

# Hot Take: Can We Lengthen Surveillance Intervals After EMR With Margin Thermal Ablation?



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This summary reviews O'Sullivan T, Mandarino FV, Gauci JL, et al. Impact of margin thermal ablation after endoscopic mucosal resection of large ( $\geq 20$  mm) non-pedunculated colonic polyps on long-term recurrence. *Gut*. 2024 Dec 10;74(1):67-74.

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*Keywords:* colon cancer screening, endoscopic mucosal resection, colonoscopy, margin thermal ablation

## STRUCTURED ABSTRACT

**Question:** Does margin thermal ablation (MTA) after endoscopic mucosal resection (EMR) reduce the incidence of recurrence at the second surveillance colonoscopy (SC2) compared to EMR alone?

**Design:** Retrospective cohort study.

**Setting:** Four academic endoscopy centers in Australia.

**Patients:** Patients in the Australian Colonic Endoscopic (ACE) Resection Database with a large non-pedunculated colonic polyp (LNPCP) removed with EMR by a study investigator (gastroenterologist with advanced training in endoscopic resection) or senior interventional endoscopy fellow under supervision.

**Interventions:** LNPCPs treated with EMR + MTA from a prior randomized controlled trial (RCT) from July 2013–November 2022 were compared with a historical control arm of LNPCPs treated with EMR alone from January 2012–May 2016. Intravenous sedation with fentanyl, midazolam and propofol was used. EMR was performed using a standard technique including submucosal injection with succinylated gelatin, indigocarmine and epinephrine, with standardized electrocautery settings for snare polypectomy (Endocut effect 3, ERBE) and MTA (Soft Coag: 80W, Effect 4; ERBE).

Patients who underwent successful resection without submucosal invasive cancer underwent SC1 6 months after index resection. Resection scars were examined with high-definition white light (HDWL) and narrow band imaging (NBI). Biopsies were taken from bland scars at the endoscopist's discretion. If no recurrence was detected, SC2 was performed 12 months after SC1.

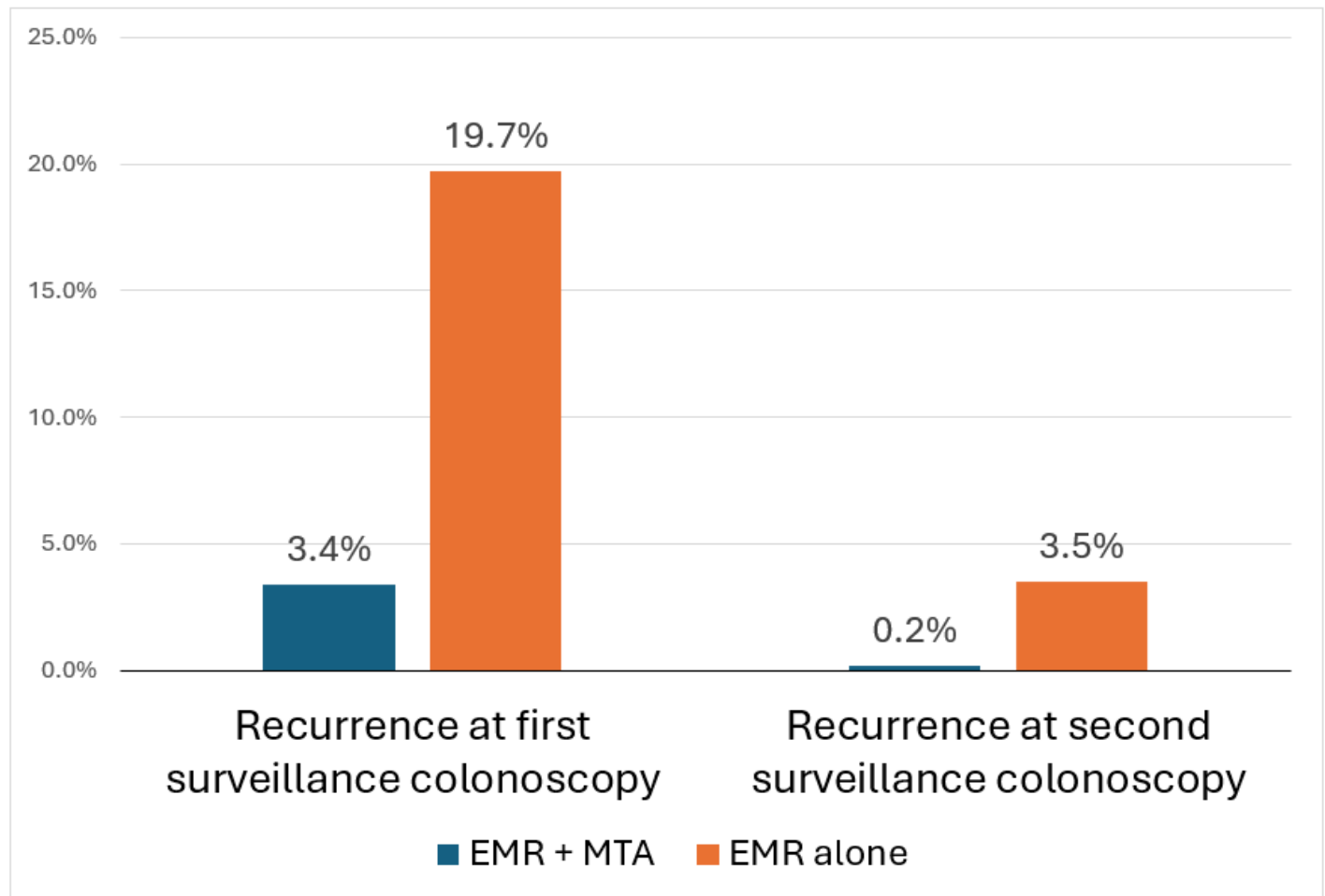
**Outcomes:** The primary outcome was recurrence at SC2 in patients without recurrence at SC1. Secondary outcomes included compliance with SC2, mean surveillance interval at SC2, and recurrence at SC1.

