Kuśmierczuk Kinga, Borowik Joanna, Kozak Katarzyna, Jawoszek Patryk, Brodowski Wojciech, Skrzydło-Radomańska Barbara. Chronic vomiting as a nonspecific symptom of small intestine cancer - case report. Journal of Education, Health and Sport. 2019;9(9):589-598. eISSN 2391-8306. DOI http://dx.doi.org/10.5281/zenodo.3445612
http://ojs.ukw.edu.pl/index.php/johs/article/view/7456

The journal has had 5 points in Ministry of Science and Higher Education parametric evaluation. § 8. 2) and § 12. 1. 2) 22.02.2019.

The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 10.09.2019. Revised: 19.09.2019. Accepted: 19.09.2019.

Chronic vomiting as a nonspecific symptom of small intestine cancer - case report

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Abstract

Introduction: Small intestine cancer is a rare gastrointestinal cancer (less than 5%) and makes up 0.3% of all malignancies. The most common clinical symptoms include abdominal pain, vomiting and gastrointestinal bleeding.

Aim of study: The aim of the study is to draw attention to the rare cases of SBA.The second aim of the study is to review the literature on the diagnosis and therapeutic process of patients suffering from small intestine cancer.

Methods: The research method was an individual case study. The research material was the patient's medical record.An unsystematic review of Polish and English-language scientific literature was conducted. Electronic databases: PubMed, SCOPUS and Google Scholar were searched using the following keywords: adenocarcinoma, small intestine, small bowel obstruction, chronic vomiting.

Findings:A 39-year-old patient was diagnosed with G2 stage of the SBA with metastases to the nearby lymph nodes. Due to nonspecific symptoms the correct diagnosis was made at an advanced stage of the disease, and thus the implementation of appropriate treatment was delayed.

Conclusions: A small number of cases of the disease and non-specific symptoms make the diagnosis of small intestinal cancer extremely difficult. The disease usually develops insidiously and at the time of diagnosis the cancer is already at an advanced stage. A significant weight loss within a short period of time along with persistent vomiting should prompt the doctor for thorough diagnostic procedures.

Key words: adenocarcinoma, small intestine, small bowel obstruction, chronic vomiting

Legend:

SBA- Small bowel adenocarcinoma
WHO- World Health Organization
FAP- Familiae polyposis syndrome
HNPCC-Hereditary non-polyposis colorectal cancer
PET - Positron Emission Tomography
CT- Computed Tomography
FOLFIRI- Fluorouracil, Calcium folinate in a racemic form, Irinotecan
FOLFLOX -5-fluorouracil, Oxaliplatin, Calcium folinate
FAM-5-fluorouracil, mitomycin C, Doxorubicin
OS- Overall survival
PFS -Progression-free survival

Introduction

I.I General information

The small intestine accounts for about 75% of the length and 90% of the surface of the entire gastrointrestinal tract [5,6,9]. Despite the large size of this organ, cancer is sporadic. Small intestine cancer is a rare tumor. It accounts for less than 5% of all gastrointestinal tumors and 0.3% of all malignancies [2,3,5,10]. The morbidity rate is estimated at 4 cases per million people [1,3,7]. Malignancies of the small intestine make up 60% of all small bowel tumors [11]. There has been a higher incidence in males than females and a higher proportion in patients of the African race than in those of the white one. The median age of morbidity is 55-64 years of age [5,6,8,9,10,12].

I.II Patomorphology

According to the WHO classification, over 40 histological types of small bowel tumors are distinguished. The most common histological type is adenocarcinoma (40%), followed by carcinoid (35-42%), lymphoma (usually T-cell non-Hodgkin) (15-20%), sarcoma and gastrointestinal stromal tumor (GIST) (10-15 %) [1,2,4,5,6,8,10,12].

I.III Location

The site of primary dysplasia development is most often the proximal parts of the small intestine. The most common site of small bowel adenocarcinoma is duodenum 50%, followed by jejunum 30% and ileum 20% [1,5,6,7,8,9,10,11,12].

