

## Frequency of silent gall-stones in acute pancreatitis: A retrospective study at a tertiary care hospital in Peshawar

Zubair Ahmad Khan, Jamil Ahmad, Omer Nasim, Zainab Rustam

### Received:

27th September, 2018

### Accepted:

26th March, 2019

### Abstract:

**Objective:** To evaluate potential association of non-symptomatic gall-stones with the biliary pancreatitis.

**Introduction:** Acute pancreatitis, an inflammatory condition of the pancreas, is usually mild and self-resolving, without any long-lasting consequences in about 80% of patients. Gall-stone migration leading to duct obstruction causes gall-stone-induced pancreatitis. The most common causes of acute pancreatitis are gall-stones and alcohol consumption. The incidence of cases of acute pancreatitis has risen globally. It continues to have high rates of morbidity and mortality despite advancements in care, imaging and interventional techniques.

**Study design:** It is an observational cross-sectional, institutional based study.

**Place and duration of study:** The study under consideration was conducted in the Surgery Department of Rehman Medical Institute (RMI) Peshawar, from January 2017 to June 2018.

**Materials & methods:** These data was collected from the Department of General Surgery, Rehman Medical Institute. The study participants were patients who developed acute pancreatitis. The data was analyzed through SPSS version-23 and presented in the form of frequency, percentages and pie charts.

**Results:** From January 2017 to June 2018, a total of 147 patients developed acute pancreatitis, aged 15 to 91 with mean age of 48.5 were admitted in the general surgery department of RMI. 49.0% were males and 51.0% were females. During 18 months of study, 147 patients developed acute pancreatitis. 95 patients, 41 (43.1%) male and 54 (56.8%) female developed acute biliary pancreatitis based on the detection of gall stones in the biliary tract by ultrasonography or by endoscopic retrograde cholangiopancreatography (ERCP).

**Conclusion:** Patients with multiple small asymptomatic gall-stones have a greater risk of presenting with acute biliary pancreatitis. The decision to intervene should be based on each case individually, taking into the account the age, ultrasound findings, and the signs and symptoms, regardless of how vague they are. Cholecystectomy may be recommended for the patient with microlithiasis. In patients who are poor candidates for surgery, ERCP with biliary sphincterotomy may be a substitutive treatment.

Rehman Medical  
College/Rehman Medical  
Institute, Hayatabad  
Peshawar

ZA Khan  
J Ahmad  
O Nasim  
Z Rustam

### Correspondence:

Dr. Zubair Ahmad Khan,  
Associate Professor,  
Consultant General &  
Laparoscopic Surgeon  
Rehman Medical College/  
Rehman Medical Institute,  
S-B/2, Phase V, Hayatabad  
Peshawar, Khyber  
Pakhtunkhwa  
Cell: +92-333-9129360  
Email: zubair.ahmad.  
khan71@gmail.com

**Keywords:** Biliary Tract, cholecystectomy, gall-stones, pancreatitis, ERCP, sphincterotomy, ultrasonography.

### Introduction:

Asymptomatic or silent gall-stones occur frequently in the general population, presenting in almost 20% of adults in Europe and the United States.<sup>1</sup> However, only a small amount of these patients develop symptoms or complications.<sup>1</sup> As a result, the majority of gall-stones are

termed as clinically “silent,” and are usually incidental findings often discovered during abdominal investigations performed for other reasons.<sup>2</sup> Out of the people who have gall-stones, some will develop the painful symptoms of biliary colic, which may then lead to conditions such as pancreatitis or acute cholecystitis<sup>3</sup> But this risk

Table-1: Frequency of Acute Pancreatitis &amp; Acute Biliary Pancreatitis (2016-18)

