ANASTOMOTIC TECHNIQUE IN LAPAROSCOPIC RIGHT COLECTOMY FOR CANCER: A MULTICENTER, PROPENSITY-WEIGHTED COMPARISON OF INTRACORPOREAL VERSUS MECHANICAL AND HAND-SEWN EXTRACORPOREAL TECHNIQUES.

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Background:
The optimal anastomotic technique in laparoscopic right colectomy (LRC) remains controversial. Intracorporeal anastomosis (ICA) has been associated with faster bowel recovery and fewer incisional hernias, yet its safety regarding anastomotic leak and its impact on oncologic outcomes — particularly lymph node yield — are still debated.

Objectives:
To determine which technique offers the best balance of safety, recovery, and oncologic results.

Methods:
- **Study Design**: Multicenter comparison of 182 patients : ICA (n=69), MECA (n=61), and HECA (n=52).
- **Statistical Analysis**: Propensity-weighted analysis using Inverse Probability of Treatment Weighting (IPTW) to balance baseline covariates. Figure 1
- **Primary Endpoints**: Bowel function recovery and anastomotic leak safety.
- **Secondary Endpoints**: Lymph node yield and long-term incisional hernia incidence

Results:
- **Study Population**: 182 patients analyzed (69 ICA, 61 MECA, 52 HECA) , with baseline characteristics well-balanced after IPTW adjustment. Table 1
- **Bowel Recovery**: Mechanical techniques (ICA and MECA) achieved significantly faster recovery of bowel function compared to HECA (p<0.001$).
- **Anastomotic Safety**: No significant differences were observed in leak incidence (ICA 9.2%, MECA 4.3%, HECA 7.2%; p=0.83). Figure 2
- **Oncologic & Long-term Outcomes**: Comparable results across all groups for total lymph nodes harvested and long-term incidence of incisional hernia. Table 2
- **Hospital Stay**: No significant difference was found in Length of Stay (LOS) after weighting

Table 1

Variable		Intracorporeal Mechanical n=69	Extracorporeal Mechanical n=61	Extracorporeal Manual n=52	p
Age in years, ± SD		66 ± 9	64 ± 10	68 ± 10	0.991
Sex	Male (%)	29 (42)	30 (58)	31 (51)	0.225
	Female (%)	40 (58)	22 (42)	30 (49)	
BMI, ± SD		24.1 (21.5-26)	23.4 (21.3-25.3)	23.3 (22-24.5)	0.324
Hemoglobin g/dL, ± SD		12.7 (14-12)	11.6 (10.3-13.4)	12.6 (10.9-13.4)	0.362
Albumin g/dL, ± SD		3.9 (3.7-4.2)	3.7 (3.5-4.2)	3.8 (3.5-4.1)	0.117
Charlson (%)	1	6 (8.7)	5 (9.6)	1 (1.6)	0.237
	2	44 (63.8)	36 (69.2)	40 (65.6)	
	3	13 (18.8)	9 (17.3)	10 (16.4)	
	4	6 (8.7)	2 (3.8)	8 (13.1)	
	5	0 (0.0)	0 (0.0)	2 (3.3)	
ASA (%)	I	2 (2.9)	5 (9.6)	4 (6.6)	0.359
	II	52 (75.4)	40 (76.9)	42 (68.9)	
	III	15 (21.7)	7 (13.5)	15 (24.6)	
Location (%)	Angle	14 (20.3)	11 (21.2)	14 (23.0)	0.855
	Ascending	33 (47.8)	29 (55.8)	30 (49.2)	
	Blind	22 (31.9)	12 (23.1)	17 (27.9)	
State Ty N (%)	I	17 (24.6)	11 (21.2)	13 (21.3)	0.434
	II	25 (36.2)	23 (44.2)	32 (52.5)	
	III	27 (39.1)	18 (34.6)	16 (26.2)	

Figure 1

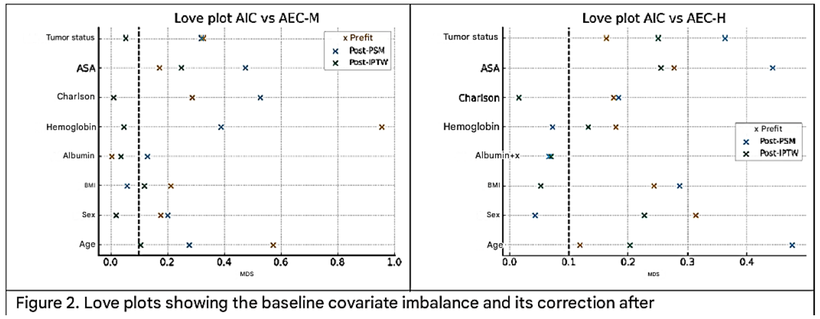

Figure 2. Love plots showing the baseline covariate imbalance and its correction after

