

The value of abdominal ultrasound in the diagnosis of colon cancer – Case report

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Abstract

Introduction. Abdominal ultrasound is considered an initial examination of the the gastrointestinal tract. The case is presented in which ultrasound (US) detected a 'pseudokidney' sign that enabled the tentative diagnosis of a colonic neoplastic lesion.

Case report. A 78-year-old patient was admitted to the Department of Internal Diseases due to weight loss and anaemia. US demonstrated abnormalities in the form of intestinal wall thickening with a hyperechoic centre. This finding led to the tentative diagnosis of a neoplastic lesion. After further diagnostic procedures, i.e. colonoscopy and histopathological examination of biopsy specimens, the patient was diagnosed with colon adenocarcinoma.

Conclusions. In many cases, experienced US radiologists can initially assess the intestinal wall and other organs, which effectively directs towards further diagnostic management, hence accelerates the diagnosis and decision to apply a given therapeutic option or otherwise

Key words:

abdominal ultrasound, colon cancer, pseudokidney sign, rosette sign

INTRODUCTION

Abdominal ultrasound is currently most commonly used to visualise the gastrointestinal (GI) tract. The method is non-invasive, cheap, easily accessible, but most importantly, safe when applied repeatedly (also for pregnant women and children). However, a relevant limitation of the method is its dependence on the radiologist's experience and US scanner capability. Therefore, US is considered an initial examination, and the diagnostic procedures of the lesions detected within the stomach or intestines have to be supplemented by endoscopic testing enabling biopsy sampling for histopathological tests and more advanced radiographic methods (CT, MRI) for accurate evaluation of the location and progression of the pathological process. The case is presented in which US-detected intestinal wall thickening with a hyperechoic centre enabled the tentative diagnosis of a colonic neoplastic lesion.

CASE REPORT

A 78-year-old male patient was admitted to the Department of Internal Diseases due to progressive weakness, deteriorated tolerance to physical efforts and unintended weight loss (7 kg within the last five months). Peripheral blood tests performed in an outpatient setting demonstrated severe anaemia (HGB 6.8 g/dl). The patient denied any symptoms suggestive of haemorrhage from the upper or lower gastrointestinal tract. Prior to admission, the patient had been treated for arterial hypertension and chronic obstructive pulmonary disease.

On admission, the patient was in good general condition. The physical examination revealed the arterial pressure of 110/60 mmHg and the rhythmic heart rate of 84/min. The auscultatory findings included the systolic murmur-grade 3/6 according to the Levine scale, over the cardiac apex and normal respiratory murmur without additional auscultatory phenomena over the lung fields. Palpation of the abdominal cavity did not disclose pain or detectable pathological resistances. The peritoneal and Goldflam signs were bilaterally negative.

Laboratory tests revealed microcytic iron-deficiency anaemia (FE – 20.3 ug/dl). Moreover, the level of CEA elevated to 47.57 ng/ml was of importance.

The physical examination and laboratory tests were followed by imaging examinations. Abdominal ultrasound (US) showed colon wall thickening to 16 mm over a distance of several centimetres below the hepatic flexure. The US image resembled an additional kidney in the vicinity of the right kidney (a so-called 'pseudokidney' sign or 'rosette' sign). The findings of the examinations enabled further diagnostic procedures to confirm the proliferative process in the GI tract. Gastroscopy revealed only a slight hiatal hernia. Colonoscopy confirmed the presence of a colonic tumorous lesion and biopsy specimens were collected for histopathological examination. Abdominal computed tomography (CT) was performed to determine the progression of the neoplastic process; the scan indicated ascending colon cancer – T3N1M0. The histopathological findings confirmed the diagnosis of colon adenocarcinoma. After surgical consultation, the patient was tentatively scheduled for elective surgery.

DISCUSSION

Colorectal cancer is the third most common cancer among males (660,000 cases; 10%) and the second most common

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cancer among females (570,000 cases; 9%) worldwide. In Poland, its incidences are 12.2% in males and 10.1% in females (data for 2013). Moreover, colorectal cancer is the fourth leading cancer-related cause of death globally (8% of cancer-related deaths). The colorectal cancer-associated mortality is lower in females than in males. In Poland, the mortality rate related to this type of cancer ranks second in women and third in men [1].

The quality of abdominal imaging is affected by the radiologist's experience as well as some other factors, such as the amount of the patient's fatty tissue and the presence of intestinal contents. The normal large intestine is susceptible to compression and its wall is up to 4 mm thick [2]. The major sonographic finding in colon diseases is the thickening of its wall. In non-neoplastic lesions, the thickening is even, while in cancers, infiltration asymmetry is more commonly observed. In colon tumours, the US image depends on the size of a lesion [3]. A careful and experienced radiologist searches for the 'pseudokidney' sign, also called the 'rosette' sign, i.e. the segmental hypoechoic intestinal wall thickening with a central irregular hyperechoic lumen. The detection of such a sign evidences a serious intestinal pathology (cancer, Crohn's disease or lymphoma) and requires further diagnostics, which in patients with the diagnosis of colon cancer often enables diagnosis of distant metastases, especially to the liver [4]. However, US does not allow differentiation between a neoplastic tumour and an inflammatory tumour.