**Data Analysis:** Chi-square tests were used for categorical variables and Mann-Whitney U tests for continuous variables. Multivariable analysis was not possible due to the rare number of outcomes.

**Funding:** None reported.

**Results:** Of 1,152 patients who underwent EMR + MTA, 472 underwent SC2 at a mean interval of 23.2 months from index resection. Of 591 patients treated with EMR alone, 260 completed SC2 at a mean interval of 24.4 months from index. Baseline LNPCP characteristics of patients who underwent SC2 were similar between the EMR + MTA vs EMR arms overall. Of the SC2 cohort of 732 patients, mean polyp size was 35 mm, 175 (24%) lesions were the ascending colon, 146 (20%) were in the transverse colon, 410 (56%) were flat (Paris 0-IIa/IIb or 0-IIc), and 490 (67%) were tubulovillous adenomas. Polyps in the EMR + MTA vs EMR group were more often granular (73% vs 56%;  $P < 0.001$ ) and showed high-grade dysplasia (25% vs 15%;  $P = 0.003$ ). There was 1 (0.2%; 95% confidence interval [CI] 0–1.2%) recurrence at SC2 in the EMR + MTA arm compared to 9 (3.5%; 95% CI 1.6–6.5%) recurrences at SC2 in the EMR arm ( $P < 0.001$ ; relative risk reduction 94%) (Figure 1). Further analysis on missing SC2 data using best-worse

analysis or worst-best analysis found lower recurrence after EMR + MTA vs EMR (0.2% vs 3.5%; 1.1% vs 2.6%, respectively). Recurrence at SC1 after EMR + MTA was 3.4% (29 of 854 patients) vs 19.7% after EMR alone (93 of 473 patients) (Figure 1).



**Figure 1.** Recurrence rates at first and second surveillance colonoscopies.

EMR, endoscopic mucosal resection; MTA, margin thermal ablation.

## COMMENTARY

### *Why Is This important?*

EMR + MTA has been adopted as the standard EMR technique. Multiple studies have demonstrated dramatically improved recurrence rates at 6 months with EMR + MTA vs EMR alone, with the prior RCT by this study's authors showing recurrence of 5% with EMR + MTA vs 21% with EMR alone.<sup>1</sup> This

current study provides needed data about the durability of EMR outcomes with MTA.

