



**The Efficacy of Subcostal Approach
Laparoscopic Cholecystectomy
in Patients with Previous Midline Incision;
Comparing Open Cholecystectomy and
Conventional Laparoscopic cholecystectomy**

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Introduction



- ❖ Laparoscopic cholecystectomy (LC) is the treatment of choice in the benign gallbladder disease
- ❖ In patients with previous upper abdominal surgery with midline incision,
 - 1) the increased risk of bowel injury on initial entry into the abdomen
 - 2) inadequate exposure to the operative field
 - 3) potential complication arising from adhesiolysis.
- ❖ We introduced the subcostal approach laparoscopic cholecystectomy for the patients with previous operation history

Aims



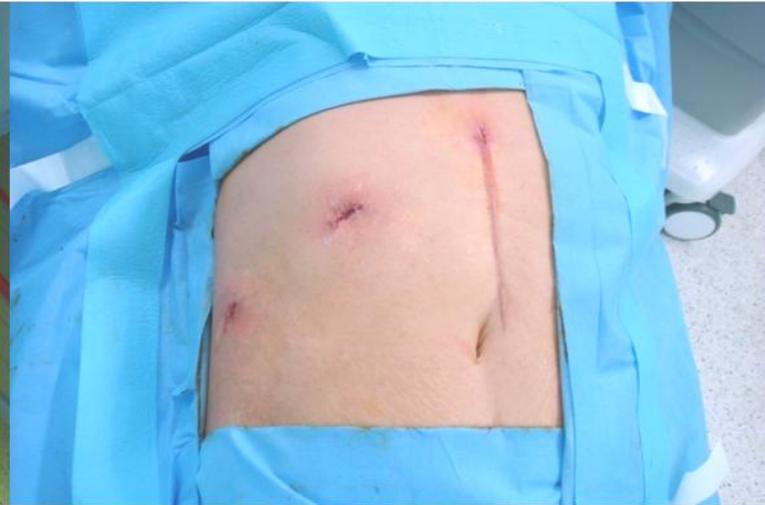
- ❖ The efficacy of subcostal approach LC in patients with previous midline incision
- ❖ We compare;
 - subcostal approach LC vs conventional LC (gastrectomy)
 - subcostal approach LC vs open cholecystectomy (gastrectomy)

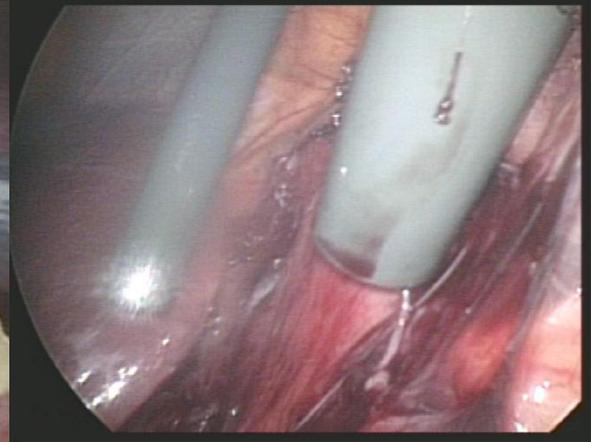
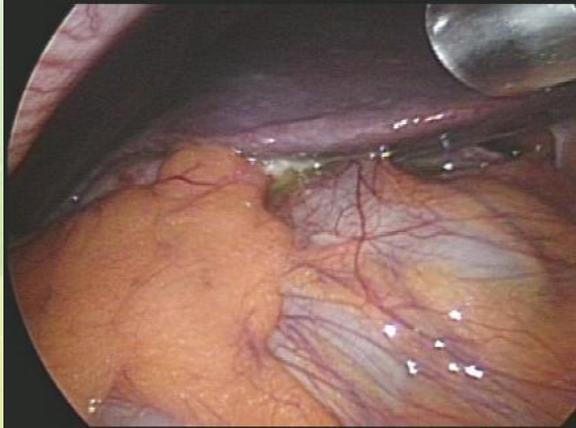
Subcostal approach LC



- ❖ Under the general anesthesia, the patients were placed in supine position with 30 degree right-tilting and head-up position.
- ❖ A 1.2-cm incision, approximately 1 or 2 cm below costal margin was made at the midclavicular line.
- ❖ A 12-mm port (for camera) was inserted, and the abdomen was insufflated.
- ❖ Two additional 5-mm ports were placed under the laparoscopic vision in the subcostal line, **epigastric** and **midaxillary point**, respectively
- ❖ The most lateral trocar was used for retraction of the gallbladder. The medial trocar was used for dissection. Gallbladder was removed through 12-mm port site using retrieval bag.







