

CHOLECYSTECTOMY WITHOUT DRAINAGE*

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THE writer made a study of this subject in 1924, at that time having omitted drainage in eighty-one cases.† Since then drainage has been omitted in other cases bringing the total up to 240 cases. Of these cases forty-six were males, 194 were females.

All cases showed evidence of chronic inflammation. They have been classified, however, according to the most prominent aspect present at the time of operation.

Cholecystitis catarrhalis acuta	43 cases.
Cholecystitis catarrhalis chronica	18 cases.
Cholecystitis acuta	35 cases.
Cholecystitis chronica	144 cases.

Adhesions were present in all cases, varying from slight adhesions of the ampulla to the duodenum to extensive adhesions involving the fundus as well. Enlargement of the gland at the upper portion of the cystic duct was always present. Microscopic section was made in each case.

Stones were present in about one-half of the cases. Whether stones are present or not is immaterial for they are but one of the ways in which the inflammation expresses itself.

Additional lesions were present in some cases; several of these were of special interest, one a curious lesion of the pancreas which showed a uniformly hard and large pancreas with yellow shot-like infarcts; one a cystic disease of the liver in which the liver presented the appearance of being filled with shot, there being numerous small black shot-shaped and shot-feeling areas which on incision yielded clear serum; one a case of sclerosis of the pancreatic artery but without general arteriosclerosis; one a case operated early in pregnancy; three cases showed papilloma of the gall-bladder; one a calcification of the gall-bladder; one a biliary sinus.

Additional operations were done in many cases. In 177 cases appendectomy was done as well as cholecystectomy. One hundred and seventy-three of these cases showed chronic inflammation, three subacute inflammation, and one an acute inflammation. It is my practice to take out the appendix in all except the very acute gall-bladders. In forty-five cases the appendix had been removed at a previous operation. In eighteen cases no attempt was made to remove the appendix. In some cases associated operations were done for the following lesions: Nephroptosis, four; epigastric hernia, one; umbilical hernia, three; inguinal hernia, two, one case bilateral; hepatitis, one; cirrhosis of liver, one; sebaceous cyst, one; duodenal ulcer,

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five; diastasis of rectus muscles, one; hæmorrhoids, one; ovarian cystoma, two; Mullerian cyst, one; salpingitis, two; cystic ovary, two; prolapsus uteri, five; retroversion, seven; cystocele, one; lacerated cervix, two; lacerated perinæum, nine; adhesions (other than gall-bladder adhesions) resulting from previous operations, omental, fifteen; intestinal, three; old peritonitis, two; adhesions about appendix, three; adhesions about ovary, two.

Hospitalization.—The longest stay in the hospital was seventy-eight days, a case of advanced myocarditis. The shortest stay was thirteen days. Omitting the deaths, the average stay was sixteen days. It is my practice to keep patients in the hospital until they are strong enough to care for themselves; occasionally a patient will insist on going home as soon as he is able to walk about, and more rarely, some will wish to overstay their time.

Wound Healing.—Six of the 240 cases are omitted from consideration in this regard as death occurred within ten days post-operatively, leaving 234 cases for consideration. In no case was there any escape of bile through the wound, nor any bile discernible in the wound discharge during any of the wound complications.

Primary union, 223 cases. Wound complications, eleven cases classified as follows: Serum, trifling in amount, one case; serum and later pus, two cases; more pronounced infection but not severe, four cases; hæmatoma, superficial, one case; deep, one case; wound rupture, two cases.

Post-operative Complications.—Cases considered 240, of which eight died. One hundred and eighty-four cases showed no untoward symptoms. In addition to the wound complications already noted there occurred twenty-eight respiratory complications: Sore throat, three cases; slight cough, seventeen cases; pleurisy, one case; pneumonia, seven cases, one of which occurred three days after the patient left the hospital. Vomiting severe enough to be noted, six cases, one of which showed vomiting of blood, a case in which a gastro-enterostomy had been done for associated duodenal ulcer and blood was noted in the vomitus once; of the six cases one vomited so excessively as to cause wound rupture. Other complications: Phlebitis, three cases; involuntary defecation, one case; chill following catheterization, one case; prolonged and severe shock, one case; abscess in buttock, one case. Four cases subsequently developed ventral hernia.

