
Cholecystectomy via Kocher incision without peritoneal closure.

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Key words: Cholecystectomy, Kocher incision, peritoneum.

Abstract. This investigation was carried out to evaluate the surgical wound outcome of patients who underwent cholecystectomy via Kocher incision, without peritoneal closure. Consecutive patients (n = 129) were randomized either to have the peritoneal closure (n = 66) or to have this step omitted (n = 63). Demographic data of the patients were similar in both groups. There were no significant differences in overall wound complication (p = 0.44), wound infection (p = 0.71), wound dehiscence (p = 0.96) and incisional hernia (p = 0.95). This study provides strong evidence that the avoidance of the peritoneal closure represents no adverse effect to the postoperative course of the patients.

Colecistectomía mediante la incisión de Kocher sin cierre del peritoneo.

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Palabras claves: Colecistectomía, Incisión de Kocher, peritoneo.

Resumen. Describimos un ensayo clínico aleatorio, con el fin de investigar el postoperatorio de pacientes colecistectomizados mediante la incisión de Kocher, sin cierre del peritoneo. Del total de pacientes (n = 129), 66 fueron intervenidos con cierre del peritoneo y en 63 hubo omisión de este paso. Las características demográficas de los pacientes fueron similares en ambos grupos. No se observaron diferencias significativas (p = 0,44) en la tasa de complicaciones. La infección de la herida operatoria (p = 0,71), la deshicencia de la herida (p = 0,95) y los casos de hernia incisional (p = 0,95), fueron similares en ambos grupos. Todo indica que la omisión del cierre del peritoneo no presenta efectos adversos en la evolución postoperatoria de este grupo de pacientes.

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INTRODUCTION

Traditionally, the parietal peritoneum has been sutured separately, in order to avoid adhesions, confine abdominal contents within the cavity and contribute to wound strength, thus preventing incisional hernias (1, 2). However, experimental and clinical studies have shown that abdominal closure without suturing the peritoneum leads to no adverse effect on wound healing (3, 4, 5).

This randomized clinical trial was carried out to evaluate the surgical wound outcome of patients undergoing cholecystectomy via a Kocher incision without peritoneal closure.

MATERIAL AND METHODS

Consecutive patients ($n = 164$) underwent elective cholecystectomy via a Kocher incision. Patients were randomized either to have the peritoneal layer sutured with continuous polyglactin (Vicryl, Johnson & Johnson Medical, Venezuela), or to have peritoneal suture omitted. Allocation was done by odd and even hospital numbers (6). The operative approach was similar in all cases. The fascia was closed by continuous suture with No. 1 polyglactin. The fatty layer was left unsutured and the skin was approximated either by subcuticular closure or by interrupted silk sutures. It is the policy of our unit not to perform incidental appendicectomy. Drains were not used.

In all patients the surgical wounds were examined daily during the immediate postoperative period (4 days). The patients were followed up after surgery every 3 months for one year. The incidence of wound dehiscence, wound infection and incisional hernia was recorded.

Wound dehiscence was defined as any disruption of the fascia of the abdominal wall, in part or all of it without bowel extrusion. An incisional hernia is a defect in the abdominal wall through which an abdominal viscus may protrude. Wound sepsis was defined as a discharge of pus from the wound. Minor degree of erythema was not classified as wound sepsis.

Exclusion criteria included: previous Kocher incision, delayed primary closure of the wound, cholecystotomy, patients who died within 6 months of the initial operation, malignancy and patients lost to follow-up.

Statistical analysis was performed when necessary by Student's *t* test and by Chi Square with Yates-correction. Significance was accepted at the 0.05 level.

RESULTS

Between January 1990 and February 1995, 164 patients underwent cholecystectomy via a Kocher incision. A total of 35 patients were excluded from the study, leaving 129 patients for analysis. In 66 patients, the peritoneal layer was sutured, whereas in 63 patients it was left unsutured. No significant diffe-

rences were found between the groups regarding the patients demographic data; mean age ($p = 0.56$), sex ($p = 0.71$), and the presence or absence of obesity ($p = 0.91$). The incidence of wound infection, wound dehiscence, incisional hernia and overall complication rate is shown in Table I.

when the peritoneal layer suture is omitted (3, 2, 4, 5). However, there are no previous studies on the effect of omission of suture of the peritoneal layer in patients who underwent cholecystectomy via Kocher incision.

Experimental studies of Ellis *et al* (7), among other reports (8), have

TABLE I
PATIENT CHARACTERISTICS AND WOUND COMPLICATIONS

No. of Patients	Closure 66	Nonclosure 63	P
Sex			0.71*
Male	7	9	
Female	59	54	
Age (Mean \pm SD)	39.7 \pm 11.88	41.09 \pm 14.66	0.56**
Obesity	32	29	0.91*
Wound infection	4	2	0.68*
Wound dehiscence	2	1	0.96*
Incisional hernia	3	2	0.95*
Overall Complications	9	5	0.44*

* Chi square with Yates correction; ** Students t test.

DISCUSSION

The present study demonstrates that suture of the peritoneal layer can be omitted in the closure of the Kocher incision in cholecystectomy without any adverse effects on the early and late postoperative course of the surgical wound. The overall complication rate was essentially the same irrespectively of whether the peritoneum was sutured or not ($p = 0.44$). Previous clinical reports have confirmed that there is no difference in wound failure

demonstrated that when the peritoneal incision is left unsutured, re-peritonealization by means of underlying connective cells, is accomplished at 48 hours and complete healing by 5 days. Reapproximation of the peritoneal edges with sutures results in increased regional ischemia, necrosis, and foreign body tissue reaction, which lead to adhesion formation (9). Tulandi *et al*, demonstrated by means of laparoscopy, that the incidence of adhesion to the anterior abdominal wall was not statistically different between the patients un-

dergoing laparotomy by Pfanestiel incision, irrespectively of whether or not peritoneal suture was performed (5). Although it was not our goal, ten patients underwent postoperative laparoscopy, and our findings were similar to those reported by Tulandi *et al* (5).

In the present series, the incidence of wound dehiscence (2 sutured, 1 nonsutured) was similar in both groups, and occurred exclusively in obese patients with infected wounds.

No single factor can be held responsible for wound complication. Postoperative complications such as chest infection, abdominal distention and wound infection, alone or in combination, are the main causes of wound failure (10).

Incisional hernia developed in 5 patients (3 sutured, 2 unsutured), and the differences were not statistically significant ($p = 0.95$). Cahalane *et al* stated that closure of the peritoneum and skin prevents incisional herniation, because it provides holding power to the abdominal wall (1). However, Howes and Harvey (11), and Tera and Aberg (12), determined the "tearing strength" and the tissue strength of fat, peritoneum, muscle and fascia, and demonstrated that unlike the fascia, peritoneum lacks tissue strength.

Although it was not the purpose of this study, one potential advantage of the omission of the peritoneal closure is reduced adhesion formation as was shown by Mc Donald *et al* (13). Other advantages we observed include avoidance of unne-

cessary stitches, time saving and diminished wound pain. Thus, we conclude that suture of the peritoneal layer may be abandoned in the closure of the Kocher incision. This conclusion may also be extended to other types of abdominal incision.

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