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SHORT COMMUNICATIONS AND CASE REPORTS

Preoperative diagnosis of jejunal adenocarcinoma - a case report

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Summary

We report herein the case of a preoperatively diagnosed small bowel adenocarcinoma. A 57-year-old man was hospitalized twice for a month in the Gastroenterology Clinic due to complaints lasting a year before hospitalization and consisting of heaviness and spastic pain in the left upper abdomen. None of the numerous methods used in this case (fibrogastroduodenoscopy, ileocolonoscopy, barium series and CT) could reveal a tumor. Ultrasound (US) examination showed a polycyclic formation in the left hypochondrium with enlarged regional lymph nodes. An US-guided fine (20 gauge) needle aspiration (FNA) cytology of the mass was performed and showed moderately differentiated adenocarcinoma of intestinal origin. Thanks to Doppler US guidance during FNA a massive bleeding from an identified arterial vessel with high systolic speed was avoided. On surgical exploration a jejunal tumor of high consistency was found, located 15 cm distantly from the Treitz ligament, infiltrating up to 2/3 of the bowel circumference and partly obstructing its lumen. The histological evaluation of the resected material showed highly to moderately differentiated adenocarcinoma with 5 regional lymph node metastases. The combination of US with Doppler and FNA established preoperatively the malignant small bowel disease.

Key words: abdominal Doppler ultrasonography, adenocarcinoma, diagnosis, jejunum, guided FNA

Introduction

Small bowel tumors belong to the rarest malignant diseases of the digestive system. Their share compared to all gastroenterological tumors is 1-3.6%, or 0.2-0.3% of all malignant neoplasms [1]. According to their frequency small bowel malignant tumors rank as follows: adenocarcinoma, carcinoid, malignant lymphoma and leiomyosarcoma [2]. Small bowel adenocarcinoma is most often localized in its upper part - 50% in the duodenum, 30% in the jejunum and 20% in the ileum [3]. In the jejunum the most frequent tumor is leiomyosarcoma, followed by adenocarcinoma and malignant lymphoma [4].

These tumors are difficult to diagnose prior to manifestation of complications, a fact that confers to their relatively bad prognosis. Herein we present the case of a preoperatively diagnosed small bowel adenocarcinoma.

Case presentation

A 57-year-old man was hospitalized twice for a month in the Gastroenterology Clinic due to complaints lasting a year before hospitalization and consisting of heaviness and spastic pain in the left upper abdomen. Moderate weight loss without anorexia was found. The patient had no constipation or diarrhea and no episodes of nausea and vomiting. He denied any relationship between the pain and his diet.

Physical status summary: satisfactory overall condition, without visible body fat reduction; abdomen: painless on superficial palpation without any signs of peritoneal irritation. On deep palpation in the left hypochondrium he complained of a movable light pain.

Laboratory tests: Hb 14.1 g/l, red blood cells 4.5 T/l, Hct 42%, leukocytes 4.8 G/l, ESR 12 mm. Serum biochemistry was within normal limits. Stool occult blood test was negative.

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An abdominal US evaluation during the first stay at the clinic described a hypoechogenic polycyclic zone with unclear borders, located approximately at the projection place of the left colic flexure, most probably representing an endophytically growing bowel tumor 3-4 cm in size. In close proximity with the formation a 1.5 cm hypoechogenic lymph node could be seen. There were no focal liver changes. The US findings provoked an endoscopic investigation but the ileocolonic fibroendoscopy that followed didn't show any pathology. Abdominal CT images were interpreted as a fixed small bowel loop near the pancreatic tail without presence of a tumor. Upper gastrointestinal barium meal showed arteriomesenteric stenosis of the duodenum (Wilkie syndrome), but again without revealing a tumor. Because of the unclear diagnosis and the persisting complaints a second evaluation of the patient in the clinic became imperative a month later. The second US examination revealed again the polycyclic hypoechogenic formation which had increased to 5 cm in size (Figure 1).

The presence of a bowel lumen neighboring the region of interest would suggest either an endophytically spreading intestinal neoplasm or a pancreatic tail tumor with secondary infiltration in the bowel loop; RI (resistance index) - 0.72 was found on Doppler scanning (Figure 2).

Fibroendoscopy of the upper gastrointestinal (GI) tract revealed a slight extraluminal push of the endoscopically intact gastric wall at the level of the corpus-antrum transition, most probably caused by the colon.

An US-guided 20 gauge FNA of the suspected bowel zone was performed and showed moderately differentiated adenocarcinoma cells of intestinal origin. With preoperative diagnosis of small bowel adenocarcinoma the patient underwent exploratory laparotomy.

On exploration a jejunal tumor of high consistency was found, reaching up to 5-6 cm in diameter, located 15 cm distally from the Treitz ligament, exo- and endophytically growing, infiltrating up to 2/3 of the bowel circumference and partly obstructing its lumen. The tumor had spread toward the radix mesenterii and infiltrated some of the jejunal and ileal clones of the superior mesenteric artery. Throughout the whole mesenterium multiple lymph nodes with soft-elastic consistency were found. One of these was intraoperatively investigated and showed histology consistent with a chronic hyperplastic nonspecific lymphadenitis.

