

# Laparoscopic surgery as treatment for rectal cancer

Akademisk avhandling

som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet, kommer att offentligen försvaras i Aulan, CK, Sahlgrenska Universitetssjukhuset/Östra, fredagen den 29 maj 2015 kl. 0900.

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Avhandlingen baseras på följande arbeten:

- I. **A Randomized Trial of Laparoscopic versus Open Surgery for Rectal Cancer**  
H. Jaap Bonjer, Charlotte L. Dreijen, Gabor A. Abis, Miguel A. Cuesta, Martijn H.G.M. van der Pas, Elly S.M. de Lange-de Klerk, Antonio M. Lacy, Willem A. Bemelman, John Andersson, Eva Angenete, Jacob Rosenberg, Alois Fuerst, Eva Haglind. *New England Journal of Medicine* 2015; 372(14): 1324-32.
- II. **Health-related quality of life after laparoscopic and open surgery for rectal cancer in a randomized trial**  
Andersson J, Angenete E, Gellerstedt M, Angerås U, Jess P, Rosenberg J, Fuerst A, Bonjer J, Haglind E. *British Journal of Surgery* 2013; 100: 941-949.
- III. **Patient-reported genitourinary dysfunction after laparoscopic and open rectal cancer surgery in a randomized trial (COLOR II)**  
Andersson J, Abis G, Gellerstedt M, Angenete E, Angerås U, Cuesta M A, Jess P, Rosenberg J, Bonjer, H J, Haglind E. *British Journal of Surgery* 2014; 101: 1272-1279
- IV. **Determinants of global quality of life in patients with rectal cancer**  
John Andersson, Eva Angenete, Ulf Angerås, Martin Gellerstedt, Eva Haglind.  
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# Laparoscopic surgery as treatment for rectal cancer

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## ABSTRACT

### Introduction

Colorectal cancer is the third most common cancer worldwide, with nearly 1.4 million new cases annually, of which about one third suffer from rectal cancer. Laparoscopic surgery has in several surgical fields shown faster recovery, shorter hospital stay, and less pain than open surgery. In rectal cancer surgery firm evidence is lacking regarding oncological safety. Moreover, patient-reported Health Related Quality of Life (HRQL) has become an important outcome in clinical trials, complementing clinically driven endpoints.

### Aim

The aim of this thesis was to assess if laparoscopic rectal cancer surgery is non-inferior to open surgery in terms of loco-regional recurrence, disease specific and overall survival, as well as to compare the outcome regarding health related quality of life and genitourinary dysfunction. We also analysed if there are factors that determine global quality of life.

### Patients and method

The four papers were analysed within the only large randomised international multicentre trial comparing laparoscopic and open surgery for rectal cancer – the COLOR II trial - an open label non-inferiority trial. Between 2004-2010, 1044 patients from 30 centres in 8 countries were included. The HRQL sub-study was optional and included 385 patients.

### Results

In paper I, the primary outcome in COLOR II showed that laparoscopic surgery was non-inferior to open surgery with a loco-regional recurrence rate of 5% in both groups with a difference of 0% (90% CI of -2.6 to 2.6). In paper II and III we showed that there were no differences in HRQL and genitourinary dysfunction between the surgical techniques. In paper IV we discovered pain and fatigue as possible important factors of global quality of life.

### Conclusion

The overall conclusion was that laparoscopic rectal cancer surgery is non inferior to open surgery in rectal cancer in terms of oncological safety. Based on earlier results showing benefits of laparoscopic rectal resection, now is the time to widely implement the technique.

**Keywords:** Rectal neoplasms, Laparoscopy, Quality of life

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