COMPARISON OF CHOLODOCHOJEJUNOSTOMY METHODS FOR SURGICAL PALLIATION OF BILIARY OBSTRUCTION IN ADVANCED PERIAMPULLARY CARCINOMA

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Introduction
The majority (70-90%) of patients with periampullary carcinoma present with jaundice secondary to biliary obstruction as their initial symptom.1 Biliary obstruction aggravates the patient’s already poor clinical condition by causing cholangitis, pruritus, malnutrition deficiencies through malabsorption, weight loss and progressive hepatic failure. Although surgical resection and reconstruction with provides the best chance of cure, the reality is that only 5-20% of patients are found to be resectable either preoperatively or during a trial of dissection. Thus the relief of biliary obstruction in these patients remain an important problem.

Surgical palliation via biliary-enteric bypass have been shown to be beneficial especially in patients who have expected survival of more than 6 months, good performance level and offer better palliation with less morbidity than endoprostheses.1 The favored form of biliary enteric bypass in our unit is a roux-en-Y choledochojejunostomy for these patients with locally advanced periampullary carcinoma. This anastomosis can be performed via either the side-to-side (STS) or end-to-side (ETS) technique.

There is however a paucity of literature comparing the different types of choledochojejunostomy. Our goal is to study compare the 2 established methods of choledochojejunostomy performed in our unit for patients with advanced unresectable periampullary carcinoma.

Methods
A retrospective review of a prospectively collected database of all patients with advanced unresectable periampullary carcinoma who underwent surgical palliative bypass was done for the period from May 1997 to May 2007. The patient demographics, clinical records and outcomes were reviewed. All data analysis was performed via SPSS ver.13 and a P value of <0.05 was taken to be significant.

Results
A total of 112 patients with periampullary cancer were deemed unresectable during the study period. The majority (70-90%) of patients with periampullary carcinoma present with jaundice secondary to biliary obstruction as their initial symptom.1

There were no difference between the 2 groups in terms of age, sex, as shown in table 1. There were a total of 66 male and 46 female patients with a mean age of 66.5 (+/− 5.9) years old. There were no difference in number of patients who had preoperative stenting before surgery. (Table 2).

Discussion
Surgical biliary bypass in advanced periampullary cancer was traditionally associated with significant mortality and morbidity. However recent studies have shown excellent results with respect to both perioperative mortality and mortality and long term survival in specialist pancreatic centers.1 Furthermore, a recent consensus statement commented that patients who undergo trial dissection should undergo surgical bypass, even if these patients have had prior stenting.3 In the relief of biliary obstruction in patients with advanced periampullary cancer, the surgical technique used must be simple and effective to allow faster patient recovery and better quality of life as their average survival time is between 4.2 to 13.1 months.4

The demographics, preoperative parameters and operative parameters were not significantly different in the 2 groups studied. However this study demonstrates the relative superiority of the STS technique in terms of outcome as seen in table 4. There are several possible reasons for this difference in outcome:

Firstly, as the bile duct is not transected in the STS group, the blood supply to the bile duct in not interrupted and thus reducing the likelihood of anastomotic ischaemia and bile leakage.

Secondly, with the STS technique the cut in the bile duct can be much longer allowing for better drainage into the jejunal limb as well as allowing some residual drainage to the duodenum. This differences are important as the employment of the STS technique allows these patients a more rapid recovery and progress to other adjuvant therapy as indicated.

Furthermore complications are poorly tolerated in this select group with advanced malignancy as they are invariably nutritionally and immune compromised.

Conclusion
In the surgical palliation of biliary obstruction in advanced periampullary carcinomas, the side-to-side technique is advocated. This technique has been shown to have better relief of biliary obstruction with lesser complications.

References

Table 1

<table>
<thead>
<tr>
<th>Parameters (mean)</th>
<th>STS</th>
<th>ETS</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of operation (mins)</td>
<td>230.0 (+ − 55.0)</td>
<td>230.0 (+ − 40.0)</td>
<td>NS</td>
</tr>
<tr>
<td>Size of bile ducts (mm)</td>
<td>22.5 (+/− 1.5)</td>
<td>23.5 (+/− 0.6)</td>
<td>NS</td>
</tr>
<tr>
<td>Size of tumour (mm)</td>
<td>34.6 (+ − 19.0)</td>
<td>35.1 (+ − 15.5)</td>
<td>NS</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Parameters (mean)</th>
<th>STS</th>
<th>ETS</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Parameters (mean)</td>
<td>STS</td>
<td>ETS</td>
<td>p-value</td>
</tr>
<tr>
<td>Bilirubin (g/L)</td>
<td>45.0 (+/− 29.0)</td>
<td>39.0 (+/− 25.0)</td>
<td>NS</td>
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<tr>
<td>Alanine aminotransferase (ALT)</td>
<td>15.2 (+/− 13.0)</td>
<td>17.0 (+/− 15.0)</td>
<td>NS</td>
</tr>
<tr>
<td>Alkaline phosphatase (ALP) (IU/L)</td>
<td>20.0 (+/− 20.0)</td>
<td>21.0 (+/− 21.0)</td>
<td>NS</td>
</tr>
<tr>
<td>Aspartate transaminase (AST) (IU/L)</td>
<td>17.0 (+/− 25.0)</td>
<td>19.5 (+/− 37.5)</td>
<td>NS</td>
</tr>
<tr>
<td>N-sulin (mU/L)</td>
<td>35.0 (+/− 26.0)</td>
<td>35.0 (+/− 25.0)</td>
<td>NS</td>
</tr>
<tr>
<td>No of patients with preoperative stenting</td>
<td>37 (54.5%)</td>
<td>24 (34.5%)</td>
<td>NS</td>
</tr>
</tbody>
</table>

There were no statistically significant difference in operative parameters between both groups. (Table 3)

There were 6 patients with bile leak in STS group compared to 14 in the ETS group which was statistically significant. Furthermore the length of stay and general complications were higher in the ETS group.

The STS group also had more patients with normalization of their serum bilirubin, taken as a surrogate for relief of biliary obstruction. In addition, STS group obtained normalization of their serum bilirubin at a faster rate. (Table 4)

This difference is important as the employment of the STS technique allows these patients a more rapid recovery and progress to other adjuvant therapy as indicated.

Furthermore complications are poorly tolerated in this select group with advanced malignancy as they are invariably nutritionally and immune compromized.

Conclusion
In the surgical palliation of biliary obstruction in advanced periampullary carcinomas, the side-to-side technique is advocated. This technique has been shown to have better relief of biliary obstruction with lesser complications.

References