MATURE CYSTIC TERATOMA OF THE PANCREAS: AN UNUSUAL INDICATION FOR LAPAROSCOPIC DISTAL PANCREATECTOMY

TERATOMA CÍSTICO MADURO DO PÂNCREAS: UMA INDICAÇÃO INCOMUM DE PANCREATECTOMIA DISTAL LAPAROSCÓPICA

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INTRODUCTION

Mature cystic teratomas are benign and congenital slow-growing tumors of germ cell origin that may arise from any of the germinal layers encapsulated in a well-defined cystic wallⁱ⁰.¹⁶. As most mature cystic teratomas are composed mainly of ectodermal components, they are also referred to as dermoid cysts⁵.¹⁵. At present, its clinical course is known to be strictly benign due to the well-differentiated parenchymal tissues lined on its cystic wall, which drives its benign biological behavior⁶. However, despite its benign nature, the complete surgical excision is currently considered the standard of care⁶,¹⁶.

The objective of this study was to report a case of a 72-year-old male with a high-risk cystic mass arising from pancreas tail, who underwent minimally invasive distal pancreatectomy for its resection.

CASE REPORT

A 72-year-old man with a history of type 2 diabetes mellitus presented to our institution for the evaluation of an incidentally detected pancreatic mass in the absence of abdominal complaints, jaundice, or weight loss history. On physical examination, the abdomen was tender and no abdominal masses were palpable. Initially, laboratory tests showed normal values for bilirubin, CA-19-9, and liver function tests. Gadolinium-enhanced abdominal magnetic resonance imaging (MRI) depicted an exophytic and well-circumscribed multinodular mass arising from pancreas tail (Figure 1), with asymmetric parietal enhancement and a heterogeneous and hyperintense signal in T1- and T2-weighted images, in the absence of bile and pancreatic ductal alteration, as well as malignant suspected lesions (Figures 2 and 3). Considering the caudal localization and solid-cystic features of the tumor, we planned to perform a laparoscopic distal pancreatectomy (LDP) and splenectomy without lymph node dissection in sequence. First, we performed dissection of greater omentum with gastric retraction in order to obtain good exposure and subsequent liberation of anteroinferior edge using a multistep clockwise technique, by finding a complex solid-cystic tumor arising from the uncinated process, which was completely resected.

Figure 1 - Axial T1-weighted images. (A) Noncontrast. (B) Arterial phase. (C) Portal venous phase. Mild peripheral enhancement with heterogeneous internal content in the absence of malignant suspected nodular areas (arrows).
and sent for histopathological analysis. Macroscopically, the pathological evaluation presented a unilocular cavity of 7.5 × 5.2 cm in size, nearly to the uncinated process, which contains a solid heterogeneous content surrounded by inflammatory pancreatic tissue. Histopathological analysis reveals a complex and well-defined solid-cystic mass encapsulated on a wall lined by a squamous epithelial. Internally, the cyst contained abundant epithelial cells admixed with mature adipose tissue, keratinous debris, and anucleated squamous cells in addition to highly differentiated adnexal cells and multiple sebaceous focal areas with lymphocytic infiltration, consistent with a diagnosis of mature cystic teratoma associated with extensive acinar-ductal metaplasia and chronic pancreatitis with multiple epithelial fibrosis zones. There was no evidence of malignancy (Figure 4). The postoperative period was uneventful, and the patient was discharged on day 4. At 12-month follow-up, the patient was asymptomatic, without any complaint or evidence of recurrence disease. Written informed consent was obtained from the patient for publication of this case and any accompanying images (CEC-01 Servicio de Salud del Maule Scientific Ethics Committee 61606900-4).

**DISCUSSION**

Teratomas are an uncommon type of germ cell-derived neoplasm, which have highly heterogeneous biological behavior according to its histological origin. This type of neoplasm is commonly found in the ovary, testis, retroperitoneum, and/or mediastinum, but they may arise anywhere along the path of germ cell migration during embryogenesis, usually along the midline of the body. Strikingly, the pancreas is considered the least common site of presentation, with less than 60 clinical cases reported in the most recent literature review. This type of tumor is usually diagnosed in younger patients, with a mean age of 37 years at diagnosis, ranging widely from 4 months to 74 years. Some clinical series provide evidence that male patients show a slight predominance than female patients. Among all age groups, most patients present clinically asymptomatic or with nonspecific systemic or gastrointestinal complaints, including fatigue, nausea, vomiting, weight loss history, and abdominal or back pain. At physical examination, palpable abdominal mass and/or abdominal tenderness are the most common findings. During laboratory test evaluation, results are usually normal, except for cases where there is biliary or pancreatic ductal communication or obstruction. Although cases have been identified throughout the pancreas, pancreatic cystic tumors are more commonly described in the pancreatic body and head (1). In addition, as a slow-growing neoplasm, the pancreatic cystic teratomas are usually large at its clinical presentation, with a mean dimension of approximately 7–8 cm in long axis, ranging from 2.2 to 22 cm. At present, the preoperative diagnosis of this type of tumors remains still difficult because of their extremely rare nature, especially when it arises from uncommonly sites, such pancreas tail. However, the use of combined clinical imaging methods might allow differentiation of some pancreatic cystic lesions with increased risk of occult malignancy. Despite the fact that the malignant degeneration of pancreatic mature cystic teratoma has never been reported, complete surgical resection procedures such as duodenopancreatectomy and distal pancreatectomy remain the current standard of care and can be regarded as save procedures. Although the minimally invasive technique might increase the surgical time compared with open distal pancreatectomy (ODP), LDP is known as a safe procedure that not only significantly reduces the intraoperative blood loss but also improves the outcomes in postoperative feeding advance. In this context, compelling body of evidence supports LDP as the first-line treatment for this type of cystic tumors in the left side of the pancreas.

