PRIMARy SmALl INtEStINe TOuMR AS thE CauSE Of GAStROINtEStINAl TrACT ocCLUSION

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The following paper presents the case of a 40-year-old patient staying in our Clinic between 2 March 2010 and 12 March 2010 due to the symptoms of permeable occlusion of gastrointestinal tract. This is a patient with a several weeks' history of non-specific abdominal pain, vomiting and significant weight loss (ca 20 kg). Until recently he has not suffered from any serious illnesses. In the performed abdominal ultrasound, gastroscopy and colonoscopy no pathology was affirmed. CT scan with intravenous and oral contrast showed significantly widened intestinal loops with residual liquid matter in the stomach, duodenum and a part of the jejunum without any distinguishing pathological mass, and also single mesenteric lymph nodes and para-aortic nodes enlarged to the size of 12 mm. The patient was qualified for laparatomy. During the surgery, a 4-cm tumour of the jejunum, concentrically narrowing intestinal lumen was found. Segmental resection of the small intestine was performed with side to side anastomosis with the use of a linear stapler. Currently the general condition of the patient is good, without any ailments, and the patient is undergoing systemic treatment.

Key words: small intestine adenocarcinoma, gastrointestinal tract occlusion, small intestine cancerous disease, CT scan with contrast

Small intestine rarely is the place of occurrence of tumours. Small intestine tumours constitute 10% of all tumours of gastrointestinal tract. Benign tumours (adenomas, lymphomas, neuromas, myomas and angiomas), usually symptomless and incidentally diagnosed, occur 10 times more often than malignant tumours (1). Malignant tumours of the small intestine are extremely rare and constitute ca. 1-6% of all tumours of gastrointestinal tract (2). Malignant tumours constitute 75% of symptomatic small intestine tumours. They are most often manifested with vomiting, diarrhoea, occlusion and bleeding (1). According to the world literature, in relation to the frequency of occurrence, the most common tumours are adenocardinomas (47%), followed by non-Hodgkin lymphomas (30%), then sarcomas (20%) and carcinoids (3%) (3). It is possible to observe certain interrelation between type of the tumour and its location. And so, adenocarcinomas will be found in the initial segment of the intestine (duodenum, initial segment of the jejunum), lymphomas and sarcomas in its farther part, and carcinoids mainly in the terminal segment of the ileum (4). The illness usually becomes symptomatic between the age of 40 and 60 (85% of cases), usually in male patients. (5). The rare occurrence of small intestine tumours probably correlates with alkaline environment of that place, high concentration of IgA immunoglobulin, poor intestinal flora and a relatively fast regeneration and replacement of epithelium cells (6).

In recent years it is possible to observe a significant increase in the number of cases of small intestine tumours. In the USA nearly 3000 new cases are noted yearly, whereas in Poland the number of patients amounts to 180 (the standardised incidence rate reaches 0.14/100000) (7). Hidden clinical course, non-specific symptoms, rare occurrence and the lack of specific tests, it all causes malignant
tumours of small intestine to be difficult to diagnose, especially at the initial stadium. Below we present the case of a patient treated for primary tumour of the small intestine. The aim of the report is to signalise that small intestine tumours are possible to occur at a young age, and to draft a diagnostic-therapeutic scheme for the patients suffering from that illness.

CASE REPORT

A 40-year-old patient, M.W., with no concurrent illnesses. The patient has not undergone any surgeries. So far he has not been seriously ill. He was admitted at the Clinic on 2 March 2010 with the symptoms of permeable occlusion. Over the last few weeks he has been experiencing increasing non-specific pain mainly in the epigastrium area, occasional vomiting and a significant weight loss (approx. 20kg). The patient was hospitalised in the Clinic of General Gastroenterological and Oncological Surgery from 2 March 2010 to 12 March 2010. After his admittance his general condition was defined as mediocre; patient dehydrated, RR 100/50, HR ca 100/min. Laboratory tests showed deviation in the levels of creatinine – 1.87 mg/dl, CRP – 12.9 mg/l, WBC – 10.97 $10^3$/µL. Abdominal ultrasound showed inflated intestinal loops with liquid matter in the lumen, and, besides that, no other abnormalities. An X-ray examination revealed single liquid levels. The performed gastro- and colonoscopy revealed no pathology. CT scan of the abdomen with intravenous and oral contrast showed significantly widened intestinal loops with residual liquid matter in the stomach, duodenum and a part of the jejunum; reaching the upper norm of intestinal width – without any distinguishing pathological masses. Moreover, some single mesenteric lymph nodes and para-aortic nodes were found enlarged to the size of 12 mm. The patient was qualified for laparatomy. He underwent surgery on 5 March 2010. During the surgery a 4-cm tumour of the jejunum was found, ca. 100 cm from the Treitz ligament, concentrically narrowing the intestinal lumen. Segmental resection of ca. 50 cm of the small intestine was performed with side to side anastomosis with the use of a linear stapler and omentectomy. Histopathological examination confirmed the presence of Adenocarcinoma G-III signet-ring cells T4N1M1 with the infiltration of subserous lamina and mesentery and the presence of metastasis in 2/6 mesenteric lymph nodes and a metastatic tumour in the omentum of a diameter of 1 cm. Immunohistochemical diagnostics of the section showed synaptophysin (+), chromogranin (+), NSE(+), Ki67 (+) in over 15% of the tumour cells. The final diagnosis was Carcinoma neuroendocrinale male differentiatum (GEP NET). Currently, the general condition of the patient is good, and the patient is undergoing systemic treatment.

