



Endoscopic resection technique outcomes for non-lifting colorectal lesions:

A systematic review

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Introduction

Endoscopic mucosal resection (EMR) is dependent on submucosal injectate expansion to allow for effective and safe polypoid tissue capture. Polyps that are resistant to this lifting process, either due to fibrosis from prior biopsy or resection attempt, or from additional depth of invasion, are difficult to resect through EMR alone. Several alternative resection modalities and auxiliary techniques targeting non-lifting polypoid tissue have been described in the literature. We therefore sought to perform a systematic comparative analysis of existing techniques for non-lifting colorectal neoplasia.

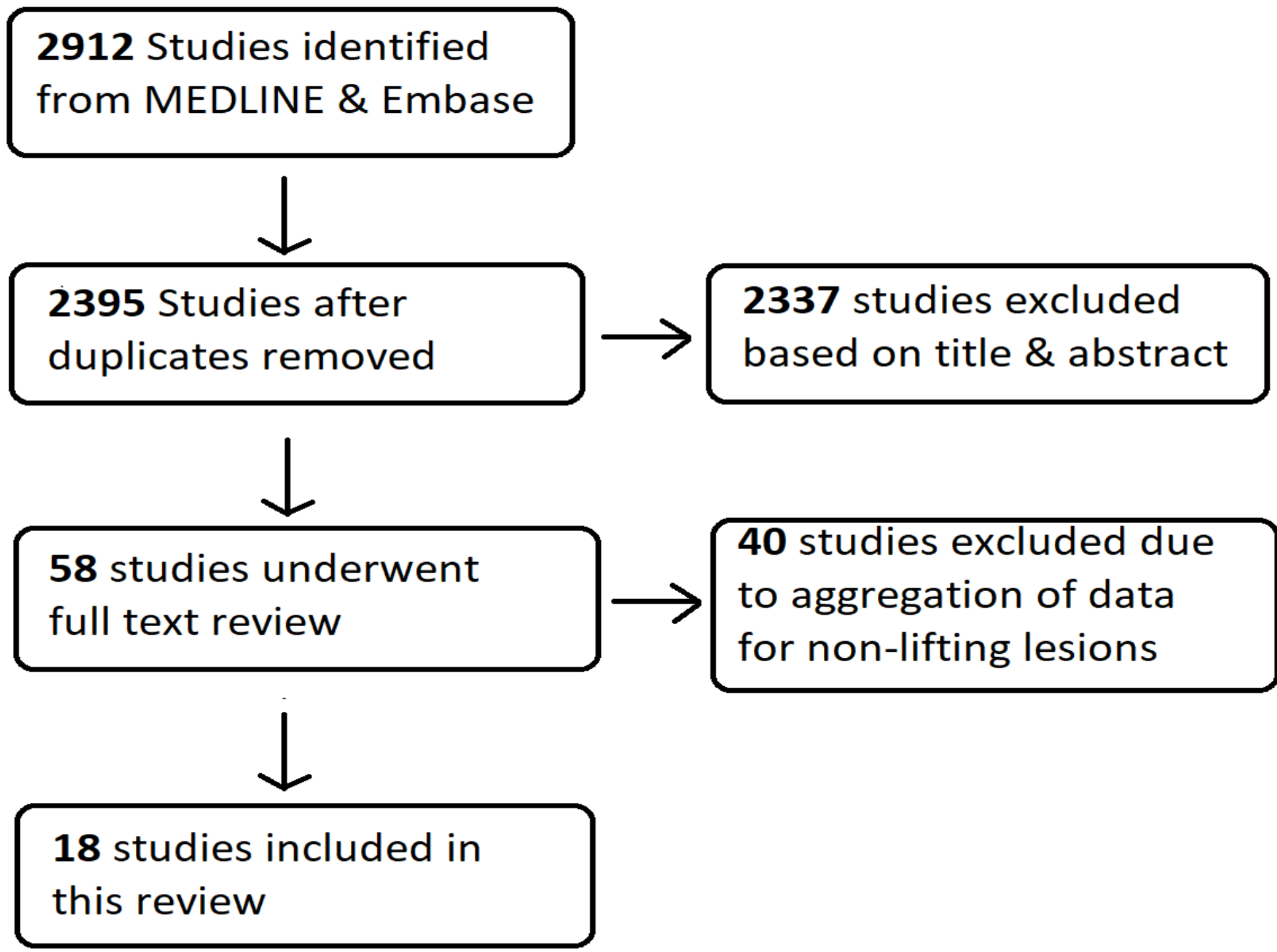
Methods

Two authors (BZ, HJK) independently searched MEDLINE and EMBASE from inception to April 2022 for citations evaluating endoscopic resection technique outcomes for non-lifting colorectal neoplasia. Inclusion criteria were:

