TOPIC HIGHLIGHT

8325 Proteomic and genomic studies of non-alcoholic fatty liver disease - clues in the pathogenesis
Lim JW, Dillon J, Miller M

8341 Modern approach to the clinical management of non-alcoholic fatty liver disease
Del Ben M, Polimeni L, Baratta F, Pastori D, Loffredo L, Angelico F

8351 Nonalcoholic fatty liver disease and polycystic ovary syndrome
Vassilatou E

8364 Experimental models of non-alcoholic fatty liver disease in rats
Kucera O, Cervinkova Z

8377 Non-alcoholic fatty liver disease and diabetes: From physiopathological interplay to diagnosis and treatment
Leite NC, Villela-Nogueira CA, Cardoso CRL, Salles GF

8393 Clinical differences between alcoholic liver disease and nonalcoholic fatty liver disease
Toshikuni N, Tsutsumi M, Arisawa T

8407 Nonalcoholic fatty liver disease and cardiovascular disease
Liu H, Lu HY

8416 Role of small bowel capsule endoscopy in the diagnosis and management of iron deficiency anemia in elderly: A comprehensive review of the current literature
Muhammad A, Vidyarthi G, Brady P

8424 Endoscopic ultrasound-guided treatments: Are we getting evidence based - a systematic review
Fabbri C, Luigiano C, Lisotti A, Cennamo V, Virgilio C, Caletti G, Fusaroli P

8449 Colonic polyps: Is it useful to characterize them with advanced endoscopy?
Lopez-Ceron M, Sanabria E, Pellise M
8458  c-Met signaling in the development of tumorigenesis and chemoresistance: Potential applications in pancreatic cancer
Delitto D, Vertes-George E, Hughes SJ, Behrens KE, Trevino JG

8471  Pancreatic cancer organotypics: High throughput, preclinical models for pharmacological agent evaluation

8482  hENT1 expression is predictive of gemcitabine outcome in pancreatic cancer: A systematic review
Nordh S, Ansari D, Andersson R

8491  Liver zonation: Novel aspects of its regulation and its impact on homeostasis
Gebhardt R, Matz-Soja M

8505  Gastroenteric tube feeding: Techniques, problems and solutions
Blumenstein I, Shastri YM, Stein J

8525  High fat diet feeding results in gender specific steatohepatitis and inflammasome activation
Ganz M, Csak T, Szabo G

8535  Novel diagnostics for aggravating pancreatic fistulas at the acute phase after pancreatectomy

8545  Clobenpropit enhances anti-tumor effect of gemcitabine in pancreatic cancer
Paik WH, Ryu JK, Jeong KS, Park JM, Song BJ, Lee SH, Kim YT, Yoon YB

8558  Changes in circulating Foxp3+ regulatory T cells and interleukin-17-producing T helper cells during HBV-related acute-on-chronic liver failure
Liang XS, Li CZ, Zhou Y, Yin W, Liu YY, Fan WH

8572  Zinc protoporphyrin IX enhances chemotherapeutic response of hepatoma cells to cisplatin
Liu YS, Li HS, Qi DF, Zhang J, Jiang XC, Shi K, Zhang XJ, Zhang XH

8583  Prognostic significance of preoperative fibrinogen in patients with colon cancer
Sun ZQ, Han XN, Wang HJ, Tang Y, Zhao ZL, Qu YL, Xu RW, Liu YY, Yu XB
### CASE CONTROL STUDY 8592
Risk of gastric cancer is associated with *PRKAA1* gene polymorphisms in Koreans

Kim YD, Yim DH, Eom SY, Moon SI, Yun HY, Song YJ, Youn SJ, Hyun T, Park JS, Kim BS, Lee JY, Won HK, Kim H

### RETROSPECTIVE STUDY 8599
Endoscopic ultrasound-guided fine-needle aspiration for suspected malignancies adjacent to the gastrointestinal tract

Gambitta P, Armellino A, Forti E, Vertemati M, Colombo PE, Aseni P

### 8606
Birthplace is not a determinant of colorectal adenomas

Tran F, Koo JH

### 8612
Follow-up of patients with pseudotumoral chronic pancreatitis: Outcome and surveillance

Tellez-Avila FI, Villalobos-Garita Á, Giovannini M, Chan C, Hernandez-Calleros J, Uscanga L, Ramirez-Luna MÁ

