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Case Report

Hydatid cyst in the tail of the pancreas: a rare case report

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ABSTRACT

Hydatid cysts, caused by *Echinococcus granulosus*, are rare but significant when found in the pancreas, particularly in endemic regions. This case report discusses a 32-year-old female with a pancreatic tail cyst presenting with epigastric pain and intermittent fever. Diagnostic imaging, contrast enhanced computed tomography (CECT) and magnetic resonance cholangiopancreatography (MRCP), and serological tests were inconclusive, making preoperative diagnosis challenging. Differential diagnoses included pancreatic pseudocysts, benign neoplasms, abscesses, and other cystic lesions. The patient underwent surgical exploration, where a hydatid cyst was identified and treated with cyst removal, partial pericystectomy, and marsupialization. Postoperative management included albendazole therapy. Pancreatic hydatid cysts, though rare, should be considered in differential diagnoses for pancreatic cystic lesions, especially in endemic areas. Accurate diagnosis typically requires a combination of imaging, serology, and histopathological examination, with surgery often necessary for definitive diagnosis and treatment.

Keywords: Echinococcosis, Pancreatic cyst, Surgery

INTRODUCTION

Hydatid disease is a zoonotic infection caused by the larval form of *Echinococcus granulosus*, which is prevalent in areas where farming and livestock raising are common occupations. These regions include the Mediterranean, Africa, South America, Australia, the Middle East, and India. In this life cycle, dogs act as the definitive hosts, while sheep and goats serve as intermediate hosts. Humans, however, are accidental hosts, typically becoming infected by consuming food contaminated with feces from infected dogs that contain *Echinococcus* eggs. Hydatid cysts can form in nearly any organ of the human body, with the liver (50–77%), lungs (15–47%), spleen (0.5–8%), and kidneys (2–4%) being the most frequent sites.

Here, we discuss a case involving a patient with epigastric pain and a cystic mass in the pancreas.[1] Diagnosing hydatid disease is difficult due to its low morbidity, and the surgical approach differs based on the lesion's location and the knowledge of the condition.[2] It should be considered in the differential diagnosis of pancreatic cystic lesions.[3]

CASE REPORT

Investigations

A 32-year-old female presented with left upper abdominal pain and intermittent fever. Laboratory results revealed hemoglobin at 10.5 g/dl, white blood cell count of 8900/µl (neutrophils 72%, lymphocytes 25%, eosinophils 2%, monocytes 1%), platelets 450,000/µl, and normal prothrombin time-international normalized ratio (PT-INR), activated partial thromboplastin time (APTT), and renal function. Liver enzymes were normal, and tumor markers showed CA-125 elevated at 130 U/ml, while other markers including CA 15.3, alpha-fetoprotein (AFP), CA 19.9, CEA, and beta-human chorionic gonadotropin (beta-hCG) were within normal limits. Ultrasound of the abdomen identified a well-defined cystic lesion approximately 11×8 cm in size in the left para-aortic

region near the pancreatic tail. Contrast enhanced computed tomography (CECT) abdomen confirmed a thick-walled cystic lesion measuring 12×10×9.5 cm in the pancreatic tail region with dependent calcification and surrounding fat stranding. Magnetic resonance cholangiopancreatography (MRCP) revealed a well-defined, thick-walled, intraperitoneal cystic lesion in the left hypochondriac and lumbar region with internal floating membranes and calcifications, suggestive of a benign cystic lesion, likely a hydatid cyst rather than an extrapancreatic pseudocyst. Ultrasonography (USG) - guided fine needle aspiration cytology (FNAC) indicated predominantly eosinophilic proteinaceous material with macrophages and fibroblastic cells, but no atypical cells, making definitive categorization challenging and leaving the possibility of a pseudocyst unresolved.

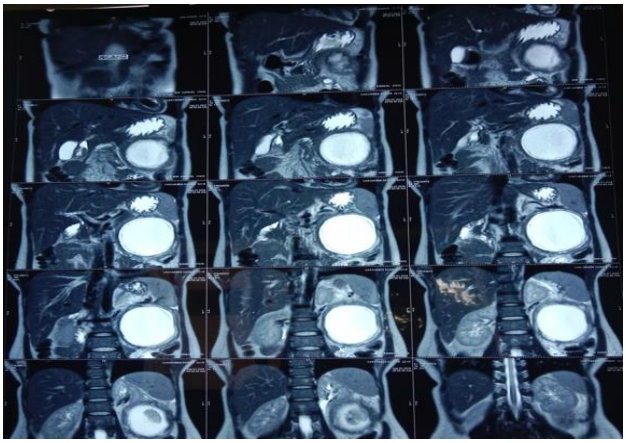

Figure 1: Preoperative MRCP image of cyst.

