PERITONEAL CLOSURE AFTER RIGHT SUBCOSTAL INCISION

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The right subcostal incision has been widely used for many abdominal operations and, in particular, for operations on the biliary tract. We have evaluated this incision and tested the necessity for closing the deep peritoneal layer by a prospective ramdomized trial. Since 1980 all 307 patients attended at our private services, all of them elective cases, were included. Until December, 83 the patients had peritoneum closed (198) and thereafter we left it open (109). Patients were assessed for wound integrity during the immediate postoperative period and at one and three months after operation. So far the patients have been followed up for between one had peritoneum left open. No incisional hernias have developed in patients of any group. Based on the obtained results, we conclude that it is not necessary to close the peritoneum with the right subcostal incision.

Keywords: right subcostal incision, peritoneum, postoperative complications.

The Kocher subcostal incision and its variants, which we have classed all together under the titl of right subcostal incision, are far and wide used fo abdominal operations on the right hipochondriac and right lumbar regions. The incision is performed approximately 02 cm parallelly to the right costal margin, with more or less 15 cm of lenght. It is usually made in a straight line form but it has a smooth upward concave format sometimes. The subcutaneous tissue, the muscles and their aponeurosis, and the peritoneum are all incised in the same lin as the skin. In closing this incision, the surgeons classicalIy employ a layer of sutures in the peritoneum, a second layer in the external aponeurosis membrane after they did a muscle approximation, and a skin suture. Sometimes, mainly in fat patients, a layer of sutures is also peformed in the subcutaneous cellular tissue. In this paper, we have examined the necessity for closing th peritoneum is unnecessary[1,2].

Patients in whom a laparotomy was performed through a previous incision were excluded from the trial and they will be matter of another study, for they present additional difficulties with wound healing, as the incision is made through a pre-existing scar tissue.

PATIENTS AND METHODS

All patients undergoing laparotomy through a right subcostal incision at our private services from January, 80 up to December, 86 were included (307), except those that had previous similar incision as before explained. The operations performed are shown in Table I. All of them were elective cases.

Patients were ramdomized into two groups for closure of the wound: in the first one (Group 0) the abdominal wall layers deep to the muscle were left open (109) and in the second set (Group C) these layers were closed (198) with No. 2-0 chromic catgut. In all patients the anterior muscle aponeurosis was closed with No. 2-0 monofilament nylon or No. 2-0 cotton, and the skin with No. 4-0 monofilament nylon. Sutures were placed at least 01 cm. Peritoneal drains, when used, were always placed through separate stab incisions and no wound drains were used.

The Group C patients were submitted to operations on the period from January, 80 to December, 83 and those belonging to Group O were operated from January, 84 up to December, 86.

The wounds of all patients were examined daily during the immediate postoperative period and then at 01 and 03 months after operation. Complications like infection, serum collection, herniation and any abnormal healing were recorded. Incisional hernia was defined as a defect in the scar which could be detected by clinical examination. The clinical examination

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TABLE I
Operations Performed

Operation	Group O	Group C
Cholecystectomy	84	174
Cholecystectomy + Papillotomy	5	10
Cholecystectomy + Choledochotomy	0	2
Choledochoduodenostomy	1	3
Choledochojejunostomy	0	2
Cholecystojejunostomy	1	2
Choledochoplasty	1	0
Hepaticoduodenostomy	1	0
Papillotomy	2	0
Cholecystectomy + Antrectomy	1	0
Duodenostomy	1	0
Billroth I	5	0
R. Nephrectomy	2	1
Whipple	1	2
Hepatic Abscess	0	1
Evisceration	2	1
Incisional Hernia	1	0
Pyelolithotomy	1	0
Total	109	198

routinely included muscles and a careful evaluation of the patient as a whole.

Patients have been followed up for between one and two years following operation and for some of them the follow up is continuing on. As usual, patients that died during the follow-up period were considered to have completed their follow-up for the purposes of the completeness of follow-up results. Only those who defaulted from follow-up or who was impossible to be contacted were considered as lost to follow-up statistics.

