Periampullary Cancer – Our Institutional Experience with Review of Literature

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Abstract

Introduction: Pancreatic and periampullary carcinomas include a group of malignant neoplasms arising in or near the ampulla of Vater or in the pancreas. Diagnosis, management and prognosis have improved considerably in the last few decades. The present study looks into the modes of presentation in patients with periampullary carcinoma, the different modalities of investigations, treatment along with the postoperative complications.

Materials and Methods: It is a retrospective, descriptive study including 25 patients of periampullary carcinoma studied over a period of one and half year from January 2017 to June 2018 in a tertiary care centre in Visakhapatnam. In the present study, age and sex distribution, site of tumour origin, histopathological variant, postoperative complications and other factors were evaluated. We have adopted the classical Whipple’s Pancreatectoduodenectomy as the procedure for the treatment of operable periampullary cancers.

Results: The mean age of presentation was 52.6 years. The male to female ratio was 2.5:1. The most common site of tumour origin was the head of pancreas. Majority were well differentiated adenocarcinomas. The most common postoperative complications were pancreatic leak and wound infection (14.2%).

Conclusion: Patients with pancreatic and periampullary cancer represent a difficult and challenging group to treat. Pancreatectoduodenectomy is a standard procedure that has been adopted for the treatment of this group of cancers. Resection should be performed by experienced surgeons to minimize morbidity and mortality. Though these patients have a poor prognosis, with proper staging, good patient selection and appropriate management, there is improved survival and wellbeing of these patients.

Introduction
Periampullary tumours can arise from pancreatic, biliary, ampullary and duodenal tissues. The incidence of periampullary cancer is relatively low in comparison to breast, lung and colorectal cancers. However, as a result of their lethal nature, they are a major cause of mortality. Diagnostic modalities, management options and prognosis for
periampullary carcinoma have improved considerably in the last few decades.\textsuperscript{1,2} Surgical resection offers the only chance of cure to these patients.\textsuperscript{3}

Aims

- To study the clinical profile of patients with periampullary malignancies.
- To determine the most common histopathological type.
- To review the postoperative complications after Classical Whipple’s Pancreaticoduodenectomy.

Materials and Methods

The study is retrospective conducted at King George Hospital, Visakhapatnam in the period of January 2017 to June 2018. A total of 25 cases with periampullary cancers at different stages were studied. Variables studied were age, sex, preoperative total serum bilirubin, CA 19-9 and ALP, preoperative biliary stenting, stage of disease, operative procedure, site of tumour origin and postoperative complications.

Inclusion Criteria

Patients diagnosed with periampullary carcinoma by CECT, ERCP or endoscopy.

Exclusion Criteria

Patients with pancreatitis, carcinoma exocrine and endocrine pancreatic tissue were excluded. Patients with major comorbidities, such as cardiac or renal diseases were excluded.

Results

Total number of patients was 25, out of which 18 cases were male and female cases were 7. Ratio was 2.5:1. Mean age group was 52.6±3.4yrs.

Chief complaints were jaundice, pain abdomen, vomiting and fever.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jaundice</td>
<td>92%</td>
</tr>
<tr>
<td>Vomiting</td>
<td>40%</td>
</tr>
<tr>
<td>Pain abdomen</td>
<td>32%</td>
</tr>
<tr>
<td>Anorexia</td>
<td>32%</td>
</tr>
<tr>
<td>Weight loss</td>
<td>28%</td>
</tr>
<tr>
<td>Fever</td>
<td>20%</td>
</tr>
</tbody>
</table>
11 patients presented with preoperative total bilirubin greater than 10mg/dl.  
14 members of the patients had preoperative ALP levels greater than 140U/L.  
10 people presented with preoperative serum CA19-9 level more than 100U/L.  
Preoperative stenting was done in 8 patients.  
Other investigations were performed as shown in the table below.

Majority of the patients were diagnosed with stage II disease.

Out of the 25 patients, 21 patients underwent Whipple’s pancreaticoduodenectomy. Three patients underwent palliative bypass procedures such as gastrojejunostomy, choledochojejunostomy due to non resectability of the tumour. One patient was sent for palliative radiotherapy.
Postoperative Complications
Some type of complication occurred in 45.8% of the patients.
In Hospital mortality for postoperative cases was 08% (2 patients).

