

Distal attachments for adenoma detection go head-to-head: Cap or cuff?

Conor Lahiff ^{1,2} and James E. East ^{3,4}

1. Mater Misericordiae University Hospital, Eccles Street, Dublin 7, Ireland
2. School of Medicine and Medical Science, University College Dublin, Ireland
3. Translational Gastroenterology Unit, John Radcliffe Hospital, University of Oxford, Oxford OX3 9DU, UK
4. Oxford NIHR Biomedical Research Centre, University of Oxford, Oxford OX3 9DU, UK

Corresponding author:

Conor Lahiff

Mater Misericordiae University Hospital, Dublin, Ireland

Email: conorlahiff@mater.ie

Adenoma detection at colonoscopy is directly related to quality of inspection [Lahiff, Frontline Gastroenterol 2017] and while higher adenoma detection rates (and polypectomy) are associated with fewer interval colorectal cancers (CRC) [Kaminski NEJM 2010] and lower mortality from CRC [Zauber NEJM 2012, Corley NEJM 2014], there remains debate over the optimal method of colon inspection during colonoscopy and the role of adjunct devices to improve endoscopist performance. The value of expanding the colon to flatten haustral folds and aid polyp detection has been recognised since the 1990s and distal cap attachments have been used in Japan first and subsequently in Western practice with increasing prevalence since then [Rex, Am J Gastroenterol. 2006]. Transparent cap-assisted colonoscopy (TAC) has been consistently shown to marginally enhance adenoma detection, including polyps greater than 5mm [Mir, Ann Gastroenterol 2017].

More recently distal cap attachments with protrusions (e.g. Endocuff, Endocuff Vision, Endorings, AmplifEYE) have been applied for similar reasons with the objective of flattening mucosal folds and potentially

also stabilising the colonoscope tip to aid therapeutic procedures. Endocuff-assisted colonoscopy (EAC) has been investigated extensively with many studies showing improved adenoma detection compared with standard colonoscopy. However larger multicentre randomised controlled trials (RCT) have not shown a consistent benefit for enhanced adenoma

detection [Van Doorn, Gut 2017] and a further study has shown ADR to be numerically worse with EAC [Battacharyna, Endoscopy 2017]. Faccioruso et al. [Faccioruso, CGH 2018] performed a network metanalysis of 25 different RCTs comparing add-on devices with ADR as the primary endpoint. This analysis found a modest advantage for EAC over standard colonoscopy (low quality evidence). Table 1 summarises RCT data available to date comparing EAC to conventional colonoscopy (n=6) and EAC to TAC (n=2).

In this issue of JGH Imaeda et. al [Imaeda, J Gastroenterol Hepatol 2019] present an interesting head-to-head RCT comparing Endocuff-assisted colonoscopy (EAC) and transparent-hood assisted colonoscopy (TAC). The study was conducted at a single centre in Japan with a non-blinded design. The primary endpoint of adenoma detection rate (ADR) was no different between the two groups and secondary endpoints including caecal intubation rate, intubation and withdrawal times and mean adenoma number per patient (MAP) also did not show any difference.

The study is welcome in that direct RCT comparisons of endoscopic devices are rare in endoscopic research [Vleugels, Lancet Gastroenterol Hepatol, 2018; Rex, Gastrointest Endoscop 2018; Roelandt, Endoscopy 2019) but are a superior method to network metanalysis and should increasingly be the gold-standard method by which we assess novel technology in endoscopy.

The study was however carried out in an academic setting with a high level of endoscopic expertise and where TAC use in routine colonoscopy is standard care. It is difficult for adjunct technologies to yield significant improvements in endoscopists who are already performing at a high level in terms of ADR and other quality metrics. Caecal intubation rates were >95% in both arms of the study, bowel cleansing was of high quality and use of anti-spasmodics was universal. These are all adjuncts which are known to improve ADR independent of add-on devices. Simple uncostly educational interventions (use of anti-spasmodics, position changes and rectal retroflexion) may provide more benefit, particularly in endoscopists with lower ADRs [Rajasekhar, Endoscopy 2015] and narrow-band imaging is another inexpensive method to improve ADR [Atkinson, Gastroenterol 2019]. With this in mind, it would have been interesting had the authors stratified their results by endoscopist experience level, although with four apparently high level endoscopists, it may require a more diverse group to show a significant difference in this respect.

Adenoma detection rate in both arms was high in keeping with a highly-performing academic endoscopy centre. This may have been even higher had the study limited participation to

patients considered to be at higher risk for adenoma (e.g. >45 years old), as other studies in this field have done [van Doorn, Gut 2017].

Despite block randomisation, there was still a male predominance in the EAC group (66% versus 56%) and although not statistically significant could still be expected to affect the primary endpoint in favour of EAC.

Two perhaps more striking data are the higher number of polyps >1cm in the TAC group (24.5 vs. 16.9%), although statistically not significant, and the low rate of serrated lesions detected in this study. Serrated lesion detection can be enhanced by use of high definition colonoscopes and dye-based chromoendoscopy [East Gut 2017; Repici Gastroenterology 2019; Roelandt Endoscopy 2019;] and neither were applied consistently in this study. The value of distal cap attachments for detection of serrated polyps outside of polyposis syndromes [Rivero-Sanchez, Endoscopy 2019] remains unclear.

Finally, the statistical trend towards higher mean number of diminutive adenoma per patient in the EAC group (replicating data from van Doorn et al.) has not been proven to impact upon interval cancer rates and is less likely to be clinically significant, given the low risk nature of these lesions. A recently published similar study comparing EAC and TAC in over 700 patients showed remarkably similar rates of ADR in both groups [Sola-Vera, Endoscopy 2019].

The authors conclude that EAC may be equivalent to TAC in caecal intubation time, ADR and MAP. It certainly appears that there is no large difference for experienced, high-performing endoscopists but whether the same applies in the wider endoscopic community is not known. Further research is needed to assess the impact of distal colonoscope attachments on patient comfort, their role in tip stabilisation to support effective polypectomy and whether the small increment in ADR at the higher end of the spectrum has any impact upon interval cancer rates and mortality. It further remains to be seen whether adjunct devices such as EAC or TAC (as compared with inexpensive measures such as NBI, longer withdrawal times, second look or retroflexion in the right colon or use of anti-spasmodics) have a role in improving ADRs in day-to-day practice. Never-the-less head-to head studies as presented here should be the new standard for novel device assessment in endoscopic clinical care.

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