

1990 9 8
 2001 6
 3,510
 4
 66
 1 20 200
 24 24 7 3
 SPSS Stu-
 dent's t-test, Chi-square test P-value가 0.05

29 (2.28%), 2,236 37 (1.65%)
 가 , :
 1 : 2.02 1 : 1.27
 (P=0.029).
 17.6±5.1 6.4±1.3
 (P=0.006).
 , AST (Alanine aminotransferase)/ALT (Aspartate aminotransferase)/ALP (Alkaline phosphatase)
 (Table 2, 3).
 (gangrenous cholecystitis) 8 (12.1%)
 5 (2.5%) (P=0.003),
 0.590±0.017 cm 0.755±0.034 cm
 (P=0.038).

1)

3510
 1,274 29 (2.28%), 2,236
 37 (1.65%)
 56.2±7.6 (29 72)
 (Table 1).
 가 1,274

Table 1. Clinical parameters

	OC*	LC†	P-value
No. of patients (n)	66	200	—
Mean age (year)	56.2±7.6	52.4±8.1	NS‡
Height (cm)	161.2±5.3	159.8±4.1	NS
Weight (kg)	61.3±7.4	62.8±6.9	NS
Gender ratio (M : F§)	1 : 1.27	1 : 2.02	0.029
Previous abdominal surgery (%)	4 (6%)	9 (4.5%)	NS
Hospital stay (day)	17.6±5.1	6.4±1.3	0.006

*OC = conversion to open cholecystectomy; †LC = laparoscopic cholecystectomy; ‡NS = not significant; §M : F = Male : Female.

Table 2. Pre-operative laboratory data

	OC* (% Abnormal)	LC† (% Abnormal)	P-value
White blood cell count	3.7%	2.9%	NS‡
Total bilirubin	4.8%	4.5%	NS
AST§	5.6%	6.1%	NS
ALT	5.3%	5.5%	NS
ALP¶	6.2%	5.9%	NS

*OC = conversion to open cholecystectomy; †LC = laparoscopic cholecystectomy; ‡NS = not significant; §AST = alanine aminotransferase; ALT = aspartate aminotransferase; ¶ALP = alkaline phosphatase.

Table 3. Pathologic findings

	OC*	LC†	P-value
Acute gangrenous cholecystitis (%)	8 (12.1%)	5 (2.5%)	0.003
Size of GB§ (cm)	(6.34±0.82) ×(3.43±0.51)	(6.47±0.79) ×(3.17±0.45)	NS‡
Thickness of GB wall (cm)	0.755±0.034	0.590±0.017	0.038

*OC = conversion to open cholecystectomy; †LC = laparoscopic cholecystectomy; ‡NS = not significant; §GB = gallbladder.

Table 4. Reasons for conversion from laparoscopic cholecystectomy to open cholecystectomy

	Intra-operative conversion	Conversion within post-operative 24 hours	Conversion after post-operative 24 hours	Total
Bleeding	16	8	2	26
Adhesion	17	—	—	17
Bile duct injury	7	—	8	15
Inflammation	4	—	—	4
Miscellaneous	4	—	—	4
Total	48	8	10	66

2)

, 24 , 24
7
(Table 4, 5).
66 26
(39%), 17 (26%), 15 (23%),
4 (6%), 4 (6%)
48 (73%)
17 (35%), 16 (33%)가
, 7 (14.5%), 4 (8.3%)가
(choledochoduodenal fistula),
1 (2%)
38 (79%) , 9 (18%)
T
,
24 8 (12%)
, 7
(87.5%) 1 (12.5%) 5
24 7
10 (15%) , 5 (50%)
T , 2 (20%) , 3 (30%)
(hepaticojunostomy)
가 (26 ,39%)
(liver bed)가 11 (42.3%) 가
(trocar insertion site)가 5 (19.2%),
(cystic artery) 4 (15.3%) ,

Table 5. Procedures for conversion

	Intra-operative conversion	Conversion within post-operative 24 hours	Conversion after post-operative 24 hours
Cholecystectomy	38	—	—
Colecystectomy and CBD* exploration	9	—	—
CBD exploration	—	—	5
Bleeding control	—	8	2
Hepaticojunostomy	—	—	3
Cholecystectomy and small bowel simple closure	1	—	—
Total	48	8	10

*CBD = common bile duct.

