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Original Article

CT findings of the commonly overlooked groove pancreatitis

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ABSTRACT

Purpose: The aim of this study was to highlight the different computed tomography (CT) features of groove pancreatitis (GP) in order to make this entity more familiar to radiologist.
Patients & method: This study enrolled 15 patients who had histopathologically confirmed GP. Their CT scans were retrospectively reviewed for the encountered manifestations.
Results: Pure & segmental forms were identified retrospectively in 6 & 9 patients. The most frequent findings noted in patients' scans were the following, in descending order: medial duodenal wall thickening & cysts, duodenal luminal narrowing, regional lymphadenopathies, pancreatic involvement, isolated groove affection, pancreatic calcifications, distal CBD narrowing, pancreatic duct abnormalities, and retroperitoneal stranding.
Conclusion: Although the CT features of GP mimic other peripancreatic tumors, yet the constantly associated findings in the proven cases of GP in our study were: duodenal wall thickening, cysts formation, and luminal narrowing. So the presence of these features in alcoholic middle aged male patient with groove or pancreatic lesion, have to trigger radiologist's dubiety of GP entity and so to be addressed in his opinion. Nevertheless, GP diagnosis is still challenging & should be considered based on clinical & radiological data in conjunction with the laboratory and pathological results.

1. Introduction

Groove pancreatitis (GP) is a rare specific type of chronic pancreatitis involving the potential space, groove, between pancreatic head, 2nd part of duodenum and the common bile duct (CBD). Other terms to describe this condition include paraduodenal pancreatitis, cystic dystrophy of heterotopic pancreas and pancreatic hamartoma of the duodenum [1]. Although its pathogenesis is still controversial, yet it is commonly reported in adult men with heavy alcohol consumption [2–4]. GP was first described by Becker in 1973, and has been traditionally classified into two forms: pure & segmental; but the demarcation between these two forms is not always completely clear [3,5].

GP has remained a diagnostic dilemma since it was first described. In the most specialized centers, many radiologists remain unfamiliar with the entity. Unfortunately, even when the possibility of GP is prospectively considered on the basis of the imaging features, a definitive diagnosis can be extraordinarily difficult with inability to distinguish it from primary duodenal, periampullary, or pancreatic malignancy. This often ultimately leads to a biopsy and even surgery [5,6].

The aim of this study was to highlight the different computed tomography (CT) features of GP in order to make this entity more familiar to the radiologist.

2. Patients & method

2.1. Patients

This study enrolled 15 cases of pathologically confirmed groove pancreatitis. These patients presented with variable manifestations of clinical suspicion of pancreatico-biliary diseases at Ain Shams University Hospital between January 2013 and September 2015. Multi-detector computed tomography (MDCT) scan was done as part of the diagnostic work-up and revealed peri/pancreatic lesions. Nine patients had subsequent MRI & three had an ERCP (endoscopic retrograde cholangiopancreatography) with stent insertion. All patients were subjected to upper GIT endoscopy and fine needle aspiration (FNA) biopsy, moreover excisional

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biopsy was done in three patients. The histopathological examination proved groove pancreatitis in all of them. Patients' medical data were extracted from the records & their CT scans were retrospectively reviewed. Patients who were clinically diagnosed as GP with no histopathological evidence were excluded from this study. Although patients' consents were non applicable in this retrospective study, yet their data is still private & confidential. Nevertheless, the study was approved by the local ethics committee.

2.2. CT technique

Contrast enhanced CT examinations were performed using 320 row MDCT Toshiba Aquilion scanner after intravenous injection of 120 mm of non-ionic contrast material at rate of 3 mL/s. The CT was done with special emphasis on pancreatico-biliary region, so thin (2 mm) slice thickness was obtained as well as precontrast scans to detect pancreatic calcifications. After data acquisition, multiplanar images were reconstructed using a workstation.

2.3. Data interpretation

The CT images were retrospectively reviewed by 2 well experienced radiologists in CT interpretation for the presence or absence of the following criteria: localized groove abnormalities (fat stranding or frank soft tissue mass), medial duodenal wall changes (thickening or cysts), duodenal luminal narrowing, pancreatic head enlargement, associated pancreatic body & tail abnormalities, narrowing of the common bile duct (CBD), pancreatic duct changes (narrowing or beading), pancreatic calcifications, peripancreatic lymphadenopathies and fluid collection, diffuse retroperitoneal inflammatory changes, and peripancreatic vessels invasion or thrombosis.

2.4. Statistical method

Data were expressed as both number and percentage of the categorical data (qualitative variable).

