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Ulcerative Colitis in the Elderly: Indications and Outcomes of Ileal Pouch-Anal Anastomosis (IPAA)



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INTRODUCTION

Inflammatory Bowel Disease (IBD) prevalence is increasing worldwide; as the population is also aging, IBD in the elderly, and especially elderly-onset IBD (E-IBD) is a rising concern.¹⁻³ There are 2 populations of E-IBD patients: elderly onset IBD patients and individuals with progression of the disease diagnosed earlier in life.⁴ A population-based study from the Netherlands showed that the incidence of E-IBD increased from 11.71 to 23.66 per 100,000 from 1991 to 2010.⁵ The age definition of what is “elderly onset IBD” varies in the literature as a standard age is not agreed upon, largely secondary to local clinical practices.⁶ Most cut-off values are approximately 60 years of age, but reports as young as 50 years old as well as studies analyzing outcomes of septuagenarians are available.⁴

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The prevalence of elderly-onset IBD has been reported between 8-9%.⁶⁻⁸ The incidence of elderly UC (E-UC) in the United States is 6-8/100,000 per year and is more common than the diagnosis of elderly Crohn’s disease (12.5% vs. 5%).⁴ Charpentier et al. reported the largest population-based study of elderly-onset IBD and demonstrated that 1 out of 8 incident cases of ulcerative colitis (UC) and 1 out of 20 incident cases of Crohn’s Disease (CD) were in individuals older than 60 years of age.⁷

It has been suggested that E-IBD may have a more benign clinical presentation and a better prognosis than the younger-onset disease.^{8,9} Elderly patients with CD present with an increased incidence of colitis rather than ileocolitis and therefore suffer from less stricturing, fistulizing, and perineal disease compared to a younger cohort.^{10,11} Similarly, elderly UC patients compared to younger patients, tend to have less frequent pancolitis, a higher rate of left-sided disease, lower progression rates, and lower risk of hospitalization.^{8,9,12} Conversely, elderly IBD patients may be at higher risk of malignant and

infectious complications related to medical therapy, however, the influence of these occurrences on overall mortality is not clear.¹³

The diagnosis of E-IBD is challenging as many other colonic pathologies can simulate IBD in the older age group.¹⁴ There are often diagnostic delays as clinical presentations suggest non-steroidal anti-inflammatory drug (NSAID)-induced intestinal injury, diverticular-associated disease, intestinal ischemia and infectious colitis including *Clostridium difficile* colitis. Delay in diagnosis or misdiagnosis can result in significant morbidity what can be especially troublesome in a population with reduced functional reserve as is the elderly.

In this review, we will summarize the indications and outcomes of surgical treatment for elder UC patients.

Indications for Surgery & Surgical Risk

Irrespective of age, surgery is indicated for medically refractory or fulminant disease, complicated disease behavior, intestinal hemorrhage, and malignancy.¹⁵⁻¹⁷ The concern for malignancy and opportunistic infection in the E-IBD patients is significant compared to younger cohorts, especially when on therapeutic IBD treatment.¹¹ Intolerance to medications, similar to younger populations, may prompt surgical intervention, particularly with regards to chronic use of corticosteroids, which is associated with increased mortality.⁴ The debate on 'top-down' versus 'bottom-up' therapy remains, however recent evidence has shown that a 'top-down' approach is more efficacious in the E-IBD population.¹⁸ Anti-TNF agents are of debatable efficacy in the elder population as some studies suggest that anti-TNFs have limited response rates, poor adherence, higher association with severe infections compared with younger populations, and have a higher rate of malignancy and mortality.⁴ Immunomodulators are associated with a risk of lymphoproliferative disorders and non-melanotic skin cancers, as well as a 12% relapse rate at 1 year after discontinuation in UC.⁴ These risks must be discussed in the shared-decision process and balanced with the risks of surgical treatment; e.g. restorative proctocolectomy. Aminosalicylates are generally safe in the elderly population, still with a risk of nephrotoxicity. Mild-to-moderate UC patients on aminosalicylates monotherapy

may avoid surgery, however the necessity of chronic rectal and oral therapy may result in low compliance.⁴

Additionally, approximately, 25% of all intestinal surgeries for IBD are performed in patients ≥ 55 years old.¹⁹ Most of the surgeries for older patients with IBD are elective,²⁰ with disease progression through medical management being the most common indication.^{21,22} Improving the quality of daily living over long-term sequelae of the disease is paramount and consultation with a surgeon before progression of the disease may allow the patient to make a better-informed decision about continuing medical therapy versus surgery.¹⁴ Unlike the young population, procedural risk must be balanced with cancer surveillance with age over 75 years as an additional risk factor for hospitalization after endoscopy.^{11,23} E-IBD patients are more than twice as likely to suffer from surgical complications, with an increased hospital length of stay compared to younger patients.²⁴ Dysplasia and cancer are major concerns in the elderly population and are frequent reasons for surgery in some UC series.²⁵

