

## CLINICAL PATTERN OF ACUTE GALLSTONE PANCREATITIS IN MANIPUR

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### ABSTRACT

Acute pancreatitis occurs only in 4-8% of patients with gallstone disease and 50% acute pancreatitis recur within 1-6 months. As in other parts of country, the incidence of gallstone disease has been increasing in our region. This study has been carried out in our hospital to find out the disease pattern.

### MATERIALS AND METHODS

All the patients admitted with acute gallstone pancreatitis during the period were included. Various biochemical parameters and radiological investigations like x-ray, Ultrasonography (USG), Computerized Tomography (CT) of abdomen were done in all patients. The treatment plan was focused on adequate initial resuscitation, supportive care and early detection of complications. Duration of stay in the hospital, complications and followup were recorded.

### RESULTS

Thirty two patients were included in the study; 41-60 years was the most common age group. Male:Female ratio was 1:2.2. Meitei was most commonly affected ethnic group. Epigastric pain and tenderness were the most common clinical features. Most (75%) of the patient's serum amylase was above three times the upper normal limit. Ultrasonography diagnosed 75% of cases, whereas computerized tomography diagnosed 100%. Average hospital stay was 8 days. Complications included pleural effusion and pseudocyst.

### CONCLUSION

Genetic basis of occurrence of gallstone pancreatitis among the various ethnic groups of Manipur needs to be addressed. Serum amylase and ultrasonography were useful initial diagnostic modality. The acceptance of index cholecystectomy in our local population is very low and the awareness of treatment modalities has to be increased.

### KEYWORDS

Acute Gallstone Pancreatitis, Serum Amylase, Ethnicity.

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### INTRODUCTION

Acute pancreatitis occurs only in 4-8% of patients with gallstone disease and 50% acute pancreatitis recur within 1-6 months whenever patient is not submitted to cholecystectomy and cleansing of common bile duct.<sup>1</sup> It is reported that differences exist between the sexes in their predisposition toward gallstone pancreatitis.<sup>2</sup>

Gallstones are the leading cause of pancreatitis worldwide accounting for at least one half of the 4.8-24.2 cases of pancreatitis per 100,000 people that occur in Western countries.<sup>3,4</sup>

About 80,000 cases occur in the USA per year, 17 per 100,000 new cases.<sup>5</sup> In Japan, annual incidence lies between 5 to 80 per 100,000 of the population.<sup>6</sup> In China, gallstones account for approximately 50-70% of the cases of acute pancreatitis.<sup>7</sup>

Incidence of gallstone disease is increasing worldwide. A positive correlation for acute gallstone pancreatitis incidence with an increase in the incidence of gallstone disease in Sweden between 1985 and 1999 was reported with increase of 7.6% per year.<sup>8</sup> In Denmark, increased incidence of acute gallstone pancreatitis in female from 17.1 per 1,00,000 person-year in 1981 to 37.8 per 1,00,000 person-year in 2000 and in male from 18 per 1,00,000 person-year in 1981 to 27.1 per 1,00,000 person-year in 2000 was reported.<sup>9</sup> As in other parts of country, the incidence of gallstone disease has been increasing in our region. Correspondingly, an increased incidence of gallstone-related acute pancreatitis is also expected. But, there is no previous study regarding gallstone-related acute pancreatitis in our Institute. This study has been carried out in our hospital to find out the disease pattern.

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**AIMS**

1. To study the clinical presentation of acute gallstone pancreatitis.
2. To study the management and outcome of the acute gallstone pancreatitis.

**MATERIALS AND METHODS**

This prospective cross-sectional study was done in Department of Surgery, Regional Institute of Medical Sciences (RIMS), Imphal, from 1<sup>st</sup> September 2010 to 31<sup>st</sup> August 2012. All patients admitted in surgical wards who were diagnosed as having acute gallstone pancreatitis were included in the study. Patients having chronic pancreatitis, pancreatitis associated with malignancy were excluded. This study included all the age groups and both the sex.

