



# A critical evaluation of the role of robotic-assisted surgery in complex pediatric urology cases

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The authors of this manuscript should be commended for undertaking this difficult work. Complex robotic reconstruction is no easy task and the collaboration at their institution and willingness to advance this technology should be positively recognized. Some of the key factors to examine critically with utilization of new surgical technology to established “historical” operative norms include success and complications, convalescence, cost and cosmesis. In that regard let’s evaluate these individually.

With regard to convalescence and cosmesis, laparoscopic and robotic surgeries have resulted in less pain medication requirements and decrease post-operative hospital stays for patients across surgical disciplines. This is obvious for adults but less so for children. For example, such benefits are undoubtedly true when one compares a laparoscopic *vs.* open cholecystectomy in adult and pediatric patients. With the advancement of minimally invasive surgery to more and more complex procedures we must ask ourselves what is the true benefit, if any? To date there is one paper that examines cosmesis preferences of parents when a midline incision is compared to several robotic port sites. The authors did, in fact, show that parents prefer multiple small incisions versus one large one (1). Whether this translates into “improved” cosmesis is debatable. On the convalescence side the authors show a median length of stay of 5 days which, subjectively speaking, seem faster than most patients undergoing equivalent open procedures. However there is no comparison group to really allow us to show superiority in this regard.

Success and complications are also difficult to compare to an open cohort since a head to head trial, to my knowledge,

has never been performed. As the authors and others have shown the operative time for these procedures is long (2) and one must ask does the potential improved convalescence and cosmetic outcome outweigh the increased anesthetic time. The same must be asked about the potential increased cost of robotic surgery especially given the longer operative times which tend to be the major driver of cost in these cases. Although this is a small cohort the short-term outcomes regarding dryness of urine and stool are excellent.

An important aspect to discuss which is inherent to this patient population is the post-operative consequences of neurogenic bowel. Because of these patients’ underlying condition, it has been my experience that some recover bowel function quickly and some have a prolonged ileus which can greatly extend their length of stay. To this day I have not been able to predict which patients will recover bowel function earlier although I suspect that extensive intra-abdominal adhesions secondary to shunt tubing play a role in this.

Lastly, and in my opinion most importantly, robotic technology with its magnified optics and wristed instrumentation provides the subjective advantage of surgeon access in this particular patient population. Patients with neurogenic bowel and bladder secondary to spinal dysraphism tend to have multiple extremity contractions and spinal scoliosis. These factors can make access, particularly to the deep pelvis, very difficult with “traditional” open methods.

In short, the authors should be commended for this undertaking. I do envision that as we improve in patient selection and as we gain experience with complex robotic

reconstruction that we will be better able to ascertain which patients may or may not benefit from this technology.

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### Footnote

*Conflicts of Interest:* The author has no conflicts of interest to

declare.

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