DISCUSSION

The discussed article presents a rare case of gastrointestinal tract occlusion caused by the presence of neuroendocrinale jejunum tumour in a 40-year-old male patient. In the course of the last 15 years, several dozen clinical cases of small intestine tumours were described. In most situations, intestine tumours were the reasons for recurrent, untypical, massive bleedings into the gastrointestinal tract. In the discussed paper, the tumour proved to be the reason of heavy occlusion of gastrointestinal tract. Gastrointestinal tract occlusion (ileus) is called a stoppage of the physiological process of moving of the chyme often with the accompanying "acute abdomen", resulting in a condition of direct danger to life (8). Due to the cause, we may classify the occlusion as mechanical – an obstacle found in the gastrointestinal tract, functional – paralytic and ischaemic – leading to intestinal wall necrosis. In the discussed case, the patient manifested symptoms of permeable occlusion, i.e. increasing abdominal pain in the period of several weeks, nausea, vomiting, occasional flatulence. As far as mechanical occlusion is concerned, the mechanical obstacle is in most cases, 70-80% of cases, placed in the small intestine. Only in 20-30% of patients mechanical occlusion is found in the large intestine. The most common cause of mechanical occlusion of gastrointestinal tract (60-75%) are peritoneal adhesions remaining after the past surgeries (8). For comparison, primary tumour of the small intestine constitutes less than 1% of the cases of mechanical occlusion of gastrointestinal tract.

However, let us go back to our case. Non-specific symptoms of obstruction manifested by the patient and the significant weight loss
could suggest the presence of a mechanical obstacle in gastrointestinal tract of a growing character. Hence, it was advised to conduct fast and precise diagnostics allowing for a correct diagnosis and beginning of the treatment. In the discussed case, no significant pathologies were found in the routine X-ray of the abdomen as well as in the endoscopic examination (GFS, colonoscopy). CT scan of the abdomen with intravenous and oral contrast showed significantly widened intestinal loops with residual liquid matter in the stomach, duodenum and a part of the jejunum; reaching the upper norm of intestinal width – without any distinguishing pathological masses. Moreover, some single mesenteric lymph nodes and para-aortic nodes were found enlarged to the size of 12 mm. CT scan is not usually the test used for confirming intestinal occlusion, however, it is quite important in the diagnostics of non-specific causes of the symptoms of obstruction. Thanks to the use of a contrast medium applied orally and intravenously and performing multi-layer reconstructions we may precisely determine the place and type of the possible obstacle in gastrointestinal tract, and carefully plan the treatment. It is a method of low invasiveness. During the examination the patient is exposed to an only slight risk related to the use of the contrast medium and ionising radiation. Side effects of intravenous application of a contrast medium are extremely rare (0.5-1%) and usually do not pose any threat to life. The mortality rate for such examinations is estimated at 1:50000-100000 (9). Another technique allowing for precise visualisation of pathological changes in the small intestine is capsule endoscopy implemented for common use in the year 2000. The greatest advantage of this method is its low invasiveness (10). The main risk during the examination involves entrapment of the endoscopic capsule in gastrointestinal tract (e.g. polyps, tumours, diverticula). This was probable to happen in our patient, therefore it was advisable to precede the examination with a contrast test in order to exclude any possible narrowings (11). Other tests aiming at evaluating the small intestine are radiological contrast examinations (passage, enteroclysis) and enteroscopy (the “push” type, double-balloon or surgical), i.e. the direct endoscopy of the small intestine. A very useful examination of the small intestine is passage of gastrointestinal tract. It involves oral application of a contrast medium and taking several X-rays allowing to trace the route of the chyme and find the possible mechanical obstacle. It is a very cheap and common test. In the discussed case, we decided to use CT scan with contrast applied orally and intravenously. This is a very useful method in the diagnostics of small intestine tumours. It allows to detect the swelling in the place of the tumour and additionally to reveal any possible metastatic changes in the lymph nodes and the liver (12). It may be used as a screen test in patients with non-specific abdominal symptoms and to determine the level of clinical advancement before the possible surgical treatment (13). In the diagnostics of the rare intestinal occlusion, such as the tumour of the small intestine, an important role is played by an ultrasound examination. It often shows small intestine tumours as intramural isoechogenic structures (14). In the advanced stages it allows for visualisation of metastatic changes in the surrounding lymph nodes and the liver. This is a very common and cheap method, repeatable without having any negative effects on the patient’s health.

