CASE REPORT

MULTIVISCERAL RESECTION FOR ADVANCED DUODENAL ADENOCARCINOMA: A CASE REPORT AND REVIEW OF LITERATURE

Aleksandar Mitevski¹, Svetozar Antovic², Biljana Kuzmanovska³, Nikola Jankulovski²

¹ Clinical Hospital, Stip, R. Macedonia
² University Digestive Surgery Clinic, Skopje, R. Macedonia
³ KARIL (Clinic for Anaesthesia Reanimation and Intensive Care), Skopje, R. Macedonia

Corresponding Author: Aleksandar Mitevski, Stip Clinical hospital, Ljuben Ivanov bb, Stip, R. Macedonia; Tel.: +389 (0)2 072 22 19 03; E-mail: acence03@yahoo.com

Abstract

The aim of this paper is to address adenocarcinoma of the duodenum by reporting a case, reviewing the literature and discussing current knowledge, diagnostic modalities and treatment options. We present a case of a 42-year-old patient with duodenal adenocarcinoma at the second portion invading surrounding organs. The patient had a previous history of colon malignancy and was diagnosed with a new tumour formation on regular CT (computed tomography) follow-up. Pylorus-preserving pancreaticoduodenectomy (PPPD) was preformed for this T4 N2 M1 tumor. Duodenal adenocarcinoma is a rare tumor, most frequently involving the second duodenal portion. It has no specific symptoms and it is difficult to diagnose it due to its rarity and clinical presentation. Diagnosis, exact localization, and involvement of lymph nodes and surrounding organs have an impact on surgical strategy and prognosis.

Key words: duodenum, duodenal adenocarcinoma, second duodenal portion, surgery, pylorus preserving pancreaticoduodenectomy, PPPD.

Introduction

Although the small intestine represents 90% of the gastrointestinal mucosal surface, malignancies of the small intestine account for only 1% [1, 2]. Duodenal involvement is 30–45% with the most frequent location at the second portion (42.8–81.8%) [3].

Clinical presentation of duodenal carcinoma is unrevealing. Abdominal cramps, nausea and postprandial pain are nonspecific and lead to misdiagnosis and delay in diagnosis. Intestinal obstruction, anaemia, weight loss, jaundice, secondary to biliary obstruction and palpable abdominal mass are related to advanced disease. [1, 4–6]

We report a case of advanced duodenal adenocarcinoma and discuss diagnosis, treatment and prognostic factors by reviewing the literature.

Case presentation

A 42-year-old patient presenting with tumour formation in the second portion of the duodenum involving the right kidney. The tumour formation was diagnosed after a regular yearly follow-up when CT of the abdomen was performed. The patient was admitted as an acute abdomen case 3.5 years ago in emergency setting and was operated on. Obstructive carcinoma of the caecum with consecutive perforated appendicitis was found. A right haemicolectomy with ileo-transverso anastomosis was performed. The pathologist report was: Adenocarcinoma of the caecum, acute gangrenous perforated appendicitis with diffuse fibrino-purulent peritonitis. The pathological stage of the tumor was pT3 pN1 pMx, of 15 lymph nodes, 2 had metastatic deposits. Regular follow-up was performed, on the second early colono-
scopy two polyps were diagnosed on the remaining colon (one on the sigmoid and one on the rectum). On the CT scan tumour formation invading the duodenum, right kidney and liver was suspected (Plates 1, 2 and 3). Upper gastrointestinal endoscopy was performed and involvement of the duodenum was confirmed. CEA and CA 19–9 antigens were in the normal range on follow-up. The patient reported that he had had some back pain in the last two months and noticed a black stool from time to time; he lost 5–7 kg in that time. Explorative laparotomy was performed and the tumour formation was evaluated, no distant metastasis and no peritoneal involvement was confirmed. Tumor formation extended from the second portion of the duodenum to the flexure between the second and third portions. The fundus of the gall bladder, a portion of the 5th segment of the liver and right kidney were also involved in the tumour. Considering the patient’s age and condition, extensive surgical treatment was performed. "En block" resection of the 5th liver segment, cholecystectomy, right nephrectomy and pylorus-preserving pancreaticoduodenectomy. The postoperative period was prolonged, a small pancreatic leakage was evident on the 5th postoperative day but was treated conservatively. Leakage was localized and drained on a drainage tube placed intraoperatively and ceased on the 14th day. Oral feeding was resumed on the 10th day and the patient was discharged on the 15th postoperative day. The histopathological findings reported: Adenocarcinoma of the duodenum with invasion of the gall bladder, liver and right kidney. A negative margin of resection was confirmed, of 13 lymph nodes 4 had metastatic deposits. The pathological stage was pT4 pN2 pM1 (invasion in the kidney was considered as metastasis). Since the patient had been operated previously for adenocarcinoma of the colon the first impression was that it was a recurrence. Hystopathological immunohistochemical analysis implied that the primary origin of this adenocarcinoma was the duodenum (strong membrane stain for CKWS, cytoplasmic granules positive for chromogranin, some cells showing cytoplasmic positivity for NSE and discrete positive signal of tumour cell on TTF (Picture 4). Adjuvant chemotherapy was advised by the oncologist.