Age brackets	Acute pancreatitis	Percentage (%)	Male	Female	Biliary pancreatitis	Percentage (%)	Male	Female
15-24	12 cases	8.1%	10	02	08	8.4	07	01
25-34	21 cases	14.2%	11	10	10	10.5	04	06
35-44	16 cases	10.9%	11	05	09	9.4	06	03
45-54	36 cases	24.4%	13	23	29	30.5	09	20
55-64	35 cases	23.8%	11	24	25	26.3	07	18
65-74	19 cases	12.9%	09	10	09	9.4	04	05
75+	08 cases	5.4%	07	01	05	5.2	04	01
Total	147	100	72	75	95	100	41	54

is very low, occurs only in 2% to 3% cases.<sup>4</sup>

Acute pancreatitis, an inflammatory condition of the pancreas, is usually mild and self-resolving without any long-lasting consequences in about 80% of patients. It involves a complex cascade of events beginning with injury to acinar cells of the pancreas which leads to leakage and premature activation of pancreatic enzyme in the parenchyma. This initiates auto digestion; enzymes breakdown tissue and cells causing edema and hemorrhage.<sup>5</sup> Gall-stones may migrate and obstruct the biliary or pancreatic duct. This duct obstruction leads to an increase in duct pressure and hence the unregulated activation of digestive enzymes, which in turn increases the risk of pancreatitis.<sup>6,7</sup>

In 80% of cases gall-stone pancreatitis (GSP) is a mild and self-limiting disease without any complication, and the mortality rate is 1-3%.<sup>8</sup> Gall-stones have been detected in the feces of 90% of patients who have gall-stone pancreatitis, implying that the stones usually pass through to the duodenum spontaneously. Risk factors include numerous stones that are less than 5mm in diameter, and cystic duct with a large lumen (5mm or more).<sup>9</sup>

Size of the gallstone is strongly associated with the risk of development of acute biliary pancreatitis. Patients with gall-stones of less than 5mm diameter have a 4 times increased risk of developing pancreatitis compared to patients with larger gall-stones.<sup>10</sup>

Accurate diagnosis of acute biliary pancreatitis is very important as removal of the stones eliminates chances of recurrence. Imaging is the gold standard for diagnosis of biliary lithiasis. The sensitivity of the ultrasonography is more than 95% in un-complicated cases, but in acute biliary pancreatitis, sensitivity for gall-stone detection is lower, being less than 80% due the distension of the ileus and bowel.<sup>11</sup>

The sensitivity of serum lipase is slightly higher than that of serum amylase for the diagnosis of acute pancreatitis. The elevations of serum lipase occur earlier and also remain for longer. Therefore, patients with a preliminary diagnosis of acute pancreatitis should undergo a serum lipase test for confirmation. A 3-fold elevation of serum lipase from the upper normal limit is required to make the diagnosis.<sup>12</sup>

The present study was undertaken to evaluate retrospectively the potential association of silent small gall-stones with biliary pancreatitis.

#### Materials & Methods:

This was an observational cross-sectional study, conducted in the Department of Surgery at Rehman Medical Institute Peshawar, from a period of January 2017 to June 2018. These data was collected. The study participants were patients who developed acute pancreatitis and were diagnosed as patients of acute pancreatitis. Inclusion criteria includes patients admitted to the surgical ward who had been diagnosed with acute pancreatitis. The data was organized in excel 2016, all the statistical analysis and test were performed using SPSS version 23 and tabulated in excel sheets with percentages and averages.

#### Results:

To determine the frequency of silent gall-stone pancreatitis in, we reviewed records from all patients treated for acute biliary pancreatitis from 2017 to 2018. Records were obtained from the RMI database to assess the frequency of acute biliary pancreatitis in silent gall-stones. Acute pancreatitis was diagnosed based on characteristics signs and symptoms, amylase and lipase test or contrast enhanced abdominal computed

tomography. From January 2016 to December 2018, a total of 147 patients developed acute pancreatitis, aged 15 to 91 with mean age of 48.5 were admitted in the general surgery department of RMI. 49.0% were males and 51.0% were females. 95 patients, 41 (43.1%) male and 54 (56.8%) female developed acute biliary pancreatitis based on the detection of gall stones in the biliary tract by abdominal ultrasonography or by endoscopic retrograde cholangiopancreatography (ERCP). As we can see from the results, frequency of acute biliary pancreatitis was higher in females and in elder adults.

