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.

Fig 1. Intra-operative view from case 1. Robotic right hemicolectomy and selective RPLND completed with final dissection boundaries labelled.

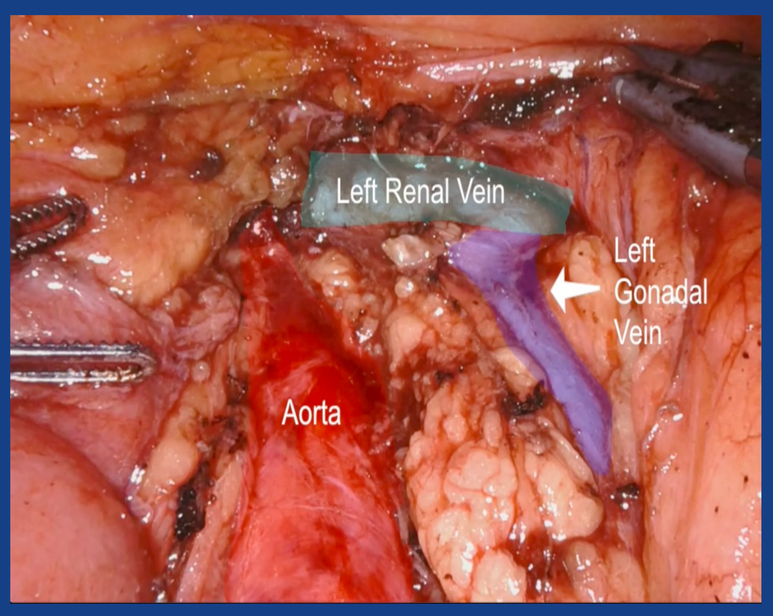


Fig 2 Intra-operative view from case 2. Robotic right hemicolectomy and selective RPLND completed with boundaries labelled.

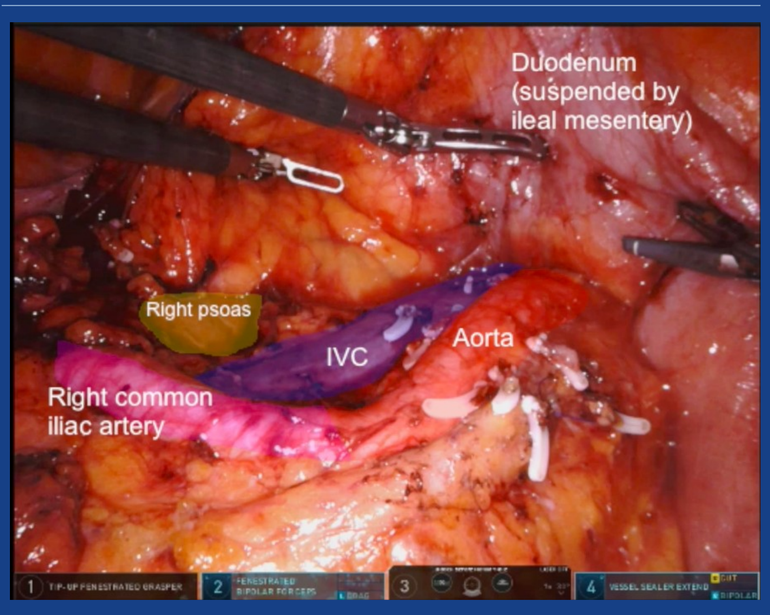


Fig 3 Intra-operative view from case 3. Selective dissection of the aortic bifurcation malignant lymph node completed with boundaries labelled. 3D modelling used concurrently (inferior).