Sometimes the first and, often, the only symptom of the small intestine tumour is bleeding into the gastrointestinal tract. It is an untypical type of bleeding into the gastrointestinal tract, since its source is not detectable in the standard endoscopic examination – gastro- and colonoscopy. A useful method in localizing a bleeding tumour of the small intestine is scintiscanning. Still, it is quite limited, since it is only useful in the case of active bleeding from the tumour and allows only for determining the source of bleeding.

While discussing the case of a patient with small intestine adenocarcinoma we should mention gastrointestinal stromal tumours (GIST). It is especially significant to mention them due to the specificity and a completely different tactics of proceeding in the case of GIST. Such tumours are relatively rare (the incidence rate amounts from 3-4 to 16 cases/a million people/year; in Poland approx. 600 new cases yearly). These are the most common mesenchymal abdominal tumours (15). The basic manner of diagnosing this type of tumours consists in carrying out immunohistochemical tests on the presence of CD 117...
and CD 34 antigens. Antigen CD 34 is less common and has a more promising medical prognosis. Such tumours are most often found in the stomach – 60%, small intestine – 20-30%, and, less commonly, in the oesophagus, large intestine or omentum (16). GIST type tumours are treated as malignant tumours. They give distant metastases, usually to the peritoneum and the liver. The usual treatment consists in tumour resection. GIST type tumours do not give metastases to lymph nodes and do not show the tendency for broad and intramural infiltration. In comparison with adenocarcinomas they do not require lymph node dissection, and the margins of healthy tissues during the resection are easier reached. Similarly as in the case of adenocarcinomas, a highly unfavourable complication concerns tumour perforation. GIST type tumours are insensitive to standard systemic treatment (15).

However, let us now go back to the main issue of this article, namely the rare occurrence and serious difficulties related to early diagnostics of malignant tumours of the small intestine. Early recognition of such tumours is difficult due to completely uncharacteristic symptoms, often consisting in chronic abdominal ailments, often disregarded by patients, and, as we know only an early and radical surgical treatment offers the chance of complete recovery. Among all the tumours of gastrointestinal tract malignant tumours of the small intestine, especially adenocarcinomas and neuroendocrinale tumours, are perceived as the rarest and offering unfavourable medical prognosis (17). Most of the tumours are detected at their advanced stages when radical treatment (R0 resection) is practically no longer possible. According to the literature (e.g. Cunningham) the majority of tumours of the small intestine are found during the surgery, and it is possible to diagnose malignant small intestine tumour before the surgery only in 20% of cases. As it was stated before, the only effective treatment of malignant tumours of the small intestine consists in their complete resection (R0 resection), that is why fast diagnosis is of crucial importance. The surgical treatment of tumours located in duodenum is pancreati-duodenectomy. In the case of tumours located in the jejunum and the initial segment of the ileum the surgery consists in segmental resection of the intestine together with the mesentery and surrounding nodes with the preservation of the margin of 5-10 cm. In the case of tumours located in the terminal part of the ileum we are obliged to perform right hemicolectomy (18). In advanced cases, wherever possible, it is worth making the attempt of radical resection. In the case of distant metastases surgical treatment involves palliative resections or gastric bypasses. As far as complimentary treatment is concerned, until now is has not been possible to determine an effective scheme of chemo- and radiotherapy. The prognosis in the case of adenocarcinomas is bad; the survival of 5 years concerns 25% of the cases (19). The lack of an effective scheme of treatment and the bad prognosis in the case of malignant tumours of the small intestine to a large extent result from the rare occurrence of their clinical cases, non-specific symptoms and, consequently, late diagnosis.

CONCLUSIONS

In our work we presented a rare case of primary small intestine malignant tumour. The young age of patients, non-specific symptoms, diagnostic difficulties and the bad prognosis – these are the problems we need to face while considering this group of tumours. The discussed diagnostic methods are useful in the early recognition of small intestine tumours and increase the chance of recovery of such patients. The occurrence of non-specific abdominal symptoms, especially with no greater deviations revealed in basic tests, should persuade us to resort to the above mentioned diagnostic methods. Only fast diagnosis will enable radical tumour resection, i.e. the only effective treatment in the case of malignant tumours of the small intestine.

REFERENCES


Received: 8.12.2010 r.
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