- Prospective or retrospective cohort study, case-control studies, or randomized controlled trials
- The study presents clinical data on endoscopic resection of non-colorectal lesions

Exclusion criteria were:

- Number of non-lifting lesions ≤ 2 ,
- Case reports
- Reviews
- Conference abstract
- Animal experiments
- Data on non-lifting colorectal lesions is aggregated with other types of lesions and the data on the non-lifting lesions could not be extracted



Results

18 citations provided endoscopic resection technique outcomes for non-lifting colorectal neoplasia (7 endoscopic full-thickness resection (EFTR), 3 endoscopic submucosal dissection (ESD), 3 hybrid resection techniques (2 hybrid EFTR and 1 dissection-enabled scaffold-assisted resection), 2 avulsion techniques, 2 cap-assisted EMR (C-EMR), and 1 ablative technique).

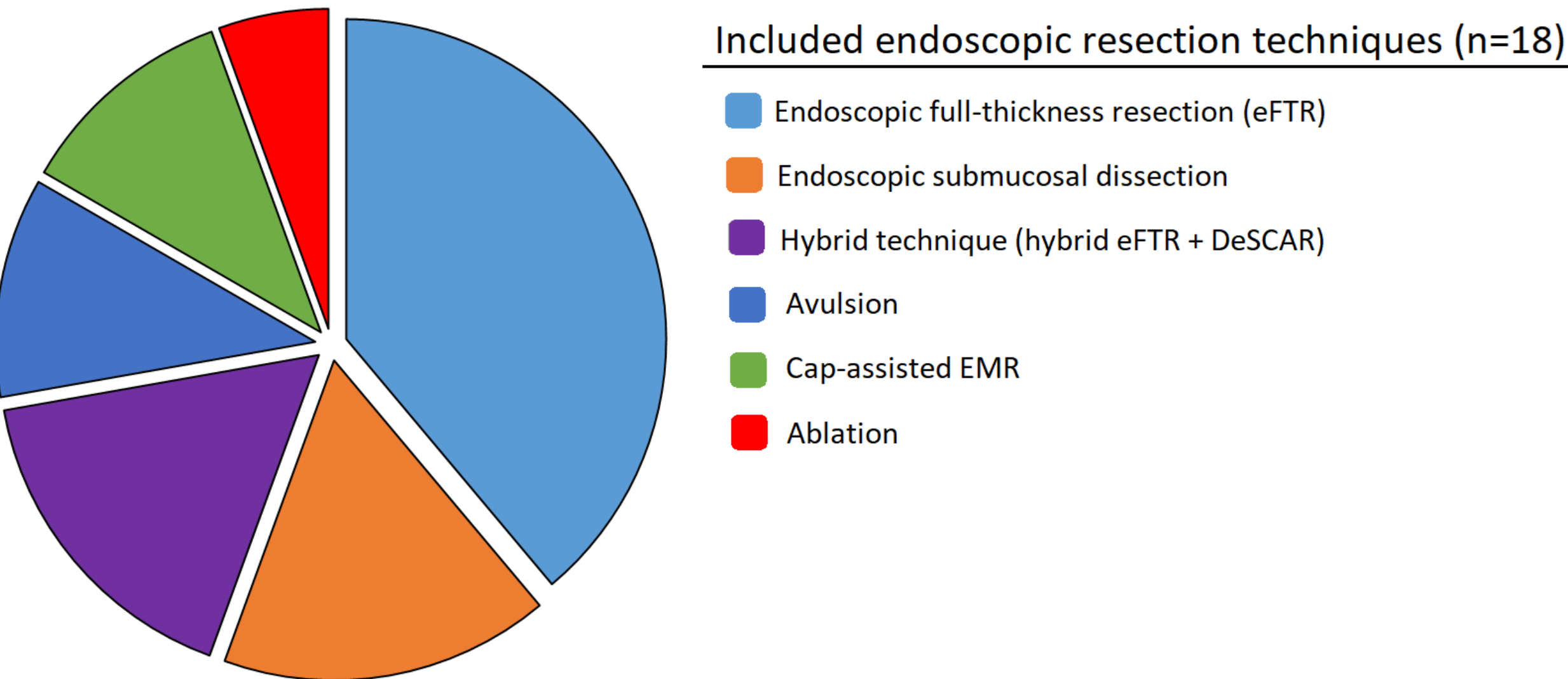


Figure 1: Included studies and their respective endoscopic resection technique

Technical success ranged from 79–100% (EFTR: 80-100%, ESD: 79-91%, hybrid technique: 98-100%, avulsion: 100%, C-EMR: 97%, ablation: 96%). R0 for applicable modalities ranged from 54-100% (EFTR: 57-100%, ESD: 54-63%).

