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

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.

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. However, only a small amount of these patients develop symptoms or complications. 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. 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 But this risk
Frequency of silent gall-stones in acute pancreatitis

is very low, occurs only in 2% to 3% cases.4

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.5 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.6,7

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%.8 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).9

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.10

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.11

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.12

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

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

<table>
<thead>
<tr>
<th>Age brackets</th>
<th>Acute pancreatitis</th>
<th>Percentage (%)</th>
<th>Male</th>
<th>Female</th>
<th>Biliary pancreatitis</th>
<th>Percentage (%)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-24</td>
<td>12 cases</td>
<td>8.1%</td>
<td>10</td>
<td>02</td>
<td>08</td>
<td>8.4%</td>
<td>07</td>
<td>01</td>
</tr>
<tr>
<td>25-34</td>
<td>21 cases</td>
<td>14.2%</td>
<td>11</td>
<td>10</td>
<td>10</td>
<td>10.5%</td>
<td>04</td>
<td>06</td>
</tr>
<tr>
<td>35-44</td>
<td>16 cases</td>
<td>10.9%</td>
<td>11</td>
<td>05</td>
<td>09</td>
<td>9.4%</td>
<td>06</td>
<td>03</td>
</tr>
<tr>
<td>45-54</td>
<td>36 cases</td>
<td>24.4%</td>
<td>13</td>
<td>23</td>
<td>29</td>
<td>30.5%</td>
<td>09</td>
<td>20</td>
</tr>
<tr>
<td>55-64</td>
<td>35 cases</td>
<td>23.8%</td>
<td>11</td>
<td>24</td>
<td>25</td>
<td>26.3%</td>
<td>07</td>
<td>18</td>
</tr>
<tr>
<td>65-74</td>
<td>19 cases</td>
<td>12.9%</td>
<td>09</td>
<td>10</td>
<td>09</td>
<td>9.4%</td>
<td>04</td>
<td>05</td>
</tr>
<tr>
<td>75+</td>
<td>08 cases</td>
<td>5.4%</td>
<td>07</td>
<td>01</td>
<td>05</td>
<td>5.2%</td>
<td>04</td>
<td>01</td>
</tr>
<tr>
<td>Total</td>
<td>147</td>
<td>100%</td>
<td>72</td>
<td>75</td>
<td>95</td>
<td>100%</td>
<td>41</td>
<td>54</td>
</tr>
</tbody>
</table>
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. 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. 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 and drugs. In some studies, azathioprine, 6-mercaptopurine and acetaminophen have been found to cause acute pancreatitis but these findings are very rare. 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.

About 10% cases of acute pancreatitis have been found to be causes by infections. These infectious 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. 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.

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 the 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.

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Role and contribution of authors:
Dr. Zubair Ahmad Khan concept of study, col-
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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 references.

References:


CORRIGENDUM

The editor and the editorial board apologize for 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.

Insiste 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 Oonwala.

The following six articles has been withdrawn.

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
6."Therapeutic trial with anti-tuberculous drugs can be life-saving step” – Pak J Surg 2016; 32(3):172-75