### 8617
Need for pancreatic stenting after sphincterotomy in patients with difficult cannulation

Nakahara K, Okuse C, Suetsuki K, Michikawa Y, Kobayashi S, Otsubo T, Itoh F

### 8624
Selection of appropriate endoscopic therapies for duodenal tumors: An open-label study, single-center experience

Matsumoto S, Yoshida Y

### 8631
Impact of tumor location on clinical outcomes of gastric endoscopic submucosal dissection


### 8638
Outcomes of simple saline-coupled bipolar electrocautery for hepatic resection


### CLINICAL TRIALS STUDY 8646
Lipid levels in serum and cancerous tissues of colorectal cancer patients

Zhang X, Zhao XW, Liu DB, Han CZ, Du LL, Jing JX, Wang Y

### 8653
Plasma free amino acid profiling of esophageal cancer using high-performance liquid chromatography spectroscopy

Ma H, Hasim A, Mamtimin B, Kong B, Zhang HP, Sheyhidin I
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>8660</td>
<td>Outcomes of autologous bone marrow mononuclear cell transplantation in decompensated liver cirrhosis</td>
<td>Bai YQ, Yang YX, Yang YG, Ding SZ, Jin FL, Cao MB, Zhang YR, Zhang BY</td>
</tr>
<tr>
<td>8667</td>
<td>Pro-atherosclerotic markers and cardiovascular risk factors one year after liver transplantation</td>
<td>Alvares-da-Silva MR, Oliveira CPMS, Stefano JT, Barbeiro HV, Barbeiro D, Soriano FG, Farias AQ, Carrilho FJ, Carneiro D’Albuquerque LA</td>
</tr>
<tr>
<td>8674</td>
<td>Combination of symptoms, syndrome and disease: Treatment of refractory diabetic gastroparesis</td>
<td>Li JL, Li M, Pang B, Zhou Q, Tian JX, Liu HX, Zhao XY, Tong XL</td>
</tr>
<tr>
<td>8681</td>
<td>Expression of P450 and nuclear receptors in normal and end-stage Chinese livers</td>
<td>Chen H, Shen ZY, Xu W, Fan TY, Li J, Lu YF, Cheng ML, Liu J</td>
</tr>
<tr>
<td>8691</td>
<td>Drain amylase value as an early predictor of pancreatic fistula after cephalic duodenopancreatectomy</td>
<td>Dugalic VD, Knezevic DM, Obradovic VN, Gojnic-Dugalic MG, Matic SV, Pavlovic-Markovic AR, Dugalic PD, Knezevic SM</td>
</tr>
<tr>
<td>8717</td>
<td>Acute abdomen: Rare and unusual presentation of right colic xanthogranulomatosis</td>
<td>Addario Chieco P, Antolino L, Giaccaglia V, Centanini F, Cunsolo GV, Sparagna A, Uccini S, Ziparo V</td>
</tr>
<tr>
<td>8722</td>
<td>HBsAg clearance by Peg-interferon addition to a long-term nucleos(t)ide analogues therapy</td>
<td>Barone M, Iannone A, Di Leo A</td>
</tr>
<tr>
<td>8726</td>
<td>Perihepatic adhesions: An unusual complication of hemolysis, elevated liver enzymes and low platelet syndrome</td>
<td>Koeneman MM, Koek GH, Bemelmans M, Peeters LL</td>
</tr>
<tr>
<td>Page</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>8736</td>
<td>Tubulopapillary adenoma of the gallbladder accompanied by bile duct tumor thrombus</td>
<td>Yamamoto K, Yamamoto F, Maeda A, Igimi H, Yamamoto M, Yamaguchi R, Yamashita Y</td>
</tr>
<tr>
<td>8740</td>
<td>First case of IgG4-related sclerosing cholangitis associated with autoimmune hemolytic anemia</td>
<td>Masutani H, Okuwaki K, Kida M, Yamachi H, Imaizumi H, Miyazawa S, Iwai T, Takezawa M, Koizumi W</td>
</tr>
<tr>
<td>8745</td>
<td>Laparoscopic segmental colectomy for colonic lymphangiomas: A definitive, minimally invasive surgical option</td>
<td>Zhuo CH, Shi DB, Ying MG, Cheng YF, Wang YW, Zhang WM, Cai SJ, Li XX</td>
</tr>
</tbody>
</table>
World Journal of Gastroenterology
Volume 20 Number 26 July 14, 2014