I.IV Risk factors

There are two groups of risk factors for small intestine cancer in the literature. These are predisposing diseases and environmental factors respectively. Predisposing diseases include inflammatory bowel diseases, and Crohn's disease is a case in point. In this group of patients, the risk of morbidity is even 100 times more frequent than in the general population [1,2,5,8,9,10,11,12]. The risk of developing the disease is also greater in patients with familiae polyposis syndrome (FAP) in whom the risk of morbidity is 300% higher than in the general population [1,2,6,8,12]. Another predisposing factor is Lynch syndrome II (HNPCC-hereditary non-polyposis colorectal cancer), that is hereditary colorectal cancer not associated with polyposis and Peutz-Jeghers syndrome [2,6,11,12]. The authors emphasize that sporadic polyps and celiac disease also have a significant impact on the risk of developing the tumor [1,2,6,8,11].

The second group of risk factors includes environmental factors. The literature emphasizes factors that increase the likelihood of morbidity, such as smoking, alcohol consumption, a diet containing a high percentage of saturated fat, consumption of red meat and salt [2,6,8,9,11,12].

I.V Diagnostics

The basis of SBA diagnostics is the subjective and physical examination. Due to the location, initially asymptomatic course of the disease and difficulties in assessing imaging tests, making a diagnosis at an early stage of the disease is usually accidental. Clinically, SBA is most often manifested at an advanced stage of the disease [1,8,11]. Symptoms depend on the location of the primary focus. The most common symptoms of the disease are pain and discomfort in the abdominal cavity, nausea, vomiting, significant weight loss, weakness, overt or occult gastrointestinal bleeding [5,6,10,11,12]. Advanced SBA can cause narrowing of intestinal lumen as well as gastrointestinal obstruction . [1,5]. Palpable tumor and increased abdominal wall tension may occur during physical examination [1,6,11]. Diagnostics is mainly based on performing imaging tests. The earliest tests performed when these symptoms occur are: an X-ray, ultrasound (USG) and gastroscopy. An x-ray examination may reveal features of gastrointestinal obstruction occurring at a very advanced stage of the disease [9,11]. Gastroscopy is limited to mere assessment of the initial segment of the small intestine, which is the duodenum. In the case when SBA is located distally to the duodenum, it is necessary to use more advanced imaging methods [10,12]. CT enteroclysis and endoscopic examinations are recommended when SBA is suspected [9,12]. CT is most often used to assess the stage of tumor[10]. For several years, in medical practice, an endoscopic capsule and a balloon enteroscopy have been being used for imaging tests. The former one is a non-invasive method that allows very accurate assessment of the intestinal lumen, however, it is not possible to collect material for histopathological examination.The latter of the above methods is the only one that allows both visual assessment and collection of small bowel wall sections needed for testing [1,5,6,10,11]. A histopathological examination is the basis for making the correct diagnosis.

I.VI Treatment

The treatment of choice is still total tumor resection while maintaining an adequate margin of healthy tissue [1,5,6,8,9,10,11].

II Aim of study

The aim of the study is to draw attention to the rare cases of adenocarcinoma of the small bowel, the onset of which gives unusually nonspecific symptoms. The rare occurrence of these types of tumors and the lack of a clearly defined diagnostic process result in a delay or lack of correct diagnosis. The second aim of the study is to review the literature on the diagnosis and therapeutic process of patients suffering from SBA**.**

III Methods and materials

The research method was an individual case study. The research material was the patient's medical record, and the technique used was analysis. An unsystematic review of Polish and English-language scientific literature was conducted. Electronic databases: PubMed, SCOPUS and Google Scholar were searched using the following keywords: adenocarcinoma, small intestine, small bowel obstruction, chronic vomiting.

