

Hand-Assisted Technique Can Facilitate the Difficult Laparoscopic Colectomy

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Why Does Lap Alone Fail?

- Can't safely see
- Can't safely identify things
- Can't safely expose things
- Can't safely handle the specimen
- Can't safely "feel"

Why Does Lap Alone Fail ?

- The more complex the case, the greater the chances for failure
- HALS addresses these issues

Cases for Consideration Include:

- Complicated diverticular disease
- Complicated Crohn's disease
- Extensive resections (TAC / TPC)
- Bulky cancers
- Difficult resections near crucial structures

Why Not HALS ?

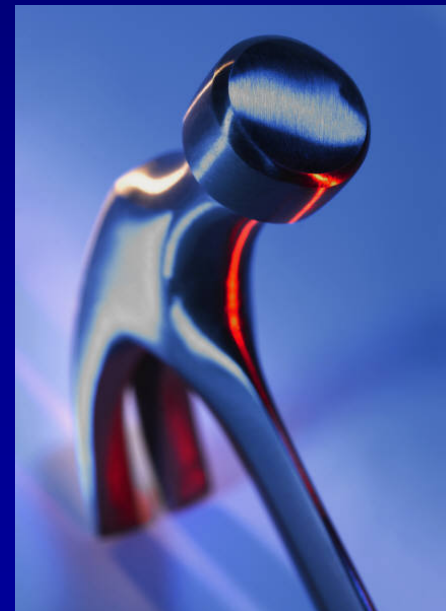
- Not needed for all cases, and surgeons feel they are doing well now
- May not feel bad about opening
- Fears of costs
- Not as much data yet on HALS as on LAP

Why Not HALS ?

- Another learning curve for those already expert without it
 - If you haven't done an easy one, its hard to do a hard one ! (Technique, placement, etc.)
- Requires another incision (though it can be used as an extraction / trocar site)
- Ego – many who complain have never used it

Why HALS ?

Remember – HALS is just another
“hammer in the toolbox”



Why HALS ?

- Restores tactile sense for clamping, dissecting, palpating, retracting
- Helps dissection through inflamed tissues (eg., diverticular fistula)
- Helps you feel what you can't see (eg., ureter, cancer)

Why HALS ?

- Shortens certain dissection maneuvers (eg., “retroperitoneal sweep”)
- Helps exposure / traction / retraction
- Helps control unexpected / difficult situations (eg., hemorrhage, perforation)

Why HALS ?

- Same outcomes as LAP regarding ileus, hospital stay, morbidity, etc.
- Reduces conversions
- Reduction of time and instruments needed
 - Can therefore be cost efficient
 - Can lower patients morbidity of op time
 - Can give surgeons more time

Why HALS ?

? Safer ?

Bartus, Cohen, et al

Feb '05 DCR

- Reviewed 36 pts with colovesical / colovaginal fistulas; compared 146 uncomplicated diverticular sigmoid resections; consecutive patients
 - All done HALS
- Traditionally CV fistulas felt contraindicated because of conversion rates up to 60%, and long op times

Bartus, Cohen, et al

Feb '05 DCR

- 75% completed with low morbidity and no mortality, compared to 95% in uncomplicated group
- Ave op time = 220 min for CV fistula, vs 176 min for uncomplicated group
- Hospital stay 6.2 days vs 4.4 days
- No leaks or bleeding, and fistula grp ultimately did as well as uncomplicated grp

Lee, Milsom, et al

April '06 DCR

- HALS vs LAP for diverticulitis; 21 pts each grp, prospectively collected
- “Complicated” = abscess, colovesical fistula, enterocolonic fistula → 4 lap, 10 HALS
- Op time = 255 min in complicated LAP
= 177 min in complicated HALS
** Diff = 78 min*
- Conversions of **75%** in complicated LAPS vs **10%** in complicated HALS

Lee, Milsom, et al

April '06 DCR

- ***No difference*** in complications / LOS / EBL / time to first BM between the 2 grps (complicated or uncomplicated)
- Very experienced surgeons – each over 500 cases LAP
- \$400 / hr OR time cost → covers cost of device
- Concluded HALS gave ***similar*** outcomes to LAP, with ***less conversions*** and ***shorter op times***