Various biochemical parameters and radiological investigations like x-ray, Ultrasonography (USG), Computerized Tomography (CT) scan of abdomen were done in all patients.

The treatment plan was focused on adequate initial resuscitation, supportive care and early detection of complications. All the 32 patients were treated conservatively with intravenous fluids, analgesics, proton pump inhibitors and were offered index/interval cholecystectomy with or without CBD exploration.

Informed consent was taken from the patient. Ethical clearance was obtained from the Institutional Ethics Committee, RIMS, Imphal, prior to conducting the study.

**RESULTS**

In the present study out of 80 patients of acute pancreatitis, 32 of them were diagnosed to have acute gallstone pancreatitis and were analysed. The rest of acute pancreatitis cases having other etiologies as mentioned in Table 1 were excluded.

| Cause               | No. of patients | Percentage (%) |
|---------------------|-----------------|----------------|
| Alcohol             | 40              | 50             |
| Gallstone           | 32              | 40             |
| Idiopathic          | 6               | 7.5            |
| Helminthiasis       | 1               | 1.25           |
| Hyperparathyroidism | 1               | 1.25           |

**Table 1: Showing Incidence of Acute Gallstone Pancreatitis**

The highest incidence (68.75%) was noted in 41-60 years of age with a median age of 48 years (Range 25-71 years). We had female predominance of acute gallstone pancreatitis with 68.75% of cases, whereas 31.25% of them were males. Male:Female ration of 1:2.2 was noted.

| Ethnicity              | Number | Percentage (%) |
|------------------------|--------|----------------|
| Meitei                 | 20     | 62.5           |
| Meitei Pangal (Muslim) | 6      | 18.75          |
| Nepali                 | 2      | 6.25           |
| Naga                   | 2      | 6.25           |
| Kuki                   | 2      | 6.25           |

**Table 2: Showing Ethnic Distribution**

Highest number of acute gallstone pancreatitis was seen in Meitei ethnic groups as shown in the Table 2.

| Symptoms             | Number | Percentage (%) |
|----------------------|--------|----------------|
| Epigastric pain      | 32     | 100            |
| Nausea/vomiting      | 30     | 87.5           |
| Jaundice             | 10     | 31.25          |
| Fever                | 10     | 31.25          |
| Abdominal distension | 2      | 6.25           |

**Table 3: Showing symptomatology**

In the present study, all the patients presented with pain epigastrium as shown in the Table 3.

| Signs                 | No. of patients | Percentage |
|-----------------------|-----------------|------------|
| Epigastric tenderness | 32              | 100        |
| Bowel sound absent    | 12              | 37.5       |
| Hypotension           | 6               | 18.75      |
| Ascities              | 4               | 12.5       |
| Mass abdomen          | 2               | 6.25       |

**Table 4: Showing Signs of Acute Gallstone Pancreatitis**

On examination, all the patients had epigastric tenderness and none of them had mass per abdomen as shown in the Table 4.

| Investigation                       | Elevated | Percentage (%) |
|-------------------------------------|----------|----------------|
| S. Bilirubin (>2mg/dl)              | 12       | 37.5           |
| S. AST (>150 IU/L)                  | 16       | 50             |
| S. Alkaline phosphatase (>300 IU/L) | 8        | 25             |
| S. Amylase (3x UNL)                 | 24       | 75             |
| Random blood sugar (>150mg/dL)      | 12       | 37.5           |
| S. Calcium(<8mg/dL)                 | 10       | 31.25          |

**Table 5: Showing Laboratory Investigations**

S-Serum, AST-Aspartate aminotransferase, UNL-upper normal limit

In the present study, most (75%) of the patient's serum amylase was above 3 times upper normal limit, alkaline phosphatase was above 300 IU/L in 25% of patients, AST was raised in 50% of them, elevated serum bilirubin level in 37.5% of random blood sugar more than 150mg/dL was present in 37.5% of the cases.

Ultrasonography of abdomen was done for all the 32 patients. It diagnosed acute gallstone pancreatitis in 24(75%) patients and did not diagnose in 8(25%) patients.