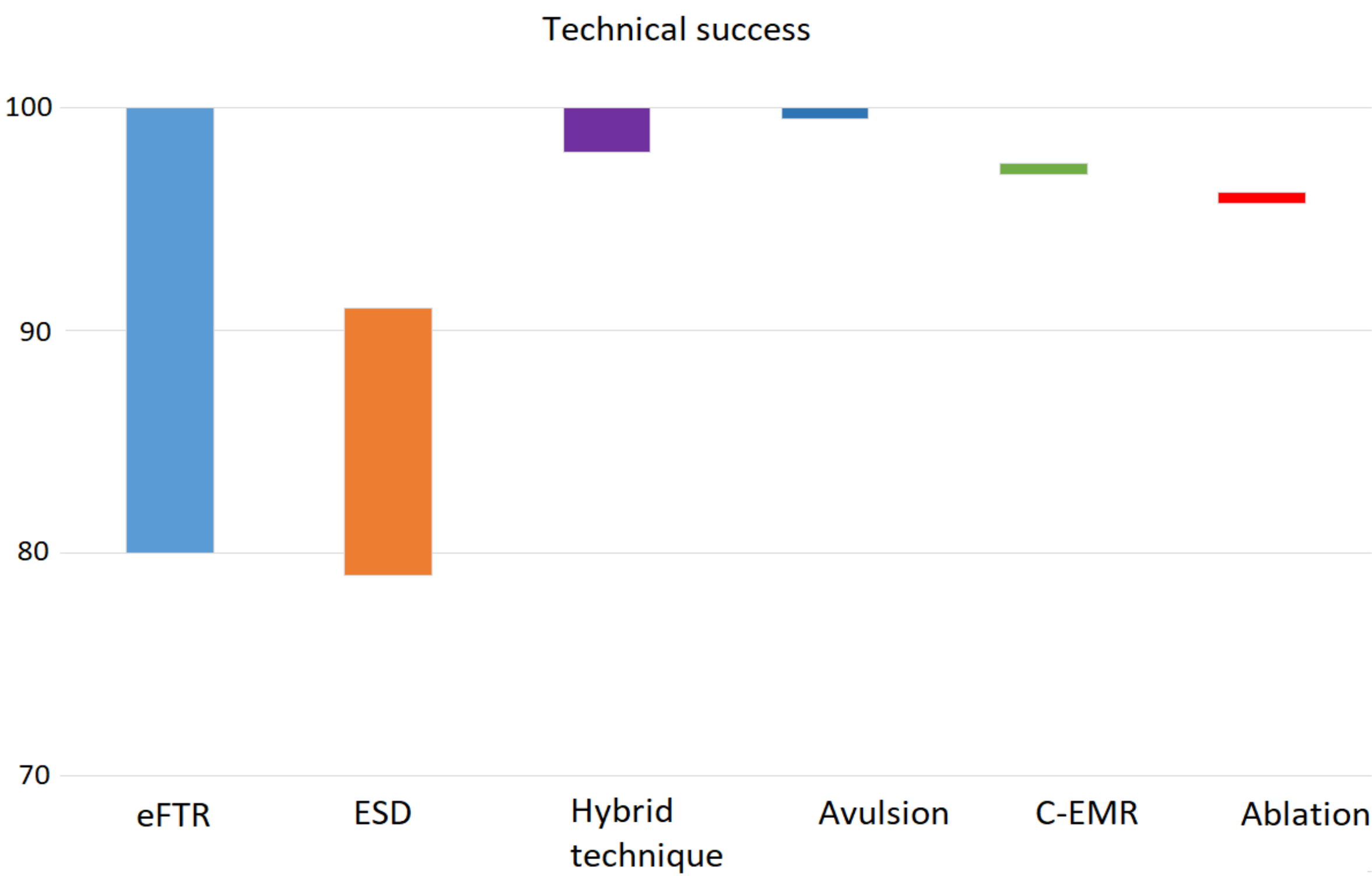


Figure 2: Technical success of each endoscopic resection modality

IPP ranged from 0-9% (EFTR: 0-4%, ESD: 0-9%, hybrid technique: 0-2%, avulsion: 0-3%, C-EMR: 0-9%, ablation: 0%). CSPEB ranged from 0-29% (EFTR: 0-29%, ESD: 0%, hybrid technique: 0-4%, avulsion: 5-6%, C-EMR: 9%, ablation: 4%). Delayed perforation was between 0 -14% (EFTR: 0-14%, ESD: 0-9%, hybrid technique: 0%, avulsion: 0%, C-EMR: 0%, ablation: 0%). Recurrence ranged from 0-43% (EFTR: 0-43%, ESD: 0-4%, hybrid technique: 0-17%, avulsion: 15-17%, C-EMR: 19%, ablation: 26%).