Patients and Methods

----- *KUMC Experience*

❖ Patients

2009. 5. ~ 2013. 3. ; KUMC Guro & Ansan hospital
35 patients with a history of previous operation
subcostal LC

- ❖ We included patients who underwent cholecystectomy, and had a history of gastrectomy for gastric cancer (2006~2010)
21 pts; history of gastrectomy for gastric cancer
conventional LC
18 pts; history of gastrectomy for gastric cancer
open cholecystectomy



- ❖ Data ; mean \pm standard deviation or median with 25th and 75th percentiles
- ❖ Statistical calculations were performed using IBM SPSS Statistics 20 software (Armonk, NY).
- ❖ Comparison
 - ✓ Categorical variables; Pearson chi-square test.
 - ✓ Continuous variables; independent samples t test for variables that were normally distributed
the Mann-Whitney U test for variables that were not normally distributed.
- ❖ A P value < 0.05 was considered statistically significant.

Results

patients characteristics (subcostal approach LC)



- ❖ **F:M = 10:25**
Mean age; 64±12 yrs (22~90)
- ❖ **BMI ; 22.7±4.1**
- ❖ **Comorbidity 12 pts (34%); 18 diseases**
HTN (n=8), Angina or MI (n=2), Arrhythmia (n=2), DM (n=3),
chronic kidney disease (n=2), aplastic anemia (n=1)
- ❖ **Time interval from previous operation; 11yrs (1~50yrs)**
- ❖ **Operation ; small bowel segmental resection(n=3), anterior resection (n=3), explorative laparotomy (n=8), gastrectomy (n=17), right hemicolectomy (n=1), small bowel primary repair (n=3)**

Conversion to open cholecystectomy



- ❖ Most of the patients underwent 3-port cholecystectomy, however, 3 patient required additional one port (4-port)
- ❖ Conversion to an open procedure; 3 pts severe adhesion round gallbladder difficulties in proceeding dissection in the cystic duct common bile duct junction.

Results

Complication



- ❖ **Subcostal LC group**
wound infection (n=1)
- ❖ **Conventional LC**
Intraabdominal abscess; pigtail in abdomen (n=1)
Wound infection (n=2)
- ❖ **Open Cholecystectomy group**
Intraabdominal abscess; pigtail in abdomen (n=1)
Wound infection (n=3)

Comparative analysis of subcostal approach LC group with conventional LC group



Factor		Conventional LC (n=21)	Subcostal LC (n=35)	P value
Age		63±12	64±12	0.776
Sex	F	8	10	0.460
	M	13	25	
BMI		22.8±2.5	22.7±4.1	0.904
ASA	1	8	7	0.244
	2	11	26	
	3	2	2	
Conversion	No	16	32	0.115
	Yes	5	3	
Cholecystitis	No	0	3	0.168
	Yes	21	32	
Operative time		93±57	72±34	0.075
Hospital stay		6(3.5~8.5)	2(2~5)	<0.001
Complication	No	17	34	0.203
	Yes	3	1	

Comparative analysis of subcostal approach LC group with open cholecystectomy group



Factor		Open cholecystectomy (n=18)	Subcostal LC (n=35)	P value
Age		57.6±9.2	63.7±12	0.064
Sex	F	4	10	0.620
	M	14	25	
BMI		21.3±3.8	22.7±4.1	0.219
ASA	1	5	7	0.585
	2	11	26	
	3	2	2	
Cholecystitis	No	1	3	0.694
	Yes	17	32	
Operative time		86.3±26	72±32	0.118
Hospital stay		7(5.75~9.25)	2(2~5)	<0.001
Complication	No	14	34	0.203
	Yes	4	1	

Conclusion

- ❖ **Subcostal approach LC is safe and effective procedure for patients who have had previous midline incision.**
- ❖ **It might avoid unnecessary adhesiolysis and provide relatively safe and easy introduction of trocar in the abdomen.**

Thank You !

