



# We Asked the Experts: Surgical Approach to Low Rectal Cancer—Where Innovation Happens

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## Introduction

Over the last decade, we observed a paradigm shift in the treatment of locally advanced rectal cancer (LARC) with an increasing trend towards non-surgical management, yielding complete clinical response rates of up to 30% after total neoadjuvant chemotherapy or intensified chemoradiation. In addition, some protocols promote local excision and nonsurgical treatment to increase the chances of avoiding radical surgery. In contrast, non-responders to organ-preserving strategies continue to require total mesorectal excision (TME) according to the highest quality standards.

Several technical approaches to low rectal cancer have been suggested. While most surgeons nowadays endorse the advantages of minimally invasive surgery (MIS), the best technique is still controversial. Whether laparoscopic, robotic, hybrid, or transanal (taTME) approaches are best suited is controversially discussed, especially in the light of contradictory evidence regarding many of these platforms. Choosing one approach over another should be guided by data, training, hospital resources, and a critical appraisal of surgeon capabilities, all essential to ensuring the best

possible outcomes. The authors would like to share some benefits related to the robotic platform from their perspective in light of recent evidence and personal experience.

### 1. *Training matters*

The ROLARR trial (usually cited as the best evidence against widespread robotic implementation) failed to demonstrate an advantage in robotics' conversion and morbidity rates compared to a laparoscopic method [1]. However, the undeniable linear correlation between experience with the robotic platform and outcomes in ROLARR has been repeatedly confirmed by high-volume facilities, including ours, and current level A evidence [2–4]. Whether a randomized trial with a heterogeneous surgeon population or cohort studies out of high-volume facilities with longstanding MIS experience and structured, standardized teaching programs are better suited is debatable. Nevertheless, the sustained implementation of the robotic platform globally (> 10 million operative cases) in the most complex of diseases, including multi-visceral resection, points toward its increasing acceptance as a valuable asset in clinical practice.

### 2. *Surgical quality*

The robotic platform provides undeniable advantages regarding dexterity, vision, precision, enabling fluid navigation in narrow spaces such as the deep pelvis compared to rigid laparoscopic instruments. Increasing evidence suggests advantages regarding the completeness of the TME plane, presentation of critical structures, and nerve-sparing dissection, which may

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also positively affect functional recovery [4]. Challenges (i.e., adequate use of the fourth arm, operative choreography) to gain the best possible exposure and flow of operation should be acquired through structured training by experienced surgeons. Training in combination with 30 + TME cases has been identified as necessary to gain mastery and independence [5].

On the other hand, taTME has shown encouraging results in overcoming difficulties related to dissection of the very low rectum when performed by experienced hands. However, the learning curve may be substantially longer, and concerns about oncological safety were raised with increased local recurrence rates [6]. Therefore, preference regarding approach remains a matter of experience, availability of platforms, and local capabilities. From our point of view, taTME does not add additional benefits and does not extend itself to higher tumor positions within the rectum.

### 3. *Work ergonomics*

Work ergonomics is increasingly recognized as a critical metric for young surgeons with decades of careers ahead. For example, pelvic dissection through an open or laparoscopic approach requires unhealthy repetitive stress injury while dissecting the deep pelvis. Several studies focusing on surgeon discomfort and injury demonstrate better work ergonomics at the console, even though high-quality evidence is still lacking. From a personal standpoint, the adjustable position at the console and reduced repetitive stress alleviate chronic injury in both authors' experiences [7]. Improved ergonomics within a working position and reduced repetitive stress will prevent work-related injuries in a busy clinical practice.

### 4. *The cost argument*

A constant in history is initial skepticism toward technical innovation. Minimally invasive techniques have been critiqued for years until undeniable benefits related to functional recovery, pain, and safety, to name a few became evident to everybody. From our standpoint, it is the role of high-volume facilities to test, promote and implement technical innovations and appraise their performance critically. While technology comes at a cost initially, over time, innovation is always deflationary and leads to overall reductions in price. An analysis of our group demonstrated that within these treatment schemes, the cost to society does not differ between different surgical platforms [8]. Moreover, the global financial and business attention toward innovation is focused on advancing robotics. Little to no capital advancement is occurring in other forms of MIS, making robotics the method that is being funded to innovate further. Thus, from our standpoint, the short-

sighted opinions and negative focus on innovation cost must change to encompass a longer-term view.

In conclusion, several surgical approaches to low rectal cancer exist and should be chosen based on the evolving nature of data, experience, training, and skills. However, the personal experience of the authors and rising evidence regarding ease of use, surgical quality, and work ergonomics support the widespread implementation of robotic TME into clinical practice to benefit patients.

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**Declarations**

**Conflict of interest** None to declare.

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