The American Journal of Surgery (2015) 210, 996-1002

The American Journal of Surgery®

Southwestern Surgical Congress

Routine endoscopic surveillance for local recurrence of rectal cancer is futile

Luke A. Martin, M.D.[a], Molly E. Gross, M.D.[a], Mary C. Mone, R.N., B.S.E.[a], Christopher K. Whiting, B.S.[a], Heidi J. Hansen[a], Elise M. Mecham, M.D.[b], William Peche, M.D.[a], Courtney L. Scaife, M.D.[a,*]

[a]*Department of Surgery, University of Utah, 30 North 1900 East, Salt Lake City, UT 84132, USA;*
[b]*Department of Surgery, University of Texas Medical Branch, Galveston, TX, USA*

KEYWORDS:
Rectal surveillance;
Proctoscopy;
Rectal cancer;
Local recurrence rectal cancer;
Rectal endoscopy

Abstract

BACKGROUND: National Comprehensive Cancer Network guidelines for rectal adenocarcinoma regarding routine surveillance with proctoscopy for local recurrence have been evolving. The purpose of this study was to examine the utility of rectal surveillance.

METHODS: This is a single-center, retrospective review of patients (2004 to 2011) who underwent total mesorectal excision for rectal cancer. The primary end point was cancer recurrence, with detection method(s) noted. The number of surveillance procedures was collected.

RESULTS: The study included 112 patients. There were no local recurrences identified by rectal surveillance. There were 1 local recurrence and 17 distant recurrences (16%). The local recurrence was identified by carcinoembryonic antigen and symptoms. There were 20 anoscopies, 44 proctoscopies, and 495 flexible sigmoidoscopies performed, with estimated charges of $266,000.

CONCLUSIONS: Rectal surveillance at this center was not beneficial. This study supports the recent (2015) change in the National Comprehensive Cancer Network guidelines, which no longer recommend routine rectal surveillance and challenge other society guidelines.

Colorectal cancer is the 3rd most commonly diagnosed cancer in men and women and the 2nd overall cause of cancer-related death in the United States, with an expected 132,700 new cases and 49,700 deaths in 2015. Approximately 70% of cases arise in the colon and 30% in the rectum.[1]

The management of rectal cancer has undergone a paradigm shift over the past 30 years that has improved both local recurrence rates and cancer-related mortality.[2–6] Historically, up to one-third of those undergoing low anterior resection (LAR) with curative intent would develop locally recurrent disease within 5 years.[6–9] Modern data show local recurrence rates ranging from 1.7% to 12%.[10] This reduction is attributable to the adoption of total mesorectal excision (TME), first described by Heald in 1982, and the use of neoadjuvant chemoradiation and adjuvant chemotherapy.[4,11–14]

Given historically high rates of local recurrence, routine endoscopic rectal surveillance became standard. This practice has continued in the current era despite lower

There were no relevant financial relationships or any sources of support in the form of grants, equipment, or drugs.

The authors declare no conflicts of interest.

* Corresponding author. Tel.: +1-801-585-6911; fax: +1-801-585-0159.

E-mail address: courtney.scaife@hci.utah.edu

Manuscript received April 7, 2015; revised manuscript June 24, 2015

0002-9610/$ - see front matter © 2015 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.amjsurg.2015.06.027

local recurrence rates, but its utility has not been well studied. Available published data were not designed to look specifically at endoscopic surveillance, consist of combined colorectal populations, and were frequently not accrued exclusively in the current treatment era.[15–24]

Despite the current lower rates of local recurrence, society guidelines have continued to recommend routine endoscopic rectal surveillance (every 6 months for 3 to 5 years) based on the higher historic rates. The National Comprehensive Cancer Network (NCCN) recommended considering endoscopic surveillance through Rectal Cancer, version 1.2015, without specific references.[25] This recommendation was recently dropped in Rectal Cancer, version 2.2015, with reference to the current lower rates of local recurrence. However, specific surveillance data were not cited.[26] Other society guidelines including the American Society of Clinical Oncology, the American Cancer Society, and the US Multi-Society Task Force continue to recommend endoscopic surveillance for selected or all patients undergoing curative resection for rectal cancer.[27–29]

This is the first publication to evaluate the efficacy and cost of routine endoscopic surveillance for rectal cancer treated with the current standard of care (TME and/or neoadjuvant chemoradiation).

