USG EVALUATION IN PATIENTS OF ACUTE AND CHRONIC PANCREATITIS

ABSTRACT

INTRODUCTION - Pancreatitis or inflammation of pancreas has high rate of morbidity and mortality. Ultrasound is the first modality for evaluation as it is non-invasive, cost-effective, easily available, and has repeatability.

RESULTS - Pancreatitis is commonly seen in middle aged individuals with a male predominance. In acute pancreatitis, diffuse oedematous and bulky pancreas was the most common finding. In chronic pancreatitis, shrunken and atrophied pancreas with parenchymal calcification was the predominant finding.

CONCLUSION - Ultrasound can demonstrate the structural changes in an organ, is the initial investigation in the evaluation of suspected cases of pancreatitis. However parenchymal necrosis and pancreatitis associated complications were poorly delineated by USG. Thus, ultrasound is used only as an initial screening modality.

KEYWORDS

Ultrasound, Pancreatitis, Pseudocyst, Necrosis

INTRODUCTION

Pancreatitis or inflammation of the pancreas presents as one of the most common emergency conditions in any hospital. Some patients with this condition deteriorate rapidly while in others it is self-limiting. Rapid assessment of its grade, severity and other system involvement is a necessity to avoid potential catastrophic consequences. Clinical diagnosis not being 100% sure, its diagnosis relies on laboratory investigations and radiological imaging.

Ultrasound is the first modality of choice due to its several advantages such as non-invasiveness, cost-effectiveness, easy availability, fast, real-time assessment, radiation free and which can also be repeated without much discomfort. USG despite such benefits has certain drawbacks which limits its usage in pancreatitis, like bowel gas, patient's obesity and operator dependency. Hence for appropriate evaluation, patients found to have pancreatitis on ultrasound should be followed up with CT scan.

METHOD

This study was conducted in the Department Of Radiodiagnosis, Dhiraj General Hospital, pipariya, Waghodia. Patients were examined using ultrasonography after obtaining consent for the same. Patients with relevant clinical history were examined. I also took some efforts to correlate Serum amylase and Serum Lipase.

STUDY DESIGN

Cross-sectional observational study, 50 patients

DURATION OF STUDY: 1.5 years

EQUIPMENT - USG Machine- GE LOGIQ P9

INCLUSION CRITERIA

• Age : All age groups
• Gender: both
• Patients referred to our department with complaints of abdominal pain and suspected diagnosis of pancreatitis
• Patients already diagnosed with pancreatitis and referred to radiology department.

EXCLUSION CRITERIA

• Patients refusing consent to participate in the study.
• Pregnant females
• Elevated serum creatinine levels (>1.5mg/dl)

RESULTS

The salient features of this study are as follows.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Age (in years)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Pancreatitis</td>
<td>11-20</td>
<td>5 (10%)</td>
</tr>
<tr>
<td>Acute Pancreatitis</td>
<td>21-30</td>
<td>8 (16%)</td>
</tr>
<tr>
<td>Acute Pancreatitis</td>
<td>31-40</td>
<td>9 (18%)</td>
</tr>
<tr>
<td>Acute Pancreatitis</td>
<td>41-50</td>
<td>4 (8%)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>32 (64%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Gender</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Pancreatitis</td>
<td>Male</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>Acute Pancreatitis</td>
<td>Female</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4 (8%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Alcohol</th>
<th>Smoking</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Pancreatitis</td>
<td>16 (32%)</td>
<td>10 (20%)</td>
<td>26 (52%)</td>
</tr>
<tr>
<td>Chronic Pancreatitis</td>
<td>7 (14%)</td>
<td>6 (12%)</td>
<td>13 (26%)</td>
</tr>
<tr>
<td>Total</td>
<td>23 (46%)</td>
<td>16 (32%)</td>
<td>39 (78%)</td>
</tr>
</tbody>
</table>

Out of 50 patients of pancreatitis, 39 patients have either alcohol or smoking as addiction. Out of these, 23 patients have addiction to alcohol and 16 patients have addiction to smoking.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obscurred</td>
<td>10 (20%)</td>
</tr>
<tr>
<td>Normal</td>
<td>6 (12%)</td>
</tr>
<tr>
<td>Acute oedematous Pancreatitis</td>
<td>10 (20%)</td>
</tr>
<tr>
<td>Acute on Chronic Pancreatitis</td>
<td>2 (4%)</td>
</tr>
<tr>
<td>Acute Pancreatitis with peri-pancreatic fluid collection</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>Acute pancreatitis with pseudocyst</td>
<td>6 (12%)</td>
</tr>
<tr>
<td>Chronic Pancreatitis</td>
<td>6 (12%)</td>
</tr>
<tr>
<td>Chronic Pancreatitis with pseudocyst</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>Pseudocyst</td>
<td>4 (8%)</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>