Unique to the E-IBD population are other risk factors such as poor nutritional status, medication interactions, functional impairment, and limited mobility. A variety of factors (poor dentition, early satiety, decreased access to healthy food, limited mobility) can result in nutrient deficiencies. Polypharmacy with drug interactions and overall deconditioning may adversely affect post-operative recovery.⁵ Despite medical comorbidities, there are no specific operations that should be avoided in older patients and restorative proctocolectomy remains an option in selective patients with E-UC.¹¹

Outcomes of Surgical Treatment for the Elderly UC Patient

Surgical treatment in elderly patients with IBD is frequently avoided because of a perceived increase in surgical risk. In a report of 30 patients from 2014, Ikeuchi et al. reviewed the surgical experience of elderly patients with UC. Selective cases had a 30-day mortality of 0.8%, however this number was increased to 27% in the emergency setting. Sepsis by methicillin-resistant *Staphylococcus aureus* or fungus and respiratory tract infection were the most common causes of death after emergency surgery.²⁶

Mortality for emergency surgery in UC patients has been reported at 5.3%.²⁷

Elderly patients with IBD have an increased rate of postoperative complications, an increased length of hospital stay and increased operative time.^{20,24} Although this increase in surgical complication rates could be attributed to the comorbidities of the elderly, the increased rate of postoperative complications and length of hospital stay remained unchanged after adjustment for comorbidities in one study.²⁴ Other authors did not find differences in surgical morbidity and mortality among older patients with UC (undergoing restorative proctocolectomy)²⁸ or with CD.²⁹ A multicentric retrospective study, including 6 reference centers from Europe, found that elderly patients presented similar number of overall postoperative complications compared to a match cohort of younger patient.³⁰ Nevertheless, the complication profile was different; elderly patients presented more Clavien-Dindo grade IV-V (requiring surgical treatment or leading to death), whereas younger patients had more grade III (requiring intervention other than surgery).

In a 113 patient series from a tertiary center, UC patients ≥ 65 years of age were found to have a significantly decreased frequency of surgery-associated adverse outcomes from 50% during 1960–1984 to 27%. The same trend was observed for mortality, 13% for the first period, and 2.7% in the latter period, indicating better outcomes in experienced tertiary centers.³¹

It is fundamental that surgeons, physicians, patients, and family discuss thoroughly the benefits and risks of surgery so that a fully informed decision could be made. Earlier surgical intervention for elderly UC patients should be considered since complications such as toxic megacolon, perforation, massive hemorrhage, and mortality are more common in the elderly when surgery is delayed.²¹ In UC, the severity of the episode and promptness of the surgical intervention are the most important determinants of surgical outcome after colectomy. Morbidity of severe UC increases from prolonged ineffective medical treatment. Delaying surgery based on a patient's age may increase mortality, whereas prompt surgical intervention has been associated with dramatic reductions in mortality in elderly patients with severe colitis.²¹

Restorative Proctocolectomy in Elderly Ulcerative Colitis Patients

Restorative proctocolectomy with IPAA continues to be the surgical technique of choice.^{32,33} The dogma of “no pouch-anal anastomosis over 50” established in the early 1990s is now obsolete.³³ Age is not considered a contraindication for performing ileal pouch-anal anastomosis (IPAA).³⁴ The American Society of Colon and Rectal Surgeons recommends in its practice parameters that “*chronologic age should not by itself be used as an exclusion criterion*”.¹⁷ However, careful consideration should be given to underlying comorbidities, patient's mental status, and anal sphincter function to distinguish the “fit from the frail”. Pouch procedures are feasible in suitably motivated elderly individuals who understand the risks and potential functional difficulties that often accompany this procedure.¹⁷

Elderly patients should be evaluated regarding anal function before considering IPAA. The success of this operation in the elderly requires good anal sphincter function as pre-operative incontinence contraindicates pouch surgery.^{33,35,36} Careful patient selection with good sphincteric function and adequate cognitive abilities are necessary for adaptation to IPAA. Patients with a pre-existing diagnosis of anorectal dysfunction/fecal incontinence may have better function and quality of life with permanent ileostomy.^{20,37}

A J-pouch configuration with stapled anastomosis including a < 2 cm rectal cuff would be preferable in elderly patients whenever possible to an S-pouch configuration with mucosectomy and handsewn anastomosis. The first approach is associated with better functional results in terms of major and minor, nocturnal, and diurnal incontinence, due to the preservation of the anal transitional zone and a better emptying.³⁰

A diverting loop ileostomy in the elderly patient, i.e., defunctioning the distal anastomosis may well reduce the incidence of a leak.³⁸ An anastomotic leak will compromise the clinical and functional outcome, especially in the elderly in the setting of pelvic sepsis. Surgeons willing to perform an IPAA in the elderly should be patient, humble, and wise enough to know when to divert a patient.

