



The effect of diverting stoma on long-term morbidity and risk for permanent stoma after low anterior resection for rectal cancer[☆]

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Abstract

Background: Anastomotic leakage (AL) is a severe complication after low anterior resection (LAR) in rectal cancer surgery. A diverting loop ileostomy has been reported to reduce early clinical AL and thereby decrease short-term morbidity. Less is known if long-term morbidity is affected by a loop ileostomy constructed at LAR.

Methods: At Ersta Hospital, Sweden, 287 consecutive patients were operated on with LAR, 2002–2011. Follow-up time was 3 years after LAR. Due to a shift in routines, 15% were diverted at LAR, 2002–2006 and 91%, 2007–2011.

Data on long-term morbidity and permanent stoma in patients with or without a diversion at primary surgery were compared.

Results: During LAR, 139 patients were diverted (S+), 148 were not (S–). Total rate of AL, both early and late, was 26% in S+ and 30% in S–, $p = 0.25$. Late AL (>30 days after LAR) was found in 6% and 15% were readmitted in the late postoperative period with no difference between the groups. Total length of hospital stay (30 days–3 years after LAR) was longer among S+ compared to S–, mean 7 vs. 4 days ($p < 0.001$).

One out of six ended up with a permanent stoma (17% S+, 14% S–, $p = 0.47$).

Clinical AL was an independent risk factor and the most common cause for a permanent stoma in both groups.

Conclusion: A diverting loop ileostomy at LAR did not reduce long-term morbidity but was associated with a longer total length of hospital stay during a 3-year follow up.

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Introduction

Oncological outcome after rectal cancer surgery has improved over the last decades. One main reason is the implementation of total mesorectal excision (TME)¹ in low anterior resection (LAR). In addition, preoperative

radiotherapy reduces the risk for local recurrence by about 50% and improves overall 10-year survival in radically resected stage III tumours.² Despite these improvements there are still important issues in the postoperative course after LAR that remains to be resolved.

TME surgery and neo adjuvant radiotherapy impair postoperative bowel function and quality of life³ and a significant proportion of patients undergoing LAR end up with a permanent stoma, where a major predictor is postoperative anastomotic leak (AL).^{4–8}

Previous studies have shown a reduction of early clinical AL and urgent reoperations for AL if a diverting loop ileostomy is created at LAR.^{9–13} These studies have had a large

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impact on clinical routines worldwide. However, a diverting stoma is associated with morbidity including the risk associated with stoma closure.^{14–16}

If a loop ileostomy at LAR affect morbidity and risk of AL also after the immediate postoperative period (>30 days) is still not clear.

In a recent prospective cohort study, evaluating short-term morbidity after LAR in relation to a diverting loop ileostomy among patients treated according to an Enhanced Recovery After Surgery (ERAS) program, a loop ileostomy did not influence clinical AL, total rate of acute relaparotomy or hospital stay.¹⁷

The aim with this current study was to assess long-term morbidity after LAR in relation to a diverting loop ileostomy, or not, at primary surgery in the same cohort of patients.

Materials and methods

A retrospective cohort study was performed, approved by the regional ethical committee.

All patients operated on for rectal cancer with LAR, 2002 to 2011, at Ersta Hospital, Sweden, was included. The case mix was similar to the regional and national population of rectal cancer patients in Sweden undergoing surgery with curative intent during the same period.

After new emerging data⁹ showing a reduction of clinical AL when a diverting loop ileostomy was created at LAR, a new strategy was adopted at our institution in 2007, resulting in an increased use of loop ileostomies (Fig. 1). Between 2002 and 2006, 15% had a diverting stoma compared to 91%, 2007 to 2011. There were no other differences in surgical technique, perioperative care and surgeons.

All patients had repeated follow-up after surgery (4 weeks, 1, 2 and 3 years after surgery) with pelvic MRI and CT scan of thorax/abdomen according to a rectal cancer protocol. In patients with a loop ileostomy, a CT scan including rectal contrast and a flexible sigmoidoscopy was routinely performed before closure of the diverting stoma to assess integrity of the anastomosis.

Since 2002, all patients at Ersta Hospital undergoing elective major colorectal surgery are included in the ERAS-protocol. This includes approximately 20 evidence-based interventions with the aim to reduce surgical stress and thereby improve postoperative recovery.^{18,19} Data on patients' characteristics, adherence to the perioperative protocol and clinical outcomes within 30 days postoperatively, were prospectively registered in the international, web-based, ERAS database.¹⁸

Data on late AL, readmissions more than 30 days after LAR, complications due to stoma closure, permanent stoma and oncological outcome were obtained from medical records.

Definitions

Low anterior resection was defined as a complete TME according to the medical record.

Late anastomotic leakage (late AL) was defined as clinical AL diagnosed more than 30 days until 3 years after LAR. For confirmation of AL, symptoms (peritonitis, abdominal pain with elevated CRP, air or faeces through vagina and/or bladder, abdominal abscess) in combination with radiology were mandatory.

Long-term morbidity was defined as late AL, *late readmissions* (>30 days until 3 years after LAR) due to AL,

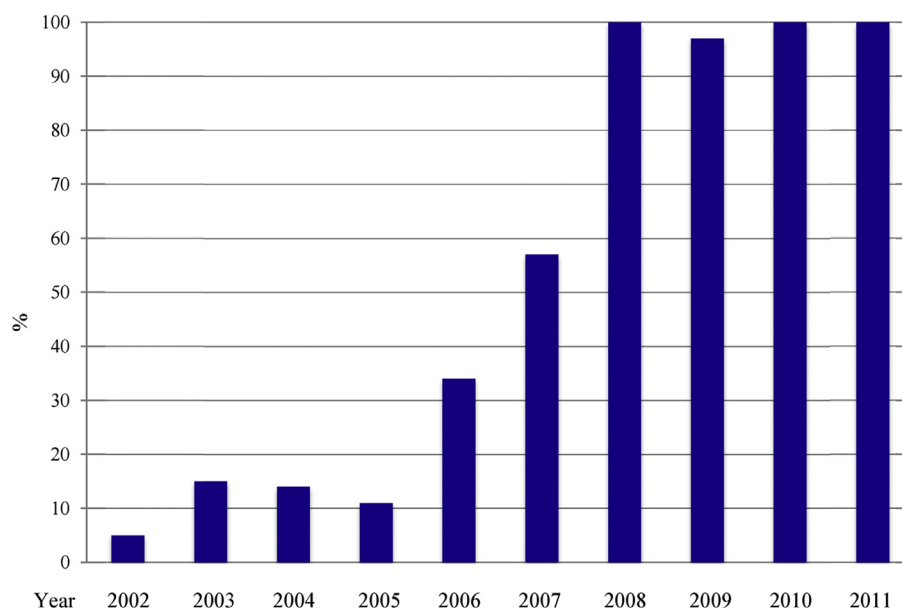


Figure 1. Use of diverting loop ileostomy at LAR 2002–2011 at Ersta Hospital, Sweden.

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