, colostomy derived proximally from the colonic tumor or possibly a Hartmann resection.

Locally advanced cancers

In approximately 10% of cases, colon cancer invades neighboring organs or only adheres to them through inflammatory adhesions. Intraoperatively, it is advisable to perform the "en bloc" resection of the entire tumor complex. The association with colon resection of multivisceral resections can sometimes be curative, ensuring a 5-year survival of 30-50%. However, these

We analyzed the patients according to sex, rural or urban living environment, performed operations, staging, injuries associated with associated operations, immediate and remote complications.

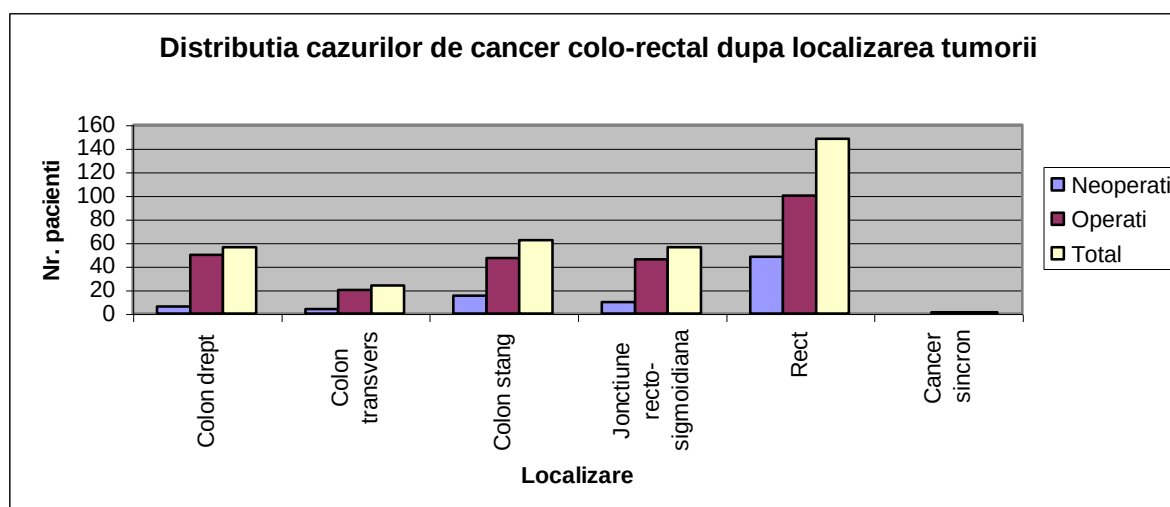
The following table illustrates the location of the lesions and the division of patients into operated and non-operated patients:

Colorectal cancers	Right colon	Transverse colon	Left colon	Recto-sigmoid junction	Rectum	Synchronous cancer
inoperable	6	4	15	10	48	0
operator	50	20	47	46	100	1
Total	56	24	62	56	148	1

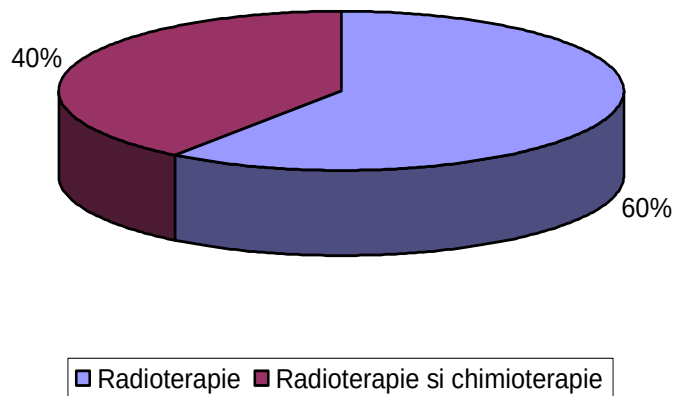
. TABLE 3. Division of patients

The use of neoadjuvant therapy in cases of colorectal neoplasm started in our Clinic in 1995. Neoadjuvant chemotherapy consisted in the administration of 5-fluorouracil in doses of 750mg/m² and folinic acid 350mg/day for 5 consecutive days, at least 2 courses. 24-48 hours after the start of the therapy, radiotherapy started in high doses, fractionated up to the total dose of 45-50 Gy, under Ethylol protection (500mg/m²).

In 1997, a Swedish randomized trial of rectal cancer, which used a very large group of 1168 patients, demonstrated the advantage of short regimens but with high doses (5x5 Gy) of preoperative radiotherapy in preventing local recurrences and in increasing the survival rate .