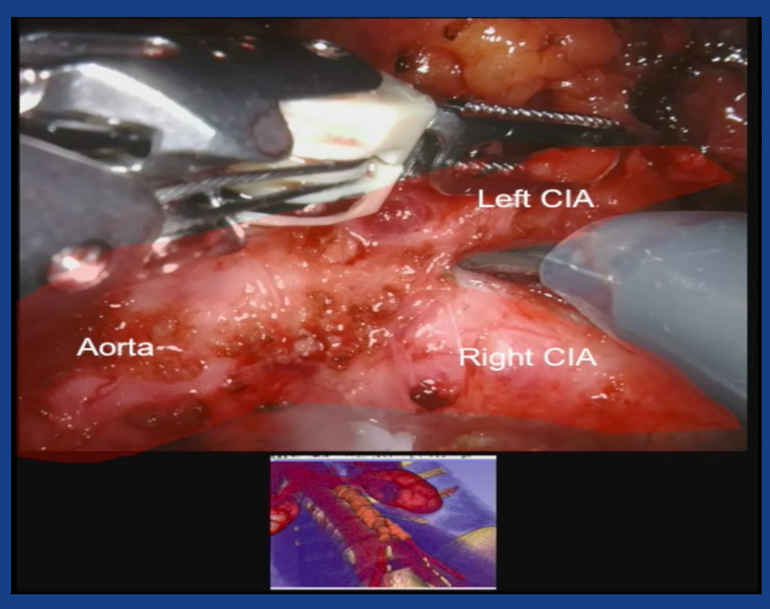
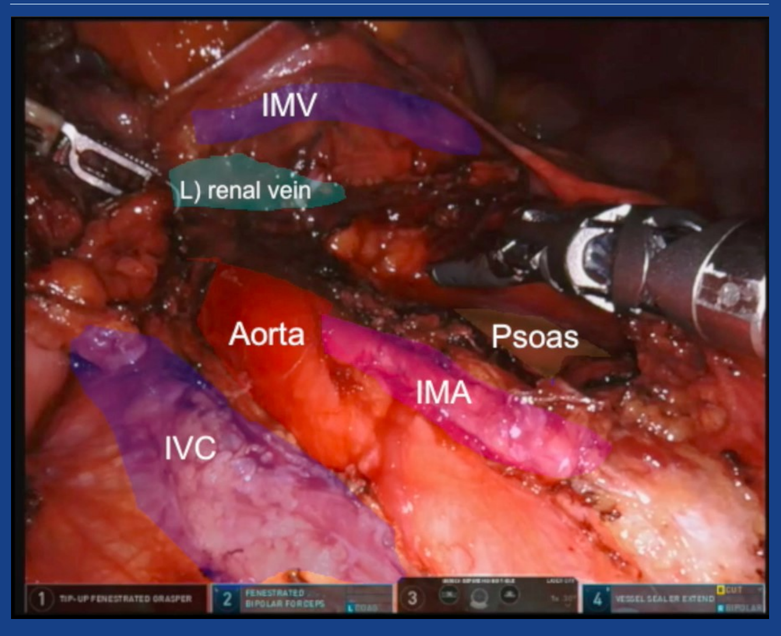


Fig 4 Intra-operative view from case 4. Selective left para-aortic lymph node dissection with boundaries labelled.



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.

Case	Age	Sex	PHx	Surgery	Indication	OT (mins)	LoS (days)	Post-op complications	Histopathology
1	73	Male	Obesity, atrial fibrillation, T2DM, ischaemic heart disease	Robotic right hemicolectomy + selective RPLND	Multiple PET-avid small bowel and retroperitoneal lymph node neuroendocrine lesions	160	3	Nil	Grade 2 multifocal neuroendocrine tumour in terminal ileum and jejunum. 6/22 lymph nodes positive.
2	79	Female	Right nephrectomy for renal cell carcinoma	Robotic right hemicolectomy + selective RPLND	Incidental PET-avid lesion adjacent to inferior vena cava	200	5	Pfannenstiel site infection requiring debridement at 1-month post op	Grade 1 neuroendocrine tumour as mesenteric nodule.
3	58	Male	Previous anterior resection for sigmoid adenocarcinoma	RPLND with 3D modelling	Malignant retroperitoneal lymph node at aortic bifurcation	180	6	Nil	Metastatic colorectal adenocarcinoma within multiple adherent lymph nodes at aortic bifurcation.
4	24	Male	Non-Hodgkin's Lymphoma (chemotherapy 5-years prior)	Selective, left-sided para-aortic RPLND	Increasing PET-avid, left, para-aortic lymph nodes	130	2	Nil	Benign, reactive para-aortic lymph nodes (0/8).

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

1. Mittakanti HR, Porter JR. Robotic retroperitoneal lymph node dissection for testicular cancer: feasibility and latest outcomes. Curr Opin Urol 2019; 29:173.