The tumor was resected together with its mesentery and draining lymph nodes. The extirpated part of the jejunum was 30 cm long including the tumor and



Figure 1. Abdominal US image: Left hypochondrium – cross section. A polycyclic heterogeneous mass 5 cm in diameter (white arrows). On its immediate right a bowel lumen is projected (black arrow).

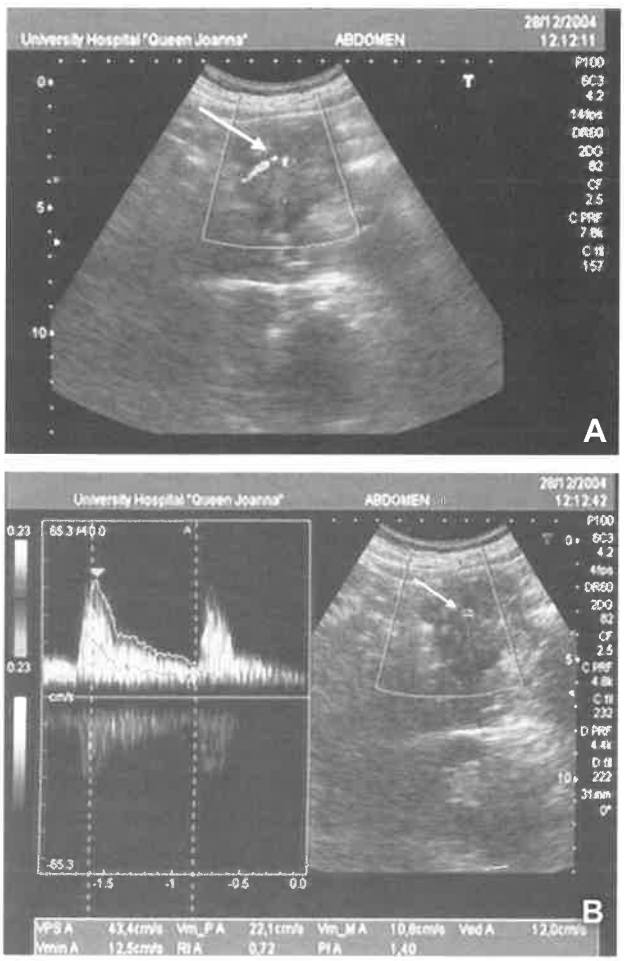


Figure 2. Doppler US image. Left hypochondrium - cross section. A: color Doppler - a vessel is identified in the area (arrow). B: duplex-Doppler - arterial vessel (arrow) with peak systolic velocity of 43 cm/sec and resistance index (RI) - 0.72.

the proximal resection line was in the distal duodenum, 9-10 cm above the neoplastic process. A laterolateral one-stage anastomosis with single seromuscular sewing between the pars horizontalis duodeni (retroperitoneally) and the remaining jejunum was performed.

The histological evaluation of the resected material stated that the small bowel wall was entirely infiltrated by a highly to moderately differentiated adenocarcinoma with extracellular mucous leakage and tumor spread in the mesenterium with 5 regional lymph node metastases. The resection margins were clear.

Eight months after the operation the patient is in good health with no complaints and no signs of disease recurrence.

Discussion

A 57-year-old man with stage III small bowel adenocarcinoma has been presented. According to the literature the average patient age with small bowel adenocarcinoma diagnosis is 55-60 years with a slight male prevalence [3,5].

Most cases of small bowel adenocarcinoma have atypical clinical presentation. The disease is asymptomatic in its early stages; abdominal pain of unclear origin and weight loss appear later. Not so frequent first manifestations of the disease are symptoms of bowel obstruction or bleeding. Eventually there might be a palpable tumor mass in the abdomen. Signs of peritoneal irritation are present only as a result of tumor perforation or advanced small bowel obstruction. In our case the disease was manifested with unclear abdominal complaints without bleeding or defecation disturbances.

Based on data from 60 patients with jejunoileal tumors Yang et al. reported that abdominal pain was the most frequent disease manifestation (57%), whereas a palpable abdominal tumor mass was the most frequent physical finding (40%). Sixty-seven percent of the patients were diagnosed preoperatively using enteroclysis in most of them. Transabdominal US could detect a tumor formation only in 22% of the cases (13/60) [6].

Laboratory results usually reveal a non-severe anemia caused by chronic bleeding; absence of bleeding/anemia is also possible, as in our case.

Barium series and enteroclysis are the most frequently used methods in the diagnosis of intraluminal pathology below the Treitz ligament [7]. The sensitivity of upper GI series is below 50-60%. Enteroclysis shows sensitivity up to 90% in most clinical trials and is the most useful preoperative investigation when a small bowel tumor is suspected [8]. In our case enteroclysis was not used as the diagnosis was obtained by US and FNA cytology; moreover, double contrast enteroclysis is not quite popular in our country. Abdominal CT shows the localization and the size of the lesion. In the presented case the performed CT did not contribute to the final diagnosis. Spiral CT and magnetic resonance imaging (MRI) enteroclysis combine the advantages of both the scanning image technology and the contrasting barium investigation. The application of capsule endoscopy in the detection of small bowel pathology is constantly increasing.

