



Two-Arm Robotic-Assisted High Anterior Resection: a Cost-Effective Way to Perform Robotic Surgery

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Abstract

In the era where laparoscopic colorectal surgery is well established, robotic-assisted colorectal surgery is gaining increasing popularity and acceptability. Stable camera platform, superior 3D views, and articulating instruments help to overcome difficulties associated with standard laparoscopic surgery. However, a significant drawback of robotic surgery is the cost of the robotic system and relevant disposable equipment compared to conventional laparoscopic surgery. This image series depicts a novel method to perform laparoscopic high anterior resection in a more cost-effective way.

Keywords Robotic surgery · Anterior resection · Cost-effectiveness

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Standard robotic-assisted high anterior resection uses 3 robotic arms (scissors, cadial forceps, and bipolar

forceps), apart from the camera arm. In our practice, instead of utilizing all 3 arms, we use scissors and bipolar forceps only (Figs. 1 and 2). This is facilitated by positioning the port sites depicted in schematic Fig. 1.

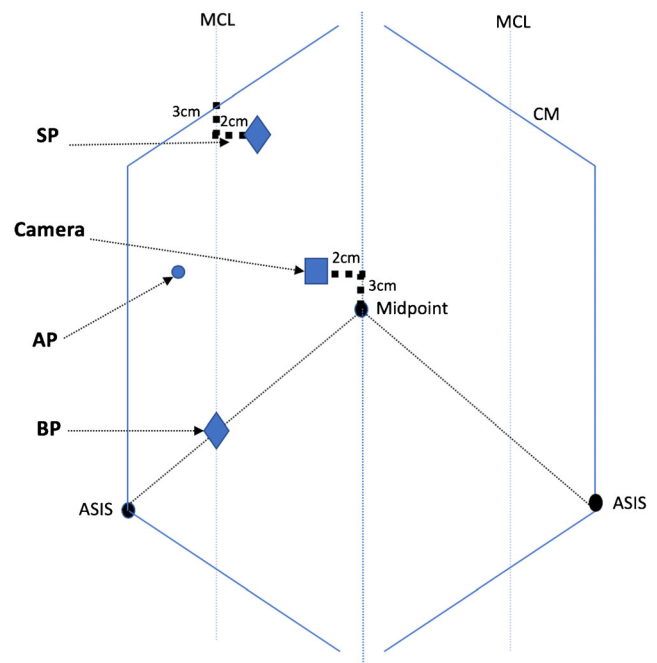


Fig. 1 Schematic diagram showing port placements employed in the “2-arm technique.” *MCL* midclavicular line, *CM* costal margin, *ASIS* anterior superior iliac spine, *SP* scissor port, *AP* assistant port, *BP* bipolar port

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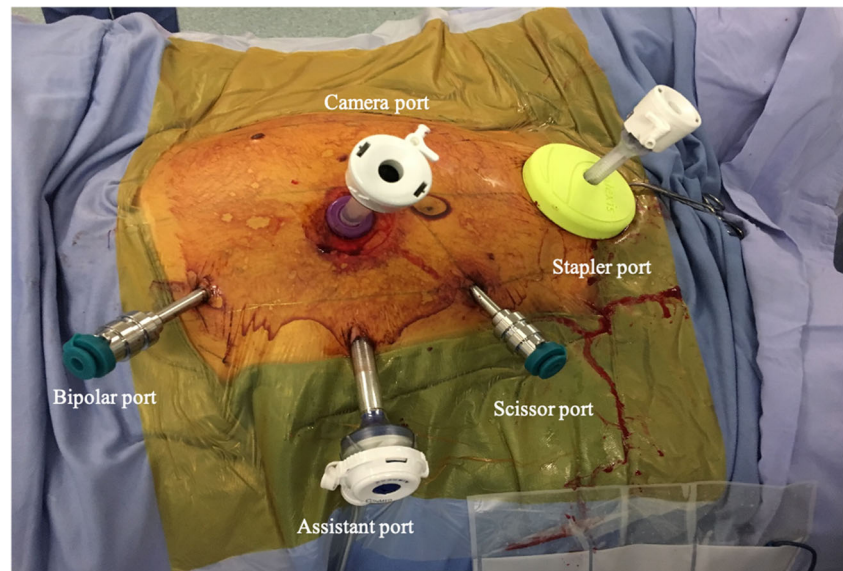
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Fig. 2 Port placements during employed during “2-arm technique” for robotic-assisted high anterior resection



The positioning of the ports allows space for an additional port to be inserted for a 3rd arm should additional retraction needed.

By using the 2-arm technique, we have shown that robotic high anterior resection can be performed safely and cost-effectively. This technique saves £180.00 (\$240.00) for every robotic high anterior resection and has been successfully employed to treat 30 patients to date. We hope this method can be adopted widely and help make robotic-assisted colorectal surgery a more cost-effective and widely utilized procedure (Figure 3).



Fig. 3 Mounted arms for robotic-assisted high anterior resection

Availability of Data Available on request.

Code Availability Not applicable.

Declarations

Ethics Approval Not applicable.

Consent to Participate Written consent was received from patients concerned.

Consent for Publication Consent was received for publication.

Conflict of Interest Not applicable.

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