Duodenal carcinoma is a rare tumor of the gastrointestinal tract of an insidious and secretive course, often diagnosed during the advanced stage of the disease. The study presented a case of a female patient diagnosed with duodenal carcinoma, subjected to two-staged surgery. The initial surgical intervention consisted in the implementation of a gastrointestinal anastomosis, followed by radical surgery by means of Whipple’s method performed after three years.

**Key words:** duodenal carcinoma, weight loss, chronic bleeding from the upper gastrointestinal tract

Primary malignant tumors of the small bowel are the least frequent of all gastrointestinal neoplasms (ok. 2%), despite the fact that the duodenum constitutes 70% of its length and 90% of its surface (1). Duodenal cancer constitutes 0.3% of all gastrointestinal tract tumors and approximately 50% of small bowel tumors (2), and thus, often poses a significant diagnostic and therapeutic problem, due to its rarity and insidious course. Proper diagnosis is difficult and final diagnosis is often established when the tumor is its advanced stage (3). Due to the anatomy of the organ, its topography, and close adherence to the pancreas, one should always consider metastatic infiltration from surrounding structures. Often, the tumor originates from malignant lesions of the head of the pancreas, biliary ducts, Vater’s papilla, and Wirsung’s duct (4). Gastric or hepatic flexure colon tumors can also occur under the guise of duodenal cancer. The above-mentioned, in contrast to primary adenocarcinoma of the duodenum are not so uncommon.

**CASE REPORT**

A female patient (K.E.), aged 59 years (history nb: 19462/12), was admitted to the Department of Surgery with the intention of surgical treatment of duodenal carcinoma. On admission, the patient complained of epigastric pain, loss of appetite, progressive weight loss, general weakness, and periodic tarry stools. Three years earlier the patient underwent emergency gastrointestinal anastomosis, due to high obstruction. Duodenal carcinoma was the cause of obstruction. During the surgical procedure histopathological samples were collected (nr 1074631-1074633 – Adenocarcinoma tubulo-papillare G2 cum necrosis focalis). The lesion infiltrated the mucous and submucous membrane of the duodenum. During primary surgery resection of the lesion was not performed, due to significant patient malnutrition and the associated high risk of postoperative complications, as well as lack of preoperative histopathological verification. After bypass surgery, symptoms of obstruction subsided, the patients’ general condition and nutritional status improved. The patient did not consent for further diagnostics and treatment.

During the period between June, 2009 and July, 2012, the patients’ condition was stable with periodic abdominal pain. In the last six months since hospitalization the patient complained of loss of appetite, progressive weight loss, and increasing general weakness. Three
weeks before admission jaundice was observed. On admission (23.07.2012), the patient (history nb: 19462/12) was in fairly good condition with signs of jaundice and malnutrition (BMI-19.1 kg/m²). The physical examination showed abdominal tenderness in the epigastrium without any detectable pathological resistance. Laboratory results were as follows: morphology – WBC 10.0 G/l, RBC 3.14 T/l, HGB 5 mmol/l, HCT 0.247 l/l, PLT 327 G/l, bilirubin – 92.2 µmol/l, AspAt – 139 U/l, AlAt – 92 U/l, total protein – 59 g/l, CRP – 187 mg/l, potassium – 4.39 mmol/l). Due to significant anemia and general weakness two units of packed blood cells were transfused, without complications. During panendoscopy a cauliflower-like ulcerating infiltration was observed in the prepyloric part of the duodenum. Histopathological samples were collected, which confirmed the diagnosis of adenocarcinoma (nr 30744 – Infiltratio carcinomatosa – Adenocarcinoma G2). Cancer cells were diagnosed in four of the six histopathological samples collected from the extrabulbar part of the duodenum. Abdominal CT showed an enlarged gallbladder without deposits, slightly dilated intrahepatic biliary ducts, and significantly dilated common biliary duct. In the vicinity of the orifice of the above-mentioned, one observed an asymmetrical thickening of the duodenal wall, adhering to the head of the pancreas, suggesting the possibility of tumor presence. The proximal segment of the duodenum was wide. In the described area one observed enlarged lymph nodes: peri-aortic and in the hilus of the liver. The pancreas was normal in size without neoplastic infiltrations.

The remaining organs of the abdominal cavity showed no pathological lesions (fig.1).

On July 25-th, 2012, after obtaining informed consent the patient was qualified and prepared for surgery. After abdominal cavity opening by means of a wide transverse incision under the left and right costal archs, Kocher’s maneuver was performed showing the presence of a duodenal tumor, closely adhering to the lower part of the head of the pancreas, enlarged common biliary duct, several enlarged lymph nodes in the vicinity of the head of the pancreas, and an isolated enlarged hepatoduodenal ligament lymph node. The liver and remaining abdominal cavity organs showed no evidence of pathology, both macroscopically and during intraoperative palpation. Pancreateoduodenectomy by means of Whipple’s method was performed (fig. 2).

Gastrointestinal tract reconstruction was performed by anastomosing the stump of the pancreas with the posterior gastric wall by means of Clagette’s method (fig. 3).