TABLE 1 - DEMOGRAPHIC PROFILE

Table 2 - Disease Profile in Various Age Groups

Table 3 - Association of Pancreatitis and Personal History

Table 4 - USG Diagnosis of Lesions

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Key Words

Pancreatitis, Pseudocyst, Necrosis

This study was done in the department of radiodiagnosis at Dhiraj Hospital over a period of 1.5 years. Ultrasound of patients was done using GE LOGIQ P9 machine.

The study comprised of 38 males and 12 females, between age groups of 20-50 years. The peak incidence was observed in the age group of 41-50 years, which comprised 17 patients of both the sexes and all the age groups.

Inclusion Criteria

• Age: All age groups
• Gender: both
• Patients referred to our department with complaints of abdominal pain and suspected diagnosis of pancreatitis
• Patients already diagnosed with pancreatitis and referred to radiology department.

Exclusion Criteria

• Patients refusing consent to participate in the study.
• Pregnant females
• Elevated serum creatinine levels (>1.5mg/dl)

RESULTS

The salient features of this study are as follows.
In my study, 50 patients were taken who had either acute or chronic pancreatitis. These patients underwent ultrasonography. In my study, there are 50 patients, of which 38 are males and 12 are females, showing a sex ratio of 3.1:1 with male preponderance like Silverstein et al\(^6\) study. In acute pancreatitis cases, in my study, sex ratio was 3:1 (23 males, 8 females). This was higher than the study by S.R. Thomson et al\(^{11}\), where sex ratio was 2:1. In chronic pancreatitis sex ratio was 3.7:1 (15 males, 4 females) which was contrary to the study by Balaji LN and Tandon RK\(^{12}\) where the sex-ratio was 1:1.8.

In my study, of 19 cases of chronic pancreatitis, 9 cases (47%) show pancreatic calcification by USG done on 77 patients, showed that calcification was present in 53% of cases, focal or diffuse enlargement in 41%, focal dense echoes in 40%, pseudocyst formation in 21% of cases. The findings of my study were similar to the previous studies.

CONCLUSION
Ultrasound by its virtue of non-invasiveness, lack of radiation hazard and by its ability to demonstrate the structural changes in an organ, is the initial investigation of choice in the evaluation of suspected cases of pancreatitis. USG can detect the presence of inflammation, and characterize the size, shape and echotexture of the gland. However as the pancreas is a retro-peritoneal organ it was difficult to adequately characterize the size, shape and echotexture of the gland. However, USG is the initial investigation of choice in the evaluation of suspected cases of pancreatitis. USG can detect the presence of inflammation, and characterize the size, shape and echotexture of the gland. However as the pancreas is a retro-peritoneal organ it was difficult to adequately characterize the size, shape and echotexture of the gland.

CASE–CHRONIC PANCREATITIS

Multiple calcific foci are noted in the head of pancreas

CASE–ACUTE ODEMATOUS PANCREATITIS

Pancreas appears bulky, specially in the distal body region

REFERENCES

| TABLE – 5 Observation of altered pancreatic parenchyma by USG |
|----------------|----------------|
| Altered pancreatic parenchyma USG |               |
| Detected | 26 patients |
| Not Detected | 24 patients |

| TABLE – 6 Observation of dilatation of main pancreatic duct by USG |
|----------------|----------------|
| MPD Dilatation | USG |
| Detected | 7 patients |
| Not Detected | 43 patients |

| TABLE – 7 Observation of pancreatic parenchyma calcification by USG |
|----------------|----------------|
| Parenchymal calcification USG |               |
| Detected | 17 patients |
| Not Detected | 33 patients |

| TABLE – 8 Observation of pseudocyst on USG |
|----------------|----------------|
| Pseudocyst | USG |
| Detected | 16 patients |
| Not Detected | 34 patients |

| TABLE – 9 Observation of parenchymal necrosis of pancreas on USG |
|----------------|----------------|
| Parenchymal Necrosis USG |               |
| Detected | 1 patient |
| Not Detected | 49 patients |

| TABLE – 10 Observation of ascites on USG |
|----------------|----------------|
| Ascites | USG |
| Detected | 6 patients |
| Not Detected | 44 patients |

DISCUSSION
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