Mucosal colonic defect post EMR or ESD: to close or not?

The advent of endoscopic clips has resulted in a new era in colonic endoscopic resection. Clips provide an easily applicable, durable and robust method of closure of resection defects [1]. This has allowed endoscopists to push the boundaries of techniques with greater control over the risks of perforation and bleeding. Adverse events (AEs) that once may have required surgical salvage can now be managed safely, and provided that a patient’s clinical disposition post-endoscopy is unaltered, they are now regarded as procedural events. In the case of per-oral endoscopic myotomy (POEM) and natural orifice transluminal endoscopic surgery (NOTES), clips allow the closure of an iatrogenic full-thickness injury, a concept which was once anathema to endoscopists. There is no question that application of clips is effective in the setting of perforation, mural injury and active bleeding. The ubiquitous availability and ease of use of these devices, however, now may have resulted in the pendulum swinging towards their use in settings where there may be marginal benefit. Endoscopists may use clips to guarantee their peace of mind, rather than according to any evidence-based cost/benefit strategy.

In this edition of Endoscopy International Open, Akimoto et al. describe a novel technique for closure of resection defects at all. The benefits of partial or complete closure of EMR or ESD defects are far from certain. There are well-established data showing that the rate of clinically significant delayed bleeding is 6% to 7% following EMR and 1% to 2% following ESD [2, 3]. Perforation is a rare event for either procedure, occurring in 0.9% to 2.0% following EMR and 4% to 6% following ESD [3, 4]. Delayed perforation is even less common, seen in only 0.2% following EMR [5]. With low event rates, studies examining the effi-
cacy of clips have to be very large and well designed to demonstrate an effect and exclude bias. Liaquat et al. [6] described delayed bleeding outcomes in a cohort comparing complete clipping of EMR defects to a historical unclipped control group. Defects that could not be clipped were also analyzed together with ping of EMR defects to a historical unclipped control group. Delayed bleeding outcomes in a cohort comparing complete clipping to a partially clipped group demonstrated the efficacy of a targeted clipping strategy. Prophylactic clipping to prevent delayed perforation is devoid of evidence, as the incidence of this often serious AE is thankfully very low. Any randomized study designed to demonstrate perfect prevention of delayed perforation (ie. risk reduction from an estimate of 0.5% to 0%) would still require at least 1500 patients in each arm. No existing study or research network has approached this size. Although prophylactic clipping is questionable, the situation is completely different when there is objective evidence of perforation or muscularis propria (MP) injury. The “target sign” is a well-recognized endoscopic marker of MP injury prompting focal clip placement over the area of concern [15]. This only represents part of the spectrum of colonic mural injury, which may range from simple exposure of the MP, to full-thickness perforation. A classification system describing this range of injuries after EMR has been described along with management strategies based on the appearance of the resection defect [5]. Although there is no objective evidence that this reduces late sequelae, this proactive management approach was associated with a delayed perforation rate of only 0.2% in 802 patients undergoing EMR of large laterally spreading lesions in a tertiary referral setting, mean size 37 mm (range 20 – 120 mm). The risks of clip placement in the colon are few, as the majority of the colon is mobile, tethered only by a mesentery, and the colon walls are pliable. Caution should be exercised in situations in the gastrointestinal tract where these conditions do not apply, for example, the relatively fixed descending duodenum where clips may potentially tear the thin comparatively immobile muscle layer [16]. Clips may also complicate assessment of post-resection scars by creating artefactual mucosal nodules that must be carefully examined to distinguish them from recurrent adenoma. Usually the distinction is clear based on the morphology and surface pattern [17]. It is also possible (but unreported) that clips may “bury” small areas of residual or recurrent adenoma, preventing detection and resection at surveillance colonoscopy and creating a theoretical risk of subsequent delayed adenomatous recurrence or post-colonoscopy cancer. When clips were first introduced, their extensive impact on endoscopic practice was impossible to fully appreciate. Incremental advances in clip techniques and technology may deliver further evolutions in endoscopy beyond our current expectations. In their current form, clips have revolutionized endoscopy, but we may be expecting more of them than they can deliver. Prophylactic closure of all defects is expensive and not proven. Rather than asking how to close defects, we must first ask the question: Should we?

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