Benign Macrocystic Serous Cystadenoma of the Tail of the Pancreas: A Case Report

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Abstract
Serous cystadenoma is a rare benign cystic lesion of the pancreas, predominantly affecting women with a mean age of onset around 62 years. While often asymptomatic, it can manifest with nonspecific symptoms such as abdominal pain and nausea. We present the case of a 68-year-old woman with abdominal pain and nausea, diagnosed with a serous cystadenoma in the tail of the pancreas through imaging modalities. Radiological examinations revealed a septated, multilayered cystic lesion with lobulated contour and calcifications. Surgical resection was performed, and pathological examination confirmed a serous cystadenoma. Differential diagnosis from pseudocysts and malignant serous cystadenocarcinomas is crucial. Treatment options include pancreatic resection, with close monitoring recommended for asymptomatic patients or those at high surgical risk. Despite their benign nature, accurate diagnosis and management of serous cystadenomas are essential.

Introduction
Serous cystadenoma is a relatively uncommon benign cystic lesion found in the pancreas, characterized by glycogen-rich epithelial cells forming numerous serous fluid-filled cysts [1]. Predominantly affecting women, the mean age of patients undergoing pancreatic surgery for this condition varies by region [2]. While many cases are asymptomatic, others present with nonspecific symptoms such as abdominal pain, nausea, and vomiting, often incidentally detected during radiological imaging. Serous cystadenomas most frequently occur in the head of the pancreas, followed by the trunk, tail, and uncinate process [3]. Gross examination typically reveals a large multilocular lesion lined by normal tissue, with sizes ranging from 1 cm to 6 cm on average, although larger cysts up to 25 cm can occur, albeit rarely [4,5]. Most serous cystadenomas exhibit a microcystic growth pattern, but macrocystic variants with fewer but larger cysts also exist [6].

Aim of the Article
This study aims to present a case of macrocystic serous cystadenoma discovered in a patient with abdominal pain and nausea, while also discussing the criteria for malignancy and differential diagnosis of pancreatic cystic lesions based on the existing literature.

Presentation of Case
Here we present the case of a 68-year-old woman, with no significant medical or surgical history, who presented to our facility with epigastric and left hypochondrial abdominal pain accompanied by nausea and vomiting, without any other associated functional signs, all occurring in the context of afebrile condition and preservation of general status. Clinical examination revealed a patient in good general condition, afebrile and non-jaundiced, with a soft
abdomen, no organomegaly, or palpable mass, and pelvic examinations were unremarkable. An initial abdominal ultrasound revealed an isolated gallstone, which did not explain the symptoms. Therefore, an abdominal CT scan was performed, revealing a well-defined, lobulated, multilocular liquid density formation with some microcalcifications, measuring approximately 54.6 x 53.4 mm, located in the body and tail of the pancreas (Figure 1). Subsequently, an abdominal MRI revealed a mass in the tail of the pancreas, showing hyperintensity on T2-weighted images, isointensity on T1-weighted images with areas of hypointensity on T1, exhibiting a multiseptated cluster appearance, measuring 75.3 mm anterior-posteriorly and 49.7 mm laterally. This lesion enhanced after contrast administration, predominantly at one minute, with heterogeneous enhancement and persistent non-enhancing cystic areas, primarily anterior and inferior. The upper part showed enhancement at 1 mm with fading enhancement on delayed images, with no abnormality in the pancreatic head (Figure 2).

Biochemical markers returned within normal limits. Fifteen days before surgery, the patient received vaccination against encapsulated organisms in preparation for a potential splenectomy. Following the surgical indication, the patient underwent surgery, including left splenopancreatectomy, resection of the solid cystic mass from the pancreatic tail measuring approximately 8 cm in size, cholecystectomy for gallstone, and drainage of the splenic and subhepatic spaces (Figure 3).

Postoperative recovery was uneventful, with bowel movement resumed on postoperative day 1, diet resumed on postoperative day 1 with post-splenectomy antibiotic prophylaxis, drainage removed on postoperative day 2, and discharge on postoperative day 3 without incidents. Pathological examination revealed morphological features consistent with a serous cystadenoma, measuring 6.5 cm in size along the major axis. Healthy pancreatic parenchymal margins were observed, with no lymph node lesions among the 9 sampled.

