

Small Rectal Carcinoid Tumors in the Absence of Metastatic Disease: Is Minimal Surveillance Adequate Following Resection?

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Introduction

- The overall incidence of carcinoid tumors is increasing.^{1,2}
- The proportion of rectal carcinoid tumors to all rectal tumors increased 248% on comparisons between the early SEER (1973–1991) and late SEER (1992–1999) subpopulations.^{1,2}
- Rectal carcinoids typically present as small tumors, with 60–90% <1 cm at the time of diagnoses.^{2–5}
- Metastases of small rectal carcinoids are rare, with tumors <1 cm metastasizing in less than 2% of patients.²
- Recurrence rates following resection have not been well characterized; however, the 5-year survival rate is excellent at 88.3%.²
- While the evaluation of rectal carcinoids at presentation is fairly well standardized, the follow-up surveillance schedule after resection has not been well established.
- Physician practices differ on the frequency, intensity, and modality of follow-up in these patients, and no guidelines have been established in the United States.

Objectives

- Determine the recurrence rate of small (≤ 1.0 cm), non-metastatic rectal carcinoid tumors.
- Evaluate the post-resection surveillance regimens utilized at our institution.
- Assess the utility of follow-up surveillance methods after resection.

Methods

- Retrospective review of a prospectively maintained rectal carcinoid database; January 1995 through September 2011.
- Information collected: patient and tumor characteristics, treatment, surveillance schedule, recurrence, and survival.
- Data are expressed as mean with standard error (SEM). Two-sided Fisher's exact test and Student's T-test utilized for statistical analysis, values of $p < 0.05$ considered significant.

