



Cholesterolosis of Gallbladder; an Unusual Cause of Acute Recurrent Pancreatitis

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Abstract

Cholesterolosis of the gallbladder consists in an accumulation of cholesterol esters and triglycerides in the macrophages at gallbladder wall level and may be either diffuse or polypoid in form. The natural history of this lesion is, in general, benign and for polyps with size ranging from 6 mm to 10 mm a yearly follow-up with ultrasonography is advisable. Acute recurrent pancreatitis is an inflammatory condition of the pancreas manifesting with abdominal pain and elevated serum levels of lipase. Gallstones and chronic alcohol use are the most commonly described causes. A less studied cause is cholesterolosis, gallbladder polyps that cause mechanical obstruction of the sphincter of Oddi. We present the case of a 45-year-old woman who presented with acute recurrent pancreatitis for five times and was found to have cholesterol polyps in her gallbladder with no evidence of gallstones. The diagnosis was made by endoscopy-ultrasound. The patient underwent cholecystectomy with complete resolution of her symptoms.

Keywords: Acute recurrent pancreatitis; Endoscopy ultrasound; Cholesterolosis; Gallbladder polyps

Introduction

Cholesterolosis is a benign illness that is generally revealed incidentally, moreover during cholecystectomy or on ultrasonography. There is reported indication that the risk factors and the pathology of cholesterolosis are comparable to those of gallstone disease. The two most frequent causes of Acute Recurrent Pancreatitis (ARP) are gallstones and chronic alcohol habit [1]. A less well known etiologic factor is recurrent acute pancreatitis due to gallbladder polyps or cholesterolosis. These are consequences of the gallbladder mucosal wall and are habitually detected incidentally. Gallbladder polyps can moreover be benign, such as hyperplasia and lipid deposits (cholesterolosis), or malignant, which is rare [2]. These polyps can marsh off from the mucous membranes and result in mechanical obstruction at the sphincter of Oddi. We report a case of acute recurrent pancreatitis which relapses for five times. The diagnosis was made by endoscopic ultrasound despite the use of biliary MRI. We're convinced it's due to gallbladder cholesterolosis.

Case Presentation

A 52-year-old woman with medical history of acute recurrent pancreatitis for five times (since 2013, 2016, 2018, August 2019 and November 2019) and operated for inguinal hernia for 12 years ago. She was admitted for recurrent pancreatitis with severe epigastric pain irradiated to the back, vomiting and fever. Laboratories tests have showed a lipasemia with a value of 10 times normal. The others investigations were within normal limits. The ultrasound examination has concluded: acute pancreatitis with alithiasic gall bladder. The CT scan shown acute pancreatitis Stage D of Balthazar (CTSI has not mentioned). In front of this repetition of recurrences an etiological investigation was carried out (alcoholic, toxic, medicinal, metabolic, and infectious) by the medical history and the correct biological assessment as well as the ductal anomalies "Pancreas Divisum" and the tumoral etiology by imaging and biliary MRI. An echo-endoscopy was realized and revealed an aspect of diffuse pancreatitis with voluminous collection near the stomach. Cholesterolosis of the gall bladder may be the cause of acute pancreatitis recurrences (Figure 1). Patient underwent laparoscopic cholecystectomy. The post-operative period was smooth. She was discharged on the second post-operative day. The histopathological result was in favor of cholesterolosis of gallbladder.

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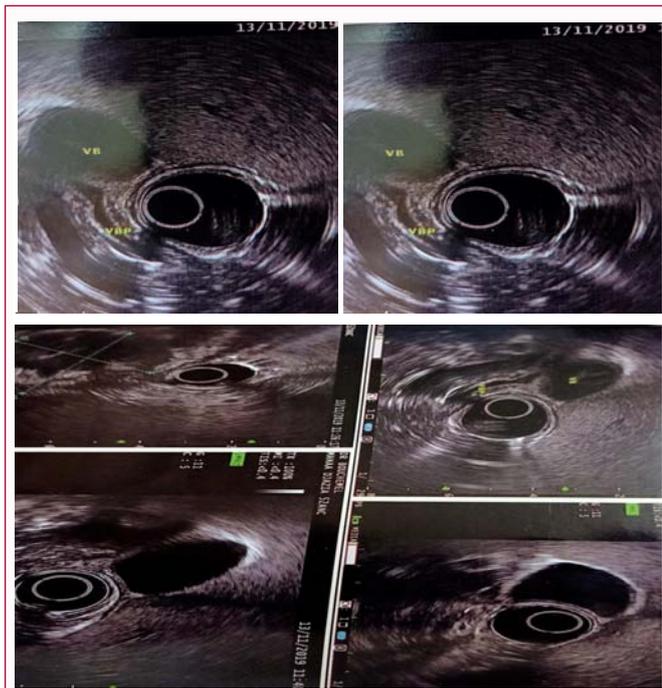


Figure 1: Endoscopic Ultrasound showing cholesterosis of gallbladder (VB) with empty CBD (VBP) associated with big collection near the stomach.

