

## ORIGINAL ARTICLE

# Primary Hydatid Disease of Pancreas

Asieh Sadat Fattahi, Ghodratollah Maddah, Yousef Yousefi

Endoscopic and Minimally Invasive Surgery Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

### ABSTRACT

**Introduction** Hydatid cyst cause by a parasite is zoonoses diseases. the most common site of involvement is liver and lung. Pancreatic hydatid disease is extremely rare, with an incidence of less than 1% of cases with hydatid disease. Preoperative diagnosis may be difficult regarding the absence of typical clinical or radiological signs. **Materials and methods** We report retrospective study of cases of hydatid cysts of the pancreas from 1998 to 2013 in Mashhad university of Medical Sciences, Mashhad, Iran. From 77 patients with cyst of pancreas we had 5 hydatid cyst. We report demographic data, clinical manifestation, radiological feature and therapeutic modalities. **Results** The five patients were consisted of two men and three women with an average age of 27 years old. Abdominal pain was noted in 3 cases and obstructive jaundice in two cases. All patients were operated. All patient had imaging modalities like ultrasound and computed tomography that showed cystic lesions in the pancreas with differential diagnosis of pancreatic pseudo cyst, cystic tumors or cholangiocyst. Total cystectomy & external drainage was performed in two cases, distal pancreatectomy in two cases and pancreatojejunostomy in one case. **Conclusion** Hydatid cyst of the pancreas is extremely rare even in endemic countries; it should be considered in the difficult diagnosis of cystic lesions of the pancreases scan could be helpful for the diagnosis. Surgery remains the treatment of choice in pancreatic hydatid cyst.

### INTRODUCTION

Echinococcosis is one of the world's most widespread disease that is common between animal and human. Endemic countries are Mediterranean also Asian, South American and oceanic [1, 2], although for echinococcus granulosis, the most common targets are liver and lungs, primary hydatid disease can be detected anywhere in body including spleen, thyroid, breast, brain, kidney, free abdominal area as well as retroperitoneum [3, 4, 5]. Pancreatic location of hydatid disease is extremely rare, with an incidence of less than 1% as compared to the other site of hydatid disease [4, 6]. In this study we evaluate our patients with presentation of cystic lesions of pancreas and finally with diagnosis of hydatid cyst.

### MATERIALS AND METHODS

In a retrospective study from 1998-2013 in Ghaem and Omid Hospital of Mashhad University of Medical Sciences, Mashhad, Iran we reviewed the hospital records of pancreatic cysts. From 77 pancreatic cystic diseases we founded 5 hydatid cysts. We collected demographic data; clinical manifestation, radiologic imaging, and treatment modalities and long term follow up after medical and

surgical treatments. Finally we compared our results with similar reports of other endemic countries.

### RESULTS

Of 77 patients with pancreatic cysts, 32 had Pseudocyst of pancreas, 9 had pancreatic abscess, 1 poly cystic diseases, 1 TB, 29 cystic neoplasm, 5 hydatid cyst. This 5 patients were two men and three women. Their ages ranged from 14 to 67 years old; mean age was 27 years old. The clinical presentation of patients was dependent to the site of cyst in the pancreas. Abdominal pain was predominantly noted in the cysts involving body & tail of the pancreas. Two patients presented with obstructive jaundice due to the extrinsic compression of the common bile duct. A palpable upper abdominal mass and tenderness was noted in one patient having cyst in the body of the pancreas. An elevated level of serum direct bilirubin was found in two patients presenting with obstructive jaundice (**Table 1**). Hemagglutination tests were done in two patients and were negative. Ultrasonography examination reported site, size and extent of the lesion in four patients in pancreas and in one patient as cholangiocyst. The first patients with obstructive jaundice had percutaneous transhepatic cholangiography because on that time computed tomography scan (CT) was not too much available in our department as a first modality. This case was before year 2000 and ERCP (endoscopic retrograde cholangiopancreatography) was not routine on that time and our physicians were not familiar to much to do it, and the other 4 patients had computed tomography as well (**Figures 1, 2, 3, 4, 5**). All the lesions were solitary and range of the cyst size was 46-100 mm in diameter. Two lesions were located in the head, two in the body

Received April 24th, 2016 – Accepted June 15th, 2016

**Keywords** Echinococcosis; Iran; Pancreatic Cyst; Pancreas

**Correspondence** Ghodratollah Maddah

Endoscopic and Minimally Invasive Surgery Research Center  
Mashhad University of Medical Sciences  
Mashhad, Iran

**Phone** +05138402972

**Fax** +05138402972

**E-mail** maddahgh@mums.ac.ir

Table 1. Patients characteristic.

