

Laparoscopic Enucleation of a Pancreatic Dermoid Cyst

Enucleação Laparoscópica de Cisto Dermoide Pancreático

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ABSTRACT

Introduction: Dermoid cysts (benign cystic teratomas) are congenital abnormalities originating from germ cells, derived from ectodermal, mesodermal or endodermal epithelial. They are true cysts, benign and well differentiated. It is believed that they arise along the path of migration of ectodermal cells and are commonly found in the ovary, testis and retroperitoneum. It is extremely rare for the pancreas to be the primary site. Published data have demonstrated that a preoperative diagnosis is often difficult, even with imaging methods such as CT and MRI, and that a definitive diagnosis requires a biopsy and anatomic pathology. **Objective:** To report the laparoscopic enucleation of a dermoid cyst of the tail of the pancreas in a male patient, 69 years, with an incidental finding of an asymptomatic pancreatic cystic lesion. **Discussion:** Laparoscopy has one of the best avenues for the treatment of benign and borderline lesions of the pancreas. The enucleation, when possible, of a pancreatic cystic lesion with benign features, has lower morbidity, a shorter hospital stay, as well as aesthetic advantages.

Key words: Dermoid cyst. Pancreas. Laparoscopy.

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INTRODUCTION

Dermoid cysts are congenital abnormalities that originate from germ cells derived from ectodermal, endodermal or mesodermic epithelium.¹ The most common location is in the ovary, but they can occur anywhere where ectodermal cells migrate, typically in the midline, such as testes, skull, brain, anterior mediastinum, omentum, retroperitoneum, and sacro-coccygeal regions.¹

A dermoid cyst of the pancreas is a rare congenital abnormality of the pancreas and is believed to develop from the embryonic persistence of germ cells in the pancreatic parenchyma. Only 21 cases have been reported through 2007;² here we report what is probably the first cyst removed laparoscopically. Because it is a benign pancreatic lesion, we performed a laparoscopic enucleation of the cystic lesion located in the body and tail of the pancreas.

CASE REPORT

This 69 year old male asymptomatic patient was referred to the laparoscopic surgery service after identification of a cystic lesion in the tail of the pancreas. The patient related that he had been in an automobile accident 18 years earlier suffering a femoral fracture and abdominal contusion. Magnetic resonance imaging showed a multi-loculated cystic lesion of the pancreatic tail measuring 7.2 x 6.4 x 7.3 cm with well-defined septa separating compartments ranging in size from 2.0 to 3.6 cm.

T2 weight imaging showed increased signal intensity and heterogeneous contents with possible debris and septa. No communication with the pancreatic duct was appreciated (Figure 1). Tomography showed a heterogeneous hypodense lesion with a slightly thickened capsule and heterogeneous and septated content with faint peripheral enhancement (Figure 2). Both images

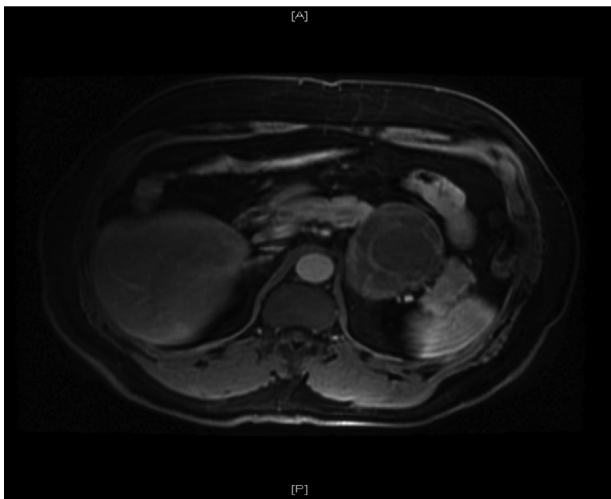


Figure 1 - Magnetic resonance image showing a cystic lesion in the tail of the pancreas.

