Introduction: Liver tumors in children are a rare condition. Mainly they can be classified as hepatoblastomas, hepatocellular carcinomas or very rare entities as for example mesenchymal hamartomas. All of these have an indication for resection or if not resectable (except for hamartomas) liver transplantation. We thoroughly studied the possibility for resection in all cases before proceeding to liver transplantation.

Method: At our institution we analyzed surgical procedures of children with liver tumors. Between January 2012 an Jiny 2018. There were 17 cases of malignant pediatric liver tumors undergoing surgery. Patients age was between 0 and 14 years. 11 patients suffered from hepatoblastoma, 3 from hepatocellular carcinoma and 3 from mesenchymal hamartomas.

Liver transplantation was performed in 4 cases, 2 of them hepatoblastomas, 2 hepatocellular carcinomas. Liver transplantation was living donor transplantation for 3 out of 4 patients.

Result: The children with hepatoblastomas were younger mean age 2.2 years (8 m, 3 f) mean age for hepatocellular carcinoma was 6.6 years (2 m 1 f) and 4.6 for mesenchymal hamartomas. Mesenchymal hamartoma cases were totally resected as anatomical liver resection. One HCC patient was resected and the other two underwent liver transplantation. 9 of 11 hepatoblastoma cases were resected primarily or after downstaging according to SIOPEL protocol and two underwent liver transplantation. Overall survival was 100%, progression free survival up to this point equally at 100% and morbidity was low including minor wound infections (n=2), ascites (n=3) and pleural effusion (n=1). Mean intraoperative blood transfusion needed for anatomical resection was 0.5 units, for transplantation 1.2 units.

Conclusion: Surgical resection or liver transplantation in our institution is safe. In times of organ shortage, especially for pediatric recipients, we managed to avoid liver transplantation in 13 of 17 cases. If liver transplantation was necessary we performed living donor liver transplantation in all except of one case.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Patients (n)</th>
<th>Resection</th>
<th>Transplant</th>
<th>Recurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatoblastoma</td>
<td>11</td>
<td>9</td>
<td>2</td>
<td>none</td>
</tr>
<tr>
<td>HCC</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>none</td>
</tr>
<tr>
<td>Mesenchymal hamartoma</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>none</td>
</tr>
</tbody>
</table>

Case 1: Living donor liver transplantation for multilocular HCC

Case 2: Hepatoblastoma Stage 3. Operation after downstaging according to SIOPEL study protocol

Case 3: mesenchymal hamartoma, extended right hepatectomy

Follow-up imaging at 3 months

Unclear lesion in lung, minithoracotomy prior to LDLT

Diagnosis

- Hepatoblastoma
- HCC
- Mesenchymal hamartoma
- Other

Complications

- Wound infection
- Ascites
- Pleural effusion

Age distribution

- Hepatoblastoma
- HCC
- Mesenchymal hamartoma
- Other

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Case Report

Mesenchymal Hamartomas of the Liver: Complete Excision Always Feasible

Follow-up imaging at 3 months

Unclear lesion in lung, minithoracotomy prior to LDLT