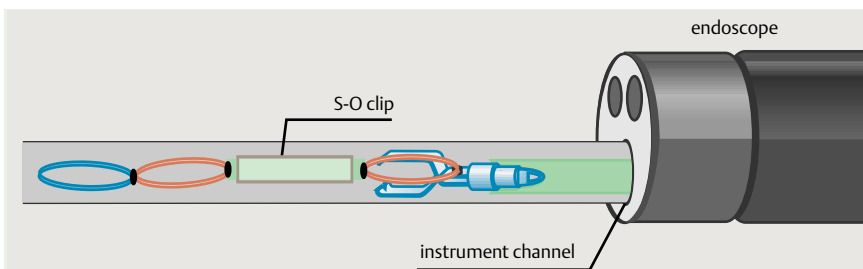
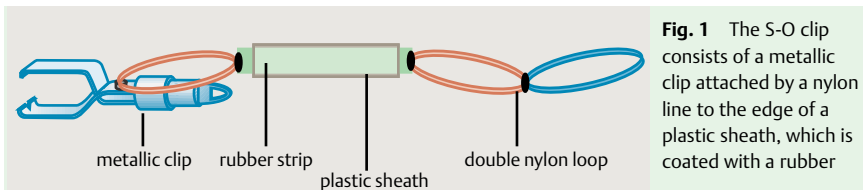


The facilitation of a new traction device (S-O clip) assisting endoscopic submucosal dissection for superficial colorectal neoplasms



Endoscopic submucosal dissection (ESD) is a recently developed technique, but it is not widely used to treat the colorectum because of its degree of technical difficulty. It is possible that traction of the lesion may facilitate correct visualization of the lesion and make it easier to dissect. Several techniques involving lesion traction have been reported [1–4]. However, these methods have not been widely employed to date due to difficulty in both lesion fit and ease of use. We therefore designed a new traction device, the “S-O clip (Sakamoto-Osada clip)”, for ESD.

The S-O clip consists of a metallic clip attached by a nylon line to the edge of a plastic sheath, which is coated with a rubber strip (10 mm long and 1.5 mm wide) and connected to a double nylon

loop at the other end (Fig. 1). The S-O clip can be passed through the instrument channel of the endoscope (Fig. 2). After partially dissecting the submucosa of the tumor, the S-O clip connects to the edge of the exfoliated mucosa (Fig. 3a) and the colonic wall opposite the lesion. This results in pulling the lesion up and opening the resection margin (Fig. 3b). After the dissection, the nylon loop is cut using the loop cutter (Fig. 3c). There is no need to withdraw the endoscope during the procedure described. Finally, the specimen is brought out using the forceps.

ESD using the S-O clip has been performed on five superficial colorectal lesions. En bloc resection was achieved in all five cases without complication. The

mean size of the resected lesions was 27.4 mm (range 22–42 mm), and the procedure time was 75.4 minutes (range 38–110 minutes). We confirm that fitting the lesion with the S-O clip was easy and took only a few minutes (mean 2.5 minutes), and that the device facilitated both correct visualization and easier dissection of the tumor.

These preliminary results suggest that S-O clip-assisted ESD is effective, straightforward, and safe for the complete removal of large superficial colorectal neoplasms at any site of the colon (Fig. 4).

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Video 1

We carried out endoscopic submucosal dissection with the S-O clip for laterally spreading tumors-nongranular type in the transverse colon.

Table 1 Endoscopic submucosal dissection with the SO-clip

Patient ^a	Age, years	Formation	Size,mm	Location	Procedure time, minutes	Pathologic findings	Depth of lesion
1	56	LST-NG	25	Transverse colon	54	Tubular adenoma	
2	57	LST-NG	42	Transverse colon	110	Well differentiated adenocarcinoma	sm2
3	59	LST-NG	23	Transverse colon	75	Well differentiated adenocarcinoma	m
4	62	LST-NG	22	Ascending colon	38	Tubular adenoma	
5	58	LST-NG	25	Rectum (Rb)	100	Well differentiated adenocarcinoma	sm1

^aAll patients were men.

LST-NG, laterally spreading tumors-nongranular type.