Contents

APPENDIX  I-VI

ABOUT COVER

Editorial Board Member of World Journal of Gastroenterology, Anna Chiara Piscaglia, MD, PhD, Research Scientist, State Hospital - Republic of San Marino, Catholic University, Gemelli Hospital, 00168 Rome, Italy

AIMS AND SCOPE

World Journal of Gastroenterology (World J Gastroenterol, WJG), print ISSN 1007-9327, online ISSN 2219-2840, DOI: 10.3748) is a peer-reviewed open access journal. WJG was established on October 1, 1995. It is published weekly on the 7th, 14th, 21st, and 28th each month. The WJG Editorial Board consists of 1353 experts in gastroenterology and hepatology from 68 countries.

The primary task of WJG is to rapidly publish high-quality original articles, reviews, and commentaries in the fields of gastroenterology, hepatology, gastrointestinal endoscopy, gastrointestinal surgery, hepatobiliary surgery, gastrointestinal oncology, gastrointestinal radiation oncology, gastrointestinal imaging, gastrointestinal interventional therapy, gastrointestinal infectious diseases, gastrointestinal pharmacology, gastrointestinal pathophysiology, gastrointestinal pathology, evidence-based medicine in gastroenterology, pancreatology, gastrointestinal laboratory medicine, gastrointestinal molecular biology, gastrointestinal immunology, gastrointestinal microbiology, gastrointestinal genetics, gastrointestinal translational medicine, gastrointestinal diagnostics, and gastrointestinal therapeutics. WJG is dedicated to become an influential and prestigious journal in gastroenterology and hepatology, to promote the development of above disciplines, and to improve the diagnostic and therapeutic skill and expertise of clinicians.

INDEXING/ABSTRACTING

WJG is now indexed in Current Contents®/Clinical Medicine, Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports®, Index Medicus, MEDLINE, PubMed, PubMed Central, Digital Object Identifier, and Directory of Open Access Journals. ISI, Journal Citation Reports®, Gastroenterology and Hepatology, 2012 Impact Factor: 2.547 (34/74); Total Cites: 19145 (6/74); Current Articles: 944 (1/74); and Eigenfactor® Score: 0.06035 (6/74).

FLYLEAF  I-IX

Editorial Board

EDITORS FOR THIS ISSUE

Name of Journal: World Journal of Gastroenterology
ISSN
ISSN 1007-9327 (print)
ISSN 2219-2840 (online)
Launched: October 1, 1995
Frequency: Weekly

Editors-in-Chief:
Damian Garcia-Olmo, MD, PhD, Doctor, Professor, Surgeon, Department of Surgery, Universidad Autonoma de Madrid; Department of General Surgery, Fundacion Jimenez Diaz University Hospital, Madrid 28040, Spain
Saleh A Naser, PhD, Professor, Burnett School of Biomedical Sciences, College of Medicine, University of Central Florida, Orlando, FL 32816, United States
Stephen C Strom, PhD, Professor, Department of Laboratory Medicine, Division of Pathology, Karolinska Institute, Stockholm 141-86, Sweden

Andrzej S Tarnawski, MD, PhD, DSc (Med), Professor of Medicine, Chief Gastroenterology, VA Long Beach Health Care System, University of California, Irvine, CA, 92612; Seventh St., Long Beach, CA 90822, United States

Editorial Office:
Jin-Li Wang, Director
Xiu-Xia Song, Vice Director

WJG
Room 903, Building D, Ocean International Center, No. 62 Dongsihuan Zhonglu, Chaoyang District, Beijing 100025, China
Telephone: +86-10-59080039
Fax: +86-10-8581893
E-mail: editorialoffice@wjgnet.com
http://www.wjgnet.com

PUBLISHER
Baishideng Publishing Group Inc
8226 Regency Drive,
Pleasanton, CA 94588, USA
Telephone: +1-925-223-8242
Fax: +1-925-223-8243
E-mail: bpgoffice@wjgnet.com

http://www.wjgnet.com

Publication Date
July 14, 2014

Copyright © 2014 Baishideng Publishing Group Inc. Articles published by this Open-Access journal are distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits use, distribution, and reproduction in any medium, provided the original work is properly cited, the use is non commercial and is otherwise in compliance with the license.