Discussion

Cholesterosis is an acquired abnormality associated with hyperplasia of the vesicular mucosa and accumulation of cholesterol deposits in epithelial macrophages. There is a diffuse form involving the entire vesicular wall and for which imaging has no particular interest, and a focal form where the accumulation of lipid-charged of macrophages is leading to the formation of "cholesterolic polyps". The prevalence of cholesterosis averages over 10% in: Autopsy series [3]. Clinical asymptomaticity is the predominant, despite some authors suggesting that some recurrent acute pancreatitis may be the result of removal and migration of cholesterol polyps [4]. These cholesterol polyps are common, with a prevalence reaching from 9% to 26%. In fact, cholesterol polyps are usually found simultaneous with gallstones. Because of this combination, there are suggestions that the risk factors and pathology of cholesterosis are identical to those of biliary lithiasis disease [5]. The diagnosis of polypoid forms is based primarily on ultrasonography; the appearance is that of a small (less than 10 mm), rounded, echogenic formation, with no shadow cone, attached to the wall and of the same echogenicity as the wall [6] (Figure 2). These vesicular polyps are typically multiple. Other modern CT or MRI imaging techniques are of little use in confirming the diagnosis, but echo-endoscopy is a key examination for the diagnosis of gall bladder cholesterosis and is the only examination that can formally confirm or rule out the existence of biliary lithiasis (Figure 2).

Cholesterosis; typical ultrasound appearance: Axial and longitudinal sections showing multiple small rounded formations, hyperechoic without posterior shadow cone, attached to the gallbladder wall [6].

There are a small number of studies that have considered the rapport between gallbladder polyps and acute recurrent pancreatitis. These studies have published contradictory findings, leading to the conclusion that the question of whether gallbladder polyps can cause

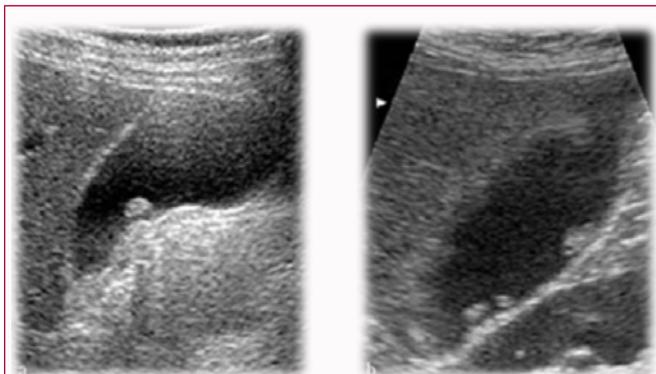


Figure 2: Cholesterosis; typical ultrasound appearance: axial and longitudinal sections showing multiple small rounded formations, hyperechoic without posterior shadow cone, attached to the gallbladder wall [6].

acute recurrent pancreatitis is still unknown [7].

One of the first studies looking at vesicular cholesterosis demonstrated that gallbladder polyps are a cause of acute pancreatitis and recurrent acute pancreatitis by describing a patient with recurrent pancreatitis attacks in whom abdominal ultrasound was normal [8]. A cholecystectomy was performed and the histopathological result revealed the presence of cholesterol polyps in the gallbladder mucosa and in the dilated (10 mm) bile duct. They concluded that the cholesterol polyps could detach, causing dilatation of the BVP and leading to the development of recurrent acute pancreatitis [8,9]. This conclusion was supported by Paricio et al. [4] in a retrospective study of a cohort of 3,797 cholecystectomy cases, 55 of which were not associated with cholelithiasis; 27 of these patients had recurrent acute pancreatitis relapses. These results led them to hypothesize that a mechanism involving the temporary impaction of cholesterol polyps in the Oddi sphincter (similar to CBD lithiasis), causing increased pressure in the pancreatic duct and leading to the development of recurrent acute pancreatitis [9,10].

Other studies have tried to show that cholesterosis may simply be a marker of gallstones that have gone unnoticed, as is the case with microlithiasis gallbladders [11]. Dairi et al. [12] conducted a retrospective study on a database of 6,868 cholecystectomized patients without finding a direct correlation between cholesterosis and pancreatitis in patients who did not have gallstones. It is necessary to highlight the increasing interest of the Endoscopic Ultrasound (EUS) which allowed to correct the diagnosis in these cases of vesicular cholesterosis as it is the case of our patient (five episodes of acute recurrent pancreatitis) which allowed us to diagnose vesicular cholesterosis despite several further exams (ultrasound and even biliary-MRI) which were not very helpful.

The EUS identified presence of gallbladder microlithiasis, acute cholecystitis and cholesterosis. The endoscopic examination was shown to be advantageous in relation to transabdominal ultrasound because it enabled adequate examination of the gallbladder during the acute pancreatitis episodes. It is also more advantageous than bile collection, because it does not use cholecystokinetic agents to obtain bile, which could, at least hypothetically, cause recurrence or worsening of the pancreatitis [13]. It is also less invasive than ERCP [14] and does not worsen the condition of acute pancreatitis [15]. False positive results occurred due to acoustic reverberation caused by movement of the bladder wall, thereby forming artifacts that were confounded with microcalculi [16].

It is now clear that the cholesterol polyps or vesicular cholesterosis in our patient accomplished their role as biliary lithiasis and caused a transient obturation and obstruction of the pancreatic duct leading to recurrent acute pancreatitis. Clinical research into other causes of acute pancreatitis such as alcohol consumption or autoimmune pancreatitis or other etiology has been unsuccessful.

Conclusion

Acute pancreatitis is an inflammatory condition of the pancreas. Gallstones and chronic alcohol use are the most commonly described causes. However, a very rare cause represented by cholesterosis (gallbladder polyposis) can lead to mechanical obstruction of the Oddi sphincter and thus be the cause of recurrent acute pancreatitis. EUS is very reliable for diagnosing gallbladder cholesterosis and should be used for managing patients with unexplained acute recurrent pancreatitis. This procedure should be part of a very advanced endoscopic evaluation to allow for a diagnosis that has been inconclusive with other diagnostic modalities.

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