**REFERENCES**

1. Albayrak A, Yıldırım U, Aydin M. Dermoid cyst of the pancreas: a report of an unusual case and a review of the literature. Case Rep Pathol. 2013;2013:375193. https://doi.org/10.1155/2013/375193
2. Amico EC, Salgado CTS, Emerenciano LM, Filho GASF, Alves JR, Souza LEOff, et al. Serous cystadenoma of pancreas: why there is low accuracy in imaging exams? ABCD Arq Bras Cir Dig. 2022;34(4):e1640.https://doi.org/10.1590/0102-672020210002e1640
3. Asbun HJ, Stauffer JA. Laparoscopic approach to distal and subtotal pancreatectomy: a clock-wise technique. Surg Endosc. 2011;25(8):2643-9. https://doi.org/10.1007/s00464-011-1618-0
4. Chakaravarty KD, Venkata CD, Manicketh I, Singh R, Mathew P, Devashetty S, et al. Mature cystic teratoma of the pancreas. ACG Case Rep J. 2016;3(1):80-1. https://doi.org/10.14309/crj.2016.5
5. Degrate L, Misani M, Mauri G, Garancini M, Maternini M, Moltrasio F, et al. Mature cystic teratoma of the pancreas. Case report and review of the literature of a rare pancreatic cystic lesion. JOP. 2012;13(1):66-72. PMID: 22233950.
6. Kersting S, Janot MS, Munding J, Suelberg D, Tannapfel A, Chromik AM, et al. Rare solid tumors of the pancreas as differential diagnosis of pancreatic adenocarcinoma. JOP. 2012;13(3):268-77. PMID: 22572130
7. Kubo T, Takeshita T, Shimono T, Hashimoto S, Miki Y. Squamous-lined cyst of the pancreas: radiological-pathological correlation. Clin Radiol. 2014;69(8):880-6. https://doi.org/10.1016/j.crad.2014.03.014
8. Lane J, Vance A, Finelli D, Williams G, Ravichandran P. Dermoid cyst of the pancreas: a case report with literature review. J Radiol Case Rep.2012;6(12):17-25. https://doi.org/10.3941/jrcr.v6i12.1152
9. Lee SE, Choi YS, Hong SU, Oh HC, Lee ES. Dermoid cyst of the pancreas: a rare cystic neoplasm. Int J Surg Case Rep. 2015;17:72-4. https://doi.org/10.1016/j.jscr.2015.10.026
10. Li Z, Ke N, Liu X, Gong S. Mature cystic teratoma of the pancreas with 30 years of clinical course: a case report. Medicine (Baltimore). 2018;97(15):e0405. https://doi.org/10.1097/MD.0000000000010405
11. Manning MA, Srivastava A, Paal EE, Gould CF, Mortelet KJ. Nonepithelial neoplasms of the pancreas: radiologic-pathologic correlation, part 1 – benign tumors: from the radiologic pathology archives. Radiographics. 2016;36(1):123-41. https://doi.org/10.1148/rg.2016150212
12. Matsumoto I, Kamei K, Satoi S, Murase T, Matsumoto M, Kawaguchi K, et al. Laparoscopic versus open distal pancreatectomy for benign and low-grade malignant lesions of the pancreas: a single-center comparative study. Surg Today. 2019;49(5):394-400. https://doi.org/10.1007/s00595-018-1743-7
13. Sakorafas GH, Smyrniotis V, Reid-Lombardo KM, Sarr MG. Primary pancreatic cystic neoplasms of the pancreas revisited. Part IV: rare cystic neoplasms. Surg Oncol. 2012;21(3):153-63. https://doi.org/10.1016/j.suronc.2011.06.007
14. Scheele J, Barth TFE, Wittau M, Juchems M, Henne-Bruns D, Kornmann M. Cystic teratoma of the pancreas. Anticancer Res. 2012;32(3):1075-80. PMID: 22399635.
15. Song SH, Kim HJ, Park EK, Hur YH, Koh YS, Cho CK. Comparison of laparoscopic versus open distal pancreatectomy for benign, pre-malignant, and low grade malignant pancreatic tumors. Ann Hepatobiliary Pancreat Surg. 2020;24(1):57-62. https://doi.org/10.14701/ahbps.2020.24.1.57
16. Zhou XH, Ma JK, Valluru B, Sharma K, Liu L, Hu JB. Diagnosis and differentiation of mature cystic teratoma of pancreas from its mimics: a case report. Medicine (Baltimore). 2020;99(47):e23267. https://doi.org/10.1097/MD.0000000000023267