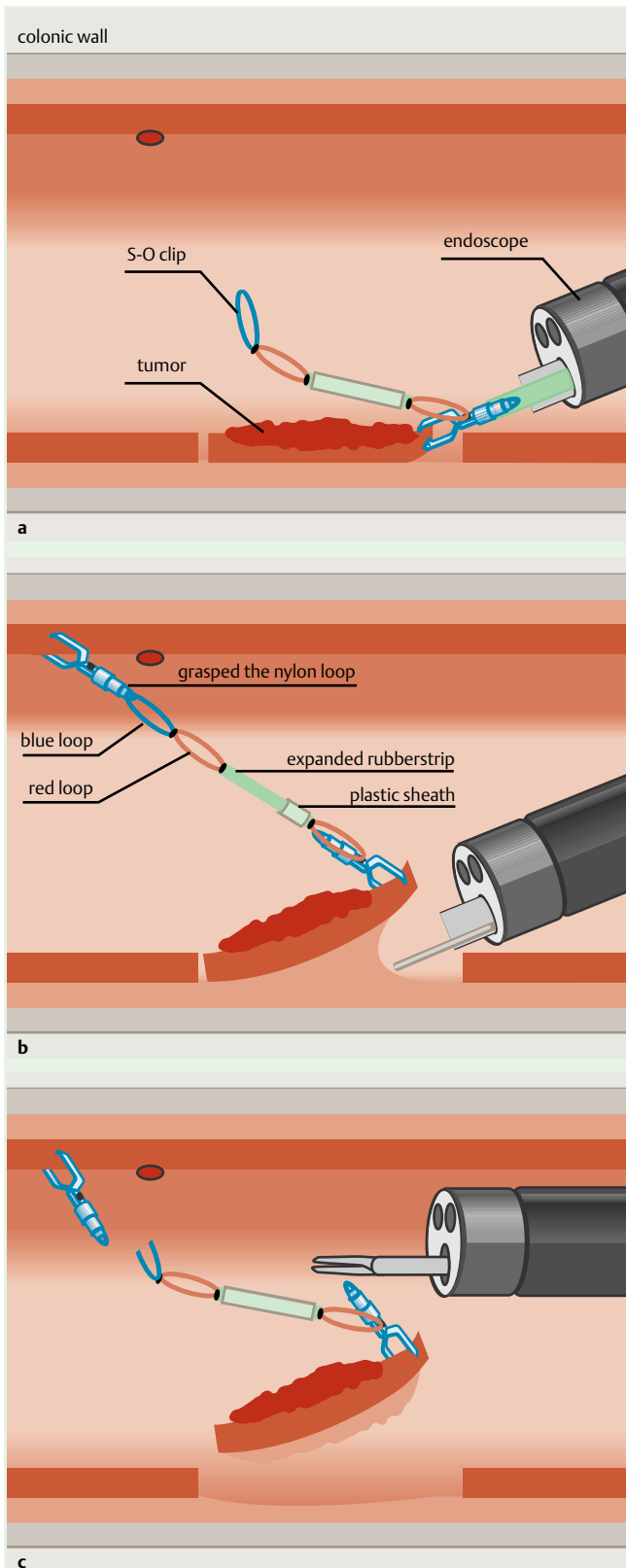


Fig. 3 Using the S-O clip. **a** After partially dissecting the submucosa of the tumor, the S-O clip is applied to the edge of the exfoliated mucosa. **b** A standard clip was then inserted and was applied to the colonic wall after having first grasped the distal nylon loop attached to the S-O clip. The standard clip was usually applied in a position opposite the lesion, enabling traction and therefore opening of the resection margin. **c** After endoscopic submucosal dissection, the nylon loop was cut by the loop cutter and brought out from the colon using the forceps.

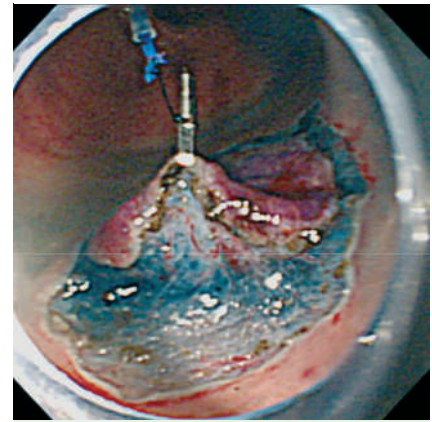


Fig. 4 A laterally spreading tumor (Case 5). After partially dissecting the submucosa of the tumor, traction of the lesion by the S-O clip facilitated correct visualization and easier dissection.

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