

Comparison of the Quality of Life after Minilaparotomy Cholecystectomy versus Laparoscopic Cholecystectomy: a Prospective Randomized Study*

Jukka Harju MD¹, Matti Pääkkönen MD PhD² and Matti Eskelinen MD PhD²

¹Kuusankoski District Hospital, Kuusankoski, Finland

²Department of Surgery, Kuopio University Hospital, Kuopio, Finland

Key words: minilaparotomy, cholecystectomy, quality of life

Abstract

Background: Earlier studies comparing minilaparotomy cholecystectomy with laparoscopic cholecystectomy did not find significant differences between the MC and the LC groups in operating times and patients' recovery.

Objectives: To compare the postoperative quality of life between the MC and LC groups.

Methods: The 157 patients with uncomplicated symptomatic gallstones, confirmed by ultrasound, were randomized to two groups: 85 for MC and 72 for LC. The study was prospective and randomized but not blinded or consecutive. The study groups were similar in patients' age, gender, body mass index, American Association of Anesthesiology physical fitness classification, and the operating surgeon. Patients were reevaluated 4 weeks after operation using the RAND-36 quality of life questionnaire.

Results: The RAND-36 questionnaire did not identify statistically significant differences between the study groups in general health perceptions, physical functioning, emotional well-being, social functioning, energy, bodily pain, and role functioning/emotional score. Only the role functioning/physical score was slightly higher in the LC group ($P = 0.038$).

Conclusions: The results of this study showed that the MC procedure is a good alternative to the LC procedure, when postoperative quality of life is measured.

IMAJ 2007;9:147-148

The laparoscopic technique has spread rapidly around the world during the last 15 years. Although laparoscopic cholecystectomy seems to be the most popular operation, studies have shown minilaparotomy cholecystectomy to be an equally effective method. In our previous study [1] MC was a statistically faster procedure than LC, and there was no significant difference in postoperative recovery when the duration of sick leave and hospital stay, pain or consumption of painkillers were measured.

Many studies have shown that the postoperative quality of life is better with the LC technique than with the traditional open cholecystectomy [2-4]. To our knowledge, the quality of life following MC and LC has rarely been compared. Only one study [5] addressed this issue, and did not find a significant difference in postoperative quality of life between the procedures. We prospec-

tively investigated the quality of life after both procedures at the Kuopio University Hospital, Finland, and present our findings.

Patients and Methods

The study was approved by the Joint Ethics Committee of the University of Kuopio and Kuopio University Hospital and was conducted in accordance with the Declaration of Helsinki. Participants gave written consent after receiving verbal and written information. The operations were carried out at the Kuopio University Hospital's Department of Surgery.

The study was prospective and randomized but not consecutive or blinded. Altogether, 157 patients with uncomplicated symptomatic gallstones confirmed by ultrasound were randomized to the MC group ($n=85$) and the LC group ($n=72$). Exclusion criteria were previous jaundice, suspicion of stones in a common bile duct (elevated serum alkaline phosphate or bilirubin, or a wide common bile duct on ultrasound), previous upper abdominal operation (relative exclusion criteria), and cirrhosis of liver or suspicion of cancer.

Surgery was performed between 3 February 1998 and 26 April 2004. There were no significant differences between groups in gender, age, body mass index, American Association of Anesthesiology physical fitness classification, and operating surgeon. Pre- and postoperative medication for anesthesia was standardized. The LC operation was performed using a standard technique with four trocars, while the MC operation used the technique of Tyagi et al. [6] as described in their article. Patients were reevaluated 4 weeks after surgery at the surgery outpatient clinic, using the RAND-36 quality of life questionnaire.

Results

Table 1. RAND-36 quality of life results

	LC (n=67)	MC (n=82)	P
Physical functioning	87	85	0.492
Role functioning/physical	63	49	0.038
Role functioning/emotional	80	75	0.349
Energy	72	69	0.399
Emotional well-being	81	82	0.747
Social functioning	84	82	0.587
Bodily pain	73	70	0.439
General health	65	66	0.538

* Presented at the 18th Israeli Medical Association World Fellowship International Conference

MC = minilaparotomy cholecystectomy

LC = laparoscopic cholecystectomy

Although all patients were reevaluated at the surgery outpatient clinic, the RAND-36 quality of life questionnaire was successfully completed in 67 patients of the LC group (93%) and 82 of the MC group (96%).

