Original Article

Pancreatic Cystic Lesions: An 11 Years (2010–2020) of Experience at Usmanu Danfodiyo University Teaching Hospital, Sokoto

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Abstract

Background: Pancreatic cystic lesions are heterogeneous lesions that could be benign, borderline, or malignant. Neoplastic cystic lesions/tumours are rare tumours of the exocrine pancreas; difficult to diagnose preoperatively, and they account for 2%–10% of pancreatic tumours. Pancreatic pseudocyst is the most typical benign cystic pancreatic lesion arising from pancreatic ductal inflammation or ductal disruption. Both benign and malignant cystic pancreatic lesions are amenable to surgical treatments, with a good prognosis. **Aim:** The aim is to present our 11yrs of experience in the management of pancreatic cystic lesions. **Materials and Methods:** We conducted a retrospective review of pancreatic cystic lesions managed at the General Surgery Unit of Usmanu Danfodiyo University, Sokoto, Nigeria, from 2010 to 2020. A retrospective review of the case notes of patients was done with an emphasis on biodata, presentation, investigations treatment offered, complications, and follow-up were analysed using the Statistical Package for the Social Science (SPSS) version 22, Inc. (Chicago II, USA). **Results:** We managed 28 patients over 11 years. Three patients had pancreatic cystic tumours, whereas 25 patients had pancreatic pseudocysts. The age ranges of the patient with pancreatic cystic tumours are 29–50 years with a male-to-female ratio of 2:1. All the patients had tumour excision with histology revealing two pseudopapillary tumours of the pancreas and one serous cystadenoma. The age range of patients with pseudocyst is 27–42 years with a male-to-female ratio of 1:3.1, and most of the patient had internal drainage. **Conclusion:** Pancreatic cystic tumours are uncommon pancreatic neoplasms that are amenable to surgical interventions with a good prognosis. Pancreatic pseudocyst was seen mainly in females within the young age group. Both benign and neoplastic pancreatic cystic lesions are amenable to surgical intervention with a good prognosis.

Keywords: Cystic, lesion, management, pancreatic

Introduction

Pancreatic pseudocyst is the most typical cystic lesion of the pancreas that commonly complicates acute or chronic pancreatitis due to alcoholism, gall stones, or trauma. It is rare in our environment due to the rarity of pancreatitis. The pancreatic pseudocyst is mainly located in the lesser sac but could be confused with the cystic neoplasm of the pancreas.[1,2]

Pancreatic cystic neoplasms are heterogeneous neoplasms with different biological entities and different potentials for malignant transformation. There has to be a balance between surgical overtreatment and keeping a malignant lesion under surveillance. The WHO classified them in 2010 as serous cystic neoplasm (SCN), mucinous cystic neoplasm (MCN), and intraductal papillary mucinous neoplasm (IPMNN).[3-8]

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Results

We had three patients with pancreatic cystic neoplasm, their ages ranging from 29 to 50 years, with M:F = 1:2. Their presenting symptoms are upper abdominal pain, abdominal swelling, and no intestinal or biliary obstruction features.

Radiologic findings

Abdominal computed tomography (CT) findings for each patient are – Hypodense lesion around the tail, cystic mass

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on the pancreatic tail, and hypodense lesion on the pancreatic body and tail mass. No biliary or intestinal obstruction features.

Laboratory findings

Liver function test – Normal, serum amylase – Normal, carcinoembryonic antigen (CEA) – elevated, and complete blood count – Normal findings.

Intraoperative findings and postoperative complications

A cystic tumour in the lesser sac at the tail of the pancreas (two cases) and a cystic mass on the tail of the pancreas adhered to the spleen (one case). All three patients had tumour excision

Patient status

We lost two cases to follow-up, whereas one patient is on follow-up. Their years of presentation are 2017, 2018, and 2020, respectively.

We managed 25 cases of pancreatic pseudocyst for the period under review. Their age ranges from 27 to 42 years, with a median age of 35 years and a mean of 34.36 ± 4.35 standard deviation. Males constituted 6 (24%), whereas females were 19 (76%).

