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ZBIGNIEW SAJEWICZ, BARBARA WOŹNIAK-STOLARSKA, ARTUR SALOMON,
ELŻBIETA PONIEWIERKA, RADOSŁAW KEMPIŃSKI

The Use of Endoscopic Ultrasonography in the Diagnosis of the Causes of Common Bile Duct Dilatation

Zastosowanie ultrasonografii endoskopowej w diagnostyce przyczyn poszerzenia przewodu żółciowego wspólnego

Department and Clinic of Gastroenterology and Hepatology, Silesian Piasts University of Medicine
in Wrocław, Poland

Abstract

Background. Ultrasonography (US) does not come up to the expectations in the diagnosis of the causes of common bile duct (CBD) dilatation.

Objectives. An assessment of the usefulness of endoscopic ultrasonography (EUS) in the diagnosis of the causes of CBD dilatation.

Material and Methods. The authors examined 30 persons (16 females and 14 males) with CBD dilated > 7 mm in US. In these patients the authors performed EUS with the usage of Pentax FG-38UX echoendoscope of 5–10 MHz frequency connected with EUB 6000 Hitachi ultrasonograph looking for the cause of CBD dilatation. Findings gathered were verified with the usage of endoscopic retrograde cholangiopancreatography (ERCP) or magnetic resonance cholangiopancreatography (MRCP).

Results. In 16 patients the authors found stones in CBD. In ERCP or MRCP the frequency of CBD stones was a bit higher. In these examinations CBD stones were found in 18 patients. The authors found out that pancreatic head carcinoma was the cause of CBD dilatation in 8 patients; in 2 patients the authors diagnosed ampullary carcinoma and in 1 patient – carcinoma of distal part of CBD. In 1 patient the authors pointed out a benign stricture of CBD with dilatation above the stricture.

Conclusions. EUS is a useful diagnosing method of the causes of CBD dilatation (*Adv Clin Exp Med 2006, 15, 2, 293–295*).

Key words: endoscopic ultrasonography, dilatation of the common bile duct.

Streszczenie

Wprowadzenie. Ultrasonografia (USG) nie spełnia oczekiwań w diagnostyce przyczyn poszerzenia przewodu żółciowego wspólnego (p.ż.w.).

Cel pracy. Ocena przydatności ultrasonografii endoskopowej (EUS) w rozpoznawaniu przyczyn poszerzenia p.ż.w.

Materiał i metody. Zbadano 30 osób (16 kobiet i 14 mężczyzn), u których badanie USG jamy brzusznej wykazało poszerzenie p.ż.w. > 7 mm. U tych chorych wykonano EUS za pomocą echoendoskopu Pentax FG-38UX sprzężonego z ultrasonografem EUB 6000 firmy Hitachi, poszukując przyczyny poszerzenia p.ż.w. Uzyskane rozpoznania weryfikowano za pomocą wstecznej endoskopowej cholangiografii (ERCP) lub cholangiografii i rezonansu magnetycznego (MRCP).

Wyniki. U 16 chorych stwierdzono kamice p.ż.w. za pomocą EUS. W ERCP lub MRCP częstość kamicy p.ż.w. była nieco większa. W tych badaniach kamice p.ż.w. stwierdzono u 18 osób. Raka głowy trzustki jako przyczynę poszerzenia p.ż.w. wykazano u 7 chorych, u 2 chorych rozpoznano raka brodawki Vatera i u 1 – raka końcowego odcinka p.ż.w. U 1 osoby stwierdziliśmy łagodne, bliznowate zwężenie p.ż.w. z poszerzeniem jego światła powyżej zwężenia.

Wnioski. EUS jest przydatną metodą w diagnostyce przyczyn poszerzenia p.ż.w. (*Adv Clin Exp Med 2006, 15, 2, 293–295*).

Słowa kluczowe: ultrasonografia endoskopowa, poszerzenie przewodu żółciowego wspólnego.

In assessment of the gallbladder and biliary ducts' pathology the visualization methods have been commonly used, among which ultrasonography (US) has been widely available. This method is especially useful in the diagnosis of diseases of the gallbladder, and allows for demonstration of cholelithiasis, polyps, inflammation and tumors [1].

US examination enables accurate evaluation of the common bile duct (CBD) diameter. It has been accepted that in healthy individuals the diameter of CBD should not exceed 5 mm. US has been less useful in the diagnosis of the causes of CBD dilation. In this case the sensitivity of this method is below 60% [2].