Results	1	2	3	4	5
Age	18	33	67	14	60
Sex	Male	male	Female	Female	Female
Location	Head	Head	Body	tail	Body
Size(mm)	80	46	100	65	80
Presentation	Obstructive jaundice	Obstructive jaundice	Upper abdominal pain	Upper abdominal pain	Upper abdominal pain
Mass	Absent	Absent	Present	Absent	Absent
Weight loss	Absent	present	Absent	Absent	Absent
Indirect hemaglutination	Not done	Not done	Negative	Not done	Negative
Ultrasonography	+	-	+	+	+
CT scan	-	+	+	+	+
Surgical treatment	Pantrato Jejunostomy Roux-Y + cystectomy	Total cystectomy + external drainage	Distal pancreatectomy	Distal pancreatectomy	External drainage + Total cystectomy



Figure 1. Percutaneous Transhepatic Cholangiopancreatography in 18 years old boy showed dilated intrahepatic and common bile ducts.

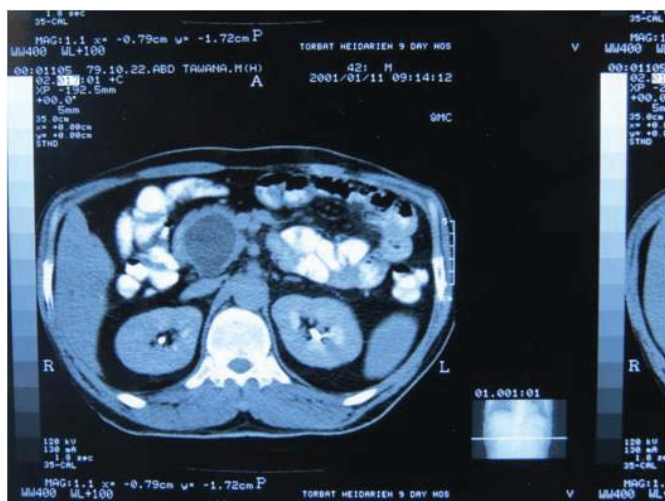


Figure 2. Computed Tomography of a 33 years old man showed a round cystic mass 46 × 40 mm in the head of pancreas suspicious to pseudo cyst of pancreas.

and one in the tail of the pancreas. All patients underwent surgical exploration. After opening of the cyst wall we saw the germinative layer of hydatid cyst. We observed cyst in the distal of pancreas in two patients was treated by a distal pancreatectomy. Cysts in the body and head of the pancreas treated by cystectomy and external drainage and

one patient with cyst in the head of pancreas treated by cystectomy and pancreatejejunostomy for prevention of pancreatic fistula. One case had pelvic cyst so we excise the pelvic cyst via laparotomy incision after resection of the pancreatic cyst [7].

There were no post operative complications. All patients recovered eventually. The Antihelminthic drugs, Albendazol was administered post operatively (10 mg/kg/body weight/day) in all cases for 6 months. Range of follow up was 1-15 years. We had no recurrence in our patients. The other reports have concluded the similar treatment options base on the location and size of the cyst and they agree combinations of medical and surgical treatment are necessary to prevent recurrence [8, 9, 10].

## DISCUSSION

Hydatid cysts which may develop any where from the toe to the crown of the head are commonly locate in the liver and less commonly elsewhere. Pancreatic involvement is rare occasion, and is estimated to range from 0.14% to 2% [11, 12, 13, 14].

Inside the pancreas the location of the cyst is 57%. In the head, 24% in the body and 19% in the tail [15, 16]. In our series we had 40% in head, 40% in body and 20 % in tail.