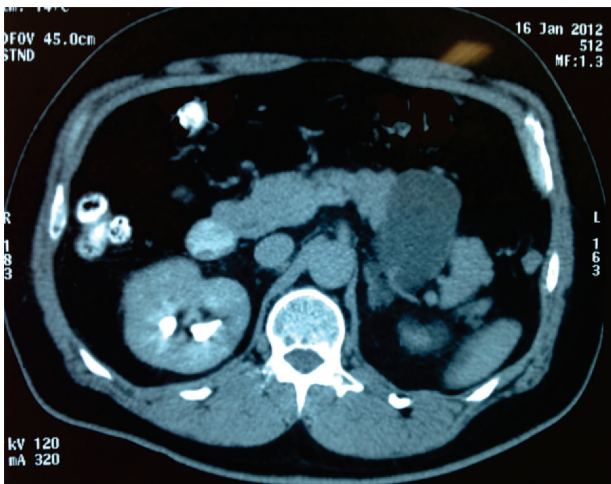


Figure 2 - Computed tomography showing a well-defined heterogeneous hypodense lesion, divided by septa, without invasion of adjacent organs.

showed no invasion of adjacent organs, distant metastases, or enlarged lymph nodes.

Carcinoembryonic antigen (CEA) and CA19-9 tumor markers and amylase levels were normal. Due to the clinical, laboratory and radiological findings, pseudocyst and malignancy were excluded. The remaining differential diagnoses included mucinous cystic neoplasm, solid pseudopapillary tumor of the pancreas (Frantz' tumor), non-functional endocrine tumor with cystic degeneration, intraductal papillary mucinous neoplasm, and lymphoepithelial cyst of the pancreas.

The patient underwent laparoscopic enucleation using 4 ports: a 12mm umbilical port, two 5mm supraumbilical ports in the right and left

midclavicular lines, and a 5mm subcostal port in the left anterior axillary line. (Figure 3)

The lesion's capsule opened during dissection, but no secretion escaped, due to its thick caseous-sebaceous quality. It was removed in an endobag.

The patient was discharged on the second postoperative day uneventfully. The surgical specimen is shown in figure 4. Upon anatomic pathology examination, the microscopic sections showed cystic formations lined by keratinized stratified squamous epithelium, with the presence of sebaceous glands, and surrounded by mature lymphoid tissue, which differentiated into lymphoid follicles and germinal centers. The cystic content was formed by a large quantity of keratin sheets. The diagnosis was dermoid cyst of the pancreas.

DISCUSSION

The dermoid cyst or benign cystic teratoma of the pancreas is extremely rare, with fewer than 21 cases reported in the literature.^{2,3} The first case was described by Kerr in 1918 and, in 1922, was included by Primrose in the classification of cystic pancreatic lesions.² Epidemiologically, there is no gender predilection and it affects patients from 2 to 64 years of age.⁴

Patients may be asymptomatic – the cases reveal by an incidental finding on imaging – or may experience symptoms such as abdominal pain, lower back pain, nausea, vomiting, weight loss, anorexia, or asthenia, with abdominal pain the most common symptom.^{1,4,5,6} As with teratomas in other sites, they may have different tissues such as bones, teeth, cartilage, hair, sebaceous glands and even thyroid tissue.³

The dermoid cyst is a true cyst, its wall lined by keratinized squamous epithelium. Macroscopically the cyst is usually filled with material with a pasty consistency, similar to a sebaceous secretion (Figure 5); rarely, it is a clear or serous secretion. It is believed that dermoid cysts originate from epithelial inclusions of pluripotent cells in the course of the migration of the gonads during embryonic development and subsequent incorporation in the pancreatic tissue.³

Pancreatic cystic teratomas are cystic lesions that are well defined as ecogenic⁴ or hyperecogenic on ultrasound.¹ This is due to the quantity of fat and sebaceous material that can be identified in different types of lesions.

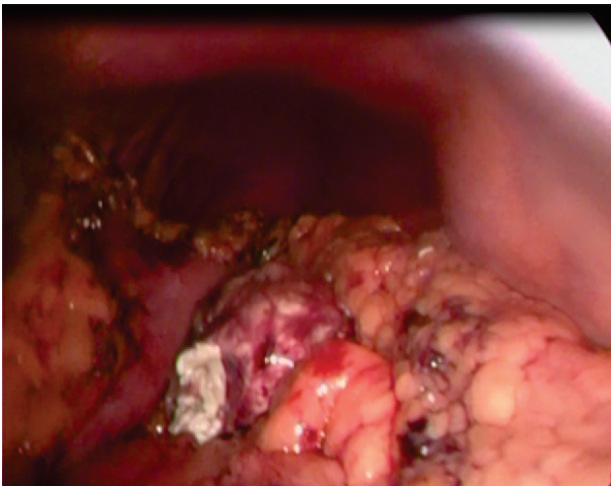


Figure 3 - Cystic mass in the tail of the pancreas during laparoscopy with the capsule opened and sebaceous material draining.



