Characterization and significance of protrusions in the mucosal defect after cold snare polypectomy

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Background: Cold snare polypectomy (CSP) is widely practiced; however, the endoscopic features of the CSP mucosal defect have not been studied. In particular, protrusions within the cold snare defect (CSDPs) may create concern for residual polyp. The frequency and constituents of this phenomenon are unknown.

Objective: To describe the frequency, predictors, and histologic constituents of CSDPs.

Design: Prospective observational study.

Setting: Tertiary-care hospital endoscopy unit.

Patients: Eighty-eight consecutive patients undergoing CSP for a polyp $\leq$ 10 mm in size.

Intervention: Inspection of the cold snare mucosal defect with high-definition white light and biopsy sampling of CSDPs for separate histologic assessment, when present.

Main Outcome Measurement: Frequency and constituents of CSDPs.

Results: Two hundred fifty-seven consecutive polyps $\leq$ 10 mm in size were removed in 88 patients (50 men [57%], mean age 63 years). Polyps were predominately adenomatous (162, 63%), located in the proximal colon (159, 62%) and flat (200, 78%). Mean lesion size was 5.5 mm (range, 2-10 mm). High-grade dysplasia was present in a single polyp for which the defect was bland. CSDPs occurred in 36 polypectomies (14%). CSDPs were associated with polyp size $\geq$ 6 mm (odds ratio, 3.7; $P < .001$ multivariable analysis) but not age, sex, lesion, histopathology, morphology, or location. Histopathologic examination of CSDPs revealed submucosa in 34 (94%) and muscularis mucosa in 29 (80%). No residual adenomatous or serrated polyp tissue was detected.

Limitations: Single-center study. Small number of polyps with high-grade dysplasia.

Conclusion: Protrusions are common within the CSP mucosal defect and are associated with polyp size $\geq$ 6 mm. CSDPs do not represent vascular structures, do not contain residual polyp, and are not associated with adverse outcomes in short-term follow-up. However, CSDPs represent incomplete mucosal layer resection. (Gastrointest Endosc 2015;82:523-8.)

Abbreviations: CSDP, cold snare defect protrusion; CSP, cold snare polypectomy; CSPMD, cold snare polypectomy mucosal defect; MM, muscularis mucosa; SM, submucosa.

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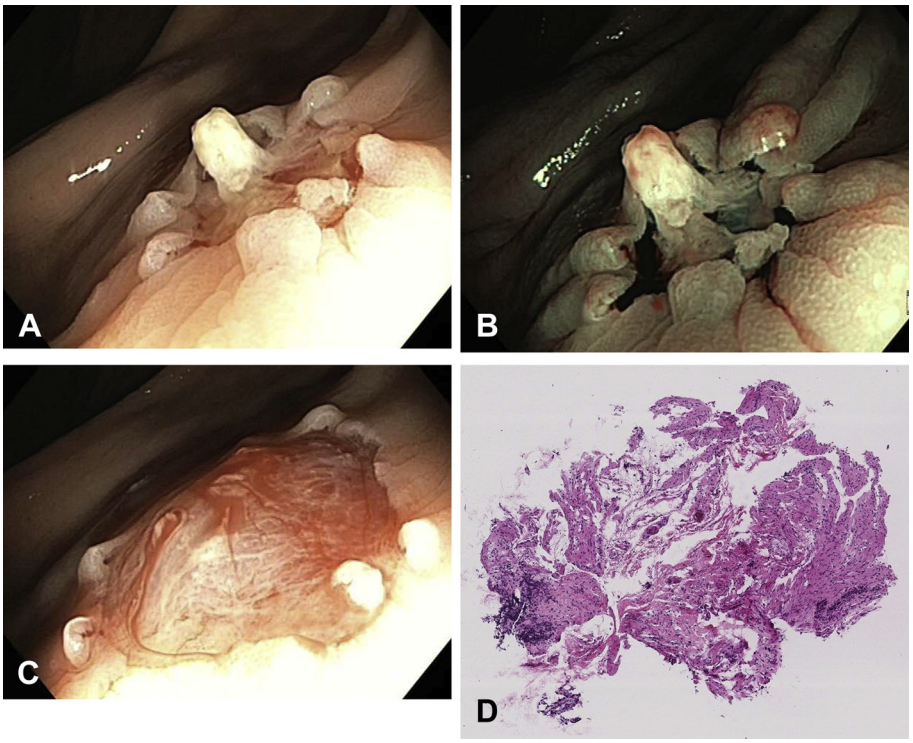

Figure 1. Cold snare defect protrusions (CSDPs) seen after cold snare polypectomy (CSP) of 6-mm sessile adenoma under white light (**A**) and narrow band imaging (NBI) (**B**). **C,** Cold snare polypectomy mucosal defect (CSPMD) after biopsy sampling of the CSDP. **D,** Histopathology of the CSDP demonstrating submucosa (SM) and muscularis mucosa (MM) elements.

Colorectal cancer incidence and mortality is reduced by the detection and removal of colonic polyps.[1-3] Most polyps are less than 10 mm in size and are easily removed by snare polypectomy. Snare resection without electrocautery, so-called cold snare polypectomy (CSP), was described over 2 decades ago and is increasingly used based on a superior safety and cost profile over conventional polypectomy.[4-7] The efficacy of polypectomy is currently under scrutiny, triggered by a recent study demonstrating unanticipated poor rates of complete resection at the mucosal margin.[8]

The efficacy of CSP has not been well studied; however, at least for polyps $\leq$ 5 mm in size, low rates of residual neoplasia have been demonstrated at the CSP defect margin.[9] Studies on the completeness of polypectomy have focused on assessment of the defect margin to date with little or no attention paid to the abnormalities in the base of the defect. This is in contrast to the mucosal defect after wide-field EMR, which has been systematically assessed in several studies.[10-12]

As CSP practice becomes more widespread, recognition and understanding of the potential features of the CSP mucosal defect (CSPMD) is essential. Pale protrusions within the polypectomy defect (cold snare defect protrusions [CSDPs]) are episodically observed after CSP; however, the frequency, predictors of occurrence, and the constituents of CSDPs are unknown. Consequently, there is conjecture about the etiology and significance of CSDPs. Anecdotally, CSDPs have been suggested to represent incomplete polyp resection, vascular structures, or condensed submucosal elements. The aim of this study was to examine the frequency, predictors, and histologic constituents of CSDPs in a prospective study of consecutive CSP performed for polyps $\leq$ 10 mm in size.

METHODS

Study design and setting

We conducted a prospective observational study of the CSPMD at a tertiary-care endoscopy unit over a 4-month period. The study was approved by the Western Sydney Local Health District Human Research and Ethics Committee. We followed the Strengthening the Reporting of Observational Studies in Epidemiology guidelines in reporting our findings.

Participants

Patients undergoing colonoscopy performed by study colonoscopists at Westmead Hospital Endoscopy Unit where at least 1 polyp $\leq$ 10 mm in size was removed by CSP were eligible for enrollment. Patients were excluded when the resected polyp was not retrieved for histopathology or when polyps $>$ 10 mm in size were identified and removed during the same colonoscopy.