Repartitia cazurilor tratate preoperator



radiotherapy:
3 patients
radiotherapy
and chemotherapy: 2
patients

Postoperative:

systemic chemotherapy: 33 patients

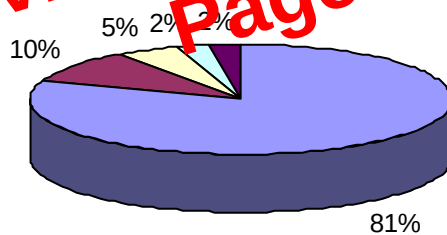
Braun chamber with catheter in the hepatic artery: 4 patients

Braun chamber with catheter in the lower mesenteric artery (superior hemorrhoid): 2 patients

Braun chamber with catheters in the hepatic artery and in the superior hemorrhoidal artery: 1 patient

Braun chamber with intraperitoneal catheter: 1 patient

Repartitia cazurilor tratate postoperator



- Chimioterapie sistemica
- Camera Braun cu cateter in artera hepatica
- Camera Braun cu cateter in artera mezenterica inferioara (hemoroidala superioara)
- Camera Braun cu catetere in artera hepatica si in artera hemoroidala superioara
- Camera Braun cu cateter intraperitoneal

Associated operations were also performed on certain patients, as follows:

resection of the sigmoid tumor with colostomy in the left iliac fossa. Peritoneal lavage.
Douglas and subhepatic drainage

excision of a tumor fragment protruding through the anus

the incision at the level of the perianal abscess with the evacuation of its contents. Curettage.

Message

wide excision of the fistulous tract and drainage with tables.

Excision of the prolapsed intestinal cylinder at the level of the colostomy

Widening of the skin opening of the colostomy

Cure of abdominal hernia

Obliteration of the sigmoid lumen under the Tomoda wire colostomy and extraction of the chamber and catheter from the right internal iliac artery

Segmental enterectomy with termino-lateral ileo-transverse anastomosis

A separate category were the patients who, at the beginning of the period under study, were already in the clinic's records and for whom it was necessary to perform surgery:

debridement, evacuation of perineal soft tissue and ischiorectal fossa

ablation of relapse

ileal resection with end-to-end anastomosis

excision of multiple tumor formations from the perineum

excision of the recurrence from the abdominal wall

partial endoanal tumorectomy with the message of the anal canal

colostomy in the left iliac fossa definitive, on the wand. Tomoda thread

In a number of three patients among them, during the clinical consultation, the existence of associated injuries was found such as:

internal hemorrhoids

external circumferential hemorrhoids

umbilical hernia

For these, the following surgical interventions were performed:

ligation and resection of three hemorrhoidal sponges

circumferential anal swellings

surgical cure of umbilical hernia

along with endoscopy, irrigography and transparietal abdominal ultrasound, would be endoscopic ultrasound (with a sensitivity of 95%), which together with computerized tomography can provide relevant information about possible tumor invasion in the tissues adjacent to the colon and rectum.

The impossibility of assessing resectability leads to the need for operative exploration, with the natural consequence of the opportunity to perform the optimal surgical gesture for the patient.

In cases where resectability is found intraoperatively, radical surgery is performed, very important being the interdisciplinary oncological consultations that will unconditionally ensure the best attitude for each individual case.

In colorectal neoplasms, the inoperability is given by the tumor invasion in the neighboring tissues, the presence of liver metastases not being a contraindication. In cases that lend themselves only to palliative intervention due to their invasive nature, it is essential to preserve intestinal transit through internal derivation (anastomosis) or colostomy. The indication of adjuvant therapy belongs to medical oncology services.

For the neoplastic locations of the rectosigmoid junction, early rectum, terminal sigmoid colon, for and for liver metastatic locations, the II General and Oncological Surgery Clinic resorts to a therapeutic modality whose effectiveness remains to be appreciated over time, but which is promising from the preliminary data.

Anatomy data: The large intestine segment constituted by the rectocolonic junction has its arterial vascularization provided by the superior sigmoid artery, the terminal branch of the inferior mesenteric artery, which anastomoses with both the inferior sigmoid artery and the middle sigmoid artery, a branch of the internal iliac artery. This approach is also relevant in view of the high frequency of localization at this level of the neoplastic disease.

Intra-arterial chemotherapy has the advantage of much higher bioavailability than systemic administration at the level of the primary lesion, the concentration of the chemotherapeutic agent being several times higher. This route of administration is a priority of the Clinic and requires training in both vascular surgery and medical oncology.

Liver metastases

Hepatic intra-arterial chemotherapy is a method of local (and partially systemic) treatment of patients with liver metastases that cannot be treated surgically, they unfortunately represent the vast majority in this statistic. The basic principle of this modality is the predominantly arterial vascularization of the secondary hepatic determinations, as opposed to the irrigation of the normal tissue, predominantly portal.