Special Statement
All articles published in journals owned by the Baishideng Publishing Group (BPG) represent the views and opinions of their authors, and not the views, opinions or policies of the BPG, except where otherwise explicitly indicated.

Instructions to Authors
Full instructions are available online at http://www.wjgnet.com/1007-9327/g_info_20100315215714.htm

Online Submission
http://www.wjgnet.com/esps/
Follow-up of patients with pseudotumoral chronic pancreatitis: Outcome and surveillance

Félix Ignacio Téllez-Ávila, Álvaro Villalobos-Garita, Marc Giovannini, Carlos Chan, Jorge Hernández-Calleros, Luis Uscanga, Miguel Ángel Ramírez-Luna

Abstract

AIM: To follow up patients with pseudotumoral chronic pancreatitis (PCP) to assess their outcome and identify an optimal surveillance interval.

METHODS: Data obtained prospectively were analyzed in a retrospective manner. Patients with clinical evidence of chronic pancreatitis (abdominal pain in the epigastrium, steatorrhea, and diabetes mellitus), endoscopic ultrasound (EUS) criteria > 4, and EUS-fine needle aspiration (FNA) were included. A pseudotumor was defined as a non-neoplastic space-occupying lesion, a cause of chronic pancreatitis that may mimic changes typical of pancreatic cancer on CT or endoscopic ultrasound but without histological evidence. A real tumor was defined as a neoplastic space-occupying lesion because of pancreatic cancer confirmed by histology.

RESULTS: Thirty-five patients with chronic pancreatitis were included, 26 (74.2%) of whom were men. Nine (25.7%) patients were diagnosed with pseudotumoral chronic pancreatitis and two (2/35; 5.7%) patients with pseudotumoral chronic pancreatitis were diagnosed with pancreatic cancer on follow-up. The time between the diagnosis of pseudotumoral chronic pancreatitis and pancreatic adenocarcinoma was 35 and 30 d in the two patients. Definitive diagnosis of pancreatic adenocarcinoma was made by surgery. In the remaining six patients with pseudotumoral chronic pancreatitis, the median of follow-up was 11 mo (range 1-22 mo) and they showed no evidence of malignancy on surveillance. In the follow-up of patients without pseudotumoral chronic pancreatitis but with chronic pancreatitis, none were diagnosed with pancreatic cancer. According to our data, older patients with chronic pancreatitis are at risk of pseudotumoral chronic pancreatitis.

CONCLUSION: According to characteristics of patient, detection of PCP should lead a surveillance program for pancreatic cancer with EUS-FNA in < 1 mo or directly to surgical resection.

Key words: Chronic pancreatitis; Pseudotumoral chronic pancreatitis; Surveillance; Endoscopic ultrasound
Introduction

Pancreatic cancer (PC) at diagnosis is unresectable in 70% of cases\[^1\]. The risk of developing PC is increased in patients with chronic pancreatitis. Surveillance in patients with chronic pancreatitis may represent an opportunity for early detection of PC\[^2,3\]. The increase in risk for PC in patients with chronic pancreatitis ranges from 14.4-26.7 times in 10-year follow-up\[^2,3\]. It is difficult to differentiate by images between pancreatic carcinoma and pseudotumor in the context of chronic pancreatitis\[^4,5\]. In case of endoscopic ultrasound (EUS) some criteria have been proposed, but even using the fine needle aspiration (FNA) biopsy, the results have not been satisfactory\[^6,7\]. Actually, there are no clear recommendations for follow-up of patients with chronic pancreatitis and solid pancreatic mass lesions\[^8\]. The aim of this study was to follow up patients with chronic pancreatitis and solid pancreatic mass lesions to assess the final outcome and identify an optimal surveillance interval.

Materials and Methods

Data obtained prospectively were analyzed in a retrospective manner. Electronic and paper records of consecutive patients evaluated from March 2005 to December 2012 were evaluated. Patients with clinical evidence of chronic pancreatitis, EUS criteria > 4, and EUS FNA were included\[^9\]. According to the local Ethics Committee, all patients signed an informed consent document.