Table 2

Variable		AIC n=69	AECM n=61	AECH n=52	p
Surgery time (minutes), ± SD		157 (145-165)	128.2 (112-144)	131.9 (122-147)	<0.001
Hemorrhage (g/dL), ± SD		90.9 ± 26.5	98.6 ± 18.5	98.4 ± 20.185	0.890
Mean lymph nodes, ± SD		22 (14-28)	23 (18.7-25.9)	20.5 (17-24)	0.370
Proximal margin (cm), ± SD		122 (118-128)	104 (102-106)	105 (101-109)	<0.001
Distal margin in cm, ± SD		104 ± 4.9	105 ± 4.5	106 ± 4.8	0.190
Mean flatus in days, ± SD		2.5 (2.2-3.4)	3.6 (3-5)	3.1 (2.1-3.5)	0.149
Mean feces in days, ± SD		4.2 (3.5-5.9)	5.2 (3.9-7)	4.0 (2.7-5.6)	0.710
Stay in days, ± SD		6.8 (5.0-8.5)	8.9 (7-10.8)	9.2 (7.7-11)	0.024
Complications (%)	No	54 (78)	47 (77)	27 (53.4)	0.012
	Anastomotic Leak	4 (6)	4 (7)	3 (6)	0.087
	Abscesses	1 (1)	0 (0)	4 (6.6)	
	Hemorrhage	1 (1)	2 (3.8)	0 (0)	
	SSI	1 (1)	2 (3.8)	3 (4.9)	
	Pneumonia	0 (0.0)	0 (0.0)	1 (1.6)	
	Intestinal Obstruction	1 (1)	1 (1.9)	1 (1.6)	
	Ileus	7 (10)	6 (8.2)	13 (25)	0.019
Clavien Dindo (%)	I	10 (15)	8 (13)	10 (19)	0.42
	II	2 (3)	3 (5)	8 (15)	
	IIIa	1 (1)	1 (2)	3 (6)	
	IIIb	1 (1)	2 (3)	2 (4)	
	IVb	0 (0)	0 (0.0)	2 (4)	
	V	3 (4)	2 (3)	1 (2)	
Incisional Hernia (%)	No	68 (98.6)	48 (92.3)	57 (93.4)	0.227
	Yes	1 (1.4)	4 (7.7)	4 (6.6)	
Follow-up in months		27.0 (22-35)	29 (23-35)	36 (27-43)	<0.01

Figure 2

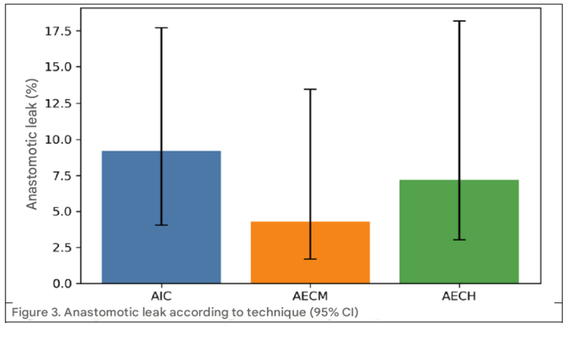

Figure 3. Anastomotic leak according to technique (95% CI)

Conclusions.
- **Functional Superiority: Mechanical techniques (ICA and MECA) significantly accelerate the recovery of bowel function (p<0.001).**
- **Safety & Oncology: ICA offers a safety profile comparable to extracorporeal techniques (MECA/HECA), with no significant differences in anastomotic leaks or lymph node yield.**
- **Clinical Verdict: ICA is a safe and functionally advantageous alternative for laparoscopic right colectomy. Its adoption optimizes early post-operative recovery while maintaining strict oncologic standards.**

The bottom line:
Mechanical techniques (ICA/MECA) significantly accelerate bowel recovery (p< 0.001) with safety and oncologic outcomes equivalent to extracorporeal methods (p=0.83 for leaks). ICA is a safe alternative that optimizes recovery without increasing surgical risk or compromising oncologic quality.