Recent guidelines from 2020 recommend SC1 at 6 months after index resection in patients who undergo piecemeal EMR and SC2 at 1 year after SC1

if there is no recurrence at SC1, as was done in this study.<sup>2</sup> These guidelines likely incorporate historic EMR outcomes where there was concern for potential delayed recurrence with EMR alone, with a prior longitudinal study demonstrating recurrence at 16 months from index resection of 4%.<sup>3</sup> However, outcomes after EMR + MTA are much improved, with a meta-analysis showing recurrence after EMR + MTA at SC1 of ~6%, ranging from 3%-12%.<sup>4-6,7</sup>

Surveillance colonoscopy after endoscopic resection can be a burden for patients and health care systems, and strategies to optimize surveillance intervals are needed. Identifying patients in whom surveillance intervals can be tailored and potentially lengthened may improve colonoscopy adherence and quality of life for patients as well as health care expenditures.

### ***Key Study Findings***

Recurrence at second surveillance colonoscopy at 2 years from index resection for adenomatous LNPCPs treated with EMR + MTA was significantly lower compared with those treated EMR alone (0.2% vs 3.5%;  $P < 0.001$ , relative risk reduction 94%).

### ***Caution***

Given the low recurrence rate at SC2 after EMR + MTA, the study authors raise the question of whether the interval for SC2 can be lengthened to 3-5 years after

SC1. However, they raise several important caveats. This study was performed at an expert center, and the study's EMR outcomes may not be generalizable to other centers. Endoscopists conducted high-quality exams to ensure detection of synchronous neoplasia, and the study excluded patients with synchronous neoplasia. Importantly, this study did not specify the proportion of EMRs performed en bloc vs piecemeal, which may impact outcomes since piecemeal resection is associated with a higher recurrence rate. In addition, argon plasma coagulation is sometimes used in practice instead of snare tip soft coagulation; while evidence for this is less robust than STSC, this is likely an effective alternative.

Adherence to surveillance in this study was sub-optimal, which may reflect real-world practice. Only 57% and 76% of patients eligible for SC2 completed colonoscopy in the EMR + MTA and EMR arms, respectively. Each arm had a high proportion of patients who did not undergo SC2 due to patient refusal, inappropriate surveillance recommendation, and loss to follow-up. To address this, the authors compared characteristics between patients with missing SC2 vs. those who completed SC2 and found no significant difference in morphology, granularity, size, location, or presence of dysplasia.

Lastly, it should be noted that there is ongoing discussion about the optimal resection technique for LNPCPs with

endoscopic submucosal dissection (ESD) vs EMR. The recent RCT comparing ESD vs EMR (with MTA) for LNPCPs >25 mm found recurrence at 6 months in 0.6% of ESDs vs 5.1% of EMRs and a higher rate of adverse events with ESD vs EMR (35.7% vs 24.7%).<sup>7</sup> While ESD likely improves recurrence and may allow for increased surveillance intervals, EMR remains a cornerstone of LNPCP resection and is much more widely available in most countries.

### *My Practice*

For LNPCPs  $\geq 20$  mm treated with EMR + MTA, I adhere to current surveillance guidelines recommending SC1 at 6 months. I perform MTA in all large EMRs of adenomatous lesions using snare tip soft coagulation (Soft Coag: 80W, ERBE). For patients without recurrence at SC1, I do recommend SC2 at 12 months after SC1. However, some patients have difficulty adhering to frequent colonoscopies and in practice, SC2 sometimes occurs >12 months after SC1. With the results of this study, I feel more comfortable potentially prolonging SC2 to 18 months from SC1 with patients who may not be able to adhere to SC2 if their polyp had low risk features and there is no recurrence on SC1. Importantly, on the initial colonoscopy, I perform a careful inspection with HDWL and NBI to identify any features of submucosal invasion using the Paris and the Japan NBI Expert Team (JNET) classification systems. If there are any high-risk features of superficial sub-

mucosal invasion (Paris 0-IIc morphology, JNET 2B, increasing size, non-granular morphology) and I do not think I can resect the lesion en bloc, I have a low threshold to refer for ESD given the availability of ESD at my institution. I completed an advanced endoscopy fellowship which included training in EMR and am currently pursuing additional training to perform ESD.

### *For Future Research*

Future studies to identify predictors of recurrence after EMR are needed to risk-stratify LNPCPs that may be higher risk for recurrence and warrant closer surveillance.

### *Conflicts of Interest*

Dr Zhou has no reported conflicts of interest.

### *Abbreviations*

ACE, Australian Colonic Endoscopic; EMR, endoscopic mucosal resection; LNPCP, large non-pedunculated colonic polyp; MTA, margin thermal ablation; RCT, randomized controlled trial; SC1, first screening colonoscopy; SC2, second surveillance colonoscopy.

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