- Whipple’s pancreaticoduodenectomy: 21 cases
- Double Bypass: 2 cases
- Triple Bypass: 1 case
- Palliative Radiotherapy: 1 case
Postoperative biopsy showed predominance of pancreatic cancer (48%), followed by distal bile duct cancer (20%). Histopathology showed all specimens to be adenocarcinomas. One patient had neuroendocrine component along with adenocarcinoma. Majority of the tumours were well differentiated (52%).

**Review of literature**

In the present study, the average age of patients was 52.6 years comparable with studies conducted by JON R. COHEN et al⁴, Xun Wang et al⁵, TaxiarchisBotsis et al⁶. There is a male preponderance similar to studies by Carlos Chan et al⁷ and Woo-Song Ha et al⁸.
Diagnostic modalities
Ultrasound is the first investigation used in our study. It and could accurately diagnose 44% of the cases.
EUS is significantly more sensitive, specific, and accurate than helical CT for evaluation of the periampullary mass. Parameters evaluated included tumour size, lymphnode metastases, and major vascular invasion. They are helpful in preoperative staging of the disease.

Sensitivity of Diagnostic Modalities

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Upper GI Endoscopy</td>
<td>58.1%</td>
<td>85.41%</td>
<td>96%</td>
</tr>
<tr>
<td>USG abdomen</td>
<td>87.5%</td>
<td>79.16%</td>
<td>44%</td>
</tr>
<tr>
<td>CECT abdomen</td>
<td>NM</td>
<td>47.91%</td>
<td>80%</td>
</tr>
<tr>
<td>ERCP</td>
<td>85.7%</td>
<td>25%</td>
<td>32%</td>
</tr>
</tbody>
</table>

Treatment Modalities
Classical Whipple’s Pancreaticoduodenectomy is the standard resectional surgical procedure being done in our department for operable cases. It was done in 21 cases. Palliative surgeries include hepaticojejunostomy, choledochojejunostomy and cholecystojejunostomy to relieve obstructive jaundice; gastrojejunostomy, gastrostomy are used to relieve gastric outlet obstruction. Chemical splanchnicectomy can be used to relieve pain. In this study we have done palliative gastrojejunostomy and choledochojejunostomy for cases. One case was sent for palliative radiotherapy.

Location of tumour
Tumour Differentiation

![Tumour Differentiation Graph]

<table>
<thead>
<tr>
<th>Postoperative Complications</th>
<th>Sarace et al\cite{14}</th>
<th>Gupta et al\cite{15}</th>
<th>Current study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delayed gastric emptying</td>
<td>32.9%</td>
<td>35.29%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Biliary leak</td>
<td>2.9%</td>
<td>13.72%</td>
<td>9%</td>
</tr>
<tr>
<td>Pancreatic leak</td>
<td>0%</td>
<td>17.64%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Cholangitis</td>
<td>0%</td>
<td>NM</td>
<td>4%</td>
</tr>
<tr>
<td>Haemorrhagic drain</td>
<td>7.1%</td>
<td>19.6%</td>
<td>4%</td>
</tr>
<tr>
<td>Wound infection</td>
<td>17.1%</td>
<td>39.21%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>10%</td>
<td>23.52%</td>
<td>9%</td>
</tr>
</tbody>
</table>

In hospital mortality was 08%.

**Conclusion**

Patients with pancreatic and periampullary cancer represent a difficult and challenging group to treat. Pancreateicoduodenectomy is a standard procedure that has been adopted for the treatment of this group of cancers.

Resection should be performed by experienced surgeons to minimize morbidity and mortality. Although traditionally patients with these diseases had a dismal prognosis, proper staging and patient selection have led to improved results.

Early diagnosis is crucial for resectability to improve survival rates.

**References**

3. Charles J, Yeo M, John L, Cameron MD. Pancreateicoduodenectomy with or without extended retroperitoneal lymphadenectomy for periampullary adenocarcinoma comparison of morbidity.