Despite the development of new investigational technology, the diagnosis of small bowel tumors remains difficult [9], especially in lesions located beyond the range of the upper and lower endoscopy in the middle and distal jejunum and the proximal ileum. It is still common practice to make the final diagnosis after laparotomy and histological evaluation.

None of the numerous methods used in our case, namely fibrogastroduodenoscopy, ileocolonoscopy, barium series and CT could reveal the tumor. Therefore the lack of typical clinical symptoms added to the insufficient sensitivity of the available diagnostic methods require a higher suspicion index for a small bowel cancer diagnosis, thus preventing false-negative interpretations.

The potential benefit of transabdominal US in the diagnosis of bowel diseases is underestimated [10]. Routinely this is the first imaging test for patients with atypical abdominal pain. A careful and detailed evaluation of the entire abdomen by an experienced radiologist is needed [10]. The inflammatory or neoplastic infiltration of the bowel wall creates the US image of a "cockade" or "pseudokidney" [11]. In the presented case the characteristic "cockade" formation of hollow organ tumors was missing. The endophytically growing bowel tumors, especially those in the small bowel, might be presented as a solid mass on US. Because this is a nonspecific image it requires high level of experience and interpretation of the finding. The combination of US with Doppler and FNA under US guidance clarifies the diagnosis. With color Doppler the fine needle is safely guided, escaping the larger blood vessels in the evaluated area. FNA cytology is a highly sensitive technique offering relatively quick and secure diagnosis [12].

In the presented case the accurate preoperative diagnosis was based on the US evaluation which disclosed a solid abdominal lesion, identified the bowel lumen and suggested malignant pathology. FNA cytology under US guidance clarified the diagnosis. Thanks to Doppler US a massive bleeding from the identified arterial vessel with high systolic speed could be avoided. The

typical for the tumor neoangiogenesis arterial Doppler curve of low resistance was not found (RI - 0.71). Most probably this was not a newly generated vessel with a weakly developed intima layer, high diastolic pressure and low resistance but rather an infiltrated ileal clone of the superior mesenteric artery.

Small bowel malignancies are a real challenge because of their low frequency, nonspecific symptoms and limited diagnostic accessibility. The delay of accurate diagnosis varies from about 7 up to 12 months [6]. In most cases it is made intraoperatively in the complicated state of obstruction or peritonitis. Preoperative diagnosis of the disease allows an adequate radical surgical approach which is often hard to achieve in case of emergency.

The presented case leads to the conclusion that abdominal US should not be underestimated in the evaluation of bowel pathology. Manifestation of a typical and persisting pathologic "cocarde" or polycyclic formation attached to a hollow organ has high positive predictive value for a neoplasm and allows cytological disease verification under Doppler US control.

References

1. Wang WD, Chen XY. A report of 77 cases of primary malignant tumors of the small bowel. Tumori 1990; 10: 44-45.
2. Wang D, Xu JX, Wang ZX. CT diagnosis of primary malignant tumors of the small bowel. J Clin Radiol 1995; 15: 220-222.
3. Dabaja BS, Suki D, Bonnen B, Ajani J. Adenocarcinoma of the small bowel: presentation, prognostic factors, and outcome of 217 patients. Cancer 2004; 101: 518-526.
4. Zhou Zhi-Wei, Wan De-Sen, Chen Gong, Chen Ying-Bo, Pan Zhi-Zhong. Primary malignant tumor of the small intestine. World J Gastroenterol 1999; 5: 273-276.
5. North JH, Pack MS. Malignant tumors of the small intestine: a review of 144 cases. Am Surg 2000; 66: 46-51.
6. Yang YS, Huang QY, Wang WF, Sun G, Peng LH. Primary jejunoileal neoplasms: a review of 60 cases. World J Gastroenterol 2003; 9: 862-864.
7. Ciresi DL, Scholten DJ. The continuing clinical dilemma of primary tumors of the small intestine. Am Surg 1995; 61: 698-703.
8. Bender GN, Maglinte DD, Kloppel VR et al. CT enteroclysis: a superfluous diagnostic procedure or valuable when investigating small-bowel disease? AJR 1999; 172: 373-378.
9. Zhan J, Xia ZS, Zhong YQ et al. Clinical analysis of primary small intestinal disease: A report of 309 cases. World J Gastroenterol 2004; 10: 2585-2587.
10. Ledermann HP, Börner N, Strunk H, Bongartz G, Zollikofer C, Stuckmann G. Bowel wall thickening on transabdominal sonography. AJR 2000; 174: 107-115.
11. Bluth EI, Merritt CR, Sullivan MA. Ultrasonic evaluation of the stomach, small bowel, and colon. Radiology 1979; 113: 677-680.
12. Stewart CJR, Coldewey J, Stewart IS. Comparison of fine needle aspiration cytology and needle core biopsy in the diagnosis of radiologically detected abdominal lesions. J Clin Pathol 2002; 55: 93-97.