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Why a robot took my bladder

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ANZ Journal Editorial

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Coughlin and his Brisbane colleagues are to be congratulated for presenting such a large series of robotic cystectomy and urinary diversion procedures with excellent outcomes¹.

Coughlin and Yaxley previously published in 2016 in Lancet the only trial randomising robotic prostatectomy against open prostatectomy². Interestingly in that study it was difficult to define what the true measurable outcome differences were. In this paper we have a single surgeon series of 100 cases where one of the most challenging open surgeries in urology radical cysto-prostatectomy and urinary diversion was performed using the robotic approach. In the majority of cases the urinary diversion was undertaken intracorporeally.

Again the authors have demonstrated non inferiority of the robotic approach to open surgery, in a series which included a robotic learning curve for the procedure when they commenced doing this procedure in 2012. Historically open radical cystectomy has a 25-30% major complication rate reported in many series³. Bladder cancer is predominantly a male disease, and patients who develop this cancer often are elderly, have severe comorbidities, in particular cardiovascular disease and lung disease associated with smoking. It is also associated with a 1-3% mortality, which has remained stubbornly fixed over time.

In our experience of robotic radical cystectomy and intracorporeal diversion at Royal Melbourne Hospital in a smaller series, our outcomes were similar to the Brisbane report⁴. Long operative times in the learning curve and anastomotic uretero-ileo-stricture remain problematic in the early phase. We decided not to perform any extracorporeal component of the surgery as it seems pointless to turn a minimally invasive procedure into an open surgery, losing the potential benefit of the keyhole approach.

An obvious insight gained from this paper is that this operation needs to be performed by very experienced surgeons working with the team, in a in a centre where there is a high-volume of cystectomy and urinary diversion in order to optimize satisfactory outcomes.

In the United Kingdom the National Health Service some time ago mandated that cystectomy and diversion for bladder cancer could only be performed in high-volume centres. There is ample evidence in the literature that complication rates are lowered when this complex surgery is performed in centres where there are dedicated teams of surgeons undertaking this procedure⁵.

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In Queensland, from 2002 to 2016, there were 1230 radical cystectomy operations performed, average 80/year⁶. It seems timely, stimulated by this excellent and provocative paper, to have a discussion around centralisation of cystectomy surgery, be it open or robotic. Intuitively it seems inevitable that all major urologic surgeries will be performed robotically. This will include nephrectomy, partial nephrectomy, cysto-prostatectomy and urinary diversion, radical prostatectomy and retroperitoneal lymph node dissection. It is also clear, as promoted in this article, that the ERAS enhanced recovery program does indeed improve post-operative recovery and shortens length of stay. It is also noteworthy that 36% of this cancer cohort were able to be safely given neoadjuvant chemotherapy without compromising outcomes by increasing post-operative complications. It is now feasible to use neoadjuvant chemotherapy prior to cystectomy for bladder cancer to improve cancer specific survival in a disease which has remained stubbornly resistant to improved cancer specific survival over the past 40 years. Radical cystectomy only became surgically widespread as a safe operation in the 1980s.

The finding of equivalent outcomes to open radical cystectomy using a robotic approach is heartening. My view is that all cystectomy will be performed robotically in major centres, by dedicated teams of highly skilled robotic surgeons, working in tandem, one team performing the cystectomy and the other performing the diversion.

In 2020 there will be a much wider distribution of the new robotic surgical technology into the teaching hospitals where our surgical trainees learn their craft. Cambridge Medical Robotic Systems and Medtronic Robotic Surgical Systems will enter the market in 2020 in Australia. The presence of these new and less expensive technologies will mean our Australian public health system will be able to afford to install these machines. It will be possible then to train Australian SET surgical students in foundational robotics and craft-based procedures such as radical cystectomy. The next few years will herald a dramatic change in provision of surgical training in a teaching hospital using these modern technologies.

References

1. Honore M, Roberts MJ, Teloken P, Morton A, Navaratnam A, Coughlin GD. Outcomes and learning curve for robotic-assisted radical cystectomy: an Australian experience ANJ J Surg. Early View 02 September 2019 <https://doi.org/10.1111/ans.15413>
2. Yaxley JW, Coughlin GD, Chambers SK, Occhipinti S, Zajdlewicz L, Duglison N, Carter R, Payton DJ, Perry-Keene J, Flavin M, Gardiner RA. . Robot-assisted laparoscopic prostatectomy versus open radical retropubic prostatectomy: early outcomes from a randomised controlled phase 3 study. *Lancet*. Sep 10 2016;388(10049):1057-1066.
3. Stimson CJ, Chang SS, Barocas DA, Humphrey JE, Patel SG, Clark PE, Smith JA, Cookson MS. Early and Late Perioperative Outcomes Following Radical Cystectomy: 90—Day Readmissions Morbidity and Mortality in a Contemporary Series. *J Urol*. 1 Oct 2010. <https://doi.org/10.1016/j.juro.2010.06.007>

4. Chow, K, Zargar, H, Corcoran NM, Costello AJ, Peter JS, Dundee P. Robotic-assisted radical cystectomy with intracorporeal urinary diversion versus open: early Australian experience. ANZ J Surg. 2018;88: 1028-1032.
5. Liedberg F, Hagberg O, Aliabery F, Gardmark T, Hosseini A, Jahnsen S, Jancke G, Ierlstrom T, Malmstrom P, Sherif A, Strock V, Haggstrom C. Period-specific mean annual hospital volume of radical cystectomy is associated with outcome and perioperative quality of care: a nationwide population-based study BJUI 05 April 2019 <https://doi.org/10.1111/bju.14767>
6. Coughlin, GD, Youl, PH, Philpot S, Wright MJ, Honore M, Thiele DE for Cancer Alliance Queensland. Outcomes following radical cystectomy: a population-based study from Queensland, Australia. ANZ J Surg 14 May 2019 <https://doi.org/10.1111/ans.15259>