When performing complex surgical procedures demanding sophisticated perioperative care, it has

been shown that institutions performing larger numbers of operations have better outcomes than those who only operate on such cases occasionally; this also applies to institutions undertaking pouch surgery.³⁹ High volume institutions manage adverse events better, and that leads to better pouch salvage rates in the face of complications.⁴⁰ If available, it is appropriate for IPAA to be referred to high-volume specialized institutions.

Minimally Invasive approaches have been gaining acceptance for UC and IPAA surgery, even in the elderly. In the aforementioned European multicentric study, more than 50% of the IPAA performed in the elderly were done laparoscopically.³⁰ Two meta-analyses have found that laparoscopic IPAA when compared to open

surgery is associated with a shorter hospital stay, earlier return of bowel function, better cosmesis,⁴¹ and lower rates of surgical site infection.⁴² Although the experience with robotic surgery is limited for IPAA, in small case series, it has shown similar results to those of laparoscopic surgery but these studies were done in the general population without differentiating according to age.⁴³

Morbidity/Mortality

Table 1. resumes the surgical outcomes of the most representative series of IPAA in the elderly population.

A recent European multi-centric study of the International Pouch Database included 77 patients aged ≥ 65 years and 154 younger control patients

Table 1. Morbidity and Outcomes of IPAA in the Elderly

Author (Year)	n	Age Criteria	Complication Rate	Leak	Reoperation	Stricture	Ileostomy Closure Complications	Pouch Failure
Tan, 1997 ⁴⁸	228	>50 (n=28)	n/r	7%	18%	36%	n/r	11%
Bauer, 1997 ²⁸	392	≥50 (n=66)	n/r	7.6%	n/r	n/r	n/r	3%
Delaney, 2002 ⁴⁹	17	>70	n/r	11%	6%	6%	n/r	6%
Delaney, 2003 ³³	1895	56–65 (n=154) >65 years (n =42)	n/r	n/r	n/r	n/r	n/r	4.8-5.9%
Ho, 2006 ⁵⁰	339	50-69 (n=86) ≥70 (17)	30-45%	7% 0%	8.1% 0%	5.8% 5.9%		3.5% 11.8%
Pinto, 2011 ²⁵	66	≥65 (n=33)	33%	0%	9%	3%	n/r	0 %
Pellino 2013 ⁵¹	108	>70 (n=27)	n/r	3.7%		11.1%	n/r	0%
Pellino 2014 ⁵²		>80 (n=10)	10%	0%	0%	0%	0%	0%
Cohan, 2015 ⁵³	2493	Age 51-60y (n=408) Age >60 y (n=254)	Age 51-60y: 19.6% Age >60y: 20.8%	7.8%-7.9%*	5.1% 6.7%	n/r	n/r	n/r
Colombo, 2016 ³⁰	231	>65y (n=77)	Age >65y 32.4% Age <65y 27.2%	11.6% 10.3%	9% 8.4%	9% 7.1%	11.6% 7.1%	5.1% 5.1%

*Reported as Deep space SSI, n/r: not reported

that were matched according to comorbidities. Postoperative complications (32.4 vs. 27.2%) and pouch failure (5.1 vs. 5.1%) were similar between the groups, but elderly patients presented more Clavien-Dindo IV-V complications (20 vs. 4%, $p = 0.04$), as well as longer length of stay (13.3 vs. 11.5 days, $p = 0.007$). Mortality was recorded in 1 patient in the elderly group. Laparoscopy was associated with a shorter operative time [$p = 0.0001$], length of stay [$p = 0.0001$], with a similar complication rate to open surgery.³⁰

In contrast to previous findings, Delaney et al. showed a pouch failure rate of 5.9% in those over 55 years of age at the time of surgery, which is significantly higher compared to patients ≤ 55 ($p < 0.000001$).³³

Pouch anastomotic leakage is the most dreaded complication of IPAA surgery, leading to pelvic sepsis and eventually to pouch failure. The incidence is quite variable, ranging from 0% to 25%, depending on the definition and time of onset.³⁰

A systematic review of 12 studies (4327 young vs. 513 elderly patients), found that complication rates were comparable except for an increased rate of small-bowel obstruction in the younger patients. Dehydration and electrolyte loss was a significant problem in patients over 65.⁴⁴