Intraoperative findings

Eighty-four percent had cystic swelling in the lesser sac adherent to the stomach, whereas 16% had cystic swelling extending beyond the lesser sac up to the sigmoid colon.

The status patient

We have lost 68% of the patients to follow-up, and 28% are still on follow-up, whereas we had 4% mortality.

Discussion

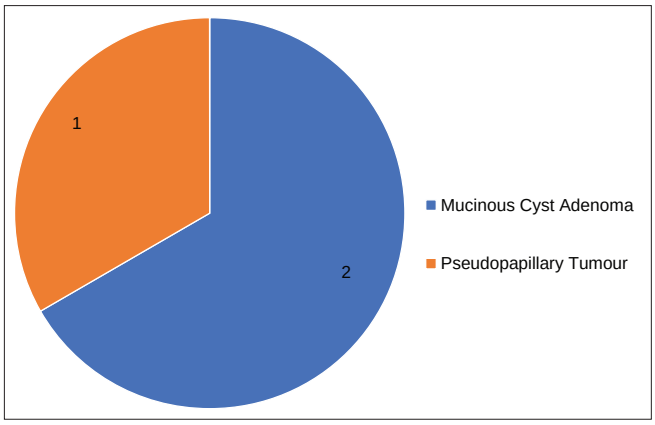
Pancreatic cystic lesions can be benign or neoplastic. The most common benign lesion is a pancreatic pseudocyst, whereas neoplastic cystic lesions could be mucin-producing or nonmucin-producing tumours; similarly, the WHO classified these tumours in 2010 as SCN, MCN, and IPMNN.[9]

Pancreatic pseudocyst is a collection of pancreatic secretions usually rich in digestive enzymes, necrotic tissue, and old blood walled off by fibrous or granulation tissue. Pseudocysts vary in their size and may be single or multiple.[2] They can be located far from the pancreas (extrapancreatic). Still, they are typically found in the lesser sac (peripancreatic) encased by adjacent viscera such as the stomach, colon, transverse mesocolon, gastrocolic omentum, and pancreas.[2] This usually makes mobility exceptional for pseudocysts and was a cause of clinical confusion where it was reported.[2,3] In this series, 86% of the cases were large unilocular cysts located in the lesser sac, whereas 14% extended up to the sigmoid colon. A pseudocyst is mainly seen in adults, and our patients are between 24–43 years. At the same time, Agbakwuru *et al*. reported an age range of 23–70 years, whereas Ojo and Babayo in a case series reported that all the patients were within their 20s on the contrary. Mabogunje reported pancreatic pseudocyst in children arising from chronic pancreatitis. All the above-cited studies reported a female preponderance which is in agreement with this study.[1,2,10,11]

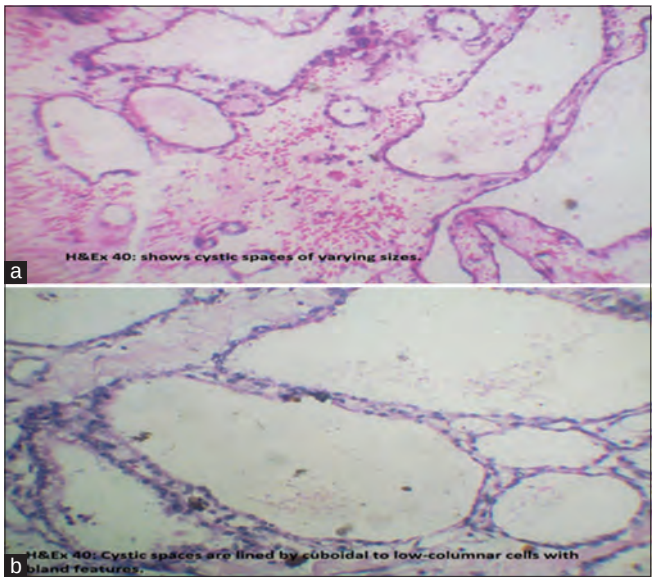
The most familiar presenting symptoms in our patients were abdominal pain and upper abdominal mass, which were consistent with Agbakwuru *et al*. and Ojo and Babayo. Similarly, extensive reviews also reported a similar presentation. There is a wide range of investigative options. Most of our patients had abdominopelvic ultrasound while a few had abdominopelvic CT; Furthermore, our patients had full blood count, serum electrolyte urea and creatine, serum amalyse, and liver function test. This is in tandem with investigations carried out by Ojo and Babayo, Agbakwuru *et al*., and Akinola *et al*. However, there are other investigations. Endoscopic ultrasonography can demonstrate vessels or aneurysms in a pseudocyst and is of great value in avoiding hazardous bleeding during endoscopic cystenterostomy.[1,2,4,6,8,11-14] An upper gastrointestinal endoscopy can differentiate an intragastric pathology from a pseudocyst and demonstrate extragastric compression from a large pseudocyst. A barium meal serves as an alternative investigation in establishing intragastric pathology where endoscopy is not available and can define the relationship of the cyst to the upper digestive tract. Chest X-ray will confirm the presence of an accompanying left or bilateral pleural effusion. Abdominopelvic CT is imperative in situations where there is a limitation with ultrasonography, such as in mediastinal pseudocysts and for characterising concurrent or underlying pancreatic lesions. Abdominopelvic magnetic resonance imaging (MRI) can demonstrate the presence or extension of the fistulous tract into the pancreas, effectively detect a solid component of the cyst, and differentiate between organised necrosis and a pseudocyst.[15-17]