CKWS – cytokeratin wide spectrum; NSE – neuron specific enolase; TTF – thyroid transcription factor
Discussion

Primary adenocarcinoma of the duodenum is rare [1, 2]. Involvement of the second portion is the most common [3] and the case we present can be included in this group.

In our case symptoms were obscured by the fact that the patient had previous colon malignancy. Black stool, back pain and weight loss could point towards upper gastrointestinal process [8] and lead to endoscopy, but attention was directed towards a regular follow-up and previous malignancy. Colorectal cancer increases the risk of developing small bowel cancer, other conditions such as FAP (familial adenomatous polyposis), HNPCC (hereditary nonpolyposis colon cancer), Peutz-Jeger and Crohn disease also increase the risk [4, 5, 7].

Endoscopy was performed and the biopsy was negative. Upper gastrointestinal endoscopy is the diagnostic procedure for duodenal tumours over 25% [3, 9, 10]. The advantage is visualization of the process and the opportunity to perform a biopsy. In our case endoscopy was performed after the CT of the abdomen when a mass in the upper right abdomen involving the duodenum was found.

CT is required for confirming, staging and treatment planning. Using CT enteroclysis (CTE), contrast and water enhanced multidetector CTE sensitivity for lesions up to 2cm is over 80% and specificity over 90% [9, 11]. The mass on CT was presumed to be a recurrence of the colon cancer and involvement of the surrounding organs was evident. Intravenous and oral contrast-enhanced CT was used.

Radical resection is the only potential curative procedure. DCP (duodenocephalic pancreatectomy) is the method of choice for lesions in the first and second portion of the duodenum [6, 12]. We used the modified pylorus-preserving pancreaticoduodenectomy (PPPD). The perioperative mortality rate for radical resection is 1% and morbidity is around 50% [13, 14]. Pancreatic leakage is a common compli-
cation and consists of 16% of the curative resections group; our patient had this complication and was treated conservatively.

The survival rates for duodenal adenocarcinoma at 5 years are from 6–18% [12, 15]; in patients with curative resections they are 50% at 5 years [3, 13]. The prognostic factors of age, weight loss, nodal metastasis, positive resection margin and advanced tumour stage are associated with short survival [13]. Invasion of the pancreas is an important prognostic factor, T4 tumour stage patients have a shorter survival (median survival 11 months) compared with T1-T3 (median survival 29 months) [10, 16]. Postoperative morbidity is an additional prognostic factor, abdominal complications have a significant impact on median survival (180 months with an uneventful postoperative course and 52 months after abdominal complication) [17]. An additional prognostic factor can be cancer-directed therapy (surgery), patients who have had cancer-directed surgery (radical-curate surgery) have better overall survival [10, 15].

In conclusion, duodenal adenocarcinoma is a rare tumour that, due to its rarity and unrevealing symptoms, is diagnosed in its advanced stages. This accounts for the low rate of tumors amenable for resection. The case that we present was diagnosed in the advanced tumour stage mainly because the symptoms were obscured by the previous malignancy. Diagnosis, preoperative staging and treatment-planning are crucial and cancer-directed surgery (treatment) plays an important role in overall survival.

**LITERATURE**

Резиме

МУЛТИВИСЦЕРАЛНА РЕСЕКЦИЈА ЗАРАДИ НАПРЕДНАТ АДЕНОКАРЦИНОМ НА ДУОДЕНУМ: ПРОКАЗ НА СЛУЧАЈ И ПРЕГЛЕД ОД ЛИТЕРАТУРАТА

Александар Митевски¹, Светозар Антовиќ², Билјана Кузмановска³, Никола Јанкуловски⁴

¹ Клиничка болница, Штип, Р. Македонија  
² Универзитетска клиника за дигестивна хирургија, Скопје, Р. Македонија  
³ КАРИЛ (Клиника за анестезија, реанимација и интензивно лекување), Скопје, Р. Македонија

Цел на оваа публикација е да се обработи аденокарциномот на дуоденумот преку презентација на случај и pregled на литературата, да се согласат ставовите, дијагностичките можности и начинот на третман. Презентираме случај на 42-годишен пациент со аденокарцином кој го зафаќа вториот дуоденален сегмент и ги инфицира околните органи. Пациентот има историја на претходен карцином на колон и е дијагностиран со туморската формација на дуоденумот на редовна контрола со компјутеризирана томографија. Наредена е пилорус прервирачка панкреатикодуоденектомија за оваа T4 N2 M1 туморска формација.

Дуоденалниот аденокарцином е редок тумор и најчесто го зафаќа вториот дуоденален сегмент. Нема специфична клиничка презентација и затоа многу тешко се дијагностира. Дијагностата, прецизната локализација, зафаќањето на околните органи и ширењето во лимфните јазли има влијание на хируршката стратегија и прогноза.

Ключни зборови: дуоденум, дуоденален аденоарцином, втор сегмент на дуоденум, хирургија, пилорус прервирачка панкреатикодуоденектомија, ПППД.