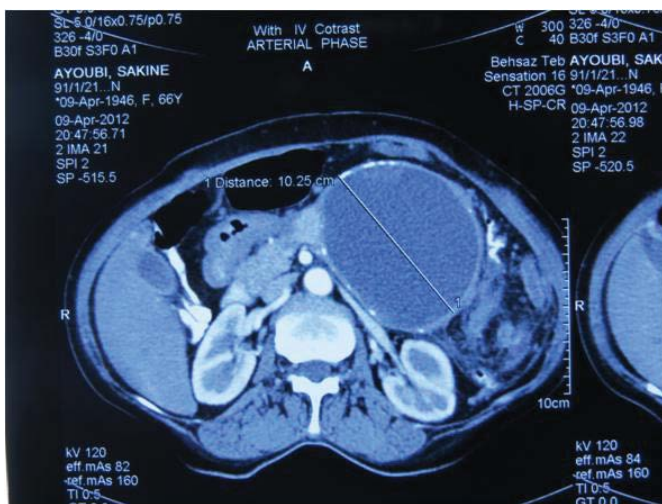
Clinical presentation is varied according to the size and anatomic location of the cyst within the pancreas and the amount of biliopancreatic involvement [17].

The patient may present with obstructive jaundice like 2 of our patients, weight loss, epigastric mass, and/or recurrent acute pancreatitis [18]. Mesenteric vein thrombosis and segmental portal hypertension due to splenic vein thrombosis are uncommon presentation of cyst in the body and tail of pancreas [19, 20].

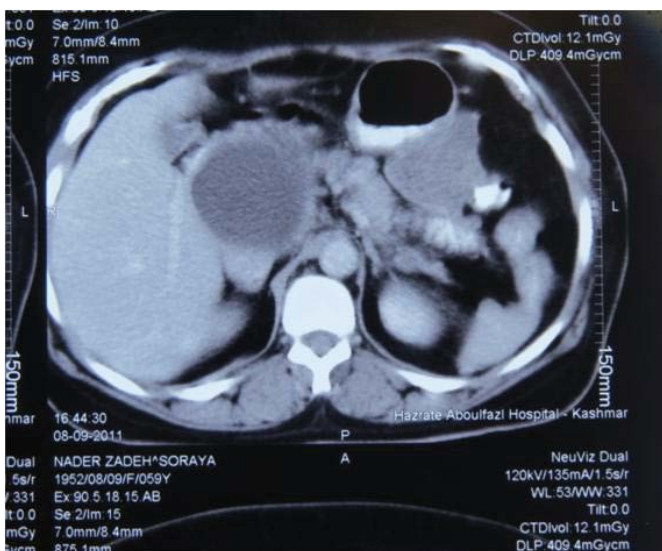
The diagnosis is based on laboratory test like Immunoabsorbant assay (ELISA) test for echinococcal antigens, which is positive in 85% of infective patient [21] but the serologic test did not apply in all of our patients because of other differential diagnosis was supposed. Other test like alkaline phosphatase and bilirubin may be elevated in the case s with cyst located in the head. Imaging studies that can be used are ultrasound, computed tomography and magnetic resonance imaging (MRI), but this modalities



**Figure 3.** 14 years old girl with the cyst in the tail of pancreas and also cystic lesions in the pelvis.



**Figure 4.** CT scan of a 66 years woman showed 105 mm cystic lesion with calcification in the tail of pancreas.



**Figure 5.** 60 years old woman with the cyst in the head and body of pancreas.

have limited sensitivity in making a specific diagnosis because of considerable overlap of imaging features [22]. In the first patient in our series the imaging modality was percutaneous transhepatic cholangiography (PTC) because on that time other modality like CT and MRI were not too much available. In that patients the PTC showed

external compression on common bile duct. In others CT scan showed cystic lesions in the pancreas considered as pseudocyst or tumor. On patient had calcification in the rim of the cyst and another patient had cystic lesion in the pelvis as well, that maybe help in differential diagnosis of hydatid. It is hard to distinguish hydatid cyst from other cystic lesion of pancreas exactly with imaging's.