Endoscopic retrograde pancreatography (ERCP) will demonstrate the presence of communication between the main Pancreatic duct and the Pseudocyst; which is essential consideration in choice of treatment as the risk Pancreaticocutaneous fistula is higher with Percutaneous drainage than endoscopic drainage. It is equally efficient in defining pancreatic ductal pathology (such as stricture and obstruction) and likely preventing spontaneous resolution. Magnetic resonance cholangiopancreatography (MRCP) has a similar sensitivity to endoscopic retrograde cholangio pancreatography (ERCP) but has the advantage of providing images of the pancreatic ducts in their natural state by not involving the distension of the ducts by the injection of contrast media.[18,19] When pancreatography is necessary, it is better within a day or two of operation under antibiotic cover to lessen the chance of infection. Angiography is not a routine investigation of pseudocyst, but in the setting of pseudoaneurysms resulting from vascular erosion, it could serve both as a diagnostic and therapeutic intervention.[18-21]

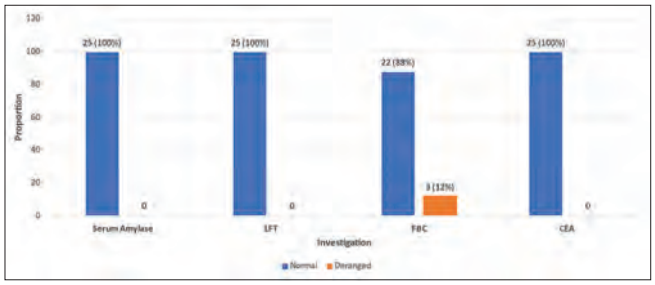
The initial approach to the treatment of Pseudocyst that is <6cm and in acute phase < 6weeks and have a wall thickness of 3-9mm with no other Pancreatic duct abnormality is conservative.[1,2,11,16] Up to 50% of pseudocysts may regress on expectant management. The surgical approach to pancreatic