RESULTS

The results of the trial are shown in Table II. There have been three cases of burst abdomen: two of the Group C and one of the Group O. The only case of burst abdomen with left open peritoneum was a male patient, 72, white, smoker, with common duct stone, jaundice (CB = 26, UCB = 6, TB = 32) and hypoproteinemia, who was submitted to a cholecystectomy + papillotomy in February 06,86 and presented a burst abdomen on the 15th. postoperative day. He showed, however, a good clinical evolution and he is very well up to date. In respect of the two cases of burst abdomen with closed peritoneum, the first one was a male patient, 61, white, heavy smoker, fat, with gout (severe acute attacks that made deambulation a difficult task) and acute cholecystitis. After a week of clinical treatment, he was operated in February, 83. In the 5th. postoperative day he had a burst abdomen and died three days later from pulmonary complications. The second case was a female patient, 58, non white, fat, with jaundice and a carcinoma of the head of the pancreas. We did a Whipple's operation (pancreatoduodenectomy) in March, 83. In the 4th. postoperative day she presented due to electrolyte disorders.

Six deaths occured during follow-up, two of which were patients with deep layers left open: the first one was a female patient, 62, non white, with acute cholcystitis and a perforated duodenal ulcer sealed by the gallbladder. She had a previous clinical treatmen by a week when we saw her the first time. We made a operative intervention but she died in the 22nd. postoperative day from esophageal bleeding. The other on was a man, 72, white, who died from a myocardial infarction almost three years after his operation (incisional hernia repair). From the Group C, two of the four deaths during follow-up were the same already above commented patients who had burst abdomen. The third case was a female patient, 48, white, with carcinoma of the gallbladder, who died in the 8th. postoperative month from metastatic carcinoma of the liver and the last one was a man, 2, white, fat, non smoker, who died from a cerebrovascular accident six months after his operation (cholcystectomy).

TABLE II
Results

	Group O	Group C
Number	109	198
Incisional hernia	0	0
Burst abdomen	1	2
Superficial dehiscence (skin only)	0	0
Serun collection	5	18
Wound infection	1	3
Died during follow-up	3	4
Defaulted during follow-up	9	37
Second operation during follow-up	0	1
Third operation during follow-up	2	0
Sinus formation	5	7

Only one patient of the Group C had a second operation: that sam above remarked female patient aged 48 who died from metastatic carcinoma of the liver. Her second operative intervention was performed because of a insistent jaundice that a cholangiography showed to be due to a partial common duct obstruction by tumor. Two Group O patients had a third operation, one of which was that same commented female aged 62 who died from esophageal bleeding. Her first operation was a cholecys tectomy + antrectomy in September 02,86 and five days later she was reoperated due to a hemorrhage at the gastrointestinal suture line and, just a week after that, she presented a leaking of enerogastric juice into the peritoneal cavity and a new operation was performd.. The other one was a female patient, non white, 30, smoker, operated in June 25, 85 (cholcystectomy) who showed a persistent jaundice after the third postoperative day. We reoperated her in July 04, 85: she had a common duct stenosis and we did a choledochoduodenostomy. In September 23, 85 she began to present again a stenosis phenomenon, and we decided for a hepaticoduodenostomy. She is healthy and very well up till now.

All the patients submitted to reoperations, no matter in which group he or she was, had their peritonea left open in every subsequent operation after the first one.

The incidence of wound infection in our casuistic set was an acceptable one: less than 2% in both groups. In respct to the level of seromas, it occured in a relatively high percentage of cases, mainly in the Group C. It seems to us the fact has connection with to a certain local hospital where we both worked and, therefore, it looks like it plays as a independent variable in our study.

Incisional hernia did not occur in any patient, up to date. Superficial dehiscene, as well, did not occur in this trial, but we got twelve suture sinuses, all of them only just when we used cotton sutures.

DISCUSSION

This study has confirmed for the right subcostal incision the findings of Ellis et al.[1] for conventional vertical abdominal incision and of Gilbert et al.[2]

TABLE III
Completeness of Follow-up

Months After Operation	PATIENTS SEEN Group O	Group C
01	108 (99%)	196 (99%)
03	108 (99%)	178 (89%)
06	99 (90%)	161 (81%)

for the lateral paramedian incision: the closure of the peritoneum is not necessary.

As a matter of fact, th percentage of cases of burst abdomen in each group is essentially the same and incisional hernia has not occured in any patien so far. This last figure is encouraging but as we know it is only provisional since incisional hernias ma become apparent many years after operation.

It has been known that the strenght of the right subcostal incision rests on the muscle aponeurosis membrane and its sutures. The present trial supports this hypothesis for it did not make any significant difference to close the peritoneum or lave it open. In other words, the classical closure of the right subcostal incison, which begins with a layer of sutures in the peritoneum, it is not the only acceptable approach to do the service in an excellent way.

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