COLORECTAL CANCER DURING PREGNANCY – CASE REPORT AND BRIEF REVIEW OF THE LITERATURE

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ABSTRACT
Malignancies in pregnant women are very rare with colorectal cancer being the eighth most commonly found. Colon cancer during the pregnancy is often diagnosed at an advanced stage because of its symptoms which are attributed to the pregnancy. This paper described a case of a 34-year-old female patient, 22 weeks pregnant, who was admitted to the Department of General and Transplantation Surgery due to deep venous thrombosis (DVT) and bleeding into the lower gastrointestinal (GI) tract. Endoscopy of the lower GI tract revealed an ulcerated polyp in the sigmoid colon. The histopathologic report showed infiltrated adenocarcinoma coli G2. The abdominal ultrasound scan (USS) and the chest X-ray detected hepatic and pulmonary metastases. After consideration, the tumor resection was postponed because it would not significantly improve the patient’s health condition and would endanger the fetus. The medical treatment plan was to wait until the 32nd-34th week of pregnancy and perform a simultaneous C-section, recto-sigmoid resection and hysterectomy. After intrauterine fetal death at 27 gestational week, computer tomography (CT) revealed disseminated metastases in the liver, lungs and peritoneum. The patient was referred to palliative chemotherapy. In conclusion, diagnostics and treatment of colon cancer during pregnancy is a challenge for the obstetrician and oncological team.
BACKGROUND

Pregnancy-associated cancer is a rare and difficult to manage clinical situation. Coexistence of cancer and pregnancy occurs in 0.02%-0.1% of all pregnancies [1]. Breast, melanoma, cervical cancers and haematological malignancies are most commonly diagnosed during pregnancy [2]. Colorectal cancer stands at the eighth place [3] with incidence ratio 1 to 13 000 gestations [4]. Colorectal cancer during pregnancy is located most commonly on the rectum or sigmoid [5]. Most of the CRC cases are diagnosed in advanced stages [5, 6, 7].

Considering progressively increasing age at which women decide to procreate, the proportion of future mothers diagnosed with a malignancy is increasing [8, 9].

The similarities between the symptoms of pregnancy and colorectal cancer are the main reason for delayed diagnosis of cancer and poorer prognosis of the disease. Pellino et co-workers [7] after analysis of 119 pregnant women with colorectal cancer reported occurrence of bleeding in 47% of patients, abdominal pain in 37.6%, constipation in 14.1%, obstruction in 9.4% and perforation in 2.4% [7].

There are insufficient data for proper management of pregnant cancer patients. Guidelines are mainly based on data obtained from small retrospective studies or case series [2, 10].

CASE REPORT

A 34-year-old female patient in 22nd gestational week was admitted to the Emergency Department with diagnosed deep venous thrombosis (DVT) of the left lower limb. The patient reported abdominal pain and the lower gastrointestinal tract bleeding in the last four months. The symptoms were attributed to hemorrhoids which are a common affliction during pregnancy. The patient was admitted to the Department of General and Transplantation Surgery and underwent basic laboratories tests and further examinations including endoscopy and Doppler ultrasonography of the lower limb veins. Endoscopy revealed an ulcerated polyp in the 25th cm of the colon. Five samples of the polyp were taken for a histopathological examination. Doppler ultrasound showed thrombosis of tibial veins of the left lower limb in the proximal part and thrombosis in the popliteal and femoral vein under the inguinal ligament. The patient was discharged home with appropriate DVT treatment and scheduled to come back to the hospital with results of the histopathological report.

Histopathologic report revealed infiltrated colon adenocarcinoma G2 and the patient was readmitted to the Department of General and Transplantation Surgery in two weeks. An abdominal ultrasound and a chest X-ray were performed. USS revealed heterogeneous liver with multiple hyperechogenic lesions which were suspected of metastases. The chest X-ray showed an oval shadow in the right lung also suspected of pulmonary metastases. The laboratory results showed elevated tumor markers: carcinoembryonic antigen (CEA) – 120 µg/l (1 - 10), alpha-fetoprotein (AFP) – 92 µg/l (0 – 15), carcinoma antigen 125 (CA 125) – 4139 j/ml (0- 35).

During a medical joint consultation with an oncological surgeon, an obstetrician, an anesthesiologist and the general surgeons, the conclusion was done about the postponement of CRC resection because it would not significantly improve the patient’s condition and would endanger the fetus. The medical plan was to wait until the 32nd-34th week of the pregnancy and perform a simultaneous C-section, hysterectomy and recto-sigmoid resection. The patient was referred to the Department of Pregnant Pathology to monitor the condition of the mother and the fetus. However, due to intrauterine fetal death at 27th week, the patient came back to the Department of General and Transplantation Surgery. CT was ordered and it revealed a significantly enlarged liver with multiple lesions in almost the whole left lobe and approximately 40% of the right lobe, a thrombus in the intermediate artery of the right lung, two lesions in segment 2 and 6 of the right lung, two peritoneal implants alongside the surface of the right lobe of the liver, a hypodensic lesion in the right kidney suggesting a perfusion disorder (possible kidney infarction) and thickening of the large intestine walls. The doctors met for a second medical joint consultation to discuss further management. The anesthesiologist disqualified the patient from the general anesthesia due to pneumonia and abnormal international normalized ratio (INR). The oncological surgeon stated that the risk of the surgical procedure was too high and would not improve the patient’s survival. The conclusion was to refer the patient to the clinical oncologist in the Maria Sklodowska-Curie Memorial Cancer Centre and Institute of Oncology in Warsaw. The patient was qualified to palliative systemic treatment including a six-month course of chemotherapy consisting of leucovorin (LV) 34 mg and 5-fluorouracil (5-FU) 714mg/24h. Unfortunately, the patient died after receiving two rounds of chemotherapy.

