Augmented endoscopic resection for fibrotic or recurrent colonic polyps using an ablation and cold avulsion technique

Severe submucosal tethering can occur at the base of a polyp because of previous failed endoscopic attempts, extensive biopsies, de-novo fibrosis of flat polyps, or tattoo ink being placed inadvertently at the base of the polyp. A scarred submucosa limits the depth and effectiveness of the lifting solution used when resecting a polyp, which makes snare capture of fibrotic polyp segments impossible and risks the resection being incomplete [1, 2]. Japanese authors have suggested endoscopic submucosal dissection (ESD) en bloc resection of fibrotic polyps; however this is technically difficult and carries a higher risk of perforation [3,4]. Supplementary ablative techniques such as the use of either argon plasma coagulation (APC) with prior submucosal injection or hot avulsion using electrocautery biopsy forceps are alternative, simpler, and lower risk strategies [2,5]. The depth of tissue destruction is, however, difficult to accurately judge and viable polyp tissue remains below the cauterized surface when thermal energy alone is used.

We report our preliminary experience of a new salvage approach to achieve complete eradication of partially lifting or nonlifting, benign, fibrotic polyps using an ablation and cold avulsion (ACA) technique. After submucosal injection had been performed, a conventional piecemeal snare "lift and cut" endoscopic mucosal resection (EMR) was performed on all polyp tissue where lifting was adequate. Residual scarred tissue was initially ablated using high power APC (ERBE-VIO, 25 – 40 W flow, 1.6 – 2 L/min; Erbe, Tübingen, Germany) and this was followed by "cleaning" of the cauterized polyp tissue using a nonspiked biopsy forceps. Repeat APC application and polyp cleaning were performed until the submucosal scar tissue was visible (▶ **Fig. 1**; ▶ **Video 1**).

The ACA rescue technique was applied successfully (after consent had been obtained from the patients) to 15 consecutive fibrotic polyps after piecemeal EMR polypectomy. An apparent complete polypectomy was achieved in all cases (▶ **Table 1**). The avulsed specimens revealed low grade dysplastic tissue, verifying the tissue destruction by APC. Follow-up of 3 – 7 months showed residual polyp tissue (2 mm and 5 mm) in 2 of the 14 patients assessed to date, which was suc-

Video 1

A recurrent fibrotic polyp being treated with piecemeal endoscopic mucosal resection (EMR) followed by the ablation and cold avulsion (ACA) technique.