Before the procedure, all patients had laboratory tests including prothrombin time and full blood count. The patients were placed in a left decubitus position and sedated using a combination of midazolam, propofol, and fentanyl by an anesthetist. Patients were continually monitored with an automated noninvasive blood pressure device, electrocardiogram, and pulse oximetry throughout the procedure. EUS was performed with a linear array echoendoscope, GFUCT-140 (Olympus America Inc; Center Valley, PA), by two echoendoscopists. All patients were hospitalized, and after the procedure they were observed with an automatic monitor for at least 4 h for surveillance of possible complications.

EUS FNA (standard needle)

At first, the transducer was brought into a stable position in front of the targeted lesion. The metal spiral was then introduced into the biopsy channel, observing carefully that the needle piston was securely locked and the needle was completely retracted. The spiral was inserted entirely and the handle with the Luer-lock firmly screwed onto the biopsy channel. To ensure that the sheath was protecting the entire length of the working channel, we used the optic of the endoscope. With the stylet retracted but still inside the needle, the biopsy needle was moved forward into the lesion under full real-time ultrasonic control. After penetration into the middle of a lesion, the stylet was completely removed. Upon reaching the optimal needle position in the middle of the lesion, a 10 mL syringe with a locking device was firmly screwed on the needle, and the syringe piston was pulled to create a low pressure. The syringe piston was locked in this position for permanent suction. The needle was moved to and fro 5-10 times inside the lesion under complete ultrasonic control. With the needle tip still in the lesion, suction was released and the needle was safely retracted inside the needle sheath and locked in a secure position.

All patients had a CT with a 64-slice multidetector CT (Somatom, Sensation 64; Siemens München Germany) and images were obtained with a section thickness of 3 mm with a reconstruction interval of 2.2-2.5 mm. All cases were analyzed on a workstation with the capability to produce coronal reformatted images. Patients received intravenous (IV) contrast; 120 mL of Conray (Mallinkrodt Baker Inc., St Louis Missouri, United States) was given 45 s prior to the CT examination. Forty milliliters of iotrizat M60 (Justesa Imagen Mexicana) was diluted in 1000 mL of water and given to all patients orally 1 h prior to CT. All patients received IV and oral contrast. All CT images were analyzed by at least two certified radiologists and discussed with the endoscopic team before the procedure (EUS-FNA). All CT and endoscopic studies were performed in the same center.

A pseudotumor (Figure 1) was defined as a non-neoplastic space-occupying lesion, a cause of chronic pancreatitis that may mimic changes typical of pancreatic cancer on CT or endoscopic ultrasound but without histological evidence. It should be recognized, however, that even this definition of “pseudotumor” is highly subjective since it relies on the quality of the preoperative diagnostic evaluation as well as the skills of the interpreters of the tests performed\[^10\]. A real tumor was defined as a neoplastic space-occupying lesion because of pancreatic cancer confirmed by histology. Clinical characteristics considered associated with chronic pancreatitis were: abdominal pain...
in the epigastrium, often with radiation to the back; steatorrhea; and diabetes mellitus\textsuperscript{[11]}.

### Statistical analysis

Medians, ranges, and proportions were used to summarize the demographics and clinical variables. Using the $\chi^2$ test or Mann-Whitney $U$ test, according variables, differences between groups were tested. A two-tailed $P$ value < 0.05 was considered significant. All analyses were performed by SPSS V.20 for Mac.

### RESULTS

A total of 200 pancreatic EUS were performed because of clinical suspicion of chronic pancreatitis (abdominal pain in the epigastrium with radiation to the back, or exocrine pancreatic insufficiency with chronic diarrhea and/or steatorrhea). Thirty-five patients with diagnosis of chronic pancreatitis were included. Twenty-six (74.2%) patients were men and 9 (25.8%) patients were women. The median age was 38 years (range 18-75 years). All patients had clinical and EUS criteria. Twenty-two (62.8%) patients had 4 EUS criteria, 6 (17%) patients had five criteria, and 7 (20%) patients had ≥ 6 criteria. Nine (25.7%) patients were diagnosed with pseudotumoral chronic pancreatitis. Clinical and demographic characteristics of included patients classified by the presence/absence of pseudotumoral chronic pancreatitis are shown in Table 1. In Tables 2 and 3, clinical data, demographics, and imaging characteristics of included patients with pseudotumor and chronic pancreatitis are shown.