Results

Figure 1: Patients included in analysis

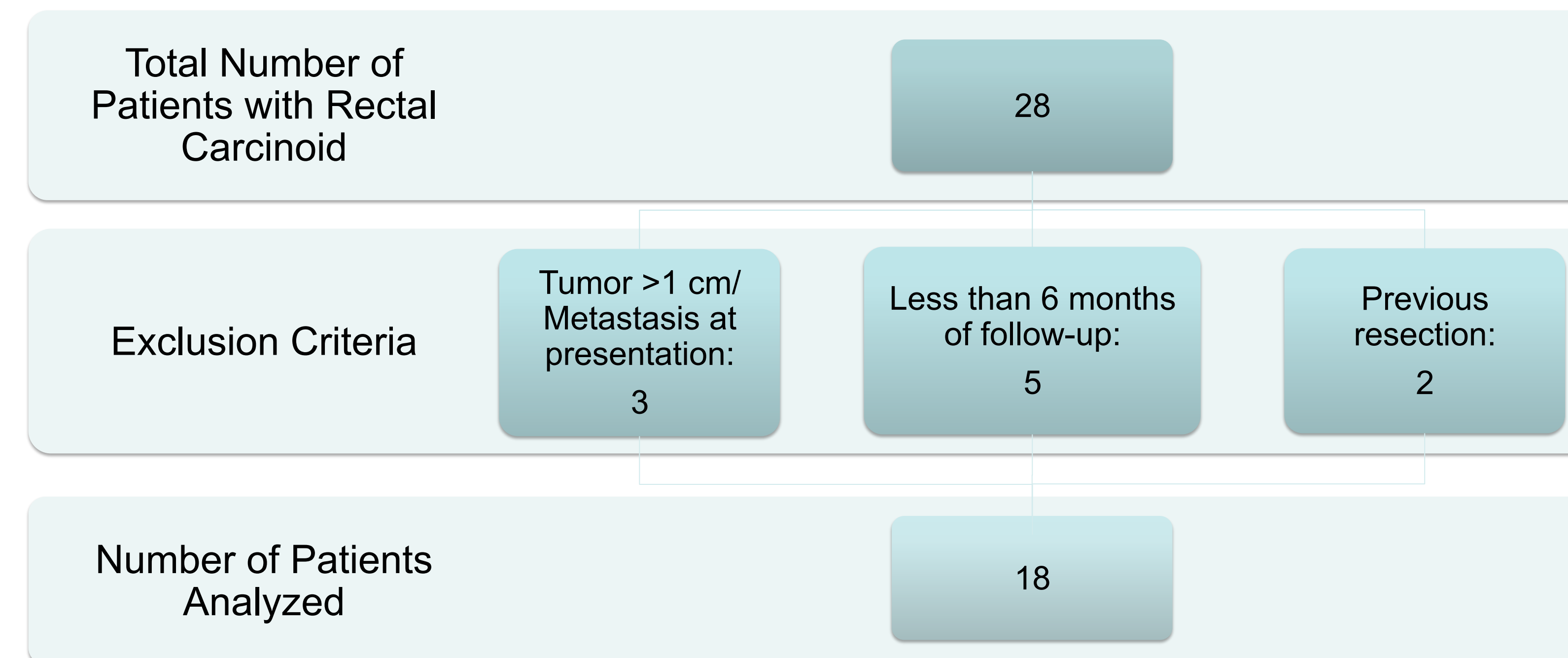
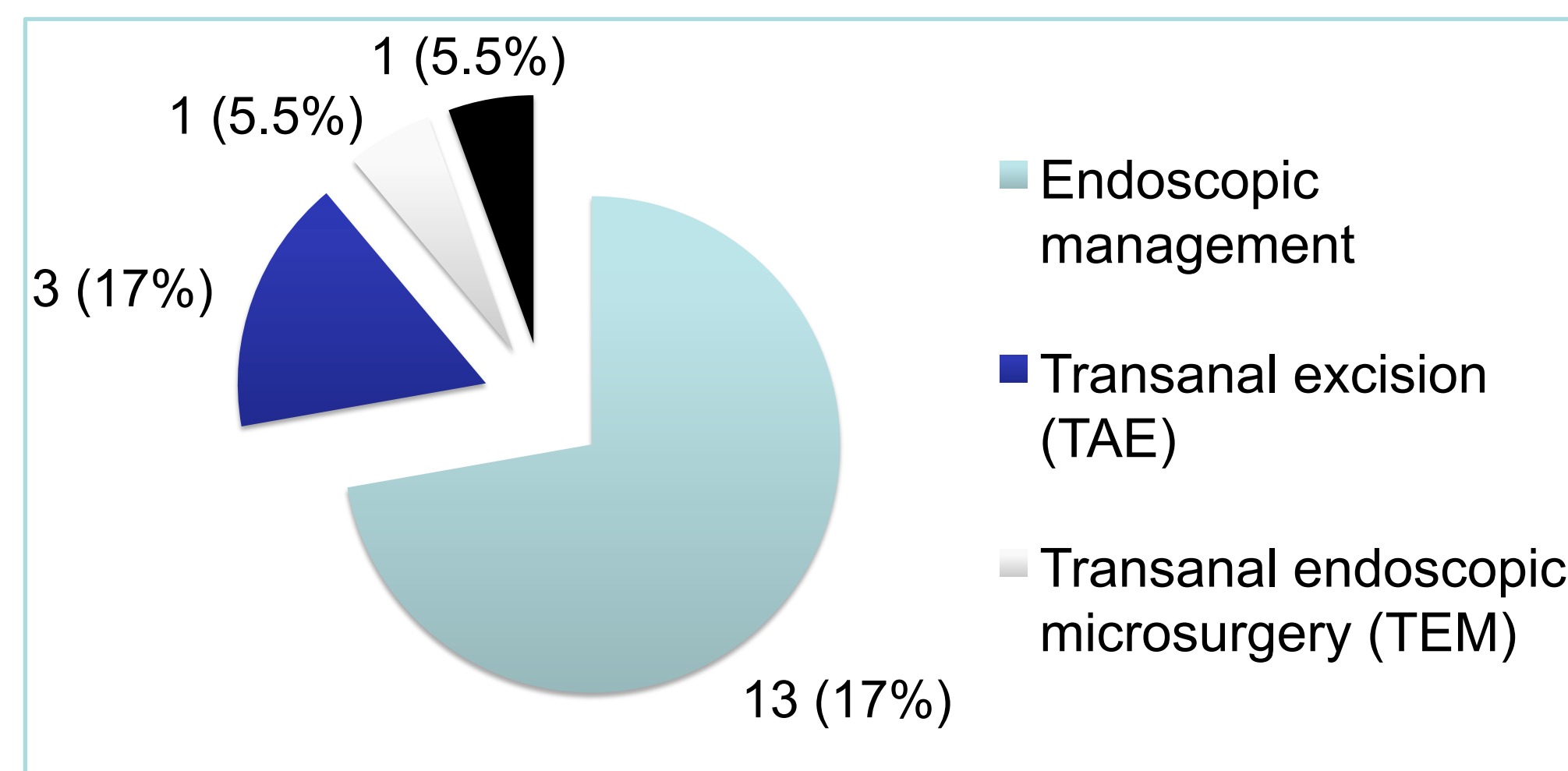