IV Case report

We present the case of a 39-year-old patient who came to the hospital in July 2016 reporting severe and persistent vomiting lasting two weeks. No history of chronic diseases was reported. Family history was not relevant. Dehydration was observed in the physical examination of the patient. As for imaging tests, ultrasound of the abdominal cavity was performed which showed an increased amount of intestinal gas and gastroscopy which revealed the features of diffuse mucosal inflammation in the upper part of the stomach body. Blood counts showed no abnormalities. Acute gastroenteritis was diagnosed. Conservative treatment in the form of electrolyte solution, Metoclopramide and a proton pump inhibitors was introduced. After a periodical improvement and after 3 months‘ time, the patient returned to the hospital again reporting vomiting, diarrhea, lack of appetite and significant weight loss of 40 kilograms following the previous hospitalization. Gastrointestinal endoscopy was performed. Colonoscopy revealed a softened mucosa with petechiae in the terminal ileum. The intestine has been described as long and spastic. Gastroscopy revealed pyloric dysfunction and softened duodenal mucosa. Persistent vomiting directed suspicion towards a neurological cause. CT of the head was performed and showed no abnormalities. Laboratory tests showed low potassium levels of 3.0 mmol / l. On the basis of observations and examinations performed, chronic inflammation of the gastric mucosa was diagnosed. Conservative treatment was applied. After another month, the patient was taken to the Department of Gastroenterology with suspected gastrointestinal obstruction. CT enteroclysis was ordered, which

displayed narrowing on the border between jejunum and ileum. After a surgical consultation, the patient was qualified for surgical treatment. Conducting the procedure revealed a small intestine tumor. A small intestinal fragment of about 50 cm long on the border of the jejunum and ileum was removed. The material was sent for a histopathological examination. The patient was discharged home in good general condition. The pathomorphological examination revealed adenocarcinoma G2 and cancerous infiltration involving the fatty tissue surrounding the intestine. The presence of angioinvasion. One month after the surgery, the patient underwent a check-up colonoscopy with no pathological changes. The patient was referred for further treatment in the Department of Oncology. By a decision of consilium, the patient was qualified for chemotherapy according to the FOLFIRI regimen (Fluorouracil, calcium folinate in a racemic form, Irinotecan). The treatment was well tolerated by the patient. A CT scan of the chest revealed a nodule in the 2nd segment of the right lung with a diameter of 4mm. A slightly enlarged node of the right hilum - 14x10 mm and increased densities of the front mediastinal adipose tissue. During the subsequent cycles of chemotherapy, CT scans were performed. They showed subsequent changes appearing in the lungs and liver. The confirmation of the appearance of metastases was PET test. An increased uptake of FDG in the paratracheal lymph nodes, in lung and liver lesions led towards confirmation of metastatic changes. The patient's clinical condition did not improve. After the progression of meta changes and the appearance of infiltration in the area of the postoperative scar, it was decided to change the treatment regimen to FOLFOX4 (Oxaliplatin, calcium folinate in the racemic form, fluorouracil). Further examinations indicated inhibition of the development of metastatic lesions in some lung and liver nodules. PET / CT examination performed 25 months after the surgery to remove the lesion showed a significant increase in the lesions. The lung lesions were described as more numerous and larger. Foci in the liver were extensive, confluent, covering almost the entire left lobe. In addition, an increased FDG uptake in the right iliac bone appeared. Numerous enlarged lymph nodes of the lung hila were also described. The patient experiences disease progression.

V. Discussion

SBA is a malignant tumor of the small intestine originating from the glandular tissue. It occurs more often in men over 50 years of age [5,6,8,9,10,12]. In the case we described, the patient was 39 years old at the time of diagnosis. Making the right diagnosis is still a huge challenge for clinicians. Oligosymptomatic nature, location and insidious development of the disease mean that the correct diagnosis is usually delayed by 6 to 12 months [1,5,6,8,9,11,12]. In the literature, the authors argue that SBA is most often recognized in Stage 3 ~ 40% of patients have lymph node metastasis (Stage 3), and 35 to 40% have distant metastasis (Stage 4) [5,8,12]. The

above data is consistent with the case of our patient in whom the tumor was diagnosed at the time of subileus with metastases to the nearby lymph nodes - Stage 3.

