

Comparison of Performance and Outcomes of Spiral and Double-Balloon Enteroscopy: A Single-Center Study

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Abstract

Purpose: Spiral enteroscopy (SE) and double-balloon enteroscopy (DBE) are competing technologies for evaluating patients with small bowel diseases. The performance and outcomes of these alternative technologies have not been adequately evaluated.

Methods: In a nested case-control study from a prospective deep enteroscopy database, patients undergoing anterograde SE were compared with a control group of patients undergoing anterograde DBE matched for the calendar year and month of the procedure. Patients with Roux-en-Y anatomy or other by-pass procedures were excluded. Demographic and outcome variables were analyzed using descriptive, chi-square and two-tail Student's t-test statistics.

Results: Thirty-nine patients undergoing SE (average age 67.9, BMI 28.9, 59% female) were compared to 37 patients undergoing DBE (average age 67.6, BMI 30.1, 54% female) over a 15 month period. The indication was obscure GI bleeding in 82.5% (85% SE, 79% DBE). All procedures were performed without fluoroscopy by two experienced endoscopists under nurse-administered anesthesia with a combination of midazolam, fentanyl and propofol. One patient could not be intubated with the spiral over-tube and was converted to DBE. There was no significant difference in any of the demographic variables or number of previous abdominal surgeries between the two groups (average 1.5 SE vs. 1.8 DBE). The depth of insertion was similar (200 ± 61 cm vs. 186 ± 84) however more DBE's were stopped early due to the presence of pathology (12 vs. 5, $p < 0.05$). When these procedures were excluded, the depth of maximal insertion remained similar between the two techniques (207 ± 55 cm for SE vs. 216 ± 72 for DBE, $p = 0.6$). The diagnostic and interventional yield were also similar (72% and 61% for SE and 77% and 62% for DBE, respectively) but SE had a shorter duration (57.1 ± 16 min vs. 67 ± 23 min, $p < 0.05$). One serious complication (perforation at tumor site) occurred with DBE in a patient with peritoneal carcinomatosis, none with SE.

Limitations: Non-randomized study, dissimilar, non-validated methods for assessing the depth of insertion.

Conclusion: SE and DBE have similar performance and outcomes for evaluating the small bowel, however DBE's tend to be more time consuming. Both procedures seem to be safe, but patient selection is important. Further prospective comparative studies are warranted.