Recent results suggest that the diagnosis occurrence of ultrasonography in abdominal hydatidosis is in the range of 93-98% [23].

Treatment of patients depends upon the location of hydatid cyst. Hydatid cyst in the tail of pancreas has been successfully treated with distal pancreatectomy [24].

Which cysts in the head of pancreas have been treated by various methods like whipple's operation, morsupialization and external drainage like partial cystectomy or cystoenteric anastomosis have also been used [25, 26].

Hydatid cyst in the pancreatic head region was reported by Moosavi SR [27] in a patient with obstructive jaundice.

Angeles reported endoscopic retrograde cholangiopancreatography (ERCP) and mini splenectomy in a patient with cholangitis due to pancreatic hydatid cyst before definitive surgery for the hydatid cyst. We did external drainage, cystectomy, pancreatectomy depends on the site of the cyst in our patients. Percutaneous drainage of the cyst is a good alternative to surgery in patients with high surgical risk and in such cases it must be combined with medical therapy using antibiotics like Albendazole for several months [28]. We used Albendazol after surgical therapy and we did not have recurrence after 1-15 years follow up so we recommend it in combination with surgery or for high risk patients.

## CONCLUSION

Hydatid cyst of the pancreas is extremely rare even in endemic countries, it should be considered in the differential diagnosis of cystic lesions of the pancreas.

Ultrasound and CT complete with hydatid serology could be helpful for diagnosis. MRI and endoscopic ultrasound are useful in doubt diagnostic. Surgery remains the treatment of choice in pancreatic hydatid cyst.

## Acknowledgement

His work was supported by the vice chancellery of research of Mashhad University of Medical Sciences, Mashhad, Iran, and performed in the Endoscopic and Minimally Invasive Surgery Research Center of Mashhad University of Medical Sciences, Mashhad, Iran. We would like to thank Mrs. Sima Beigoli for his kind assistance in preparing the paper.

## Conflict of Interest

There are no conflicts of interest to declare.



