

## Twisting in the wind: intracorporeal ileocolic anastomosis

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The outlook for bowel surgery requiring anastomosis was quite dismal early on, as illustrated by Lorenz Heister in his 1719 book “*Chirurgie*”; “it does not matter which technique is used to repair bowel injuries since the majority of patients are not salvageable” [1]. In 1732, George Arnaud de Ronsil performed the first right hemicolectomy with “double-barrel ileostomy” for gangrenous ascending colon herniated at the groin [2]. In 1833, Jean-Francois Reybard reported the first successful resection with anastomosis; however, skepticism by the Paris Royal Academy grew as Reybard’s attempts at replicating the anastomoses in canines failed. Anastomoses were not performed routinely until the late nineteenth century. It took pioneers like Theodor Billroth, Viktor von Hacker, and Nicholas Senn to prove to the surgical community that successful intestinal anastomoses could be consistently accomplished [3–5].

The evolution of colorectal surgery has progressed to routine laparoscopic procedures thanks to Schlinkert’s case report that described the first laparoscopic-assisted right hemicolectomy 25 years ago [6]. Since the initial 1991 publication laparoscopic surgery has grown from the facilitated laparoscopic technique described by Young-Fadok and Nelson, which involved externalizing the colon through a limited laparotomy after lateral-to-medial mobilization [7], to Senagore’s assisted technique in which the vessels were divided laparoscopically along with lymphadenectomy [8]. However, the anastomosis was performed through a mini-laparotomy. Performing the entire

procedure completely laparoscopically with the specimen extraction in a plastic bag reduces rates of superficial surgical site infection (SSI), formation of adhesions, and the extraction site incision length. The disadvantages of intracorporeal ileocolic anastomoses include potential increased rates of organ space SSIs when laparoscopic bulldog clamps are not applied and require the skills of a surgeon proficient in laparoscopic suturing with intracorporeal knot tying [9].

The surgical technique of isoperistaltic versus antiperistaltic ileocolic anastomosis is an interesting discussion point that needs further study. There is a lack of evidence to justify the usage of one technique over the other. Within the literature, the designation of antiperistaltic versus isoperistaltic anastomoses is infrequently described; however, there is one important consequence that must be considered. The authors prefer antiperistaltic anastomoses, as the focus should be to unalter the rotation of the mesentery with the goal to prevent torsion [8–11]. Furthermore, a randomized controlled trial concluded that anastomotic leakage occurred only in patients with isoperistaltic anastomoses as compared to antiperistaltic [12]. As a matter of fact, the trial was terminated as the isoperistaltic arm had “excess morbidity” [12]. Perhaps the postoperative ileus or small bowel obstruction reported previously might have been a result of the mesenteric torsion from the isoperistaltic technique. This evidence must be considered when deciding which configuration of anastomosis will be performed. To determine the best technique, a prospective study should investigate whether antiperistaltic anastomoses reduce torsion more than the isoperistaltic counterpart. Additionally, it would be useful for surgeons to report the anastomoses data in future studies and consider the impact it may have on postoperative complications.

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