Table 1: Patient characteristics

Mean age $\pm$ SEM, yr (range)	56 $\pm$ 3 (29–82)
Gender: n (%)	Female: 11 (61) Male: 7 (39)
Symptoms on presentation: n (%)	Asymptomatic: 9 (50) Hematochezia: 6 (33) Diarrhea: 2 (11) Constipation: 2 (11)

Figure 2: Treatment Method



Follow-up, Recurrence, and Survival

- Carcinoid-specific follow-up of patients in this series was 5.4 ± 0.9 years (range 0.8–12.3 years)
- Length of disease-free survival was 6.9 ± 0.8 years (range 1.4–12.9)
- 2 patient deaths at 1.4 and 8.2 years after diagnosis, neither carcinoid-specific

Table 2: Pathologic Information

Tumor Characteristics*	No. (%)
Diameter (mm)	
0–5 mm	15 (83)
6–10 mm	3 (17)
Depth of invasion	
T1a [†]	17 (94.5)
T1b [†]	1 (5.5)
Initial margins	
Positive	7 (39)
Indeterminate [‡]	11 (61)

* Mean tumor diameter $\pm$ SEM = 4.6 ± 0.5 mm.
[†] T1: Tumor invades lamina propria or submucosa and size ≤ 2 cm. T1a: Tumor size <1 cm. T1b: Tumor size 1–2 cm.⁶
[‡] The tumor specimen was either in fragments, or the status of the margin was not specified in the pathology report.