### Discussion:

To our knowledge, there is no published paper of frequency of asymptomatic or silent gall-stones in acute pancreatitis in Khyber Pakhtunkhwa, Pakistan. Silent gall-stones were found in 35% of our participants suffering from acute pancreatitis when abdominal ultrasound was performed for abdominal pain. Gall-stones represent the most frequent etiology of acute pancreatitis in several global statistics, accounting for around 40-60% of the cases. The other most common causes are alcohol and hypertriglyceridemia.<sup>13</sup> In our study, gall-stones were more frequently found in females compared to males and in the higher age group. Another study done in Germany on the etiology of pancreatitis also found biliary etiology of acute pancreatitis was highly associated with older age group and female predominance.<sup>14</sup> These findings indicate that females and obese elder adults are at an increased risk of developing acute biliary pancreatitis.

Other less common and rare etiologies of acute pancreatitis include infectious agents such as bacteria, viruses and fungi<sup>15</sup> and drugs. In some studies, azathioprine, 6-mercaptopurine and acetaminophen have been found to cause acute pancreatitis but these findings are very rare.<sup>16</sup> In our study, none of the participants were prescribed to these drugs but it is important to consider drug induced pancreatitis when a case of idiopathic pancreatitis is presented.<sup>17</sup>

About 10% cases of acute pancreatitis have been found to be caused by infections. These infec-

tious agents include viruses (cytomegalovirus, human immunodeficiency virus, herpes simplex virus, varicella-zoster virus) bacterial agents include mycoplasma, legionella, leptospira. Fungi (aspergillus) and parasites (toxoplasmosis, ascaris and cryptosporidium) can also rarely cause pancreatitis.<sup>18,19</sup> None of the participants in our study were diagnosed with any kind of microbial infection hence in our study the etiology of acute pancreatitis cannot be attributed to infectious agents. However, it is important to carry out precise investigations to rule out other causes of acute pancreatitis before an infectious agent is correlated with the disease. False diagnosis can lead to improper disease management and such circumstances can be found as high as 10% of all acute pancreatitis cases.<sup>20</sup>

**Limitation:** Our data represents only one institution in Peshawar, and thus may not be generalizable to populations with different demographic and regional characteristics. There could have been ascertainment errors to measure certain variables.

### Conclusion:

Patients with multiple small asymptomatic gall-stones have increased risk of presenting with acute biliary pancreatitis, the decision to intervene should be based on case by case, taking into account the age, ultrasound finding and the presence of signs and symptoms regardless of how vague these are. Cholecystectomy may be recommended for the patient with microlithiasis. In patient who are poor surgical candidates, ERCP with biliary sphincterotomy may be the alternative forms of treatment.

**Acknowledgement:** The authors acknowledge with thanks the staff of general surgery department and research department RMI for their cooperation and assistance.

**Conflict of interest:** None

**Funding source:** None

### Role and contribution of authors:

Dr. Zubair Ahmad Khan concept of study, col-

lected the data and references and wrote the initial writeup

Dr. Jamil Ahmad critically reviewed the article and made final changes to the manuscript

Dr. Omer Nasim helped in collection of references and helped in introduction writing

Zainab Rustam helped in collecting referenes.