3. Results

In our study, all the fifteen patients were males and ranged in age from 41 to 54 years (mean age: 45.4 years). Alcohol abuse was recorded in twelve patients (80%). Their clinical presentation varied and overlapped; epigastric pain was reported in thirteen patients, while vomiting & weight loss in seven patients, and jaundice only in three patients. Normal laboratory tests were noted in one third of the patients; elevation of pancreatic enzymes (serum amylase & lipase) was depicted in another third of patients; and the remaining ones (33.33%) had increase in liver function tests (serum bilirubin, alkaline phosphatase, and gamma GT), as well as pancreatic enzymes. All patients had notably within normal tumor markers (carcinoembryonic antigen CEA & CA19-9). All of them had upper gastrointestinal endoscopy which revealed severe edema, erosive inflammation and variable degree of luminal stenosis of the second part of the duodenum. FNA biopsies were obtained and the predominant histopathological findings were thickening and fibrosis of the duodenal wall, hyperplastic Brunner's glands, fibrous tissue proliferation and inflammation in the pancreaticoduodenal groove specimens, but no malignancy was found. Supportive conservative treatment was the initial undertaken decision for most of the patients (80%), however, pancreatico-duodenectomy was performed in three patients due to sever obstructive symptoms in one patient and to rule out clinical suspicion of indefinite peripancreatic tumors in two patients, who were presented with painless jaundice. Again, the histopathological assessment of the resected specimens confirmed GP diagnosis & excluded malignancies.

Thereafter, pure & segmental forms were identified retrospectively in six & nine patients. The most frequent findings noted in

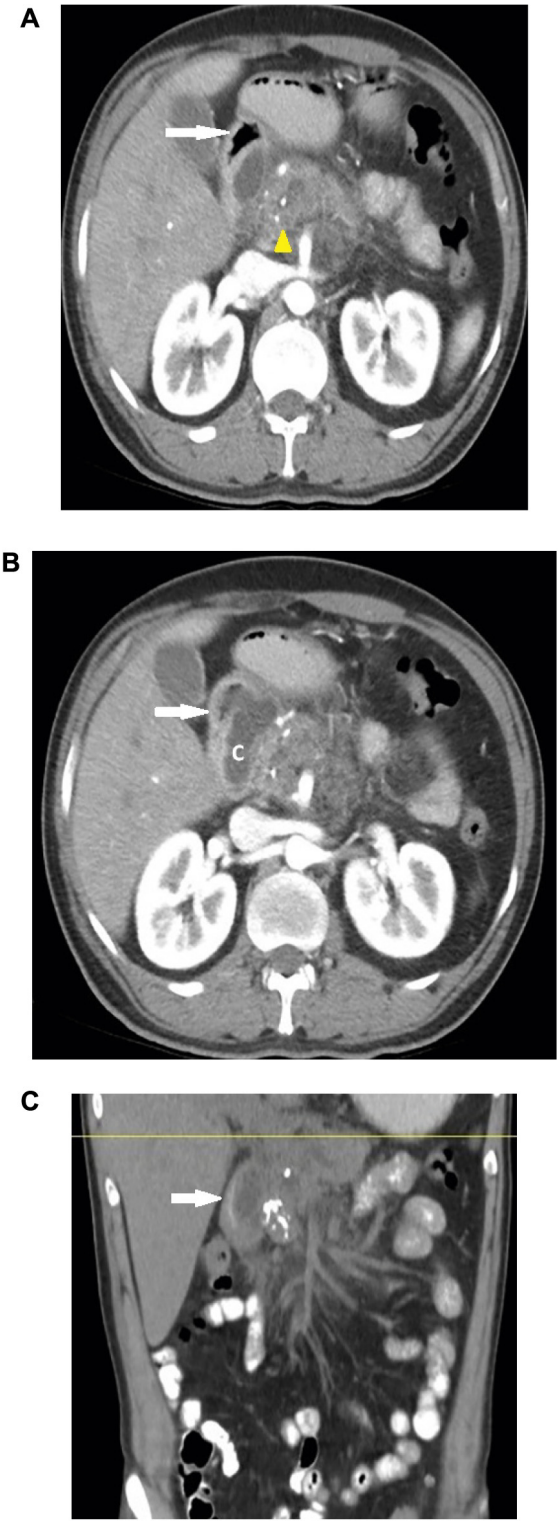

Fig. 1. A 42-years-old man complained of pain, vomiting, and weight loss. Axial [A & B] & coronal [C] CT images revealed: The second part of duodenum is narrowed (white arrow) by medial wall cyst (C), hypodense stranding at the pancreaticoduodenal groove, pancreatic head enlarged with dense spots of calcifications, beaded pancreatic duct (yellow arrow head), retroperitoneal fat permeation, and with regional lymphadenopathies. Note the peripancreatic vessels are well enhancing & patent irrespective to the extensiveness of the findings.

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