Pie chart showing histology findings

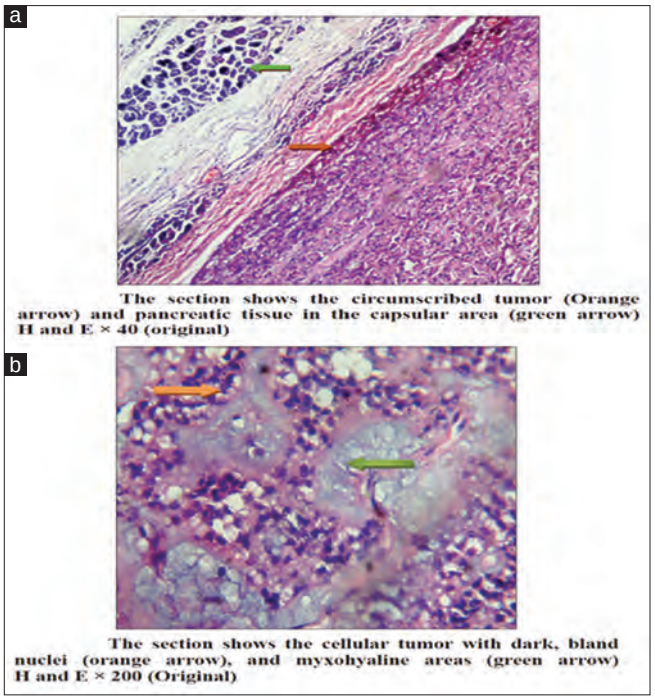


(a and b) Histology of Mucinous cystadenoma

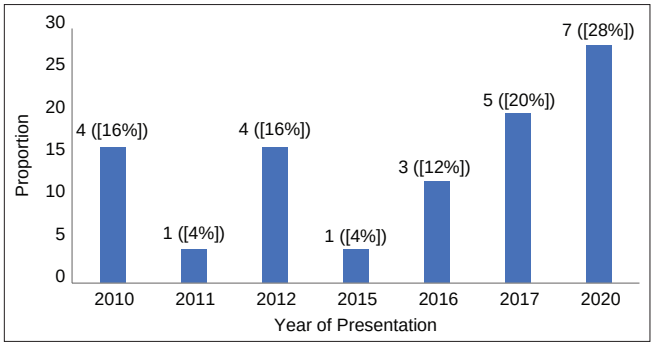


Bar chart showing results of laboratory investigations

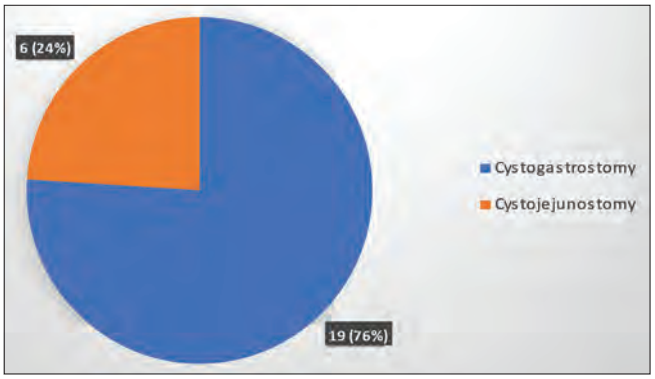
pseudocyst entails drainage of the cyst using various techniques with considerations given to the anatomy of the cyst, the pathology present, and the patient's general condition. Although medical management has been tried and anecdotally reported to be successful, the therapy is usually prolonged. None of our patients had conservative management; similarly, all the patients reported by Ojo and Babayo had surgical treatment; on the contrary, some of the patients reported by Agbakwuru *et al*. had conservative treatment.[1,2,11,16,22,23]



(a) Histology of pseudopapillary tumour of the pancreas (b) Histology of pseudopapillary tumour

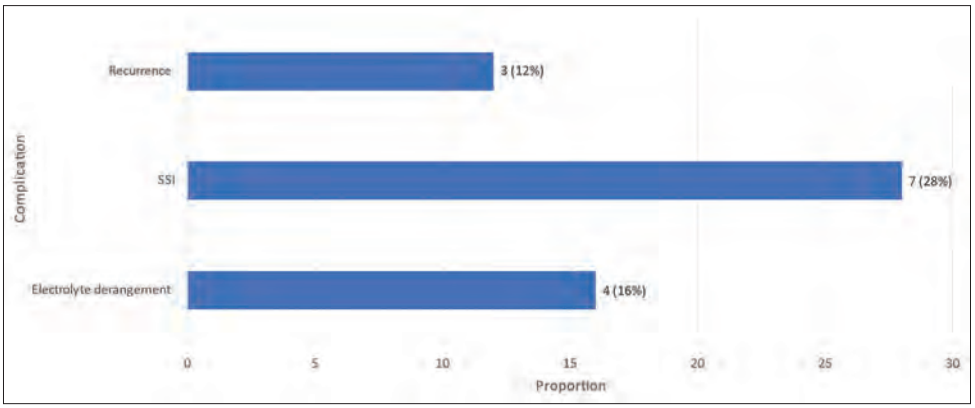


Bar chart showing years of presentation



Pie chart showing type of procedure offered

Internal drainage is the preferred treatment method and involves an anastomosis between the cyst and the upper digestive tract (stomach, duodenum, or jejunum). Open, endoscopic, or laparoscopic techniques have accomplished