The symptoms of SBA usually appear at an advanced stage of the disease [5,8,9,11,12]. In 50% of cases, the diagnosis is made only after an urgent surgical intervention due to gastrointestinal obstruction [10]. In the majority of cases described, the dominant symptoms are pain and discomfort in the abdomen [12], but in our case the main symptom was chronic nausea and vomiting which lasted 6 months. In connection with the above, oncological alertness should be maintained not only in the case of pain in the abdominal cavity but also attention should be paid to the occurrence of unexplained persistent vomiting, nausea, anemia or overt / occult gastrointestinal bleeding.

Problems related to SBA diagnostics are caused by unfavorable tumor location. In 50% of cases, the primary tumor is located in the duodenum, but the remaining percentage is located in the more distal parts of the small intestine [1,5,6,7,8,9,10,11,12]. This location is an unfavorable prognostic factor because they are unavailable for classical imaging such as gastroscopy or colonoscopy. In the case presented by us, the tumor was located on the border of the jejunum and ileum, which was the reason for the extended diagnostic process. The occurrence of nonspecific gastrointestinal symptoms such as pain, nausea, vomiting and unexplained rapid weight loss require the use of advanced imaging methods, inter alia, an endoscopic capsule or balloon enteroscopy [5,6,10,11,12]. Despite the fact that the CT scan does not provide a precise image of the small intestinal mucosa, a good solution for facilities that do not have advanced procedures at their disposal, the first step in the diagnostic imaging of the above symptoms should be an abdominal CT scan [5,12].

In the literature, many factors predisposing to the development of SBA have been described, such as chronic inflammation of the intestine, concomittant gastrointestinal tumors, familiae polyposis syndrome (FAP) [1,2,6,8,12] and Peutz-Jeghers syndrome [2,6,11,12]. In the case of our patient, the medical and family history did not show any of the factors mentioned above.

The factors that support worse prognosis include: tumor location in the duodenum, low differentiation, metastases in the nearby lymph nodes, lack of free margin in the resected lesion, an advanced age as well as male gender [6,8,11]. Prognosis depends mainly on the stage of the disease and the ability of surgical resecion. The 5-year overall survival rate after resection is less than 5 % [2,7,8]

A surgical tumor resection is still the first-line treatment in patients with SBA [1,5,6].Despite the lack of randomized control trials that would recommend systemic treatment of

patients with small bowel adenocarcinoma, there exist prospective trials according to which the use of adjuvant 5-fluorouracil containing chemotherapy in patients with advanced disease improves the prognosis [11]. In the prospective Phase II trial, Xiang XJ et al. a group of 33 patients with advanced SBA underwent chemotherapy with 5-fluorouracil oxaliplatin and calcium folinate (FOLFLOX). 48.5% of the patients responded satisfactorily to the applied therapy with the OS of 15.2 months [17]. In the Phase II trial, Gibson et al. applied chemotherapy using 5-fluorouracil, mitomycin C, and doxorubicin (FAM) in 38 patients. Response to the treatment was shown by 18% of patients in the OS of 8 months[16]. In the case described by us, the patient with cancer Stage 3 was qualified for systemic treatment in the FOLFIRI regimen, obtaining PFS of 9 months. Based on the analyzed articles, it can be concluded that the use of adjuvant chemotherapy containing 5-fluorouracil and cisplatin in patients with advanced SBA prolongs RR and PFS [5,6,13,14,15,16,17]. Systemic treatment is also recommended for palliative therapy [1]. Hong et al. showed in their studies that patients cancer Stage 4 who received palliative chemotherapy for OS was 8 months when compared to the group of patients who did not receive such treatment, their OS was 3 months [15].

Conclusions

Small bowel adenocarcinoma belongs to ultrarare diseases. It is still a huge challenge for clinicians. Non-specific symptoms, difficult location and initially insidious course of the disease delay the correct diagnosis, and hence lead to worse results in treatment. Despite few scientific reports on the correct course of action in case of suspected SBA, oncological alertness should be maintained, especially in the case of chronically persistent nonspecific symptoms in the gastrointestinal tract and in people within particular risk groups. There are diagnostic methods that allow quite detailed SBA imaging diagnostics, but in most cases they are available in highly specialized facilities. Hence, cooperation between many facilities and an interdisciplinary approach to the patient are vital.

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