Transanal total mesorectal excision: current updates and future challenges

Treatment of rectal cancer remains a significant challenge. Improvements in imaging, selective use of chemoradiation, and the standardisation of total mesorectal excision (TME) surgery have all helped to improve locoregional recurrence in affected patients (1-4). The safe adoption of minimally invasive surgery for rectal cancer surgery however has remained a challenge (5,6).

Transanal TME was introduced to overcome some of the difficulties inherent with difficult proctectomies. The fixed narrow bony pelvis in a male, the potential for a bulky mesorectum in obese patients and a bulky tumour all present their own technical challenges for the surgeon. Transection of the distal specimen in a precise manner can also be difficult in such cases, particularly where minimally invasive surgery techniques are sought. Even in the open era of colorectal surgery, the introduction of novel open techniques existed to deal with this problem. One such technique was the APPEAR technique which involved a perineal incision to facilitate more accurate low dissection and transection (7).

The evolution of transanal TME surgery has also been aided by technological advances. These specific improvements include improved platforms to perform transanal surgery, devices that maintain pneumo-insufflation as well as evacuate smoke in the confined pelvic cavity and improved instrumentation that allows for single port surgery.

Following cadaveric trials, Sylla and Lacey undertook the first human live transanal total mesorectal excision (taTME) in 2009 (8). This operation was a success and further cases were performed in Europe and the UK, USA which then filtered down to Australia, NZ and Asia at large. The adoption of the technique however has had many speed bumps, including a novel complication profile (9). These included but were not limited to a urethral injury, which in turn led to training courses being delivered around the world. This again was followed by standardised proctorship in many societies.

Transanal TME is at another speed bump, and this relates to its oncological safety. The aerolisation of tumor cells through the pelvic cavity could lead to a multifocal spread of cancer and higher local recurrence rates. Again, these findings mainly by European centres have led to careful evaluation of the technique and further modifications of the low distal purstring, as well as updated guidelines on who and what cases are appropriate.

In this series, we have some of the best minimally invasive colorectal surgeons in the world contributing literature reviews, personal experiences and presenting clinical data related to transanal TME surgery. The articles look at the reasons for taTME as well as the arguments against taTME. The UK/European/North American and Australasian training programs are evaluated in detail (10-12). The pitfalls and challenges of the technique are discussed. Transanal TME’s role in non-cancer IBD surgery is highlighted, while the complexities of taTME and its convergence with emerging robotic technologies are also discussed. In addition, a chapter is devoted to the role of false planes in taTME in performing beyond TME surgery. Finally, we have Antonio Lacey writing on taTME into the future.

The guest editors hope that you enjoy the series and believe that it could not have come at a better time in defining the role for taTME in rectal surgery. We hope that this body of work will help clarify the history, current place, and future direction of this specialised technique.

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