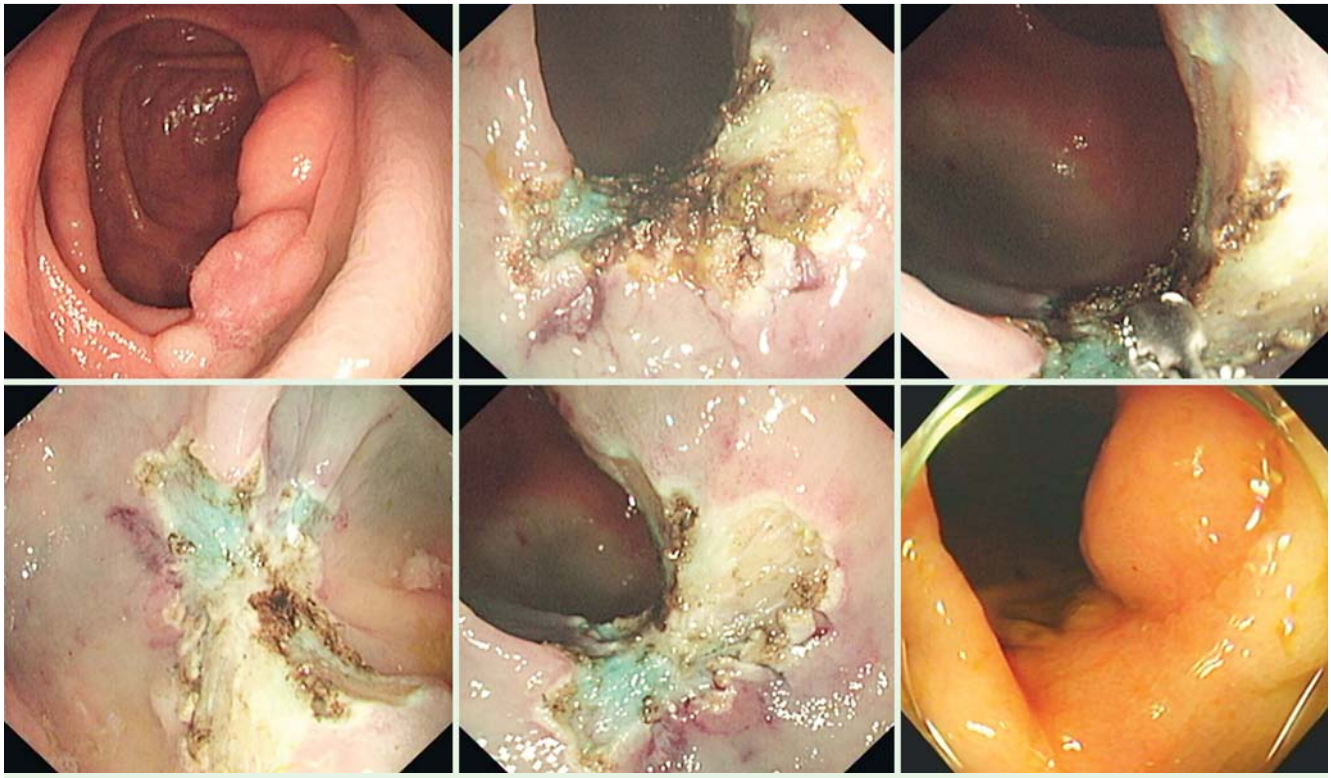

Fig. 1 Endoscopic images from patient #5, an 81-year-old man with a recurrent proximal ascending colon polyp, showing: **a** a 2.5-cm recurrent fibrotic adenoma; **b** the fibrotic base after ablation; **c** avulsion with the cold biopsy forceps; **d** the scarred base after avulsion; **e** the final resection defect; **f** the healed scar that is free of recurrence at follow-up.

Table 1 Characteristics of 15 patients with fibrotic polyps that were treated using the ablation and cold avulsion technique, and clinical outcome of the procedure.

Patient number	Age; sex	Site	Size, cm	De novo/ recurrent polyp	Morphologic type	Previous resection attempts	Histology	Follow-up, months	Outcome
1	74; male	Ascending colon	1	Recurrent	IIa	Yes	Tubular adenoma + low grade dysplasia	5	No recurrence
2	72; male	Transverse colon	3	Recurrent	IIa + Is	Yes	Tubulovillous adenoma + low grade dysplasia	5	No recurrence
3	58; male	Sigmoid colon	0.5	Recurrent	Is	Yes	Tubulovillous adenoma + low grade dysplasia	6	No recurrence
4	79; male	Transverse colon	3	De novo	Nongranular LST (IIa)	No	Tubular adenoma + low grade dysplasia	4	2-mm recurrence
5	81; male	Ileocecal valve	2.5	Recurrent	Is	Yes	Tubulovillous adenoma + low grade dysplasia	5	No recurrence
6	73; female	Transverse colon	5	De novo	Mixed LST (IIa + Is)	Yes	Tubulovillous adenoma + low grade dysplasia	4	No recurrence
7	72; male	Ileocecal valve	0.5	Recurrent	Is	Yes	Tubular adenoma + low grade dysplasia	6	No recurrence
8	51; male	Ascending colon	2	Recurrent	IIa + Is	Yes	Tubulovillous adenoma + low grade dysplasia	4	No recurrence
9	76; male	Ascending colon	1.5	Recurrent	IIa	Yes	Tubulovillous adenoma + low grade dysplasia	7	No recurrence
10	58; male	Cecum	2	De novo	Is	No	Tubulovillous adenoma + low grade dysplasia	4	No recurrence
11	61; female	Rectum	1.6	Recurrent	IIa	Yes	Tubular adenoma + low grade dysplasia	5	No recurrence
12	68; female	Transverse colon	3	De novo	Granular LST (IIa + Is)	Yes	Tubular adenoma + low grade dysplasia	5	5-mm recurrence
13	70; male	Rectum	4	Recurrent	Nongranular LST (IIa)	Yes	Tubulovillous adenoma + low grade dysplasia	Awaiting follow-up	–
14	65; female	Recto sigmoid	3.5	Recurrent	IIa + Is	Yes	Tubulovillous adenoma + low grade dysplasia	3	No recurrence
15	77; male	Hepatic flexure	3	De novo	IIa	No	Tubulovillous adenoma + low grade dysplasia	3	No recurrence

LST, laterally spreading tumor.

cessfully treated with further endoscopic therapy.

Our retrospective case series suggests that ACA is a safe and effective technique that could act as an adjunct to snare resection to achieve complete eradication of benign scarred polyps

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