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Surgical Management of Rectal Cancer: Does Robotic Surgery Emerge as the Best Alternative? A Narrative Review

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Abstract
Rectal cancer is one of the most frequently diagnosed malignancies, associated with high morbidity and mortality, which justify the constant interest in fine-tuning the available therapeutic methods and developing new ones. The preference for one surgical technique over another is highly dependent on the stage, the location of the tumor, other patient-related factors and the experience of the surgical team. This article aims to offer a comprehensive review of the surgical modalities utilized at the present time for the curative treatment of rectal cancer, as well as the future directions in this field, pointing out the latest progress and the most recent shifts in paradigm in the management of rectal cancer. The evolution of open surgery, laparoscopy, robotic surgery, and transanal techniques is described in chronological fashion, highlighting the advantages and disadvantages of each procedure. Although open surgery remains the gold standard for emergency situations such as occlusion or massive bleeding, minimally invasive surgery has gained ground over the past decade due to its benefits - faster discharge, lower infection rates, better short-term outcomes, while demonstrating similar oncological long term outcomes as in the traditional surgical approach. The main disadvantage is strongly connected with the training process, especially with gaining experience in complicated cases, as well as the total cost of equipment and maintenance. While robotic surgery has been lately successfully implemented in advanced or/and recurrent low and medium rectal cancer, laparoscopy remains the most utilized minimally invasive modality which has the undeniable advantage of shorter operating time. Additionally, one of the most discussed topics comprises the newly developed transanal techniques which offer an elegant solution for distal rectal tumors, especially in obese patients or with narrow pelvises. Continuous optimization and new developments of surgical techniques in rectal cancer lead to accomplishing the goals of precision medicine.
Key words: rectal cancer, transanal techinque, robotic surgery, laparoscopic surgery