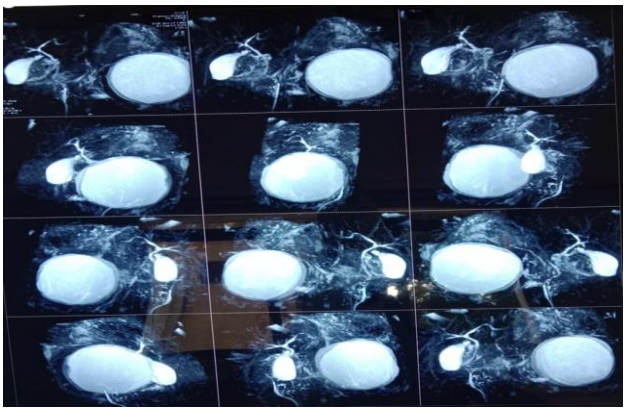

Figure 2: Preoperative MRCP image of cyst.

Differential diagnosis

When evaluating a pancreatic tail cystic lesion, the differential diagnosis includes several conditions. A pancreatic pseudocyst, often resulting from pancreatitis, appears as a well-defined, unilocular cystic lesion with a thick wall and elevated amylase and lipase levels. Benign pancreatic neoplasms such as serous cystadenomas, with their multiple small cysts or central scar, and mucinous cystadenomas, characterized by thick walls and mucinous fluid, must also be considered. Cystic solid pseudopapillary tumors present as a cystic mass with solid components and internal hemorrhage. Hydatid cysts, caused by *Echinococcus granulosus*, feature thick walls with internal membranes and calcification. Pancreatic abscesses, following infection or surgery, show well-defined cystic lesions with inflammation. Lymphangiomas, though rare, can present as cystic lesions with a septated appearance. Additionally, adrenal gland tumors may present with cystic or solid lesions that could mimic pancreatic masses. Upper pole renal cell carcinoma can extend into the pancreas, presenting as a cystic or solid lesion. Splenic lesions, including cysts or tumors, may be confused with pancreatic lesions due to their proximity. Stomach or retroperitoneal masses can also displace or mimic pancreatic lesions, while colonic masses might be confused with pancreatic tail lesions. Accurate diagnosis requires a combination of imaging studies (CT, MRI, ultrasound), serological tests, and FNAC or biopsy to distinguish between these conditions and guide appropriate treatment.

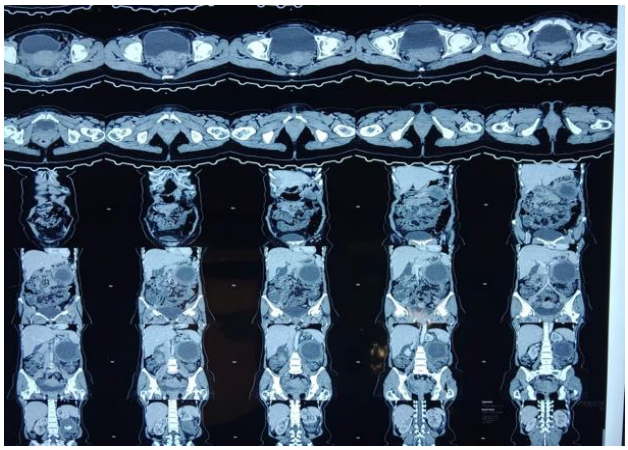

Figure 3: Preoperative CT scan image of cyst.

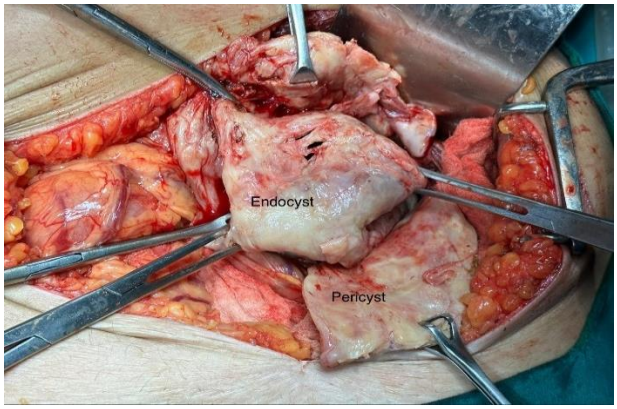

Figure 4: Intraoperative image of pancreatic hydatid cyst.