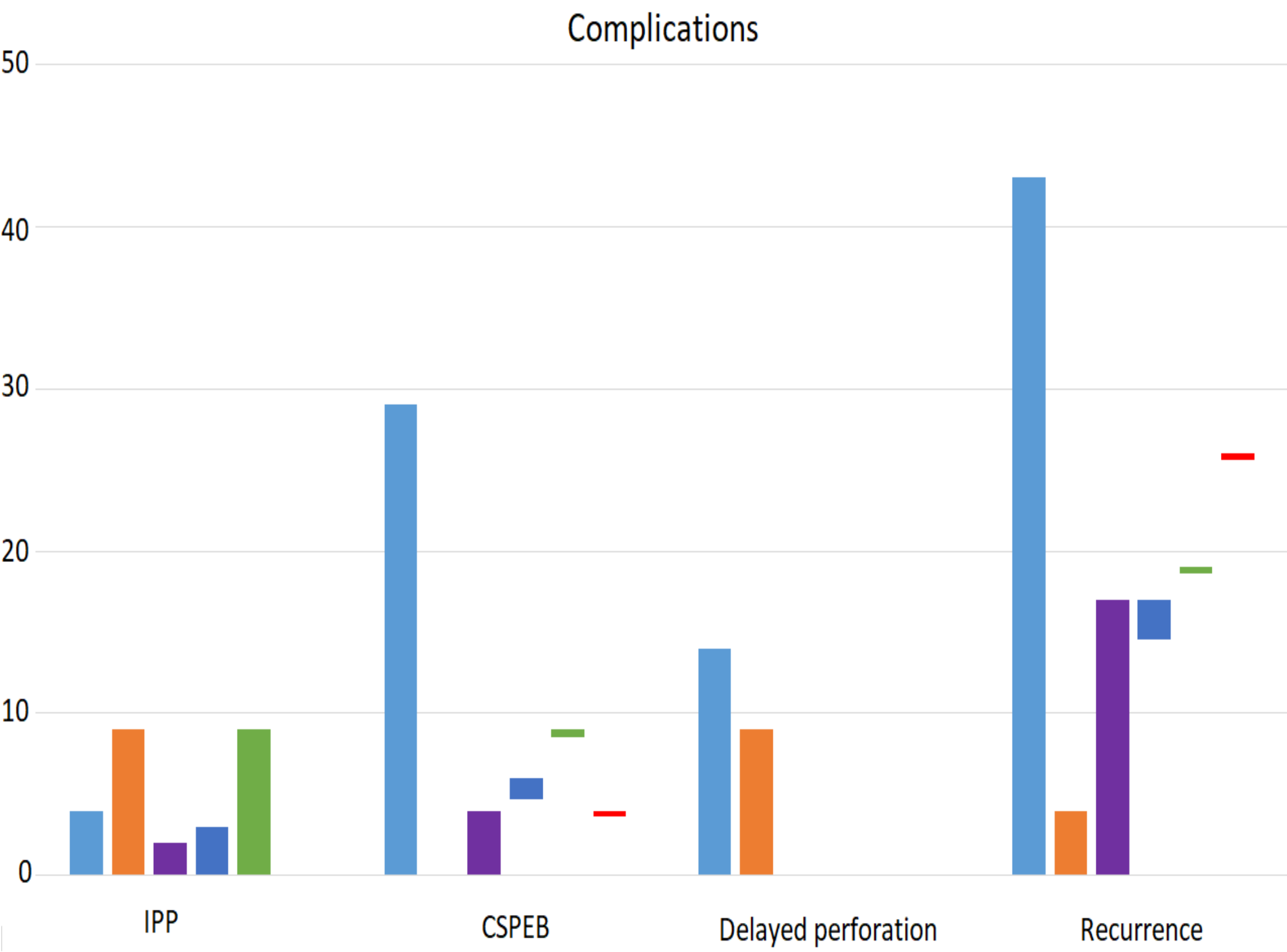


Figure 3: Intra-procedural perforation, clinically significant post-endoscopic resection bleeding, delayed perforation, and recurrence rate on follow up of each endoscopic resection modality

Conclusion

Endoscopic resection techniques are effective for non-lifting colorectal lesions with an acceptable safety profile. Given the frequency of technical success, a comparative analyses between existing techniques focusing on the frequency of low-risk T1 colorectal cancer histopathology post-resection and adverse outcomes are needed.