Figure 4 - Surgical specimen of a pancreatic dermoid cyst.

With CT imaging, teratomas have been described as well-defined lesions. Lesions are variable in appearance: low attenuation, multilocular and cystic,¹ soft tissue, with fat and peripheral calcifications.⁴ Using contrast heterogeneous lesions have also been documented.⁴

The classic appearance of these lesions with MRI is of hyperintensity of the pancreatic parenchyma and well defined with T2 weighted images with areas of loss of intensity consistent with fat content. In the pre-contrast phase, the cysts can have heterogeneous signal intensity with T1 and T2 weighted images.^{1,4} Seki and colleagues described the magnetic resonance findings in two cases, one with predominance of soft tissue with small cystic areas, and the other with a predominantly cystic area with small nodular defects.¹

There is no radiographic sign pathognomonic for preoperative diagnosis.²

Cytology guided by endoscopic ultrasound is part of most modern investigative arsenal for pancreatic cystic lesions, but in the literature there are only two cases with a preoperative diagnosis established by this method.⁵ They are typically composed of keratinized epithelium, sebaceous glands, lymphoid tissue, and inflammatory cells.

The differential diagnosis includes other pancreatic cystic lesions such as mucinous cystic neoplasm, serous microcystic adenoma, intraductal papillary mucinous neoplasm, and pseudopapilar solid tumor.⁵ Other much rarer lesions include lymphangioma, nonfunctional neuroendocrine tumor with cystic degeneration, lymphoepithelial cyst (LEC) and epidermoid cyst.^{1,5} These last two also have squamous epithelium.

Traditional serum markers, such as CEA and CA 19-9, are expected to be normal or slightly increased in dermoid cyst, as distinct from other pancreatic cystic lesions.⁷

The therapeutic management is controversial. No cases of malignant degeneration has been documented in the literature, although 7%-10% of retroperitoneal teratomas are malignant.⁸ The treatment of a dermoid cyst consists of surgical resection, mainly because a preoperative diagnosis is not possible in most cases.² A review of 1000 cases of ultrasound, computed tomography and endoscopic ultrasound guided fine needle biopsy of the pancreas, found a 0.3% false positive rate and a 14.3% false negative rate, when compared with histology and clinical follow-up.⁹ Clinical observation has not been reported in the literature.²

Surgical procedures reported in the literature include external drainage in five patients (a treatment that has been abandoned due to the propensity for a chronic fistula to develop⁴), cystectomy in 12 patients, distal pancreatectomy in two patients (one with splenectomy), cystogastrectomy in one case,² and our report of laparoscopic enucleation in one patient. In their series of eight enucleations of serous cystadenomas of the pancreas, Pyke et al described complications requiring reoperation in four patients, concluding that morbidity was high with this type of procedure.¹⁰ We performed laparoscopic enucleation with minimal bleeding and a surgical time of less than two hours. The patient was discharged on the second postoperative day.

CONCLUSION

Dermoid cysts of the pancreas are extremely rare, case reports are scarce, and definitive diagnosis is not always possible without surgical procedures,

even with biopsies guided by endoscopic ultrasound. We believe that laparoscopic procedures with lower postoperative morbidity and the possibility of complete enucleation may be the best method of treatment and diagnosis.

RESUMO

Introdução: Cistos dermóides (teratoma cístico benigno) são anormalidades congênitas originadas de células germinativas, derivadas tanto do epitélio ectodérmico, mesodérmico ou endodérmico. São verdadeiros cistos, benignos e bem diferenciados. Podem surgir no trajeto da migração das células ectodérmicas e são comumente encontrados no ovário, testículo e retroperitônio. O pâncreas é extremamente raro como sítio primário. Dados publicados tem demonstrado difícil diagnóstico pré-operatório, mesmo com métodos auxiliares como tomografia e ressonância magnética, sendo o diagnóstico definitivo realizado somente com avaliação anatomopatológica. **Objetivo:** Relatar enucleação videolaparoscópica de cisto dermóide de cauda de pâncreas em paciente do sexo masculino, 69 anos, assintomático com achado incidental de lesão cística pancreática. **Discussão:** A videolaparoscopia apresenta uma das melhores vias de acesso para tratamento de lesões benignas e *borderlines* do pâncreas. A enucleação, quando possível, de lesões císticas pancreáticas com características benignas, apresenta menor morbimortalidade, menor tempo de internação, além das vantagens estéticas.

Descritores: Cisto dermóide. Pâncreas. Laparoscopia.

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