

Robotic-assisted, single-site surgery: Having your surgical cake and eating it too!

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Urologists have struggled to introduce single-port surgery into clinical practice for a variety of reasons: cost, questions about the degree of benefit when compared with “traditional” multi-port laparoscopy, and surgical challenges in using the technique. With ports so close together, triangulation is lost, there is often clashing of instruments, and reconstructive aspects of the procedure (particularly intracorporeal suturing) become more difficult. The idea of taking fairly routine procedures (laparoscopic simple or radical nephrectomy or laparoscopic pyeloplasties) and making them ever more technically challenging is a daunting one!

Robotic-assisted, single-site surgery has dangled the prospect of being able to have your surgical cake and eating it too: perform single-site surgery with all the benefits to the patients, without needing to worry about crossed instruments (since the Si model can eliminate that problem entirely), and also without needing to fight with your surgical assistant/camera-holder for precious space at the bedside. The superior ergonomics of the robotic-assisted approach for the surgeon are also obvious.

Law et al¹ nicely demonstrate (albeit with a small sample size), that two approaches to robotic-assisted, single-site pyeloplasty are feasible and workable, although each approach has its own advantages and disadvantages. The GelPort is more flexible (in terms of number and size of ports or instruments that can be used), accommodates different body wall thicknesses better, but requires a larger incision size. The Intuitive single-site access port system requires a

smaller incision size, but has a fixed number of ports, more issues with carbon dioxide leakage, and does not accommodate thick (or very thin) abdominal walls.

One limitation of the technology available at the time the authors performed their study was the lack of 5 mm wristed instruments (especially of 5 mm wristed needle drivers). They were able to circumvent this by using a standard 8 mm wristed needle driver either through the GelPort or through the assistant port of the robotic SS port. Today, however, wristed 5 mm needle drivers are available and will further facilitate single-site surgery, particularly the suturing component.

Is single-site surgery the killer app for the robotic platform? It may be that the robot is the killer app for the single-site surgery; the robot can greatly facilitate laparo-endoendoscopic single-site surgery procedures by shortening the learning curve and minimizing the downsides of the technique. However, cost and lack of availability across the country continue to be barriers in the Canadian healthcare system now, and for the foreseeable, short-term future.

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Reference

1. Law J, Rowe N, Archambault J, et al. First Canadian experience with robotic single-incision pyeloplasty: Comparison with multi-incision technique. *Can Urol Assoc J* 2016;10(3-4):83-8. <http://dx.doi.org/10.5489/cuaj.3440>

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