

SYNCHRONOUS METASTATIC COLON CARCINOMA PRESENTING AS OVARIAN METASTASIS: A CASE REPORT

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Abstract

The aim of the study was to discuss a rare case of synchronously metastatic colon cancer, which clinically manifested as intestinal obstruction due to the presence of ovarian metastasis.

Materials and methods. The clinical case of a 47-year-old patient with synchronously metastatic colorectal cancer with an affected disease, peritoneal carcinomatosis and metastatic ovarian lesions was analyzed.

Case presentation. In July 2021, patient R., 47 years old, developed a clinic of sub-compensated intestinal obstruction. According to CT and MRI data, a volume formation of the small pelvis with a diameter of about 15 cm with compression of the surrounding soft tissues and metastases of the 6th and 4a segments of the liver were determined. According to a colonoscopy, a neoplasm of the sigmoid colon was verified as adenocarcinoma. The presence of peritoneal carcinomatosis was determined intraoperatively; the operation was performed in the following scope: SS-0 (complete cytoreduction) – right-sided ovariectomy with a tumour, resection of the sigmoid colon with a tumour, resection of the rectum with TME, extirpation of the cervical stump with the left ovary and pelvic peritonectomy en block resection and diathermocoagulation of foci of peritoneal carcinomatosis on the visceral peritoneum of the small intestine, omentectomy, radiofrequency ablation of a liver tumour under ultrasound guidance. According to histopathological examination: adenocarcinoma (G2) with foci of mucus production in the sigmoid colon, metastatic lesion of the right ovary, cervix, peritoneum, and liver.

Subsequently, from September 2021 to July 2022, the patient underwent 8 courses of adjuvant polychemotherapy according to the FOLFOX scheme and 2 courses according to the FOLFOX scheme and bevacizumab. In August 2022, due to signs of disease progression, the patient underwent SS-0 cytoreductive surgery: removal of tumour nodes of the parietal and visceral peritoneum, partial peritonectomy of the anterior abdominal wall, argon plasma coagulation of foci of peritoneal carcinomatosis of the parietal and visceral peritoneum, resection of the round ligament of the liver, NIRES. According to the results of the histological examination, metastases of mucinous adenocarcinoma of the intestinal type with the II–III degree of medical pathomorphosis were determined.

From September 2022, the patient received 2 courses according to the IRINOX + bevacizumab regimen and 6 courses according to the FOLFIRI + bevacizumab regimen.

According to the control MRI of the abdominal organs with intravenous contrast, metastases of the 7th and 8th segments of the liver were determined.

Performed percutaneous radiofrequency ablation of liver metastases under ultrasound control

Results. According to the results of the MRI of the OCP with intravenous contrast, there are currently no data on the progression of the disease. The patient's quality of life is satisfactory; the ESOG score is 0. It has been 22 months since the onset of the disease.

Conclusions. Cytoreductive surgical interventions for synchronously metastatic colorectal cancer can significantly improve patients' quality of life and their oncological outcomes rather than only symptomatic treatment.

Keywords: Synchronous metastatic colon cancer, cytoreductive surgery, ovarian metastasis, peritoneal carcinomatosis, HIPEC.

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1. Introduction

According to GLOBOCAN 2018 data, colorectal cancer (CRC) ranks third in the structure of malignant neoplasms in terms of insufficient lethality and fourth in the frequency of cancer diagnosis worldwide [1]. According to the data of the National Cancer Registry for 2020 in Ukraine, among patients with newly diagnosed colorectal cancer, about 30.8 % did not survive even a year [2].

About 20–25 % of first-detected colon cancer have single metastases at the time of diagnosis [3, 4].

At the same time, the most common is the synchronous metastatic lesion of the disease. According to other data, its frequency ranges from 20 to 25 % [5–7]. Krukenberg metastases (metastasis in the ovary) should be noted among other hematogenous intra-abdominal metastases expanded in CRC. From the data of various studies among women with metastatic ovarian disorders of non-gynaecological origin, about 8–33 % are lesions due to colorectal cancer [8–10].

Synchronous peritoneal carcinomatosis is also common with colorectal cancer. According to various observations, its frequency is 5.1–20 % among patients with newly diagnosed colorectal cancer [11–13]. Moreover, patients with peritoneal carcinomatosis of colorectal aetiology have the worst oncological outcomes compared to patients with other variants of metastatic colorectal cancer.

The survival of patients with synchronously metastatic colon cancer who do not receive special treatment is about 5.2–12 months [14]. However, such patients can obtain a significant advantage in overall survival due to combined special treatment (cytoreductive surgical excision, neo- and adjuvant systemic polychemotherapy, regional chemotherapy) compared to patients receiving only symptomatic treatment. Therefore, the scope and stages of surgical treatment, as well as its impact on clinical and oncological results, remains an urgent problem today.

The aim of the study was to discuss a rare case of synchronously metastatic colon cancer, which clinically manifested intestinal obstruction due to the presence of ovarian metastasis.