Treatment

The patient underwent exploration through a left paramedian incision. During the procedure, the laser sac

was opened, and the cyst was identified. Aspiration was performed to remove the daughter cysts completely. The endocyst was excised, a partial pericystectomy was carried out, and the remaining pericyst was marsupialized. The cystic cavity was thoroughly irrigated with a 10% betadine solution as a scolicidal agent. A drain was placed in the laser sac to facilitate postoperative drainage.

Outcome and follow-up

Post-operative course was uneventful and drain was removed on post-operative day 4. Patient was discharged on post-operative day 5. Tablet albendazole 400 mg two times a day was stated. Biopsy was suggestive of calcified fibrous cyst with focal acellular laminated membrane suggesting hydatid cyst.

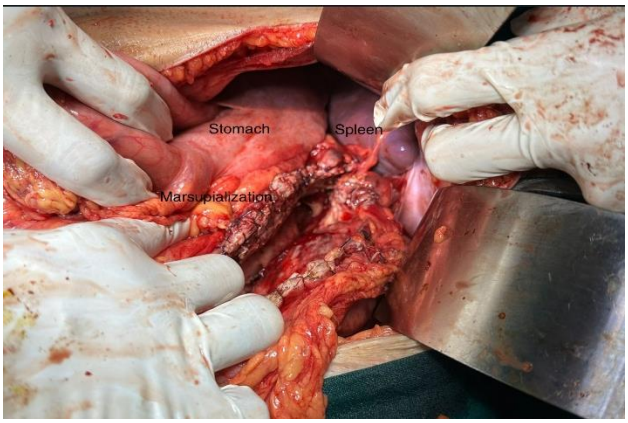

Figure 5: Marsupialization of pancreatic hyadatid cyst.

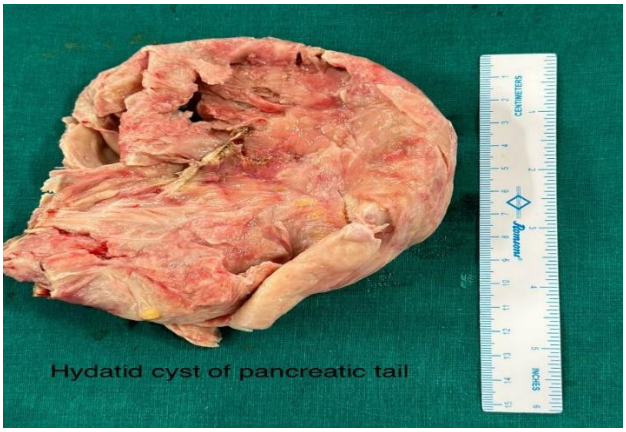

Figure 6: Post operative image of pancreatic hydatid cyst.

