

A Natural Orifice-Assisted Approach for Proctectomy and Ileal Pouch-Anal Anastomosis

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Background:

Ileal pouch–anal anastomosis (IPAA) is among the most technically demanding operations in colorectal surgery. Minimally invasive approaches reduce postoperative pain and morbidity compared with open surgery; however, pouch construction is often still performed extracorporeally through a separate suprapubic incision or the ileostomy site, which can compromise minimally invasive benefits. The Natural orifice-assisted IntraCorporeal anastomosis and specimen Extraction (NICE) technique can bypass these limitations. While increasingly used for left sided colectomy, its application in restorative proctocolectomy remains rare. We describe a robotic completion proctectomy and IPAA using the NICE approach.

Methods:

A 30-year-old female with congenital extrahepatic portosystemic shunt requiring multiple laparotomies and several other prior abdominal operations (cholecystectomy, left ovarian cystectomy, incisional hernia repair, appendectomy, and PEG-J placement for gastroparesis) underwent total abdominal colectomy with end ileostomy for medically refractory indeterminate proctocolitis in January 2025. After counseling regarding the potential for Crohn's disease and associated pouch failure risk, she elected restoration of intestinal continuity.

Following the robotic completion proctectomy, the rectum was divided at the anorectal ring and extracted transanally. The ileal J-pouch was created intracorporeally with three 60mm linear stapler firings transanally. A 25 mm EEA anvil was introduced transanally and secured at the pouch apex using an absorbable purse-string suture and endoloop. The anal cuff was closed around the spike using a double purse-string technique. Perfusion was confirmed with indocyanine green angiography, and a flexible endoscopy confirmed an intact, airtight anastomosis. A diverting loop ileostomy was created.

Results:

At two months, CT with transanal contrast and pouchoscopy showed no evidence of anastomotic leak, stricture, or pouchitis. The patient underwent ileostomy reversal at 11 weeks.

Conclusion:

IPAA remains a technically challenging procedure, and even in minimally invasive cases, pouch construction is typically extracorporeal. We demonstrate the feasibility of a fully intracorporeal J-pouch procedure using the NICE approach. The natural alignment of the intra-abdominal anal opening and the pouch apex facilitates accurate reach estimation, ergonomic transanal intracorporeal stapling, and eliminates the need for any additional incision or the potential for ileostomy site enlargement for specimen extraction and pouch construction/reduction. We believe this technique broadens the spectrum of complex minimally invasive restorative proctocolectomy and represents a meaningful advance in robotic colorectal surgery.