University of Medicine and Pharmacy Tîrgu Mureș

Doctoral School

PhD Thesis Summary:

SPHINCTER SAVING TECHNIQUES IN SURGICAL TREATMENT OF RECTAL CANCER

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This PhD thesis addresses a long debated topic, sphincter saving techniques as an aim of rectal cancer surgery, in nowadays management of the rectal neoplastic disease.

The cases of patients treated for rectal cancers in the 1st Surgery Department of the Tîrgu Mureş Emergency County Hospital, for over 10 years (January 2005 - May 2015), have been studied retrospectively and partially prospective, and a comparative analysis was performed between the methods that sacrifice the anal sphincter and those preserving the sphincter function, as well as between different techniques of sphincter preservation, or for the same technique, as to the type of anastomoses used, mechanical or manual.

These studies, by analyzing the short and long-term postoperative results, aimed as a practical, medical and scientific goal, to evaluate the criteria for establishing the therapeutic indications and to confirm the oncological and functional viability of sphincter preservation techniques.

The paper includes a general theoretical part and a special part of personal research.

The general part, consisting of eight chapters, represents a briefing on the current state of knowledge, using synthetic data from the literature, regarding: the epidemiology and etiopathogeny of rectal neoplastic disease, aspects related to anorectal anatomy and to the physiology of defecation, important clinical and paraclinical assessments and specific anatomopathological aspects in colorectal tumors, detailing the neoplastic dissemination pathways and underlining the importance of a correct preoperative staging. An important segment of the general part is dedicated to the therapeutic management of rectal cancer in which both, the surgical treatment elements are systematized, with a detailed description of the surgical techniques and procedures used in patients with rectal neoplasms, as well as the oncological treatment aspects, radio and chemotherapy (adjuvant or neoadjuvant), in the context of a modern, individualized, complex and multimodal approach to rectal cancer.

In the special part, are presented three, single center, observational studies, predominantly retrospective and, to a lesser extent, prospective, conducted with the approval of the Ethics Commission of the Tîrgu Mureş County Emergency Clinical Hospital. Each chapter of personal research is structured in five subchapters: introduction and objectives, material and method, results, discussions and conclusions.

The first study, named: „**The comparative analysis of sphincter preserving techniques versus the techniques that sacrifice the sphincter contention function”**, included 479 patients treated for rectal cancers by various surgical techniques. For 266 patients a procedure that preserved the anal sphincter function could be performed, but in the other cases the anal sphincter was sacrificed. In this study, an analysis of the immediate and long-term postoperative results, obtained after the preservation techniques compared to those after the operations that sacrificed the sphincter function, was performed. Secondary, were assessed biological, demographic, anatomoclinic, anatomopathological parameters and those related to surgical technique or associated with oncological therapies that can influence the immediate and long-term postoperative outcome. The results showed that rectal resections followed by low anastomoses (colorectal, coloanal), respecting the oncological principles, represent viable and "physiological" alternatives of treatment for low rectal cancer. Sphincter saving techniques used for rectal tumors have the advantages of a shorter period of hospitalization and thus the possibility of a better and faster socio-professional reintegration of patients and are accompanied by higher survival rates.

The second study, named: „**Comparative analysis of sphincter saving techniques”,** comprised 266 consecutive cases in which the surgery was a sphincter function preservation procedure. The aim was to compare the immediate and long-term postoperative results obtained through the various sphincter conserving techniques used for the surgical treatment of rectal cancer. In this comparative analysis, we also tried to find correlations between various biological and demographic parameters, those related to the tumor biology, clinical and anatomopathological characteristics or associated oncological therapies, elements which, together with the surgical techniques used, are influencing the early or late postoperative results obtained after functional conservative interventions. There were no differences between the different sphincter preservation surgical procedures, analyzed in our study, regarding the immediate and long-term postoperative outcomes, from the oncological and functional point of view. Ultralow and intersphincteric rectal resections were viable oncological procedures. The criterion that most influenced the choice of one of the sphincter saving techniques, over the others, was the location of the tumor formation relative to the anal sphincter.

In the third study: „**Comparative analysis of sphincter saving techniques in relation to the type of anastomosis”,** a series of 74 patients with a sphincter sparing procedure, done for rectal cancer, over one and a half year, were enrolled. We analyzed the immediate postoperative results obtained after the procedures that used for the restoration of continuity a manual anastomosis compared to those in which a mechanical anastomosis was performed. No statistically significant differences were found between mechanically performed anastomoses and those done manually, in terms of early postoperative outcome.

The most important factor in achieving good oncological and functional outcomes in rectal cancer treatment is the choice of an appropriate, tailored to the case, therapeutic management.

Key words: rectal cancer, sphincter saving technique, manual anastomosis, mechanical anastomosis