2. Materials and methods

Discussion of the results of treatment of a 47-year-old female patient with synchronously metastatic colon cancer. Clinical laboratory and instrumental examination of the patient was carried out in accordance with the recommendations of the NCCN Guidelines for the diagnosis, treatment and follow-up of patients with colon cancer. Histological and immunohistochemical studies verified the tumour. Cytoreductive surgery, HIPEC, theormoablation of liver metastases, adjuvant chemotherapy and targeted therapy were performed as special treatment.

The study was carried out as part of the scientific work of the Department of General and Military Surgery of Odesa National Medical University. Compliance with the WMA Declaration of Helsinki – Ethical principles of medical research with human involvement, 2013 (minutes of the meeting of the Bioethics Committee of Odessa National Medical University No. 171A dated 11/15/2022) was determined. The study participant was informed and consented to processing his clinical data and participating in the research process.

3. Results

Patient R., born in 1975, turned to her family doctor in July 2021 with complaints of stool delays of up to 5 days, general weakness, weight loss, and moderate pain in the hypogastric region. The patient was examined on an outpatient basis; a CT scan of the brain, chest organs, abdominal cavity and pelvis with intravenous contrast and an MRI of the pelvis with intravenous contrast was performed. According to the CT and MRI data, a volume formation of the small pelvis with dimensions of 155×99×134 mm (probably ovarian carcinoma) with compression of the surrounding soft tissues, expansion of the right ureter to 14 mm (due to compression), formation of the 6th and 4^a segments of the liver with dimensions of 18×17 mm and 8×9 mm (probably metastases) (**Fig. 1**).

According to colonoscopy, a neoplasm of the sigmoid colon was detected, and adenocarcinoma was verified.

Considering the signs of sub-compensated intestinal obstruction with a tendency to decompensation, as well as the possible presence of primary multiple synchronous malignant processes, it was decided to perform surgical intervention as the first stage. From the patient's anamnesis: 2006 – left tubectomy due to ectopic pregnancy, 2008 – right tubectomy due to ectopic pregnancy, 2016 supravaginal amputation of the uterus due to myoma.

In August 2021, the patient was hospitalized in a surgical hospital, and the operation was performed. Intraoperatively, the presence of a tumour of the distal part of the sigmoid colon with a diameter of up to 4 cm, a tumour of the right ovary with a diameter of about 15 cm, occupying

the cavity of the small pelvis, compressing the rectum and the right ureter, tumour foci on the parietal peritoneum of the small pelvis with a diameter of 2–3 mm and single tumour foci were determined intraoperatively. of the visceral peritoneum of the small intestine (RSI 6 points), metastases of the right lobe of the liver are palpable. An intraoperative ultrasonographic examination of the liver was performed, a mass with a diameter of about 1.8 cm was visualized in the 4th segment of the liver, and a mass with a diameter of 1 cm in the 6th segment of the liver was visualized.



Fig. 1. CT scan of abdominal organs

The operation was performed: CC-0 (full cytoreduction) – right-sided ovariectomy with a tumour, resection of the sigmoid colon with a tumour, resection of the rectum with TME, extirpation of the cervical stump with the left ovary and pelvic peritonectomy en block (photo presented in **Fig. 2**) with the formation hardware end-to-end descending rectoanastomosis, resection and diathermocoagulation of peritoneal carcinomatosis foci on the visceral peritoneum of the small intestine, omentectomy, trepan biopsy of S6, S4 liver tumours under ultrasound guidance, radio-frequency ablation of a liver tumour under ultrasound guidance, formation of a diverting ileostomy.

According to histopathological examination: Moderately differentiated adenocarcinoma (G2) with foci of mucus production in the sigmoid colon, ovarian tissue with the growth of a tumour of a similar structure of the intestinal type, growth of a similar tumour in the cervix, in the material of a trepan biopsy of the liver - a tumour of a similar morphological structure.

According to the immunohistochemical study: mutation in the KRAS gene, the tumour is not sensitive to EGFR inhibitors; the tumour is microsatellite stable.



Fig. 2. View of the pelvis of patient R. after right-sided oophorectomy with a tumour, resection of the sigmoid colon with a tumour, resection of the rectum with TME, extirpation of the cervical stump with the left ovary and pelvic peritonectomy en block

The postoperative period was complicated by small-bowel obstruction. Reconstruction of the small intestine was performed 1 month after the operation.

Subsequently, from September 2021 to July 2022, the patient underwent 8 courses of adjuvant polychemotherapy according to the FOLFOX scheme and 2 courses according to the FOLFOX scheme and bevacizumab. The patient underwent a CT scan of the chest, abdominal cavity and pelvis with IV contrast once every three months during the above-mentioned period – without data on the progression of the disease. According to PET/CT data in July 2022, signs of pathological accumulation of FDG in the pararectal area, metabolically active foci are not visualized in the liver parenchyma.