Endoscopic retrograde cholangiopancreatography (ERCP) has been the "gold standard" in CBD pathology evaluation, whose diagnostic sensitivity is comparable to endoscopic ultrasonography (EUS) and magnetic resonance cholangiopancreatography (MRCP) [3–5]. The above examinations allow to point out the causes of CBD dilation, which impacts the choice of treatment method. One of the advantages of EUS is its low invasiveness and the opportunity to assess the neighbouring organs, lymphatic nodes [5]. This method has been technically difficult as it requires vast experience and has not been widely applied.

The aim of the study was to assess the use of EUS in the diagnosis of CBD dilation causes.

Material and Methods

The authors examined 30 individuals (16 females and 14 males) aged 26–62 yrs (the average age 42.4 yrs) with CBD dilated > 7 mm in trans-abdominal US examination. To find the cause of CBD dilation the authors performed EUS using Pentax FG-38UX echoendoscope of 5–10 MHz frequency, with oblique viewing, connected with EUB 6000 Hitachi ultrasonograph. The results of EUS examination were verified by means of ERCP or MRCP.

Results

The authors found stones in CBD in 16 patients. In ERCP or MRCP the frequency of CBD stones was a bit higher. In these examinations CBD stones were found in 18 patients. Quite a large group constituted of patients with neoplastic causes of CBD dilation. The authors found out that pancreatic head carcinoma was the cause of CBD dilation in 7 patients; in 2 patients the authors diagnosed ampullary carcinoma and in 1 patient – carcinoma of distal part of CBD. In 1 patient



Fig. 1. Stone in the common bile duct, imagined from the descending duodenum by EUS

Ryc. 1. Konkrement w przewodzie żółciowym wspólnym. Obraz EUS z części zstępującej dwunastnicy

inflammatory tumor of the head of the pancreas was the cause of CBD dilation. In 1 patient the authors observed a benign stricture of CBD with dilation above the stricture. Findings of malignant disease were confirmed in cytologic or histopathologic examinations of biopates.

Discussion

The assessment of CBD dilation causes often constitutes difficulties. US allows to demonstrate CBD dilation, whereas this method does not come up to the expectations in the diagnosis of this dilation causes. US sensitivity in the evaluation of CBD pathology amounts approximately 60%, whereas computed tomography has the 80% sensitivity [6].

A significant progress in CBD diseases diagnosis is owed to ERCP and the new visualization methods such as MRCP and EUS. Clinical trials showed that the sensitivity of these methods totals 90% and is comparable with ERCP [3–5]. Intraductal ultrasonography (IDUS) which uses miniprobe allowing for cannulation of ductal structures displays even higher diagnostic sensitivity [5–8]. Another highly useful method of CBD stones diagnosis is helical CT cholangiography, which is cheaper in comparison with EUS and widely available making it an alternative for the above mentioned visualization methods [9].

In presented study the authors demonstrated the usefulness of EUS in diagnosis of CBD stones, comparable with ERCP and MRCP. It has been believed that in high probability of CBD stones ERCP is a method of choice. During this examination endoscopic sphincterotomy may be performed and stone can be extracted. In case of low proba-

bility of stones EUS and MRCP should be performed [1, 5]. Both of those methods have a lower risk level of complications as compared to ERCP. Moreover EUS is less expensive than ERCP [10].

The authors demonstrated the usefulness of EUS in the diagnosis of the pancreatic head tumors as a cause of CBD dilatation. High sensitivity of EUS in the recognition of pancreatic tumors has been underlined in literature [11, 12].

EUS is a method of choice in the diagnosis of small endocrine tumors of the pancreas, which are difficult to recognize by means of other methods [13].

An additional EUS advantage is the possibility of evaluation of neighbouring structures and performing a fine-needle biopsy allowing for a differential diagnosis of neoplastic and inflammatory tumors of the pancreas [14].

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Address for correspondence:

Zbigniew Sajewicz
Department and Clinic of Gastroenterology and Hepatology,
Silesian Piasts University of Medicine
Poniatowskiego 2
50-326 Wrocław
Poland
tel.: +48 071 322 99 18
fax: +48 071 322 44 01
e-mail: gastro@gastro.am.wroc.pl

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