## References

1. Brown RA, Millar AJ, Steiner Z, Krige JE, Burkimsher D, Cywes S. Hydatid cyst of the pancreas. A case report in a child. *Eu J Pediatr Surg* 1995; 5:121-3. [PMID: 7612583]
2. Safioleas M, Misiakos E, Manti C, Katsikas D, Skalkeas G. Diagnostic evaluation and surgical management of hydatid disease of the liver. *World J Surg* 1994; 18:859-65. [PMID: 7846909]
3. Rodriguez VJ, Arroyo CJ, Pitarch EV. Pancreatic hydatid cyst. *Cir Pediatr* 1992; 5:46-7. [PMID: 1567748]
4. Khiari A, Mazli R, Ouali M, Kharrat M, Kechaou MS, Beyrouti MI. Hydatid cyst of the pancreas: Apropos of 7 cases. *Ann Gastroenterol Hepatol (Paris)* 1994; 30:87-91. [PMID: 8067682]
5. Ibis C, Albayrak D, Altan A. Primary hydatid cyst pancreas mimicking cystic neoplasm. *South Med J* 2009; 102:529-30. [PMID: 19373169]
6. Dziri C. Hydatid disease-continuing serious public health problem: introduction. *World J Surg* 2001; 25:1-3. [PMID: 11213146]
7. Kısaoğlu A, Özoğul B, Atamanalp SS, Pirimoğlu B, Aydınlı B, Korkut E. Incidental isolated pancreatic hydatid cyst. *Turkiye Parazitoloj Derg* 2015 Mar; 39:75-7. [PMID: 25917590]
8. Sorogy ME, El-Hemaly M, Aboelenen A. Pancreatic body hydatid cyst: A case report. *Int J Surg Case Rep* 2015; 6C:68-70. [PMID: 25528027]
9. Makni A, Jouini M, Kacem M, Safta ZB. Acute pancreatitis due to pancreatic hydatid cyst: a case report and review of the literature. *World J Emerg Surg* 2012; 7:7. [PMID: 22445170]
10. Suryawanshi P, Khan AQ, Jatal S. Primary hydatid cyst of pancreas with acute pancreatitis. *Int J Surg Case Rep* 2011; 2:122-4. [PMID: 22096702]
11. Hamamci E O, Besim H, Korkmaz A. Unusual locations of the hydatid disease and surgical approach. *ANZ J Surg* 2004; 74:356-60. [PMID: 15144257]
12. Ozmen MM, Moran M, Karakahya M, Coskun F. Recurrent acute pancreatitis due to a hydatid cyst of the pancreatic head: a case report and review of the literature. *JOP. J Pancreas (Online)* 2005; 6:354-8. [PMID: 16006687]
13. Azuara MV, Dorado JJ, García-Díaz M, Zapata J, Plasencia A, Téllez F. Obstructive jaundice associated with a hydatid cyst of the pancreas. *Pancreas* 1997; 14:309-11 [PMID: 9094164]
14. Yattoo GN, Khuroo MS, Zargar SA, Bhat FA, Sofi BA. Case report: percutaneous drainage of the pancreatic head hydatid cyst with obstructive jaundice. *J Gastroenterol Hepatol* 1999; 14:931-4. [PMID: 10535478]
15. Gayral F, Bourree P, Jourdanne PH, Millat B, Labayle D. Hydatid cyst of the pancreas. One case. *Nouv Presse Med* 1981; 10:3787-8. [PMID: 7322913]
16. Caroli J, Daumet P, Demeulenaere L. Hydatid cyst of double localization: pancreatic and pleuropulmonary. Diagnostic difficulties. *Med Chir Dig* 1977; 6:555-7. [PMID: 611342]
17. Khiari A, Mzali R, Ouali M, Kharrat M, Kechaou MS, Beyrouti MI. Hydatid cyst of the pancreas. Apropos of 7 cases. *Ann Gastroenterol Hepatol (Paris)* 1994; 30:87-91 [PMID: 8067682]
18. Safioleas MC, Moulakakis KG, Manti C, Kostakis A. Clinical considerations of primary hydatid disease of the pancreas. *Pancreatology* 2005; 5:457-61. [PMID: 15985772]
19. Wong S, Braghirolli-Neto O, Min Zu, Buckels J, Mirza D. Hydatid liver disease as a cause of recurrent pancreatitis. *J R Coll Surg Edin.* 1999; 44:407-9. [PMID: 10612965]
20. Coskun T, Kama NA, Dener C, Gözalan U. Primary hydatid disease of the pancreas. *Am J Gastroenterol* 1997; 92:899-900. [PMID: 9149214]
21. Saidi F. Surgery of the hydatid disease. Philadelphia, PA: Lippincott Williams & Wilkins; 1976.
22. Balik AA, Celebi F, Başglu M, Oren D, Yildirman I, Atamanalp SS. Intra-abdominal extrahepatic echinococcosis. *Surg Today* 2001; 31:881-4. [PMID: 11759882]
23. Safioleas MC, Moulakakis KG, Manti C, Kostakis A. Clinical considerations of primary hydatid disease of the pancreas. *Pancreatology* 2005; 5: 457-61. [PMID: 15985772]
24. Krige JE, Mirza K, Bornman PC, Beningfield SJ. Primary hydatid cysts of the pancreas. *S Afr J Surg* 2005; 43:37-40. [PMID: 16035381]
25. Arikan A, Sayan A, Erikçi VS. Hydatid cyst of the pancreas: A case report with 5 years' follow-up. *Pediatr Surg Int* 1999; 15:579-81. [PMID: 10631740]
26. Erkan M, Hacıyanlı M, Yildirim M. Case report of unusual presence of Hydatid disease in pancreas and breast. *JOP* 2004; 5:368-72. [PMID: 15365205]
27. Moosavi SR, Kermany HK. Epigastric mass due to Hydatid cyst of pancreas: A case report and review of literature. *JOP* 2007; 8:232-4. [PMID: 17356249]
28. Angelescu N, Cristian D, Bordea A, Jitea N, Racoveanu I. Hydatid cyst of the head of the pancreas--a clinical case. *Chirurgia (Bucur)* 1997; 92:325-30. [PMID: 9462950]