Due to the extent of surgery and postoperative respiratory insufficiency the patient was transferred directly after the operation to the Intensive Care Unit. During the first hours after surgery the patient required mechanical ventilation, which was followed by extubation. Total parenteral nutrition was initiated (Multimel N5 1500 ml), which was continued for a period of 10 days. Additionally, postoperative treatment included fluid therapy, antibiotic and anti-thrombotic prophylaxis, as well as analgesic therapy. The gastric tube was removed after five days, and two abdominal cavity drains after six. After return of peristal-
sis and gastrointestinal functions, oral nutrition was initiated seven days after surgery. On August 13-th, 2013 the patient was discharged from the hospital in good general condition, with a properly healing wound, and normal gastrointestinal functioning. The histopathological examination of the postoperative samples confirmed the diagnosis of duodenal adenocarcinoma and need for radical surgery (sample nb. 31483: Adenocarcinoma tubulare partim papillare duodeni. Infiltratio carcinomatosa pancreatis. Metastases carcinomatosa lymphonodorum 6/12 pT4N2M0, according to AJCC -IIIB. Surgical tissue margins, free of neoplastic cells- R0 resection). Six weeks after surgery the patient was referred for oncological consultation, and she refused postoperative chemotherapy.

The 18-month observation period showed no recurrence during control imaging examinations (CT). The patient is currently feeling well without significant abdominal symptoms.

**DISCUSSION**

Adenocarcinoma of the duodenum constitutes 73-90% of all primary malignant tumors of the organ, which accounts for approximately 45% of all small bowel adenocarcinomas (5, 6). The disease mostly affects the second part of the duodenum (2). Frequent unspecific symptoms include epigastric pain, nausea, vomiting, high gastrointestinal obstruction, anemia due to chronic bleeding, and weight loss (2, 7). Peripapillary tumors may manifest themselves by mechanical jaundice. The patient presented all typical symptoms of advanced duodenal carcinoma. The primary bypass anastomosis freed the patient from gastrointestinal obstruction symptoms. The next stage of treatment considered radical surgery, to which the patient did not agree. Due to diagnostic difficulties the majority of carcinoma cases are recognized in the advanced stage of the disease, with infiltration of surrounding organs and local lymph node metastases. In the presented study case, due to initial lack of patient consent for radical surgery and the three-year course of the disease, the stage of cancer was also significant (IIIB). The remaining duodenal malignant tumors include sarcomas, lymphomas, and carcinoids (5). Differential diagnostics of primary duodenal cancer should include neoplastic lesions from the "vicinity", such as the head of the pancreas, Vater's papilla, and biliary ducts (2). The duodenum is also location to metastatic lesions. Lung, kidney, breast, and melanoma carcinomas are the most common primary foci, which metastasize to the pancreato-duodenal area (8).

Considering non-neoplastic diseases during differential diagnosis one should not forget about duodenal ulceration, Crohn’s disease, and tuberculosis. The duodenum is easily accessible by endoscopy, which implies the hypothesis that duodenal tumors should be diagnosed at an early stage. However, early symptoms are usually treated as ulcer disease, subjected to treatment without proper diagnostics, which often delays diagnosis and in most cases prevents radical management. The prerequisite is to maintain oncological vigilance and direct patients for endoscopy every time symptoms persist for a long period of time,
not susceptible to conservative treatment. One should be aware of the fact that the duodenum may also be location to a neoplastic process. Panendoscopy with histopathological sampling is the diagnostic method of choice. Additional examinations include double contrast upper gastrointestinal tract X-rays (“the apple core image”). In order to determine the stage of the disease abdominal CT and MRI, as well as chest X-ray examinations should be performed (7). Duodenal cancer imaging examination signs include various degrees of irregular wall thickening or presence of a tumor mass in the lumen of the organ, often accompanied by obstruction. Early forms of duodenal cancer may imitate polyp-like lesions, since the tumor often develops from an adenomatous polyp, which can be observed in case of Gardner’s syndrome (2). The presence of enlarged lymph nodes, dilated pancreatic and biliary ducts with jaundice, as well as metastatic lesions in the liver and peritoneum are symptoms of advanced carcinoma (7). Whipple’s operation consisting in the excision of the duodenal adenocarcinoma, the head of the pancreas and lymph nodes is the method of choice, providing oncological radicality and creating the chance for full recovery (2, 7). In case of our patient the diagnosis of primary duodenal carcinoma was established on the basis of the laparotomy and histopathological result. In the presented case the remaining pancreatic stump was sutured to the stomach, the procedure being relatively simple, safe, and recommendable, enabling pancreatic juice drainage to the gastrointestinal tract. The above-mentioned method requires a smaller number of anastomoses on one intestinal loop, preserving beneficial anatomical relations, enabling endoscopic control after surgery. The thicker and well supplied in blood gastric wall seems to be a safer alternative to pancreatic anastomoses, which might result in a lower risk of leakage. The three-year period between the initial laparotomy and radical surgery is evidence of low dynamics considering tumor growth.

Due to the rare location of the primary tumor there is lack of five-year survival results after radical procedures. Literature data results range between 20% and 90%. The number of reports on the efficacy of postoperative chemotherapy is negligible. Some studies showed the potential chemosensitivity of cancer cells (multiple drug schemes with 5-fluorouracil) (9) and presumed prolonged survival. Domestic literature data refers to isolated reports considering duodenal carcinoma (10).

REFERENCES


Received: 4.11.2013 r.
Adress correspondence: 41-200 Sosnowiec, Pl. Medyków 1
e-mail: weseccy@wp.pl