CT scan was done in all 32 patients and it could diagnose all the patients with acute gallstone pancreatitis. Mean CT severity index was 4.6. Choledochal cyst was seen in 2 patients and abnormal biliary and pancreatic duct junction was noted in 5 patients. Pancreatic necrosis (<30%) was noted in 2 patients.

Average hospital stay in our study was 8 days (Range: 3-15 days). Three patients developed left sided pleural effusion and two developed right sided pleural effusion. Three of them underwent therapeutic pleural tapping and two were managed conservatively.

**FOLLOW-UP**

Eight patients underwent open cholecystectomy after an interval of 6-8 weeks. There was recurrence of acute gallstone pancreatitis in six patients (Recurrence rate: 18.75%). Pseudocyst of pancreas developed in four patients (12.5%) after 3-4 weeks of acute attack. All resolved without intervention 6-12 weeks after the discharge from hospital.

**DISCUSSION**

Thirty two cases of acute gallstone pancreatitis were studied out of eighty cases of acute pancreatitis and constituted 40% of cases. The incidence of acute gallstone pancreatitis in studies of Ranson JHC et al.<sup>10</sup> and Thomson SR et al.<sup>11</sup> were 27% and 41% respectively. Finding of present study is similar to that of Thomson et al.<sup>11</sup> Gallstones are the predominant causes of acute pancreatitis in North India as shown in the Table no. 6. However, in a recent South Indian study,<sup>12</sup> gallstone accounted only for 13% of acute pancreatitis cases.

The highest age incidence was noticed in age group of 41-60 years. The median age in the present study was 48 years, whereas in studies of Liu CL et al.<sup>13</sup> and Armstrong et al.<sup>14</sup> it was 69 and 54 years respectively.

Females were predominant in the present study (68.75%), which was in contrast to the studies of Liu CL et al.<sup>13</sup> (51.08%) and Armstrong et al.<sup>14</sup> (53%). But, it is well known that acute gallstone pancreatitis is more common in females than in males.<sup>15-18</sup> Only a few studies have standardised the incidence rate of age and sex.<sup>19-24</sup>

|   | PGI Chd <sup>20</sup> | AIIMS Delhi <sup>21</sup> | SGPGI Lucknow <sup>22</sup> | Kashmir <sup>23</sup> | Mumbai <sup>24</sup> | Coimbatore <sup>12</sup> | Present Study |
|---|-----------------------|---------------------------|-----------------------------|-----------------------|----------------------|--------------------------|---------------|
| Gallstones (%)  | 35                    | 44.6                      | 45                          | 48                    | 14                   | 13                       | 40            |
| Alcohol (%)   | 45                    | 17.7                      | 26                          | 2.4                   | 26                   | 13                       | 50            |
| Ascariasis (%)  |                       |                           |                             | 22                    |                      |                          | 1.25          |
| Idiopathic (%)  | 16.8                  | 25                        | 19                          | 21                    | 48                   | 40                       | 7.5           |
| Others (%)  | 3.2                   | 12.7                      | 10                          | 6.6                   | 12                   | 34                       | 1.25          |
| <b>Table 6: Etiology of Acute Pancreatitis in India</b> |                       |                           |                             |                       |                      |                          |               |

In the present study, acute pancreatitis occurred in 5.82% of patients with gallstone disease. This finding was in the range of the study of Pellegrini CA.<sup>1</sup> In his study, acute pancreatitis occurred in 4-8% of the patients with gallstone disease.

Highest number of acute gallstone pancreatitis was seen in Meitei ethnic group (62.5%), and Meitei Pangal (Muslim) had 18.75%. Nepali, Naga and Kuki had 6.25% each. As ethnic/racial differences in the incidence rate of the acute pancreatitis have been suggested,<sup>25</sup> we also propose that the difference of incidence in the various ethnic groups of Manipur could be because of differences in the food habit, anthropometric structure and genetic susceptibility. But, it has to be confirmed by further studies. Ma MH et al.<sup>26</sup> also observed that Hispanic children had 2.85 (P=0.01) and 5.59 (P=0.003) times higher probability for biliary pancreatitis than white and black children respectively.