Bar chart showing complications

it. The attainment of internal drainage is dependants on the presence of a mature cyst wall to hold the stitches in the open approach, and this may be feasible in acute pseudocyst, which occurs within 3–4 weeks of an attack of acute pancreatitis with a wall of early, immature granulation tissue as opposed to chronic pseudocysts which have persisted for more than 6 weeks and have walls of normal granulation or fibrous tissue. Some studies have, however, demonstrated the feasibility of anastomosis earlier than 6 weeks. The appearance of an isoenzyme of amylase called "old amylase" in serum has been found predictive of cyst wall maturation and was introduced as a biochemical marker and timer for performing safe internal drainage. All the patients in this study had internal drainage, so the patients reported by Ojo and Babayo and Agbakwuru *et al.* said that most of the patients had internal drainage while a few had percutaneous drainage.[1,2,10,11]

Cystic neoplasms of the pancreas are rare and comprise 10%–15% of pancreatic cystic masses and only 1% of pancreatic cancers. They are slow-growing indolent tumours with low-grade malignant potentials and are primarily seen in middle-aged women. Commonly asymptomatic, they sometimes reach large sizes before diagnosis. Routine use of abdominal ultrasound, CT, and magnetic resonance has led to an increase in the detection of cystic pancreatic lesions and reduced the average size at diagnosis. The patients in this series are within the young age group – Middle age group. While Pettinato *et al.* reported a median age of 60 years, similarly Machado *et al*., Del Chiaro *et al*., and Hartando *et al.* reported a preponderance of the middle age group and predominant among females.[9,24,25]

Pancreatic cystic neoplasms consist of MCNs that commonly arise from the body and tail of the pancreas. SCNs are almost always benign, intraductal papillary mucinous neoplasm (IPMN), and unusual cystic neoplasms, including cystic islet cell tumours. MCNs include mucinous cystadenomas (65%), proliferative cystic mucinous neoplasms (30%), and mucinous cystadenocarcinomas. Our series reported a case of serous cystadenoma and two cases of pseudopapillary neoplasm of the pancreas. Pettinato *et al.* reported a predominance of IPMN.[9,24]

The presentation of cystic pancreatic neoplasm could vary from asymptomatic presentation to symptomatic manifestations with or without complication. In the case report, our patients presented with upper abdominal pain and mass with no biliary or intestinal obstruction, Iyade *et al.* also agreed with our findings. Furthermore, Pettinato *et al.* reported similar results to our study.[3,4,9,24]

Radiologic investigations have increased the diagnostic accuracy of cystic pancreatic lesions, with MRI having higher sensitivity and specificity than CT. All the patients in this series had abdominopelvic CT preoperative, and the results as highlighted above are corroborated by Pettinato *et al.*[15,24,26] Percutaneous or endoscopic ultrasonography with guided aspiration and analysis of cystic fluid for amylase activity, CEA level, viscosity, presence of mucin, cytology, tumour markers, and DNA analysis improve diagnosis significantly. CEA level estimation can be very sensitive in the diagnosis of mucinous cystic tumours. These investigations were not available for this patient. Intraoperatively, cystic neoplasms are thick-walled and usually contain clear fluid, whereas pseudocysts fluid is typically gray, opalescent, and contains blood or necrotic debris. Biopsy of cyst wall with frozen section and histology is diagnostic. However, the above investigations were not available in our setting.[26-28]

All the patients in the series had tumour excision with histologic findings and complications, as highlighted above.

Conclusion

Cystic pancreatic lesions are infrequent findings in our setting, but improvement in radiologic imaging has aided preoperative assessment, and they are amenable to surgical treatment with a good prognosis.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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