A REVIEW OF MAJOR VS MINOR LAPAROSCOPIC LIVER RESECTION PERFORMED AT A TERTIARY MEDICAL INSTITUTE

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Introduction

- Laparoscopic liver resection (LLR) is an ever developing field in hepatobiliary and pancreas surgery which began in the 1990s
- Increasing use over past quarter century
- Started with resection of anterolateral segments and left lateral sectionectomy
- Use expanding to include major hepatectomies
- Increasing popularity coupled with advances in medical technology and techniques of resection
- However majority of LLRs still being performed for minor resection
- Major LLRs more commonly performed by experienced surgeons in specialised centres

Study Design

Aim
- To compare the outcome of major and minor laparoscopic liver resections at a tertiary medical institute in Singapore

Criteria for inclusion
- Patients who underwent laparoscopic liver resection at the National University Hospital (NUH), Singapore, from January 2006 to June 2018

Methods
- Review of medical records including electronic records and case notes
- Patients with complete hospitalization and operative data were included in the study
- Major resection is defined as resection of 4 or more Couinaud’s segments

Data collection
- Patient demographics
- Indication for hepatectomy
- Type of resection performed
- Complete operative data including duration of operation, blood loss, margin distance, anatomical vs non-anatomical resection, hospital stay data including length of stay, post-operative morbidity, mortality

Statistics
- SPSS version 23.0 is used for all data analysis. Median and range was used for continuous data, nominal and ordinal data were analysed with Chi-squared and Fisher’s Exact Test.

Results

- Total of 189 patients underwent LLR from January 2006 to June 2018
- 69 (36.5%) were major laparoscopic resections
- 120 (63.5%) were minor laparoscopic resections
- Majority of major LLRs were right hepatectomies
- Majority of minor LLRs were wedge resections and left lateral sectionectomies
- 4 laparoscopic left lateral sectionectomies were performed for living donor liver transplant (LDLT)
- Majority of LLRs performed were for Hepatocellular Carcinoma (HCC) and Colorectal Metastasis (CRC Mets)
- There was no significant difference between the 2 groups in terms of resection margin status
- Operative duration, intra-operative blood loss and length of stay (LOS) were significantly higher for major LLRs compared to minor LLRs
- There was no difference in post-operative morbidity and mortality (no mortality recorded)

Conclusion

- Outcome for major and minor LLRs are comparable with regards to morbidities and mortality in our institute
- There is an increasing trend of LLRs being performed in our institute over the last 12 years
- Operative differences between the 2 groups are inherent to the nature of the operation and comparable to data from open hepatectomies
- Major LLRs is a safe operation when performed by experienced surgeons in a specialized tertiary center

Patient Demographics

<table>
<thead>
<tr>
<th>Type of Resection</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major (n=69)</td>
<td>44</td>
<td>5</td>
</tr>
<tr>
<td>Minor (n=120)</td>
<td>75</td>
<td>45</td>
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</tbody>
</table>

Types of Resection

- Right Hepatectomy
- Left Hepatectomy
- Extended Right Hepatectomy
- Extended Left Hepatectomy
- Others

Indication for Resection

- HCC
- CRC Mets
- CholangioCa
- Living Donor Liver Transplant (LDLT)
- Transplant Donor
- Others

Margin Status

- Number of patients: 164
- R0: 57, R1: 3, R2: 1
- p-value: 0.404

Post-Operative Complications (Clavien Classification)

- Number of patients: 189
- Major: 1, 13, 4, 1
- Minor: 1, 9, 2, 4
- p-value: 0.398

Operative Duration (Mins)

- Number of patients: 189
- Median: 103, Max: 252, Min: 10
- p-value: <0.001

Intra-Operative Blood Loss (mls)

- Number of patients: 189
- Median: 500, Max: 250, Min: 50
- p-value: <0.001

Length of Stay (days)

- Number of patients: 189
- Median: 7, Max: 31, Min: 1
- p-value: 0.001