Chang, Marcello, et al

Surgical Endoscopy, May '05

- 85 LAP Sig vs 66 HALS Sig – consecutive well matched patients
- Indications = Diverticulitis, Cancer, Polyp
- HALS *op time faster* – 189 vs 205 min
- *No difference* in bowel function, LOS, or complications overall

Chang, Marcello, et al

Surgical Endoscopy, May '05

- HALS had ***fewer conversions*** – 0% vs 13%
- Conversions were related to inflammation severity, tumor size or location, poor visualization
- 1 intraop complication for HALS vs 5 for LAP
- Concluded HALS gave ***same outcomes*** as LAP with ***fewer conversions***

Nakajima, Milsom, et al

Surgical Endoscopy, April '04

- LAP vs HALS for UC / FAP / Inertia –
Ops = TAC / TPC
- 23 consecutive pts – 12 HALS (5 TPC / 7 TAC)
and 11 LAP (7 TPC / 4 TAC)
- Experienced surgeons, with over 1000 prior
LAP colectomy cases
- No conversions in HALS; 1 in LAP

Nakajima, Milsom, et al

Surgical Endoscopy, April '04

- Op time ***1 hour shorter*** for HALS (210 min vs 273 min)
- Postop recovery and morbidity rates = ***same***
- HALS ***eliminated or reduced*** the need / number of trocars, graspers, and retractors, and ***lowered OR time costs***

Nakajima, Milsom, et al

Surgical Endoscopy, April '04

Concluded HALS *reduces* OP time with similar morbidity and recovery to LAP, and may be *preferable* for technically demanding extensive colorectal procedures

Rivadeneira, Marcello, et al

DCR '04

- HALS vs LAP TRPC in 23 consecutive patients; 10 HALS, 13 LAP
- **No difference** in EBL, LOS, Conversions, Complications, Incision length
- **Faster return** to bowel function, and **faster op time** (53 min) for HALS (300 min LAP, 247 min HALS)
- Concluded **HALS should replace LAP** for this technically challenging procedure

Two Prospective, Randomized Trials

- HALS Study Group [Surg Endoscopy (2000) 14; 896-901]
- Targarona, et al [Surg Endoscopy (2002) 16: 234-239]

Results of 2 Prospective Randomized Trials Comparing Laparoscopic With HALS Colectomy

	Targarona et al ²⁸		HALS Study Group ²⁷	
	Laparoscopic Colectomy Group (n = 27)	HALS Colectomy Group (n = 27)	Laparoscopic Colectomy Group (n = 18)	HALS Colectomy Group (n = 22)
Age, y	67	70	...	...
Sex, M/F	18/9	20/7	...	...
No. of patients with benign/malignant disease	5/22	5/22	18/0	22/0
No. of patients with right-sided and left-sided colectomy	11/16	12/15	...	...
Conversion	6/27 (4 to HALS)	2/27	3/22	8/22
Operative time, min	135	120	141	152
Postoperative bowel movement, h	48	48	72	72
Postoperative refeeding, h	48	72	...	...
Morbidity, No. of patients	6	7	4	1
Minor	4	5	3	...
Major	2	2	1	1
Reoperation	...	1/27	...	...
Length of hospital stay, No. (range) of days	6 (5-22)	6 (5-27)	6	6
Length of specimen, mean (range), cm	19 (11-35)	20 (11-40)	...	...
Lymph nodes, No. (range)	11 (2-35)	12 (5-29)	...	...

HALS Study Group and Targarona, et al

Both studies confirmed HALS maintained the benefits of pure laparoscopic approach; **same** time to flatus, BM's, and refeeding, **same** length hospital stay, with the **same** morbidity and **same** costs.

Targarona, et al

- Conversion rate was 7% for HALS compared to 23% for pure laparoscopic.
- Conversion from pure laparoscopic to HALS *allowed completion* in 4 patients who would *otherwise* have been opened.



Conclusions

- Addition of an educated hand ***consistently*** reduces time and conversions in complicated colectomies
- Time savings of approximately 1 hour, and the reduction of instruments needed, ***often pays for the device***
- Outcomes are ***at least as good*** with HALS as LAP

Conclusions

Hand-Assisted Techniques **CAN** facilitate the difficult Laparoscopic Colectomy, and **SHOULD** be part of the surgeons armamentarium