Patients whose body mass index was $< 30 \text{ kg/m}^2$ had better postoperative physical functioning (mean 86 ± 80) ($P = 0.01$), but obesity did not have a statistically significant effect in other RAND-36 variables. In the LC group, role functioning/physical score was slightly better than in the MC group, but in the other RAND-36 variables there were no statistically significant difference between the two groups [Table 1].

Discussion

The randomized clinical trial, the gold standard of modern clinical investigation, is a remarkable social construction. Its overall goal is to scientifically demonstrate that a new procedure or device produces a health benefit that justifies its risk. Ideally, all new therapeutic methods and biomedical advances should be subjected to this scrutiny before they enter clinical use.

The LC procedure has been established during the last 15 years as the foremost technique for cholecystectomy, but some studies have demonstrated the MC procedure to be as good as the LC procedure. To our knowledge, the postoperative quality of life in the MC group versus the LC group has rarely been compared. Nilsson et al. [5] compared the MC and LC operations in the 1719 cases of cholecystectomy in their study. The methods were comparable in their study and the quality of life was slightly better in the LC group than in the MC group only one week after operation, but there were no statistically significant differences one month after operation between the groups.

Role functioning/physical score was slightly better in the LC

group in our study. In an earlier analysis of our study there were no differences in postoperative recovery, and the MC procedure was significantly shorter than the LC procedure [1]. According to our study and an earlier one, the MC procedure seems to be a good alternative to the LC procedure, although further analyses of costs are needed. The MC does not require expensive instruments and therefore might be the preferred method in small-volume hospitals and in developing countries.

References

1. Harju J, Juvonen P, Eskelinen M, Miettinen P, Paakkonen M. Minilaparotomy cholecystectomy versus laparoscopic cholecystectomy: a randomised study, with special reference to obesity. *Surg Endosc* 2006;20:583–6.
2. Chen L, Tao SF, Xu Y, Fang F, Peng SY. Patients quality of life after laparoscopic or open cholecystectomy. *J Zhejiang Univ Sci B* 2005;6:678–81.
3. Quintana JM, Cabriada J, Arostequi I, Lopez de Tejada I, Bilbao A. Quality-of-life outcomes with laparoscopic vs open cholecystectomy. *Surg Endosc* 2003;17:1129–34.
4. Topcu O, Karakayali F, Kuzu MA, et al. Comparison of long-term quality of life after laparoscopic and open cholecystectomy. *Surg Endosc* 2003;17:291–5.
5. Nilsson E, Ros A, Rahmqvist M, Bäckman K, Carlsson P. Cholecystectomy: costs and health-related quality of life: a comparison of two techniques. *Int J Qual Health Care* 2004;16:473–82.
6. Tyagi NS, Meredith MC, Lumb JC, et al. A new minimal invasive technique for cholecystectomy: subxiphoid “minimal stress triangle” microceliotomy. *Ann Surg* 1994;220:617–25.

Correspondence: Dr. J. Harju, Kuusankoski District Hospital, 45750 Sairaalamäki, Finland.

Phone: (358-44) 258 3018

Fax: (358-5) 220 2541

email: jukka.harju@fimnet.fi

When nations grow old, the arts grow cold and commerce settles on every tree

William Blake (1757-1827), British poet and painter

Capsule

Immune activation by bacterial products in HIV patients

Chronic activation of the immune system is a hallmark of progressive HIV infection and better predicts disease outcome than plasma viral load, yet its etiology remains obscure. Brenchley and collaborators from the NIH show that circulating microbial products, probably derived from the gastrointestinal tract, are a cause of HIV-related systemic immune activation. Circulating lipopolysaccharide, used as an indicator of microbial translocation, was significantly increased in chronically HIV-infected individuals and in simian immunodeficiency virus (SIV)-infected rhesus macaques ($P = 0.002$). The researchers show that increased lipopolysaccharide is bioactive *in vivo*

and correlates with measures of innate and adaptive immune activation. Effective antiretroviral therapy seemed to reduce microbial translocation partially. Furthermore, in non-pathogenic SIV infection of sooty mangabeys, microbial translocation did not seem to occur. These data establish a mechanism for chronic immune activation in the context of a compromised gastrointestinal mucosal surface and provide new directions for therapeutic interventions that modify the consequences of acute HIV infection.

Nature Med 2006;12:1365

Eitan Israeli