



Review

Outcomes following completion and salvage surgery for early rectal cancer: A systematic review

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Abstract

Objectives: To establish outcomes after completion and salvage surgery following local excision in literature published since 2005, to inform decision-making when offering local excision.

Background: Local excision of early rectal cancer aims to offer cure while maintaining quality of life through organ preservation. However, some patients will require radical surgery, prompted by unexpected poor pathology or local recurrence. Consistent definition and reporting of these scenarios is poor. We propose the term “salvage surgery” for recurrence after local excision and “completion surgery” for poor pathology.

Methods: Electronic databases were searched in February 2016. Studies since 2005 describing outcomes for radical surgery following local excision of rectal cancer were included. Pooled and average values were obtained.

Results: A total of 23 studies included 262 completion and 165 salvage operations. Most completion operations were done within 4 weeks; local recurrence rate was 5% and overall disease recurrence rate was 14%.

The majority of salvage operations for local recurrence were within 15 months of local excision, often following adjuvant treatment. Re-do local excision was used in 15%; APR was the most common radical procedure. Further local recurrence was uncommon (3%) but overall disease recurrence rate was 13%. Estimated 5-year survival was in the order of 50%.

Heterogeneity was high among the studies.

Conclusions: Patients undergoing local excision must be informed of risks and expected outcomes, but better data on completion and salvage surgery are required to achieve this.

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Keywords: Rectal cancer; Local excision; Completion surgery; Salvage surgery

Introduction

Four major goals exist in the treatment of a patient with rectal cancer: disease control, long-term survival, preservation of anal sphincter, urinary, and sexual functions, and maintenance or improvement in quality of life [1]. Historically, aside from improvements in neo-adjuvant treatment, surgical approaches mainly focused on radical oncological

resection by either low anterior resection (LAR) or abdominoperineal excision (APE) even for early rectal cancer (ERC). More recently, local excision (LE) of ERC by either transanal endoscopic microsurgery (TEM) or transanal minimally-invasive surgery (TAMIS) has become an accepted treatment in selected patients, with the advantages of reduced post-operative morbidity and mortality, and less impairment of quality of life. The increase in LE has raised two particular issues. Firstly, current pre-operative staging is imperfect; histopathology may show cancers to be more advanced than anticipated and/or reveal unfavourable features, raising the question of whether and when a completion procedure should be undertaken. The second issue is how

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best to salvage the situation if local recurrence occurs. These two situations can be considered as ‘completion’ and ‘salvage’ surgery respectively.

However these terms are not consistently used in the current literature. We define ‘completion surgery’ as a procedure with curative intent undertaken on the basis of histopathology showing a more advanced cancer than anticipated. We use ‘salvage surgery’ for a surgical procedure with curative intent following the development of local recurrence. Some papers refer to completion surgery as ‘early salvage’; this is confusing as it does not sufficiently differentiate between the two different situations of a) performing more extensive surgery to remove the mesorectum and regional lymph nodes as part of the primary treatment strategy to reduce the risk of later recurrence, and b) dealing with local recurrence once it has occurred.

The literature on completion and salvage surgery is limited as these procedures are relatively rare; most series lack both a sufficient number of patients and adequate follow-up. Furthermore, historical data can be misleading due to different patient populations and poor definition. Our impression is that these techniques carry greater risk than is recognised in the literature, and therefore LE may be undertaken without adequate consideration of the potential consequences. As ERC and LE become more common, a good evidence base of outcomes is necessary to inform both surgeons and patients when deciding to proceed with further surgery. Our objective is to establish the outcomes after completion and salvage surgery in the recent literature to inform decision-making in this situation.

Methods

The review was registered with PROSPERO (number CRD42014014758) and published on the database on 4th November 2014.

Eligibility criteria

The time frame was 2005 to February 2016. Inclusion criteria were limited to human studies in English. Grey areas of literature were not interrogated.

Information sources

The following gold standard resources were searched in August 2014 and February 2016: Medline, Embase and Cochrane Library of Systematic Reviews. In addition the WHO registry of clinical trials and conference abstracts were interrogated.

Search

The following phrases were used: completion, salvage, early salvage, surgery, early rectal cancer, TEM, TEMS,

TAMIS, TEO, local excision, LE, recurrence, transanal, outcome, T1, T2, Stage 1.

Study selection

Titles and abstracts of initially-identified articles were screened by two independent authors to exclude irrelevant publications. The full text of the remaining articles was read by two independent authors to determine eligibility.

Data collection process

Data were extracted from the selected papers by two independent authors and entered into a spreadsheet.

Data items

Data sought were: number of patients, initial surgical procedure, initial tumour stage, use of ‘completion’ and ‘salvage’ terminology, neoadjuvant and adjuvant treatment, type of radical surgery performed, reason for and timing of completion surgery, residual disease, time till local recurrence, tumour staging of recurrent disease, resection margin involvement, local and distant recurrence, follow-up period and survival.

Risk of bias in individual studies

All included studies were cohorts, so risk of bias was assessed using the Newcastle Ottawa quality assessment scale [2].

Summary measures

Principal summary measures were pooled percentages and weighted averages.

Synthesis of results

Studies presented outcomes in different ways that often could not be combined directly. Recurrence rates were obtained by summing the totals for relevant groups. Weighted averages were obtained for median times and survival rates for only those patients where the necessary information was provided.

Risk of bias across studies

Numerous sources of bias were identified. The retrospective nature of most series carries inherent bias. There was a lack of randomised controlled studies where patient selection and subsequent follow-up would be rigorous and more accurately inform local recurrence rates.

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