DISCUSSION

Colorectal cancer during pregnancy is both a diagnostic and a therapeutic challenge due to the long-term masking of cancer, unspecific symptoms and rare occurrence.

Staging of malignancy during pregnancy

Staging of malignancy during pregnancy should always follow the same system as in non pregnant patients (TNM system in case of CRC cancer) [10].

Clinical examination, chest X-ray, abdominal and pelvic USS (alternatively magnetic resonance imaging) and endoscopy with biopsy may be used for the staging preoperatively in pregnant patients [3,10].

Imaging procedures should aim to limit exposure to ionizing radiation [2]. Chest X-ray can be safely carried out during pregnancy. USS is preferred for evaluation of abdomen and pelvis [2].

CT are not preferable tests during pregnancy because of radiation teratogenicity, however they can be done in special cases after the first trimester. Magnetic resonance imaging (MRI) without gadolinium can be used if any of the previously mentioned modalities were inconclusive [2].
A colonoscopy is a gold standard in the process of diagnosis gastrointestinal cancers and may be performed in pregnant women after considering possible risk.

Treatment
There are several factors to be considered when planning the treatment of a pregnant cancer patient: gestational age, cancer location, stage of the cancer, complications due to the cancer or due to the pregnancy and the patient’s decision [11].

The described case took place in 2008, when there were no regulations in Poland on how to treat pregnant women with cancer.

According to Polish regulations since 2011 [3], the radical surgery (if possible) and adjuvant chemotherapy after the first trimester is recommended in case of cancer diagnosis before 20 gestation weeks. If cancer was diagnosed after 20 gestational weeks the surgery might be postponed till fetus achieves maturity or the pregnancy might be terminated earlier and radical management might be adapted in 1-2 weeks after delivery according to the principles in nonpregnant patients. Alternatively, radical surgical treatment and continuation of pregnancy and following post-partum adjuvant chemotherapy may be proposed. In case of unresectable tumour the management is individualized [3].

According to ESMO 2013 guidelines, a pregnant cancer patient should be managed within a multidisciplinary team which includes an obstetrician and a neonatologist in addition to the oncology team [2].

Chemotherapy is generally safe except for the first trimester of gestation. Standard chemotherapy regimen in pregnant patients after the first trimester might not be feasible in all cases and hence tailored approaches may be needed.

Surgery should never be postponed if it is crucial in the management plan. However, major abdominal and pelvic surgery should only be indicated following a precise discussion with the patient and the multidisciplinary team [2].

According to National Comprehensive Cancer Network (NCCN) guidelines, the current management of disseminated metastatic colon cancer involves various active drugs in general population, either in combination or as single agents: 5-FU/LV, capecitabine, irinotecan, oxaliplatin, bevacizumab, cetuximab, panitumumab, ziv-afibercept, ramucirumab, regorafenib, trifluridine-tipiracil, pembrolizumab, and nivolumab. FOLFOX regimes (oxaliplatin, lecovorin and 5-FU) are often used in the treatment of advanced CRC, as recommended by National Comprehensive Cancer Network guidelines for patients with advanced or metastatic disease in non-pregnant patients [12]. The U.S. Food and Drug Administration safety rating for the use of oxaliplatin and 5-FU during pregnancy is class D [13].

There are insufficient data of chemotherapy for metastatic CRC during pregnancy. There is mostly clinical experience with 5-FU and LV during pregnancy [14] and for this reason it was the first choice in this case in 2008.

Prognosis
The prognosis of pregnant women with CRC is considered to be worse than for non-pregnant patients because the disease is diagnosed at a more advanced stage [15]. Diagnosis can be delayed because of the similarity between the symptoms of pregnancy and colorectal cancer.

However, another theory introduced in the literature implies that the advanced stage at which CRC in pregnant women is found may indicate an inherently more aggressive tumor rather than simply a delay in diagnosis [15].

CONCLUSIONS
Diagnosis and treatment of colorectal cancer during pregnancy is a challenge for the obstetrician and oncological team.

Diagnosis of colorectal cancer during pregnancy is usually made at an advanced stage due to unspecific symptoms.

Prognosis for pregnant women with advanced colorectal cancer is serious.

The benefits and risks of treatment should be discussed.

CITE THIS AS

ABBREVIATIONS
CA 125 – carcinoma antigen 125
CEA – carcinoembryonic antigen
CRC – colorectal cancer
CT – computer tomography
DVT – deep venous thrombosis
GI tract – gastrointestinal tract
USS – ultrasound scan

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