Two of nine (22.2%) patients with pseudotumoral chronic pancreatitis were diagnosed with pancreatic cancer on follow-up, although basal EUS FNA did not reveal malignant cells. One (11.1%) patient was diagnosed on follow-up with myofibroblastic tumor of the pancreas. The time between the diagnosis of pseudotumoral chronic pancreatitis and pancreatic adenocarcinoma was 35 and 30 d. The diagnosis of myofibroblastic tumor was 30 d after the pseudotumoral chronic pancreatitis diagnosis. The two patients with pancreatic adenocarcinoma had an unresectable pancreatic adenocarcinoma at the moment of final diagnosis. Definitive diagnosis of pancreatic adenocarcinoma was made by surgery. In the remaining six patients with pseudotumoral chronic pancreatitis, the median of follow-up was 11 mo (range 1-22 mo) and they showed no evidence of malignancy on surveillance.

In the follow-up of patients with chronic pancreatitis but without pseudotumoral chronic pancreatitis, none were diagnosed with pancreatic cancer. The median follow-up was 22 mo (range 1-67 mo) (Figure 2).

### Table 1  Clinical and demographic characteristics of included patients classified by the presence/absence of pseudotumor $n$ (%)  

<table>
<thead>
<tr>
<th>Chronic pancreatitis ($n = 26$)</th>
<th>Pseudotumoral chronic pancreatitis ($n = 9$)</th>
<th>$P$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Female</strong></td>
<td>5 (19.2)</td>
<td>4 (44.4)</td>
</tr>
<tr>
<td>Age, yr\textsuperscript{1}</td>
<td>30 (18-74)</td>
<td>53 (18-75)</td>
</tr>
<tr>
<td>Number of EUS criteria\textsuperscript{1}</td>
<td>4 (4-8)</td>
<td>4 (4-6)</td>
</tr>
<tr>
<td>Follow-up\textsuperscript{1}</td>
<td>24 (1-67)</td>
<td>5 (1-35)</td>
</tr>
<tr>
<td>Aetiology, alcohol</td>
<td>21 (81)</td>
<td>6 (67)</td>
</tr>
<tr>
<td>DM</td>
<td>20 (77)</td>
<td>7 (78)</td>
</tr>
</tbody>
</table>

\textsuperscript{1}Expressed in median (range). EUS: Endoscopic ultrasound; DM: Diabetes mellitus; NS: Not significant.

### Table 2  Imaging characteristics of included patients with pseudotumor and chronic pancreatitis

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age, yr</th>
<th>Gender</th>
<th>Number of diagnostic criteria for chronic pancreatitis by EUS</th>
<th>Evidence of pseudotumor on CT</th>
<th>Interval (“time between”) or follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>64</td>
<td>F</td>
<td>4</td>
<td>No</td>
<td>1 mo</td>
</tr>
<tr>
<td>2</td>
<td>48</td>
<td>F</td>
<td>4</td>
<td>No</td>
<td>13 mo</td>
</tr>
<tr>
<td>3</td>
<td>53</td>
<td>M</td>
<td>4</td>
<td>No</td>
<td>21 mo</td>
</tr>
<tr>
<td>4</td>
<td>44</td>
<td>F</td>
<td>4</td>
<td>Yes</td>
<td>5 mo</td>
</tr>
<tr>
<td>5</td>
<td>75</td>
<td>F</td>
<td>4</td>
<td>Yes</td>
<td>22 mo</td>
</tr>
<tr>
<td>6</td>
<td>69</td>
<td>M</td>
<td>4</td>
<td>Yes</td>
<td>13 mo</td>
</tr>
<tr>
<td>7</td>
<td>18</td>
<td>M</td>
<td>6</td>
<td>Yes</td>
<td>30 d</td>
</tr>
<tr>
<td>8</td>
<td>56</td>
<td>M</td>
<td>5</td>
<td>Yes</td>
<td>30 d</td>
</tr>
<tr>
<td>9</td>
<td>52</td>
<td>M</td>
<td>4</td>
<td>Yes</td>
<td>30 d</td>
</tr>
</tbody>
</table>