All the patients in the present study presented with pain in epigastrium. Papavramidis TS et al.<sup>27</sup> had similar observation, but Mohammad R et al.<sup>28</sup> found epigastric pain in only 64.7% of their patients.

In the present study jaundice was present in 31.25%, whereas in the studies of Mohammad R et al.<sup>18</sup> and Liu CL et al.<sup>13</sup> jaundice was present in 17.65% and 12% respectively.

In the present study, abdominal distension was present in 6.25% and fever was present in 18.75% while in the study of Liu CL et al.<sup>13</sup> fever was present in 22%.

In the present study, epigastric tenderness was present in all the patients (100%), absent bowel sound was found in 12 patients (37.5%) and hypotension was seen in 6 patients (18.75%). But, Papavramidis et al.<sup>27</sup> found no bowel sound in 73.5% of the patients.

In the present study, most (75%) of the patient's serum amylase was above 3 times upper normal limit. In the study of Papavramidis et al.<sup>27</sup> abnormal serum amylase was found in 95.37% of acute gallstone pancreatitis. In the study of Mohammad Ret al.<sup>28</sup> abnormal serum amylase was found in 72.6%, which was similar to the present study.

In the present study, alkaline phosphatase was above 300 IU/L in 25% of patients which was different from the finding of Mohammad R et al.<sup>28</sup> They found abnormal alkaline phosphatase in 72.6% of the patients. Aspartate aminotransferase was abnormal in 50% of patients in the present study, but in the studies of Papavramidis et al.<sup>27</sup> and Mohammad R et al.<sup>28</sup> abnormality was 25% and 86.3% respectively.

In the present study, elevated serum bilirubin was found in 37.5% of the patients but in the study of Mohammad R et al.<sup>28</sup> elevated serum bilirubin level was found in 56.9% of the patients.

Gungor B et al.<sup>29</sup> suggested that increased alkaline phosphatase, total bilirubin, direct bilirubin, amylase and lipase levels might be used in prediction of biliary pancreatitis.

USG of abdomen was done to all the 32 patients. It diagnosed acute gallstone pancreatitis in about 24(75%) patients. It was almost similar to the study of Papavramidis et al.<sup>26</sup> where 78 out of 108(72.22%) were diagnosed by ultrasound. Failure to diagnose acute pancreatitis could be due to excess gas in the intestine and thick fat in the abdomen, which limit the penetration of acoustic wave.<sup>30</sup>

CT scan was done in 20 patients and diagnosis of acute gallstone pancreatitis could be done in all patients (100%). Papavramidis et al.<sup>26</sup> could diagnose acute gallstone pancreatitis in 92.59% of patients.

The average hospital stay in the present study was 8 days, but it was 10.53 days in the study of Papavramidis et al.<sup>26</sup>

On followup, there was recurrence of the disease in 6 patients (18.75%) and 2 patients developed pseudocyst of pancreas. All of them were managed conservatively. According to Balthazar EJ et al.<sup>31</sup> pseudocyst of pancreas could occur in 10-20% of patients following acute pancreatitis.

According to Pellegrini.<sup>1</sup> acute pancreatitis recurred in 50% of the patient within 1-6 months whenever patient was not submitted to cholecystectomy and cleansing of common bile duct.

After a systemic review, Van Baal MC et al.<sup>32</sup> concluded that after mild biliary pancreatitis, the risk of readmission for recurrent biliary events is high while waiting for interval cholecystectomy and cholecystectomy during index admission for mild biliary pancreatitis appeared safe, but selection bias could not be excluded.

### CONCLUSION

Genetic basis of occurrence of biliary pancreatitis among the various ethnic groups of Manipur needs to be addressed. Serum amylase and ultrasonography were useful initial investigative modality in diagnosing acute gallstone pancreatitis.

The acceptance of index cholecystectomy in our local population is very low and the awareness of treatment modalities has to be increased.

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