DISCUSSION

Pancreatic hydatid cysts (PHC) are uncommon occurrences, with an incidence rate varying between 0.14% and 2%.[4] Primary pancreatic hydatid cysts, caused by *Echinococcus granulosus* entering systemic circulation, typically form in the pancreatic head due to its richer blood supply. The main mode of spread is thought to be hematogenous dissemination. Other possible pathways include transmission through the biliary system, lymphatic spread from the intestinal mucosa, direct passage through pancreatic veins, and retroperitoneal dissemination.[4,5] PHCs are typically solitary in 90–91% of cases and are unevenly distributed, with 50–58% occurring in the head, 24–34% in the body, and 16–19% in the tail of the pancreas.[5] The clinical symptoms vary based on the cyst's location within the pancreas. Cysts in the head may cause obstructive jaundice by compressing the common bile duct and can mimic a choledochal cyst.[6,7] As in our case, cysts in the body and tail of the pancreas are often asymptomatic until they grow large enough to form an abdominal lump or cause symptoms like epigastric pain, nausea, and vomiting due to compression of nearby structures.[4,5] Diagnostic tools like contrast-enhanced CT scans, MRIs, and ultrasounds are key in identifying PHCs, often revealing signals such as multiple subcysts, calcifications, and capsule wall enhancement. USG is sensitive for detecting hydatid cysts, showing features like floating membranes, hydatid sand, and daughter cysts, though its sensitivity may decrease due to retroperitoneal location and bowel gas. CT and MRI can suggest the diagnosis with signs of undulating membranes and daughter cysts. EUS-guided aspiration helps differentiate pancreatic cystic neoplasms, while MRCP and ERCP are useful for evaluating the biliary tree, ductal compression, and providing palliative stenting for secondary cholangitis or pancreatitis.[1,2] Serum-positive anti-echinococcal IgG antibodies can aid in diagnosing pancreatic hydatid cysts, although their presence may simply indicate prior exposure to *Echinococcus* in endemic areas. Among the 19 confirmed pancreatic hydatid cyst cases in the literature, only 11 showed positive anti-*Echinococcus* IgG antibodies.[2] Various tests, including indirect hemagglutination assay, immunoelectrophoresis, ELISA, complement fixation, and immunofluorescence assays, are used to detect specific serum antibodies and circulating echinococcal antigens. ELISA has been shown to be positive in over 85% of cases and is also useful for follow-up monitoring.[8,9] However, in this case serology test was not performed. As in our case the typical radiological findings for Hydatid cysts were not present. It is very difficult to differentiate it from pseudo pancreatic cyst and other neoplastic lesion of pancreas preoperative.[1] Percutaneous or endoscopic ultrasound-guided fine needle aspiration cytology can assist in diagnosing uncertain cases. However, prophylactic antihelminthic treatment should be initiated to prevent anaphylactic reactions and peritoneal seeding in the event of spillage or perforation, but in our case even FNAC was also not conclusive.[10] Open surgery is the preferred treatment, with the procedure tailored to the cyst's location. To prevent spillage, the operative area should be packed with sponges soaked in scolicidal agents such as 0.5% cetrimide or 20% hypertonic saline. The cyst should also be irrigated with these agents. Patients diagnosed preoperatively should receive antihelminthic therapy (albendazole 10 mg/kg/day) for 2–4 weeks, continuing for at least 4 weeks postoperatively to reduce the risk of anaphylaxis and post-

operative recurrence in case of spillage or perforation. In this case Preoperative prophylaxis was not given because of hydatid disease was identified intraoperative. So post postoperative albadazole was started.[11] Cysts located in the pancreatic head without communication can be managed with pericystectomy, partial pericystectomy with external drainage or omentopexy, marsupialization, or pancreatoduodenectomy procedures. For cysts communicating with the pancreatic duct, cysto-enteric anastomosis is the preferred approach. Cysts in the tail and body/neck of the pancreas are suitable for distal pancreatectomy and central pancreatectomy, respectively.[4,5] In this case removal of endocyst and marsupialization of pericyst was done. Nowadays laparoscopic evacuation with omentoplasty using 10mm trocar can also be possible in preoperative diagnosed cases.[12]

CONCLUSION

In conclusion, while pancreatic hydatid cysts remain a rare entity, they should be included in the differential diagnosis of cystic lesions in the pancreas, especially in patients from endemic regions. Given the overlapping features with more common conditions such as pseudocysts and cystic neoplasms, accurate diagnosis necessitates a combination of hydatid serology, imaging studies, and cytological analysis. However, these non-invasive methods may fall short in confirming the diagnosis. Therefore, surgical exploration accompanied by histopathological examination is essential for definitive diagnosis and appropriate management of suspected pancreatic hydatid cysts, underscoring the importance of awareness and consideration of this condition in relevant clinical contexts.

Recommendations

Pancreatic hydatid cyst is the rare condition but hydatid disease can affect any organ in the body and should be considered in the differential diagnosis of cystic lesions in the pancreas. Pseudocysts and cystic pancreatic neoplasms are common differential diagnoses for pancreatic hydatid cysts (PHCs). PHCs should be considered particularly in patients from endemic areas presenting with a cystic pancreatic mass. Diagnostic approaches include hydatid serology, imaging modalities, and cytological examination of cystic aspirate, although these methods may not always confirm the diagnosis. Surgical exploration with histopathological examination remains the definitive diagnostic method.

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