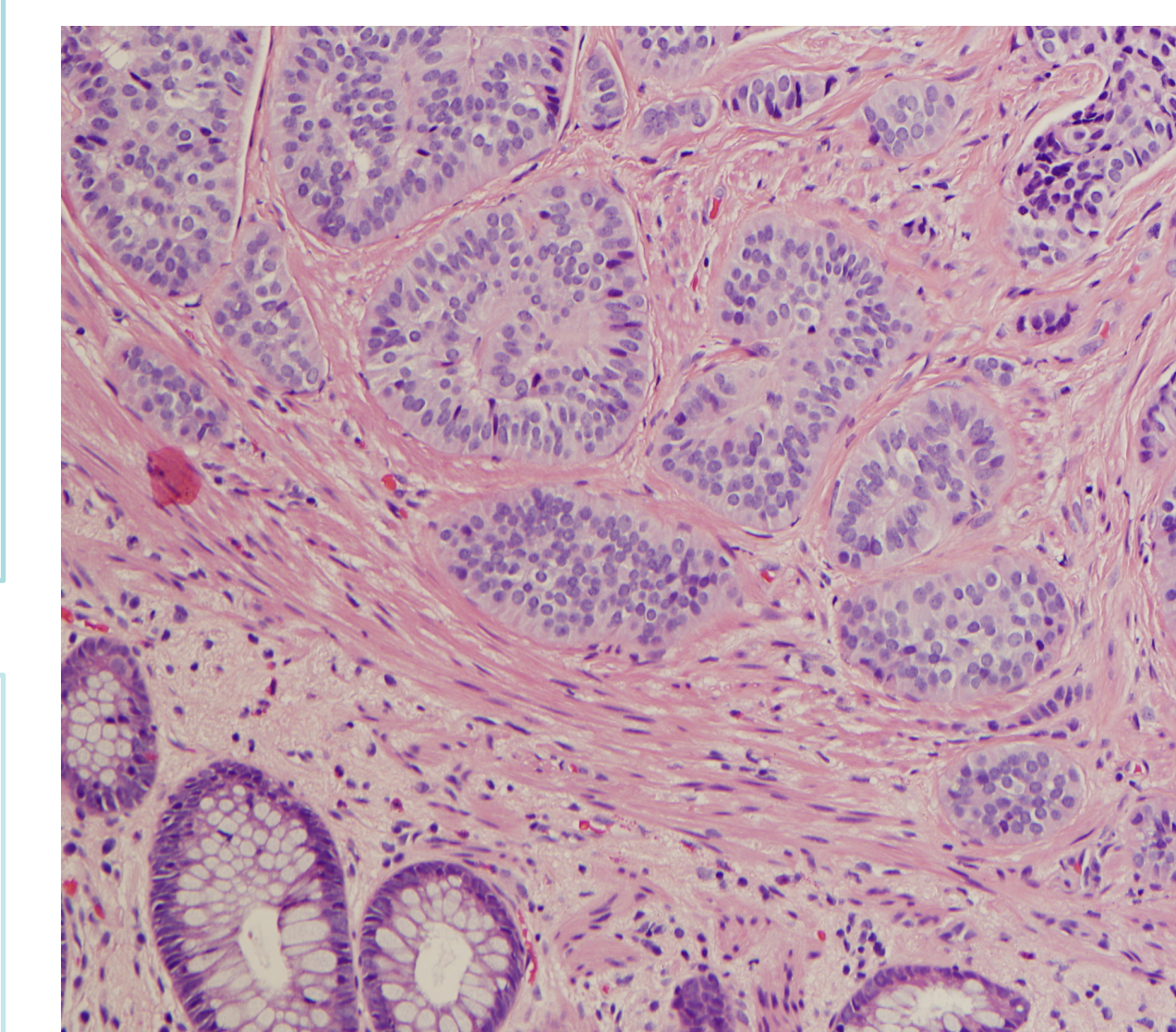


Figure 3: Hematoxylin and eosin stained section of a rectal carcinoid tumor; nests of uniform cells infiltrating the submucosa.

Conclusions

- Based on this experience, patients presenting with small (≤ 1.0 cm), non-metastatic rectal carcinoids are unlikely to develop local or distant recurrence after resection.
- Endoscopy was the surveillance method of choice at our institution.
- No significant differences were observed in post-resection management between surgeons and gastroenterologists.
- Given the absence of recurrence in this cohort, we concur with the European Neuroendocrine Tumor Society 2008 guidelines that patients with tumors <1.0 cm and without regional or distant metastases are unlikely to need scheduled follow-up after rectal carcinoid resection.⁶
- This study highlights the need for standardization of surveillance following resection of small rectal carcinoid tumors.
- A risk-benefit analysis examining the need for scheduled follow-up is essential, primarily because aggressive surveillance with repeat endoscopies or other imaging studies may be unnecessary in this patient population.

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Table 3: Comparisons between surgical and endoscopic groups

	Surgical Management (n=4)	Endoscopic Management (n=13)	P
Mean tumor diameter $\pm$ SEM (mm)	4.5 $\pm$ 1.9	4.7 $\pm$ 0.4	0.73
Margin clearance: n (%)	4 (100)	5 (38)	0.08
Mean length of follow-up $\pm$ SEM (yrs)	7.9 $\pm$ 2.4	5.0 $\pm$ 1.0	0.20
Follow-up endoscopies: mean (median)	3.5 (4)	2.0 (1.5)	0.17