Functional Outcomes

In a review of functional outcomes in elderly patients undergoing IPAA surgery (50 years of age), compared with younger patients, at 1 year, 24-hour stool frequency was significantly higher in the elderly patient group 6.79 ± 3.39 vs. 5.55 ± 1.48 ($p < 0.0001$). Perfect/near perfect continence was reported in 55.09 % of older patients vs. 74.75 % of the younger patients ($p < 0.0001$).⁴⁴

Dayton et al. reported daytime incontinence rates significantly higher in the elderly patients (13.95 vs. 5.56 %, $p < 0.0001$), as well as worse night-time incontinence rates (29.65 vs. 12.53 %, $p < 0.0001$)⁴⁵. Nocturnal seepage at 1 year after surgery was 49% in older patients versus 34 % of younger ones ($p = 0.0002$). Those studies that reported the quality of incontinence (solids vs. mucus/flatus), revealed no difference between older and younger patients; 11.04 % versus 7.37% ($p = 0.165$) for mucus/flatus and 5.06 % versus

4.19% ($p = 0.633$) for solids.³³

A few studies found no significant difference in pad or anti-diarrheal medication usage between older and younger patients. Tan et al. reported medication usage in 41.7 versus 33% ($p = 0.323$) older versus younger, a daytime pad usage of 16.7 versus 2.75% ($p = 0.024$), and night-time pad usage of 8.25 versus 16.7 % ($p = 0.389$) in older and younger groups respectively.⁴⁵

The ability to discriminate between flatus and feces is affected by age, in the systematic review by Ramage et al., 15.75 % younger versus 23.81 % older patients were unable to discriminate, but this difference did not reach statistical significance ($p = 0.3409$).⁴⁴ Lewis et al. found that 14/18 older versus 17/18 younger patients were able to defer defecation for more than 15 minutes.⁴⁶

Overall, anorectal function seems to deteriorate with time across all ages; however, after 10 years, there is no significant difference in incontinence rates between age groups.⁴⁴

Quality of Life

Despite differences in postoperative function, a limited number of studies have reported quality of life outcomes that are comparable between older and younger UC patients after IPAA.³³

A single institution retrospective study reporting outcomes after IPAA of 1895 patients (72% with UC) with 62 patients being ≥ 65 or older, reported a 28% and 33% rate of social or sexual restriction, respectively, with sexual restriction being statistically significant compared with younger patients ($p = 0.035$).³³ Nevertheless, most elderly UC patients (89%) stated that they would opt to undergo IPAA again, and 96% would recommend the procedure to others.³³

Chapman et al. examined differences in restrictions between age groups. There were no significant differences in sexual, work, social, or family activities noted between those < 45 and those > 45 at follow-up, except for sexual function beyond 5 years which was significantly worsened in the > 55 age category. Seventy percent of patients > 55 reported improved or unaffected social activities following surgery; 84% and 82 % reported that undergoing IPAA had improved or not affected work and family life.⁴⁷

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CONCLUSION

Surgical management of IBD in elderly patients remains a challenge. Indications for surgical treatment are similar compared with younger patients but special attention for dysplasia/neoplasia in the elderly should be considered. Surgery for IBD in elderly patients has been associated with longer operative time, greater postoperative complications, and longer length of stay, but this should not preclude surgical treatment. Communication among treating physicians is imperative to determine optimal surgical timing. IPAA remains as the preferred treatment for “fit” elderly UC patients with acceptable functional results. Preoperative anorectal function should be considered when offering this approach. Better outcomes are obtained in high-volume centers with experience in the management of these patients. ■

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Answers to this month's crossword puzzle:

1	D	Y	S	L	I	P	I	D	E	M	I	C		7	M				
	R		C		S		R		X		P		8	M	A	P			
9	A	C	I	D	O	10	S	I	S		11	F	E	C	A	L			
	I				12	C	O	S				C		N		13	T		
14	N	O	D		16	A	S		17	T		18	M	A	R	K	E	R	
			E			L		19	M	O	20	P		C		A		A	
21	M	I	C	R	O	B	I	O	M	22	E		23	S	I	24	G	N	
	O		A		R		N			25	A	K	A		27	I	S		
28	D	I	F	F	I	C	I	29	L	E		30	E	G	31	O		F	
	E				C					E			L		B			U	
32	L	E	33	A	N		34	A	35	U	T	36	O	L	O	G	O	U	S
			M		37	V		R		L									I
38	G	39	L	Y	C	E	M	I	C	I	N	D	40	E	41	X			O
42	O	I	L			I		N		V			43	R	E	44	I	N	
45	V	T			46	E	N	T	E	R	E	C	T	A	S	I	S		