Robotic Retroperitoneal Lymph Node Dissection: A Video Case Series

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BACKGROUND

- Robotic retroperitoneal lymph node dissection (RPLND) is commonly used in the treatment of testicular cancer (1).
- Pathology-selective approach to robotic retroperitoneal lymph node dissection (RPLND) may have an increasing role in retroperitoneal disease in general surgery.
- The robotic platform offers 3D-visualisation and stability of platform which allows for a safe and targeted dissection in retroperitoneal disease including colonic adenocarcinoma and carcinoid tumours.

AIM

- This four-part video case series aims to highlight the safe and tailored use of robotic RPLND in general surgery.

METHODS

- Four cases of robotic RPLND were included in this case series.
- Table 1 outlines the clinical information and specific type of surgery performed for each patient.
- All surgeries were performed on a Da Vinci Xi platform.
- The video vignette details the technique for the retroperitoneal dissection for each case.
- Boundaries and key structures for each case are labelled (Fig 1-4).
- Run time of the video is 8 minutes and 17 seconds.

RESULTS

Table 1 Summary of clinical details for the case series.

<table>
<thead>
<tr>
<th>Case</th>
<th>Age</th>
<th>Sex</th>
<th>Pts</th>
<th>Surgery</th>
<th>Indication</th>
<th>OT [mins]</th>
<th>LoS [days]</th>
<th>Post-op complications</th>
<th>Histopathology</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>71</td>
<td>Male</td>
<td>Obesity, renal fibrosis, T2DM, mithaemic heart disease</td>
<td>Robotic right hemicolectomy + selective RPLND</td>
<td>Multiple PET avid small bowel and retroperitoneal lymph node neuroendocrine lesions</td>
<td>160</td>
<td>3</td>
<td>Nil</td>
<td>Grade 3 multifocal neuroendocrine tumour in terminal ileum and jejunum, 6/22 lymph nodes positive.</td>
</tr>
<tr>
<td>2</td>
<td>79</td>
<td>Female</td>
<td>Right nephrectomy for renal cell carcinoma</td>
<td>Robotic right hemicolectomy + selective RPLND</td>
<td>Incidental PET avid lesion adjacent to inferior vena cava</td>
<td>200</td>
<td>5</td>
<td>Post-operative infection requiring debridement at 1-month post op</td>
<td>Grade 1 neuroendocrine tumour as mesenteric nodule.</td>
</tr>
<tr>
<td>3</td>
<td>58</td>
<td>Male</td>
<td>Previous anterior resection for sigmoid adenocarcinoma</td>
<td>RPLND with 3D modelling</td>
<td>Malignant retroperitoneal lymph node at aortic bifurcation</td>
<td>180</td>
<td>6</td>
<td>Nil</td>
<td>Metastatic colorectal adenocarcinoma within multiple adherent lymph nodes at aortic bifurcation.</td>
</tr>
<tr>
<td>4</td>
<td>24</td>
<td>Male</td>
<td>Non-Hodgkin's Lymphoma (chemotherapy 5-years prior)</td>
<td>Selective, left-sided para-aortic RPLND</td>
<td>Increasing PET avid, left, para-aortic lymph nodes</td>
<td>130</td>
<td>2</td>
<td>Nil</td>
<td>Benign, reactive para-aortic lymph nodes (p/L).</td>
</tr>
</tbody>
</table>

DISCUSSION

- This video case series presents a new frontier in robotic retroperitoneal surgery as it illustrates a pathology-selective approach to dissection.
- The video presents the role of robotic RPLND for a range of retroperitoneal pathologies (Table 1).
- Certain technically difficult cases (case 3) may only be possible due to the advantages of the robotic platform which allows for precision of dissection.
- The preliminary results for the four cases demonstrate safe use of the robotic platform for RPLND.

REFERENCES