One year later, the patient showed no signs of recurrence or complaints.
Discussion
Serous cystic neoplasms are the most prevalent subgroup, accounting for around 30% of all primary cystic neoplasms found in the pancreas. Malignant serous cystadenocarcinomas are rare, constituting only 1–3% of all pancreatic serous tumors. Serous cystadenomas arise from pancreatic acinar cells and are characterized by benign cystic growths. They predominantly affect women, with an average onset age of 62 years. Most patients with serous cystadenomas experience nonspecific symptoms such as abdominal pain, weight loss, nausea, vomiting, fever, and melena. However, a third of patients may remain asymptomatic [7]. For our case, the patient experienced abdominal pain, nausea, and vomiting.

The diagnosis of serous cystadenoma primarily relies on imaging modalities such as ultrasonography (USG), computed tomography (CT), and endoscopic ultrasonography (EUSG). While these neoplasms can develop in any part of the pancreas, they are more commonly observed in the pancreatic head. Serous cystadenomas typically consist of multiple cysts separated by thin septa, often exhibiting a honeycomb-like appearance on imaging. The presence of a central scar with calcification, though seen in only 30% of cases, is pathognomonic on CT scans. Contrast-enhanced CT scans show enhanced contrast of septa. In the case under discussion, radiological examinations revealed a septated, multilayered cystic lesion with a lobulated contour, demonstrating increased enhancement in the septa and containing multiple millimeter-sized calcifications located in the pancreatic tail.

According to the World Health Organization (WHO) classification, serous cystic lesions are categorized into two main groups: serous microcystic adenomas and serous oligocystic adenomas. Serous microcystic adenomas consist of numerous small cysts clustered around a central scar, whereas serous oligocystic adenomas are well-circumscribed lesions containing several cysts with diameters ranging from 1 to 2 cm. Larger cystic lesions within serous cystadenomas are termed serous macrocystic adenomas, which are rare and characterized by fewer, larger cysts, typically exceeding 1 cm in size. These lesions often occur in the pancreatic head and may cause obstructive symptoms due to their larger size. In this case, the largest diameter of the cystic lesion was 5 cm [3,8].

In recent years, malignant serous cystadenocarcinomas have been reported. Unlike serous cystadenomas, cystadenocarcinoma patients exhibit slight nuclear pleomorphism, nuclear atypia, and perineural invasion in tumor cells, while other histological and immunohistochemical features resemble those of serous cystadenomas. The presence of distant metastases to organs such as the liver, spleen, colon, and stomach supports the diagnosis of serous cystadenocarcinoma [9,10]. Serous cystadenomas may occur independently or in conjunction with pancreatic endocrine tumors, dorsal pancreas anomalies, pancreatic divisum, and other pancreatic anomalies. However, in this case, no such associations were identified [11,12].

Distinguishing serous cystadenomas from pseudocysts and other cystic lesions is critical due to their distinct treatment protocols. While serous oligocystic adenomas may be mistaken for mucinous cystadenomas and pseudocysts, patients with pseudocysts are generally older, predominantly male, and often have a history of prior pancreatitis or trauma. Additionally, endoscopic retrograde pancreaticography
in pseudocyst cases typically reveals a connection between the pseudocyst and the pancreatic duct, which is not observed in serous cystadenomas. Radiological imaging methods are crucial for demonstrating intratumoral calcifications in serous cystadenomas, aiding in their differential diagnosis from mucinous cystadenomas and pseudocysts [7]. Regarding treatment, the decision depends on the patient's symptoms, accuracy of preoperative diagnosis, safety of resection, and risks associated with conservative management. While most symptomatic patients undergo pancreatic resection, drainage is not suitable for these tumors. Lesions located in the body and tail of the pancreas necessitate distal pancreatectomy, whereas lesions in the uncinate process and pancreatic head are preferably managed with Whipple resection. Serous cystadenomas are typically benign; however, some authors recommend close monitoring for asymptomatic patients with non-obstructed ducts or vessels and elderly patients at high surgical risk. Nonetheless, conservative management may lead to complications such as rapid tumor growth, bleeding, or gastrointestinal or biliary obstruction. In this case, a splenopancreatectomy procedure was performed due to the lesion's location in the pancreatic tail, its size, its contiguity with the spleen and the patient's symptomatic presentation [7].

Conclusion
In conclusion, serous cystadenomas are uncommon benign cystic lesions of the pancreas. Despite their benign nature, accurate differentiation from other pancreatic cystic lesions and malignant serous cystadenocarcinomas is essential.

References