

CASE STUDY

DYSPNOEA AS THE FIRST SYMPTOM OF COLON CANCER

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Introduction: Colorectal cancer is one of the most frequently diagnosed cancer worldwide. Abdominal pain, alteration of chronic bowel habits, changes in bowel movements and involuntary weight loss belong to typical symptoms. It is important to diagnose the disease in early stage to improve effectiveness of treatment.

The aim: To present a case report of exertional dyspnoea in patient with newly diagnosed colorectal cancer without any symptoms and abnormalities in physical examination suggesting malignant process of digestive tract.

Case report: We present a 71-year-old male who has been admitted to the Department of Internal Medicine, Angiology and Physical Medicine under emergency care, where was aimed at by general practitioner to diagnose exertional dyspnoea ongoing last few weeks, which appearing after two hundred meters walk on flat surface. In the course of the diagnostic process, it turned out that the cause of dyspnoea was colorectal cancer.

Conclusions: This case report shows that initial symptoms of cancer may be nonspecific and it confirms how important it is for doctors to remain vigilant in the diagnostic process.

KEY WORDS: colorectal cancer, dyspnoea, anaemia

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INTRODUCTION

Colorectal cancer is the third most frequently diagnosed cancer in the world. In 2018 about 1,8 million new cases have been diagnosed [1]. The disease affects more frequently men, in highly developed countries [2]. Positive family history, inflammatory bowel diseases, obesity, excessive intake of meat and highly processed food, diet deficient in fruits and vegetables, smoking, low physical activity belong to known risk factors for colon cancer [3]. Typical clinical picture includes rectal bleeding, diarrhoea, constipation, loss of weight, and abdominal pain, although these symptoms are not specific [4]. Prognosis depends on stage at diagnosis. It has been shown that 5-years survival varies from 90% when diagnosed at the localized stage to 10% for people diagnosed with distant metastatic colon cancer [5].

Dyspnoea is one of the most common reasons of providing medical assistance in the emergency department [6]. It may be a symptom of life-threatening condition. The causes of dyspnoea include conditions such as heart failure, coronary heart disease, congenital heart diseases, pulmonary embolism, pneumonia, lung cancer, respiratory obstructive diseases, pneumothorax, fluid in pleural cavity, interstitial lung diseases, connective tissue diseases, neuromuscular diseases, anaemia, intoxication, metabolic disorders, and the cause of dyspnoea may be also psychogenic [7,8]. The patient with dyspnoea is therefore a diagnostic challenge for practitioners, and quick and accurate diagnosis as well as appropriate treatment in some cases may be life-saving.

CASE REPORT

71-year-old male has been admitted to the Department of Internal Medicine, Angiology and Physical Medicine under emergency care, where was aimed at by general practitioner to diagnose exertional dyspnoea ongoing last few weeks, which appearing after two hundred meters walk on flat surface. The patient negated chest pain, heart palpitation, shortness of breath at rest, fever, symptoms of infection of respiratory system, abdominal pain, changing of the rhythm of bowel movement, weight loss, blood in stool or melaena. He did not provide any other symptoms. The patient used only diclofenac and chondroitin sulphate sodium due to osteoarthritis. He reported status post radioiodine treatment in medical history. The patient did not smoke cigarettes nor overdose alcohol. He negated cancers in family medical history. The patient was physically active – he was cycling. He had been employed as physical worker in the past. In physical examination any abnormalities were not notice. In 12-lead ECG regular sinus rhythm without abnormalities were described.

In gas analysis of arterial blood on the day of admitting to hospital alkalosis with hyperventilation was established (pH 7,46; pCO₂ 28,4 mmHg; pO₂ 125,9 mmHg; sat. 99%). In laboratory tests during hospitalization were observed lowered iron concentration in blood (23 µg/dL) with normal total and latent iron-binding capacity, mild anaemia (in repeated blood morphology analysis HGB 10,2-11,3 g/dL; RBC 4,03-4,5 million/µL; HCT 33,1-37,6%; normal MCV, reduced MCH and MCHC; RDW with tendency to

increasing in repeated tests; during hospitalization iron supplementation was instituted); mildly increased concentration of CRP protein (28,85 mg/L), which got normalized by itself within few days (1,57 mg/L), insignificantly lowered total protein concentration (6,5 g/dL), accelerated erythrocyte rate sedimentation (30 mm/h), characteristics of mixed dyslipidaemia (TC – 217 mg/dL; LDL-C – 157 mg/dL; HDL-C – 32,6 mg/dL; TG – 153 mg/dL). There was also observed a normal concentration of tumour markers (AFP, CEA, PSA), electrolytes (sodium, potassium, total calcium, phosphates), glucose, creatinine, urea, uric acid, bilirubin, cardiac troponin, D-dimers, fibrinogen, thyrotropin and vitamin B12 and normal activity of aminotransferases (ALT, AST), amylase, alkaline phosphatase (ALP), gamma-glutamyl transferase (GGT), creatine kinase (total and MB isoenzyme). INR and APTT were in normal range. Test for rheumatoid factor was positive. In general urine test the number of leucocytes was slightly elevated. The chest radiograph was within the normal range. In abdominal ultrasonography the steatosis of liver, cholelithiasis, atherosclerosis of abdominal aorta, hyperechogenic swelling in bladder neck area and enlarged prostate with calcifications were described. In thyroid ultrasonography features of nodular goitre, with recommendation to BAC.

