Application of confocal endomicroscopy in the diagnostic elucidation of pancreatic cyst

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http://dx.doi.org/10.1590/1806-9282.64.10.885

KEYWORDS: *Pancreatic cyst. Pancreatic neoplasms/diagnostics. Echo-endoscopy/methods. Confocal Microscopy/methods*

INTRODUCTION

Treatment of patients with pancreatic cysts is challenging and follow-up remains controversial. Some guidelines allow the standardization of the treatment of these patients, especially in cases of intraductal papillary mucinous neoplasia (IPMN).

New technologies have been developed and applied for diagnostic assistance and therapeutic management. Confocal laser endomicroscopy (CLE) represents a technique in which a probe is used, promoting the *in-vivo* microscopic image in real time of the tissue studied[1]. The CLE technique through EUS-guided needle aspiration CLE – nCLE has been shown to be promising, especially in IPMN cases.

The purpose of this study is to report the application of nCLE technology in a patient with pancreatic cyst, already with a previous diagnosis of IPMN at follow-up.

CLINICAL CASE

Patient, female, 74 years old, married, from São Paulo, hypertensive, diabetic, on atenolol, enalapril and glycated. She presented with nonspecific abdominal pain and cystic lesion in the pancreas, with communication with the main pancreatic duct, compatible with IPMN and in follow-up since 2011. Until 2016, she underwent an annual follow-up with magnetic resonance imaging showing cystic lesion with localized lobulated contours in the pancreatic body,

DATE OF SUBMISSION: 27-Jan-2018
DATE OF ACCEPTANCE: 16-Feb-2018
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measuring approximately 27 mm, in communication with the main pancreatic duct, which had a gauge of 23 mm. In 2017, there was a slight increase in its dimensions to 30 mm (Figure 1). Echoendoscopic evaluation with echo-guided puncture and nCLE were performed in search of signs of malignancy.

In September 2017, echoendoscopy showed an anechoic image of 30 mm x 16 mm, oval, with regular contours, precise limits, without nodules or solid components in the interior, with posterior acoustic reinforcement, in communication with the main pancreatic duct. An echo-guided puncture with 19G needle was performed and nCLE was carried out, observing the coffee beans aspect (pancreas), digitiform projections, and no signs of malignancy were found (Figures 2 and 3). The aspect was suggestive of IPMN of the intestinal type. At the end of the examination, the cyst was completely emptied, recovering 3 ml of fluid and translucent liquid. An antibiotic prophylaxis was performed for seven days with ciprofloxacin. The dosage of markers was amylase 111770 U/L, lipase 482960 U/L, CEA 8.3 ng/mL and CA 19.9 58.3 ng/mL. Cytological analysis was negative for neoplasia.

There were no complications related to the procedure. The multidisciplinary team decided on clinical follow-up.

DISCUSSION

In recent years, the incidental finding of pancreatic cysts in imaging studies has been increasing, probably due to equipment sophistication, the development of new technologies and a larger number of imaging studies carried out[2,3]. The prevalence of pancreatic cystic lesions in imaging studies may vary between 3% and 19%[4-6]. At autopsies, the number is even higher, 24%[2-5]. Pancreatic cysts may be congenital, inflammatory or neoplastic. It is estimated that less than half of the cases are of intra-ductal papillary mucinous neoplasia (IPMN), of which only a small share will develop into invasive carcinoma[2,4].

Several tests can be used to detect and evaluate pancreatic cysts, such as abdominal ultrasonography, computed tomography, nuclear magnetic resonance and echoendoscopy[7]. New technologies have been developed, such as CLE, promoting the microscopic image *in vivo* and in real time, with magnification in about a thousand times[1]. The CLE technique with a probe inserted into the EUS-guided needle-based CLE (nCLE) is promising, especially in IPMN cases.

In a multicentre study[1], the diagnostic capacity of nCLE was evaluated in 29 cases of pancreatic cystic lesions, with clinical information omitted. The rates of sensitivity, specificity, accuracy and intra-observer and inter-observer agreement were evaluated. The results for cystic lesions were 95%, 94% and 95%, respectively, with Kappa agreement of 0.81 for intra-observer and 0.86 for inter-observer. The authors considered the agreement in both cases to be almost perfect. The results of this study demonstrate that the nCLE technique in cases of pancreatic cystic lesions can be very useful in the conduct and follow-up, as was the case of the patient reported.

Some guidelines have attempted to standardize the treatment of patients with IPMN, such as the one published in 2012 by the International Association of Pancreatology[8]. According to it, patients with secondary ductus IPMN with no worrisome features can be followed. Through nCLE, it was possible to infer the histological type of IPMN, that is, intestinal[9]. This histological type generally presents a more favourable evolution when compared to the oncocytic, pancreatobiliary and gastric types[8].

In a Swedish study[10], published in 2017, the survival and the risk of progression of IPMN under surveillance were analysed in a group of 395 patients

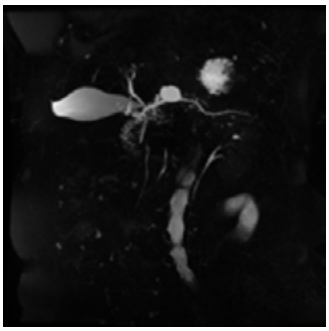

FIGURE 1

FIGURE 2

FIGURE 3

between January 2008 and December 2013. The authors found that the main pancreatic duct with ≥6 mm and cephalic location, including the uncinate process, are associated with an increased risk of progression, especially after five years of diagnosis. According to the guideline of the International Association of Pancreatology[8], there is no evidence to support that surveillance can be spaced or discontinued even in the face of morphological stability of the lesion. The patient in question maintained morphological stability for five years. The current recommendation is that surveillance should be continued at shorter intervals, especially in the period after five years, which is known when the risk of progression increases. However, the routine use of nCLE may suggest a new guidance regarding the follow-up interval. Prospective studies with adequate casuistry can prove this assertion.

CONCLUSION

Treatment of patients with incidental pancreatic cysts is based on clinical, radiological and biochemical findings. With the advent of echoendoscopy and nCLE, it became possible to aggregate information on the microscopic characteristic of cyst lining, which may be useful in the management and therapeutic strategy of this group of patients.

PALAVRAS-CHAVE: *Cisto pancreático. Pancreatic Neoplasms/diagnóstico. Endossonografia/métodos. Microscopia confocal/métodos.*

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