In August 2022, the patient was hospitalized at a surgical hospital for cytoreductive surgery. The presence of small focal peritoneal carcinomatosis was determined intraoperatively, RSI 13 points. A decision was made on the expediency of implementing NIRES. SS-0 cytoreductive surgery was performed: removal of tumour nodes of the parietal and visceral peritoneum, suturing of damaged outer shell areas of the small and large intestine, partial peritonectomy of the anterior abdominal wall, argon plasma coagulation of foci of peritoneal carcinomatosis of the parietal and visceral peritoneum, resection of the round ligament of the liver affected by peritoneal carcinomatosis. NIRES was performed using the «closed abdomen» technique for 120 minutes with cisplatin (50 mg/m²) and doxorubicin (15 mg/m²) at a temperature of 42 °C. The course of the postoperative period was without complications.

According to the results of the histological examination, metastases of mucinous adenocarcinoma of the intestinal type with the II–III degree of therapeutic pathomorphosis, according to Lavnikova, were determined.

From September 2022, the patient received 2 courses according to the IRINOX + bevacizumab regimen and 6 courses according to the FOLFIRI + bevacizumab regimen.

According to the control MRI of the abdominal organs with intravenous contrast, a metastatic lesion of the liver was determined (in the 7th segment, 21×12 mm and the 8th segment, 8×11 mm).

Percutaneous radiofrequency ablation of liver metastases was performed under ultrasound control and percutaneous trepan biopsy after ablation foci in the 6th and 4^a segments of the liver. According to the results of the histological examination, there are no malignant cells in the ablation zone.

According to the results of MRI of the OCP with intravenous contrast, there are currently no data on the progression of the disease. The patient's quality of life is satisfactory; the ESOQ score is 0, and the patient works and leads an active lifestyle. 22 months have passed since the manifestation of the disease.

4. Discussion of the results

In patients with synchronously metastatic colorectal cancer, a possible treatment option is a neoadjuvant polychemotherapy with the possibility of further cytoreductive intervention. In this case, the presence of subcompensated intestinal obstruction with a tendency to decompensation and expansion of the right ureter required treatment before starting polychemotherapy. A possible option, which was submitted to the multidisciplinary council, was a symptomatic operation, which consisted in the formation of a sigmoidostomy, a right-sided nephrostomy, and a biopsy of the tumour of the right ovary and tumour foci of the liver. Such an operation would allow early initiation of polychemotherapy but would significantly reduce the patient's quality of life. Also, before starting polychemotherapy, it was important to exclude the presence of primary multiple malignant processes (ovarian cancer + colorectal cancer) because this could affect the choice of drugs for polychemotherapy. The planned tactic in this case was exploratory laparotomy and cytoreductive surgery only if complete cytoreduction was possible. In the case of the impossibility of complete cytoreduction, it was planned to be limited to symptomatic surgical treatment.

Among the intraoperative findings was the presence of small focal peritoneal carcinomatosis of the visceral peritoneum of the small intestine and the parietal peritoneum of the small pelvis, data for which were not available either on CT of the abdomen with IV contrast, or on MRI of the abdomen with DWI and IV contrast. Thus, intrascopic research methods, unfortunately, remain uninformative in the case of a small focal lesion with a small RSI.

At the moment, we consider the patient's treatment result to be successful, as the median overall survival of such patients in the case of symptomatic treatment and palliative chemotherapy usually does not exceed 5.2–12 [14]. In the case of staged special treatment, which includes cytoreductive operations, polychemotherapy and in the presence of NIRES peritoneal carcinomatosis, according to the results of modern studies, the median overall survival can be from 25 to 49 months according to the results of various studies [15–17].

Study limitations. Limitations included lack of generalizability, inability to establish causality, risk of overinterpretation, publication bias, and retrospective study design.

Prospects for further research. Operative treatment of synchronously metastatic colorectal cancer can improve the quality and increase the life expectancy of patients, provided complete cytoreduction is achieved. HIPEC, as a method of treatment of peritoneal carcinomatosis of colorectal origin, under the condition of complete prior cytoreduction, is a promising method of treatment of such patients.

5. Conclusions

Cytoreductive surgical interventions for synchronously metastatic colorectal cancer can significantly improve the quality of life of patients and improve their oncological outcomes than only symptomatic treatment. Patients with colorectal cancer and intra-abdominal metastatic lesions require an individual and multidisciplinary approach to decide the phasing of special treatment and further management tactics of such patients. In the case of the possibility of achieving cytoreduction in full, performing HIPEC is promising among patients with peritoneal carcinomatosis of colorectal aetiology and requires further research.

Conflict of interest

The authors declare that there is no conflict of interest in relation to this paper, as well as the published research results, including the financial aspects of conducting the research, obtaining and using its results, as well as any non-financial personal relationships.

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Data availability

Data will be made available on reasonable request.

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