During hospitalization the cardiological diagnostic was performed, and it did not prove any significant abnormality. In transthoracic echocardiography mild aortic regurgitation was described. Any other valvular defects have not been described. Heart cavities within normal size, without significant characteristics of systolic dysfunction of left ventricle (left ventricular ejection fraction between 53-54%, without segmental systolic dysfunction) and without characteristics of diastolic dysfunction of left ventricle (estimation based on the maximal tricuspid regurgitation velocity, left atrium volume, mitral inflow profile and tissue doppler echocardiography). Pathological fluid in pericardium was excluded. During whole record of 24-hour ECG Holter the regular sinus rhythm was observed with single additional ventricular and supraventricular systoles. During stress test on cyclometer the heart rate limit was achieved and in ECG no abnormalities in ST-T nor disturbances in rhythm and conduction was observed.

Due to mild anaemia the faecal occult blood test has been performed and the result was positive. In gastroscopy features of gastritis and infection caused by *Helicobacter pylori* has been established. In colonoscopy hard, easily dropping blood infiltration in caecum has been shown, from which many samplings to histopathological examination have been taken. In computed tomography of abdomen and pelvis previous abnormalities was confirmed, beside the liver cyst and mild adenoma of left adrenal was described, nearby the neoplasm the infiltration of fat tissue and a couple of lymph nodes with diameter to five millimetres have been observed. The angiography of pulmonary arteries has been performed, which excluded the pulmonary embolism.

The biopsies for histopathological examination taken during the colonoscopy performed twice turned out to be

non-diagnostic. The patient has been consulted by surgeon and oncologist and despite the lack of preoperative histopathological confirmation of the neoplastic disease, the patient was qualified for primary surgical treatment. In histopathological analysis of material gained during surgery the adenocarcinoma G1 of colon was proven.

DISCUSSION

Looking at described case in perspective of whole diagnostic process which was made and based on current scientific knowledge we can say, that likely reason of decreased tolerance of physical exertion was anaemia due to colon cancer, caused by chronic loss of blood, which was implied by faecal occult blood test. It should be emphasized that the patient did not have any other symptoms that could suggest colorectal cancer at the beginning of the diagnostic process (no disturbances in bowel movements, abdominal pain, and macroscopically visible blood in the stool). In laboratory tests, the concentration of tumour markers, including CEA, was normal. There were also no significant risk factors in the medical interview. The severity of exercise dyspnoea appeared disproportionately high for mild anaemia that developed as a result of slow loss of blood. The interview suggested rather a cardiogenic basis of the symptoms. Neoplastic disease is an important risk factor for the development of thromboembolic complications [9], therefore, despite the correct concentration of D-dimers in the blood, a decision was made to perform angio-CT examination of the pulmonary arteries, in which pulmonary embolism was excluded, which indicates even more anaemia as the only cause of exercise dyspnoea.

Cramer et al. presented the results of the study based on a similar observation that some patients with colorectal cancer initially develop symptoms suggesting heart failure [10]. Mira et al. presented a case report in which a case of a patient with Ogilvi syndrome was presented, whose first symptoms prompting her to seek help were dyspnoea and fever [11].

In 2016, Walter and colleagues from the United Kingdom published the results of the cohort study in which they examined, among other things, what symptoms appear first in patients diagnosed with colorectal cancer. 60.5% of patients reported one symptom, while the remainder reported two or more symptoms. Dyspnoea was not included in the list of symptoms, while "fatigue" was noted in 23% of patients as the first symptom, alone or with other symptoms. Of the patients diagnosed with colorectal cancer, 56% had stage III or IV disease according to TNM classification [12].

CONCLUSIONS

Our observations and the cited literature show that dyspnoea and deterioration of exercise tolerance as the first symptom of neoplastic disease are phenomena that should be investigated in more detail through epidemiological studies. Further research is also necessary, which would contribute to an unequivocal explanation of the pathomechanism of this symptom.

The presented case shows how important it is to look at the patient in a holistic manner during the diagnostic process. It also proves that anaemia, even if mild, is a symptom that always requires very careful explanation. The lack of deviations in the history and physical examination suggesting a proliferative process, and the correct concentration of tumour markers should not reassure the doctor and discourage him from conducting a thorough diagnosis.

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Conflict of interest

Authors declare no conflict of interest

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