Time between: Represents the time between diagnosis of pseudotumor and pancreatic cancer; Follow-up: Time of follow-up after diagnosis of pseudotumor without diagnosis of cancer. F: Female; M: Male; CT: Computed tomography; EUS: Endoscopic ultrasound.
Almost one-third of patients with chronic pancreatitis had pseudotumoral chronic pancreatitis, and two of them (2/9; 22.2%) had unresetable pancreatic adenocarcinoma less than 2 mo after the initial diagnosis. The frequency of pseudotumoral chronic pancreatitis is not well known and little data exist. In one study with 85 patients with chronic pancreatitis, 6% (n = 5) of these patients had pseudotumoral chronic pancreatitis and 3.5% (n = 3) of them were diagnosed with pancreatic cancer[13]. In a more recent study, Burski et al[8] found that 29% (125/436) of patients with chronic pancreatitis had pseudotumoral chronic pancreatitis and 13% (16/125) of them were diagnosed with pancreatic adenocarcinoma on follow-up. In Table 4, published data about patients with chronic pancreatitis and pseudotumoral chronic pancreatitis are shown.

Regarding follow-up of patients with pseudotumoral chronic pancreatitis, there are not clear recommendations regarding the ideal imaging study and time for subsequent imaging relative to the initial diagnosis. Therefore, the surveillance for pancreatic cancer in patients with pseudotumoral chronic pancreatitis is not well established and it has a negative impact in this population[13-16]. In this study, in patients with pseudotumoral chronic pancreatitis for whom pancreatic cancer was diagnosed on follow-up, pancreatic cancer was confirmed at an advanced stage in a period of less than 2 mo after the initial detection. This data suggest a misdiagnosis rather than new onset of the neoplasm during follow-up. Because of that, surveillance programs for pancreatic cancer with intervals greater than 6 mo seem to be insufficient in patients with pseudotumoral chronic pancreatitis. In the study by Burski et al[8], it was concluded that an interval of 3-6 mo for surveillance for pancreatic cancer in patients with pseudotumoral chronic pancreatitis was not optimal due to rapid disease progression. Several studies have attempted to establish EUS imaging criteria (without tissue sampling) for the discrimination of benign inflammatory pseudotumors and tumors. Despite the high resolution of EUS, it does not provide reliable differentiation of benign and malignant lesions of the pancreas[17]. New technologies, such as EUS elastography and contrast-enhanced EUS (CE-EUS) could be important tools for differential diagnosis. In a multicenter study, 30 cases with benign nodule of chronic pancreatitis were studied with EUS elastography[18]. All nodules of chronic pancreatitis presented benign aspects (mixed green and low intensity of blue) and elastography showed malignant aspects (intense blue coloration) for all pancreatic adenocarcinomas, endocrine tumors, pancreatic metastases, and pancreatic sarcomas. In the study of Hocke et al[19], adenocarcinoma developed on chronic pancreatitis was non-enhanced after contrast injection. Conversely, pseudotumoral chronic pancreatitis was hypervascularized (91%) after SonoVue injection. According to our data, older patients with chronic pancreatitis...
are at risk of pseudotumoral chronic pancreatitis, and could be candidates for closer follow-up (Table 1).

The limitations of our work are the small sample size and retrospective analysis. The nature of disease makes it difficult for a single center to have a bigger sample size. Multicenter studies must be considered for future designs. Our data are useful for future systematic reviews and meta-analyses.

In conclusion, we suggest that according to specific characteristics of patient, detection of pseudotumoral chronic pancreatitis should lead a close surveillance program for pancreatic cancer with EUS in less than 1 mo or directly to surgical resection. EUS FNA can miss malignancy in nearly 25% of patients with pseudotumoral chronic pancreatitis.

COMMENTS

Background
Pancreatic cancer at diagnosis is unresectable in 70% of cases. It is difficult to differentiate by images between pancreatic carcinoma and pseudotumour in the context of chronic pancreatitis. The authors followed-up patients with chronic pancreatitis and solid pancreatic mass lesions and we assessed the final outcome and identified an optimal surveillance interval.

Innovations and breakthroughs
According to characteristics of patient, detection of pseudotumoral chronic pancreatitis should lead a surveillance program for pancreatic cancer with endoscopic ultrasound fine needle aspiration in < 1 mo or directly to surgical resection.

Peer review
This is an interesting retrospective analysis of patients with pseudotumoral lesions in the context of chronic pancreatitis. The results are alarming.

REFERENCES


P- Reviewers: Chao CT, El-Sayed M, Keck T, Luo HS, Zhou GX
S- Editor: Wen LÍ - L- Editor: A E- Editor: Liu XM