### References:

1. Tiderington E, Lee SP, Ko CW. Gallstones: new insights into an old story. *F1000Research*. 2016;5(0):1817.
2. Halldestam I, Enell E-L, Kullman E, Borch K. Development of symptoms and complications in individuals with asymptomatic gallstones. *Br J Surg*. 2004 Jun;91(6):734–8.
3. Thistle JL, Cleary PA, Lachin JM, Tyor MP, Hersh T. The natural history of cholelithiasis: the National Cooperative Gallstone Study. *Ann Intern Med*. 1984 Aug;101(2):171–5.
4. Sood S, Winn T, Ibrahim S, Gobindram A, Arumugam AA V, Razali C, et al. Natural history of asymptomatic gallstones : differential behaviour in male and female subjects. 2015;70(6):341–5.
5. Bhatia M, Ling F, Yang W, Hon C, Lau Y, Huang J. Pathophysiology of Acute Pancreatitis. 2005;117S97:132–44.
6. Wang G-J, Gao C-F, Wei D, Wang C, Ding S-Q. Acute pancreatitis: etiology and common pathogenesis. *World J Gastroenterol*. 2009 Mar;15(12):1427–30.
7. Testoni PA. Acute recurrent pancreatitis: Etiopathogenesis, diagnosis and treatment. *World J Gastroenterol*. 2014 Dec;20(45):16891–901.
8. Banks PA, Freeman ML, Committee P. Practice Guidelines in Acute Pancreatitis. 2018;(November 2006).
9. Sugiyama M, Atomi Y. Risk factors for acute biliary pancreatitis. *Gastrointest Endosc*. 2004 Aug;60(2):210–2.
10. Diehl AK, Schwesinger W, Kurtin WE. Gallstone Size and Risk of Pancreatitis. 1998;(January).
11. Neoptolemos JP, Hall AW, Finlay DF, Berry JM, Carr-Locke DL, Fossard DP. The urgent diagnosis of gallstones in acute pancreatitis: a prospective study of three methods. *Br J Surg*. 1984 Mar;71(3):230–3.
12. Greenberg JA, Hsu J, Marshall J, Friedrich JO, Nathens A, Coburn N, et al. Clinical practice guideline: management of acute pancreatitis. 2016;59.
13. Cappell MS. Acute pancreatitis: etiology, clinical presentation, diagnosis, and therapy. *Med Clin North Am*. 2008 Jul;92(4):889–923, ix–x.
14. Weitz G, Weitalla J, Wellhöner P, Schmidt K, Büning J, Feller-mann K. Does etiology of acute pancreatitis matter? A review of 391 consecutive episodes. *J Pancreas*. 2015;16(2):171–5.
15. Economou M, Zissis M. Infectious cases of acute pancreatitis. 2000;13(2):98–101.
16. Igarashi H, Ito T, Yoshinaga M, Oono T, Sakai H, Takayanagi R. Acetaminophen-induced acute pancreatitis. A case report. *JOP*. 2009 Sep;10(5):S50–3.
17. Kaurich T. Drug-induced acute pancreatitis. *Proc (Bayl Univ Med Cent)*. 2008 Jan;21(1):77–81.
18. Parenti DM, Steinberg W, Kang P. Infectious causes of acute pancreatitis. *Pancreas*. 1996 Nov;13(4):356–71.
19. Dragovic G. Acute pancreatitis in HIV/AIDS patients: an issue of concern. *Asian Pac J Trop Biomed*. 2013 Jun;3(6):422–5.
20. Steinberg W, Tenner S. Acute pancreatitis. *N Engl J Med*. 1994 Apr;330(17):1198–210.

## CORRIGENDUM

The editor and the editorial board apologies from our valued readers and would like to retract the six articles of Dr Rasheed Durrani as it is found to be compliance of fraudulent data.

Inspite of several emails and contacts Dr Rasheed Durrani did not give any explanation in front of the board which was made under the Chairmanship of Prof Zakiuddin G Oonwala.

The following six articles has been withdrawn.

1. "Iatrogenic cushing syndrome: A Neglected aspect of Medical care" Tehreem Shafi (resident) Muhammad Danial Iqbal (House officer) – *Pak J Surg* 2017; 33(3):201-204
2. "Cryptogenic Hepatocellular Carcinoma (HCC) and amoebic liver abscess: use of CT scan to differentiate two mimicking presentation" – *Pak J Surg* 2017; 33(1):9-11
3. "Dengue Hemorrhagic Fever – Epidemic in Karachi, Pakistan" – *Pak J Surg* 2017; 33(1):53-58
4. "The urban heat island effect a final common pathway for heat stroke" – *Pak J Surg* 2017; 33(2):146-49
5. "Disaster in making chikungunya epidemics in Karachi: A fight worth fighting" – *Pak J Surg* 2018; 34(1):67-71
6. "Therapeutic trial with anti-tuberculous drugs can be life-saving step" – *Pak J Surg* 2016; 32(3):172-75