Efficacy and Safety of Cap Assisted vs. Conventional Endoscopic Esophageal Foreign Body Removal- Systematic Review and Meta-analysis

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Introduction: Foreign body impaction (FBI) is a common endoscopic emergency in clinical practice. FBI can be food (also known as a "food bolus (FB)") or other impactions (non-food). We conducted a comprehensive systematic review and meta-analysis to compare cap-assisted and conventional endoscopic techniques for removing esophageal foreign body impaction.

Methods: A comprehensive search technique was utilized to identify studies that used capped endoscopic devices to remove food boluses or other esophageal foreign bodies. The primary outcomes were the technical success rate, rate of en bloc retrieval, and procedure time. Secondary outcomes were overall complications, mucosal tear, bleeding, and perforation. Odds Ratio (OR) with 95% confidence intervals (CI) were estimated using random effects models and the DerSimonian-Laird technique.

Results: Seven studies with a total of 1407 patients were included. The included patients' mean age was 55.3+/- 7.2 years, and the male percentage was 44.8%. There were two RCTs and five observational studies among the included studies. The technical success rate was significantly higher in the cap-assisted group compared to the conventional group (OR: 3.47, CI: 1.68-7.168, I2=0%, p=<0.001). The en bloc retrieval rate was significantly higher in the cap-assisted group compared to the conventional group (OR: 26.90, CI: 17.82-40.60, I2=0%, p=0.001). The overall adverse events were significantly lower in the cap-assisted group compared to the conventional group (OR: 0.118, CI: 0.018-0.792, I2=81.79%, p=0.02).

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Conclusion: This systematic review and meta-analysis showed that the cap-assisted technique has higher efficacy and better safety than conventional techniques. However, larger randomized control trials are needed to validate these results.