6 (23%)가 .

가
10%가 가
(4) ,
1980
, 가
가
가 , Sanabria (5) 5%, Peters (6) 14%, Lo (7) 11%, Mattioli (8) 4.16% 4 15%
3,5 10
66 1.88% , 1,274 29 (2.28%),
2,236 37 (1.65%)
가 . Sanabria (5)
Liu (9) 가
, (10) 가 200
5%

가 ,

가 ,
 가 ,
 가가 ,
 가
 가 (intraoperative cholangiogram)
 가

REFERENCES

- 1) . . . 1st ed. ; 1992.
- 2) Edward GC, Theodor NP. Minimally invasive surgery: In Text-book of surgery Sabiston DC, 16th ed. Philadelphia: W.B. Saunders; 2001. p.292-309.
- 3) Mckeran JB, Laws HL. Laparoscopic Cholecystectomy. Surgery Rounds. 14th ed. 1991. p.737.
- 4) Kim HS, Chi KC, Lee JH, Chnag IT, Kim SJ. A comparison of clinical results for laparoscopic cholecystectomy versus standard open cholecystectomy. J Korean Surg Soc 1993;45: 663-70.
- 5) Sanabria JR, Gallinger S, Croxford R, Strsberg SM. Risk factors in elective laparoscopic cholecystectomy for conversion to open cholecystectomy. J Am Coll Surg 1994;179:696-704.
- 6) Peters JH, Krailadsiri W, Incarbone R, Bremner CG, Froes E, et al. Reasons for conversion from laparoscopic to open cholecystectomy in an urban teaching hospital. Am J Surg 1994; 168:555-9.
- 7) Lo CM, Fan ST, Liu CL, Edward CS Lai. Early decision for conversion of laparoscopic to open cholecystectomy for treatment of acute cholecystitis. Am J Surg 1997;173:513-7.
- 8) Mattioli FP, Cagnazzo A, Razzetta F, Bianchi C, Varaldo E, Campagna A, et al. Laparoscopic cholecystectomy. An analysis of the reasons for a conversion to conventional surgery in an elective surgery department. Minerva Chir 1999;54:471-6.
- 9) Liu CL, Fan ST, Liu CL, Edward CS Lai, Lo CM, Chu KM. Factors affecting conversion of laparoscopic cholecystectomy to open surgery. Arch Surg 1996;131:98-103.
- 10) Park YH, Kim SH, Kim HC. Current status of laparoscopic cholecystectomy in Korea. J Korean Surg Soc 1993;44:929-37.
- 11) Schrenk P, Woisetschlaeger R, Wayand WU. Laparoscopic cholecystectomy, cause of conversion in 1.300 patients & analysis of risk factors. Surg Endosc 1995;9:25-8.
- 12) Min SK, Han HS, Kim YW, Yi NJ, Kim EG, Ahn CY, Choi YM. Application of laparoscopic cholecystectomy in acute cholecystitis. J Korean Surg Soc 2001;61:312-6.
- 13) Oh CN, Kim JM, Kim HS. Clinical review of laparoscopic cholecystectomy. J Korean Surg Soc 1999;56:1017-23.
- 14) Strasberg SM, Hertl M, Soper NJ. An analysis of the problem of biliary injury during laparoscopic cholecystectomy. J Am Coll Surg 1995;180:101-25.
- 15) Kim YJ, Park YK, Chi KC, Lee JH, Chang IT, KimSJ. Clinical analysis of 2504 cases of a laparoscopic cholecystectomy and 2672 cases of an open cholecystectomy. J Korean Surg Soc 1997;55:749-56.
- 16) Yu KS, Chi KC, Lee JH, Chang IT, Kim SJ. A clinical analysis of laser laparoscopic cholecystectomy. J Korean Surg Soc 1992;42:313-9.