Case Series

Management of Pancreatic Pseudocyst: where do we stand?
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Abstract
Pancreatic pseudocysts persisting beyond six weeks needs decompression, specially when they are larger than 6cm and symptomatic. Cystogastrostomy is the treatment of choice. This may be done by open, laparoscopic or endoscopic methods. Endoscopic cystogastrostomy has the least morbidity. Ultrasound guided aspiration causes lesser morbidity but has a higher incidence of recurrence. We compare six patients with pseudocysts treated by aspiration and cystogastrostomy; open, laparoscopic and endoscopic.

Key words: Pancreatic pseudocyst; Cystogastrostomy; Endoscopy; Laparoscopy

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**Introduction**

Pancreatic pseudocysts constitute about 70 - 80% of all masses in the pancreas. It arises as a consequence of acute pancreatitis, pancreatic trauma and chronic pancreatitis.\(^{1,2}\) Initial management is conservative, expecting spontaneous resolution. Symptomatic cysts which persist beyond six weeks and larger than six centimeters warrants decompression \(^{1,2,3,4}\). The standard drainage procedure is cysto-gastrostomy by laparotomy. This is associated with a significant morbidity like pain, ileus, prolonged hospital stay and late wound complications like incisinal hernia.\(^{5,6,7}\) Minimal access techniques can reduce this morbidity.\(^{1,2,3,5,6}\) Radiological, laparoscopic and endoscopic drainage are minimal access techniques.\(^{1,2,3,5,6}\) However they need equipment, accessories and training. Therefore an evaluation of these techniques as compared to open surgery is required.

In this case series we compare six patients with pancreatic pseudocysts managed via open, radiological, laparoscopic and endoscopic techniques.

**Cases and methods**

A retrospective analysis of patients with pancreatic pseudocysts managed at Teaching Hospital Peradeniya was done. After confirming the clinical diagnosis by ultrasound scan initial management was conservative. Cysts persisting beyond six weeks, larger than 6cm and symptomatic were recruited for drainage. Open cysto-gastrostomy, percutaneous drainage, laparoscopic cysto-gastrostomy and endoscopic cysto-gastrostomy were used as interventions. Open surgery was the standard until we had training on minimal access techniques.

The open surgery was performed under general anaesthesia and endotracheal intubation. An upper midline laparotomy was performed. The anterior wall of the stomach was opened. The cyst was drained into the stomach by making an incision on the posterior wall of the stomach. This opening was sutured with a continuous suture and the anterior gastrostomy closed in two layers.

The laparoscopic procedures were done under general anaesthesia and endotracheal intubation. Three ports were used. Anterior wall of stomach was opened, cyst drained through the posterior wall and subsequent closure was performed.

Endoscopic drainage was done under sedation using a side viewing endoscope. The cyst bulging in to the posterior wall of the stomach was identified. An incision over the posterior wall was made using a needle knife draining the cyst in to the stomach.

Percutaneous drainage was done under the guidance of ultra-sound imaging with sedation.

The selection of the method of therapy was dependent on the availability of equipment and training of minimal access techniques.

The following details were compared to evaluate the efficacy of the techniques; type of anaesthesia, time taken, blood loss, complications, post operative analgesic requirement, post operative feeding, duration of hospital stay and immediate resolution of the cyst.

**Results**

Six patients were treated during a period of two years. There were 5 males and one females. Age ranged from 8-59 years.

### Table 1: Interventions and outcome

<table>
<thead>
<tr>
<th></th>
<th>Cystogastrostomy</th>
<th>Laparoscopic</th>
<th>Endoscopic</th>
<th>Ultrasound guided aspiration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>Open 1</td>
<td>Laparoscopic 2</td>
<td>Endoscopic 3</td>
<td>Ultrasound guided aspiration 1</td>
</tr>
<tr>
<td>Anaesthesia</td>
<td>GA</td>
<td>GA</td>
<td>Sedation</td>
<td>Sedation</td>
</tr>
<tr>
<td>Average time (hours)</td>
<td>3</td>
<td>4</td>
<td>0.25</td>
<td>0.5</td>
</tr>
<tr>
<td>Blood loss (ml)</td>
<td>200</td>
<td>Not measurable</td>
<td>nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Complications</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Post op narcotic analgesics (period in hours)</td>
<td>72</td>
<td>24</td>
<td>nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Time taken to commence oral feeding (hours)</td>
<td>96</td>
<td>48</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>9</td>
<td>7</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Immediate resolution</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure 1: Endoscopic view showing the cyst bulging on to the posterior wall of the stomach
One patient of above six, an eight year old child, underwent complete aspiration. After 2 months he presented with a recurrence and endoscopic cystogastrostomy performed.

Discussion
Symptomatic pancreatic pseudocysts which persist beyond six weeks and larger than six centimeters warrants decompression (1,2,3,4). The standard technique is open cystogastrostomy associated with a post surgical morbidity (5,6,7). Minimal access techniques will minimize this morbidity allowing early feeding, mobilization and discharge from hospital (1,2,3,5,6).

With the availability of equipment and training laparoscopic drainage was used in place of open in our unit. Two patients following laparoscopic drainage required less analgesics, were fed early and had a short hospital stay, compared to open surgery patient. (Table 1)

Then we offered endoscopic drainage done under sedation, completed in an average time of fifteen minutes.

They were commenced on oral feeding after two hours, required no post procedure analgesics and discharged next day. (Table 1)

Ultra-sound guided aspiration too had minimal morbidity but had a recurrence requiring endoscopic drainage. (Table 1)

Conclusion
According to our case series endoscopic cystogastrostomy is safe and effective and has the least morbidity. If there is failure to drain endoscopically, laparoscopic drainage is preferred than open procedure.

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Competing Interests
None

References