Tumour markers are of little diagnostic value, and are more useful in the monitoring of tumours [5].

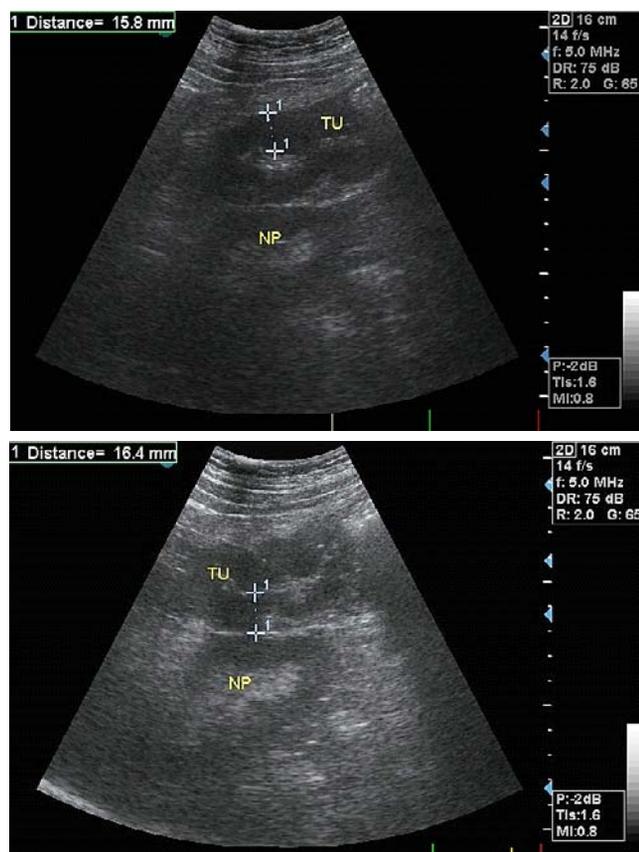


Figure 1. Ultrasound images of colonic neoplastic infiltration. The characteristic appearance of the colon tumour mimicking the additional kidney ('pseudokidney' sign)

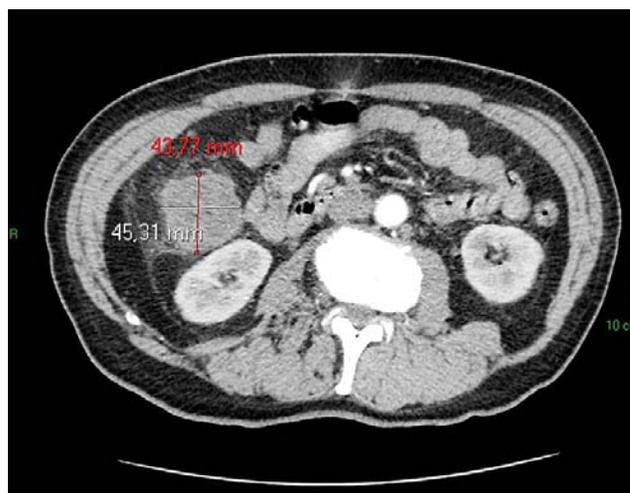


Figure 2. Abdominal computed tomography scan of colonic neoplastic infiltration

CONCLUSIONS

In the majority of cases, abdominal ultrasound is the first imaging examination when abdominal cancers are suspected. Despite its numerous assets, such as easy accessibility, safety for patients or low costs, the examination does not allow the establishment of an explicit and definite diagnosis. In many cases, however, experienced ultrasound radiologists can initially assess the intestinal wall and other organs, which effectively directs towards further diagnostic management, thereby accelerating the diagnosis and decision to apply a given therapeutic option or otherwise.

REFERENCES

1. Wojciechowska U, Didkowska J. Zachorowania i zgony na nowotwory złośliwe w Polsce. <http://onkologia.org.pl/nawotwory-zlosliwe-jelita-grubego-c18-21/> (access: 2017.10.25)
2. Bates J. Przestrzeń zaotrzewnowa i przewód pokarmowy. In: Ultrasonografia jamy brzusznej. 2nd ed. Wrocław: Elsevier Urban & Partner; 2012. p. 255-264.
3. Bor R, Fábán A, Szepes Z. Role of ultrasound in colorectal diseases. *World J Gastroenterol.* 2016; 22(43): 9477-9487.
4. Rakoczy A. Ultrasound in gastroenterology. <http://www.czytelniamedyczna.pl/1421,ultrasonografia-w-gastroenterologii.html> (access 2017.10.25)
5. Martínez-Ares D, Martín-Granizo Barrenechea I, Souto-Ruzo J, Yáñez López J, Pallarés Peral A, Vázquez-Iglesias J. The value of abdominal ultrasound in the diagnosis of colon cancer. *Rev Esp Enferm Dig.* 2005; 97(12): 877-886.