Methods

This is a single-center, retrospective review of patients treated at the University of Utah and Huntsman Cancer Institute. The Investigational Review Board at the University of Utah approved this study with a Waiver of Consent, for patients treated with surgical resection for rectal cancer between 2004 and 2011. All patients diagnosed with stage I to III rectal cancer (*International Classification of Diseases*, *Ninth Revision*, code: 154.1) who were treated with LAR and TME (*Current Procedural Terminology* [CPT] codes; 44145, 44146, 44207, 44208) were identified. Final staging was based on the most advanced stage obtained either from preoperative rectal endoscopic ultrasound and/or rectal magnetic resonance imaging or from final pathology. Patients were excluded if they had less than 1 year of follow-up, synchronous colon cancer, or a familial cancer syndrome with a genetic predisposition to colorectal cancer.

Demographics and follow-up time were collected. For each recurrence, the detection method(s) were noted: symptoms, physical examination, carcinoembryonic antigen (CEA) level, computed tomography (CT) and/or positron emission tomography, or endoscopic surveillance. The number and type (anoscopy, proctoscopy, flexible sigmoidoscopy) of endoscopic procedures performed were collected. The primary end point was cancer recurrence.

Relevant data were collected in Microsoft Excel 2013, and analyses were performed using IBM SPSS Statistics, version 21 (Chicago, IL). Data are reported as the mean ± standard deviation and the median with interquartile range (25th and 75th percentiles) where appropriate.

Results

A total of 137 patients with stage I, II, or III rectal cancer who underwent curative resection with LAR and TME from January 2004 to December 2011 were identified. Twenty-five (18%) of these patients were excluded because there was less than 1 calendar year of follow-up (includes deaths). Of the remaining 112 cases, 75 were male (67%), and 37 were female (33%). The average age was 57.7 ± 12 years (range, 22 to 84 years). Most of the patients, 54 (48%), included in the study had stage III rectal adenocarcinoma, 41 (37%) stage II, and 17 (15%) stage I. Neoadjuvant chemoradiation was given to 86 patients (77%).

Patients included in the study had at least 1 year of follow-up with a range of 1 to 10 years (median, 3.9 years). There were 18 recurrences (16%), 1 local (pelvic nodal) and 17 distant. The majority (14 [78%]) occurred in patients who initially had stage III disease. Two occurred in patients with stage I disease, and the remaining 2 recurrences occurred in patients with stage II disease. Characteristics based on the cancer stage for patients are described in Table 1. Of those with recurrent disease, 11 patients (61%) were male and 7 patients (39%) were female. The mean age at the time of recurrence was 52.6 years (range, 27 to 80).

Of the patients with a distant recurrence, 1 was a retroperitoneal (periaortic) nodal recurrence, and 16 were distant metastases (6 hepatic, 9 pulmonary, and 1 hepatic and/or pulmonary). The local recurrence occurred at 1.3 years. The retroperitoneal nodal recurrence occurred at 2.3 years. The mean time of recurrence in the patients with hepatic metastasis was 1.7 years (range, .7 to 4.2). The mean time of recurrence in patients with pulmonary

Table 1 Characteristics based on stage of rectal cancer at time of low anterior resection with total mesorectal excision

Patient variables	Stage I (n = 17)	Stage II (n = 41)	Stage III (n = 54)
Age (y)	57 ± 12.5	60.4 ± 11	55.8 ± 12.8
Male sex (%)	70.6	65.9	66.7
Recurrence rate per stage, % (n)	11.8 (2)	4.9 (2)	25.9 (14)
Local (n = 1)			100
Liver (n = 6)	17		83
Lung (n = 9)	11	22	67
Periaortic/nodal (n = 1)			100
Liver/lung (n = 1)			100
Median time to recurrence (y)	1.0	3.2	1.8
Median follow-up time (y)	4.4	3.2	4.5