Of the deaths one was a sudden death without premonitory symptoms, the patient being found dead in bed eight days post-operatively. This was a case of chronic cholecystitis without stones and subacute appendicitis in an otherwise healthy individual. Three cases, two chronic and one acute cholecystitis, died of pneumonia, two on the fourth day, one on the seventh day post-operatively. One acute cholecystitis died of shock and pneumonia, two days post-operatively. One chronic cholecystitis developed intestinal paresis for which an enterostomy was done, succumbing on the sixth day post-operatively. This case showed no evidence of bile leakage or peritonitis, but did have an enterospasm. One chronic cholecystitis died of wound rupture and its accompanying shock on the eleventh day after the original operation. One chronic cholecystitis died of pneumonia twenty-

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two days post-operatively, a very obese woman who had a most stormy course with final wound rupture. On resuturing the wound no peritonitis or escape of bile, or lesion other than that caused by wound rupture was discovered. The writer thought there was an obscure lesion of the pancreas, perhaps a beginning carcinoma, but with this the consultant entirely familiar with all the facts could not agree.

Temperature Range After Operation (234 cases considered).—The average lowest and highest temperature for each of the first three days post-operative was: first day, lowest temperature, 99.3°; highest, 100.8°; second day, lowest temperature, 99.1°; highest, 100.3°; third day, lowest temperature, 98.7°; highest, 99.8°. The average of fifty temperatures of cholecystectomy with drainage was 99° F. for fourteen days post-operative. This temperature study was made in connection with the use of the Fowler position after operations upon the upper abdomen. It was found that the temperature average was lower in cases in which the Fowler position was used. This point was utilized in a paper read before the International Congress in London in 1914, the study showing that infections through the lymphatics are less prone to occur after operations upon the upper abdomen if the patients are placed in the Fowler position.

The temperature range does not seem to be influenced to any great extent by the omission of drainage. As a matter of fact the temperature after cholecystectomy depends upon two factors, the character and amount of infection present, and the delicacy with which the operation is performed.

Final Results.—Eight cases died, 3 1/3 per cent. Seventeen cases have not reported since they were discharged from the hospital; 196 cases report themselves well for periods varying from three months to eight years after operation; nineteen cases reported symptoms of one kind or another at periods varying from three months to seven years post-operatively.

I think we should omit from consideration all cases in which less than a year has passed as I find that many cases have symptoms of one kind or another, mostly up to three months after operation, though sometimes as long as a year. These symptoms take the form of a mild indigestion, loss of appetite and associated symptoms due to the condition of the liver itself, as in so many gall-bladder cases there is passive congestion with its accompanying inability to care for certain foods and large quantities of food. I have not worked out the exact number of cases which require instructions in diet, and more particularly limitation in the amount of food taken, but, roughly speaking, would estimate the percentage at about 25. The liver in gall-bladder disease cannot care for an excessive amount of food; overeating must be warned against. Cases presenting slight symptoms yield readily to dietetic measures.

Omitting the cases in which the reports are less than a year, eighty-one cases (of which seventy-six report themselves as well and five report themselves as having mild symptoms) and those in which no report has been received, seventeen cases, and the eight deaths, leaves 134 cases of which 120 or 89.6 per cent. report themselves well from one to eight years post-

operatively; eight cases or 5.9 per cent. report mild symptoms from one to four years post-operatively; six cases or 4.5 per cent. report either severe symptoms or no improvement one to seven years post-operatively.

Comparison of Ectomy with and without Drainage.—Wound infection seems to be at least as common with drainage as without. The same may be said of hæmatoma. The writer's impression is that there is a slight difference in comfort in favor of those cases which are not drained. Comfort following operation bears a distinct relation to the skill used in operating and in caring for the wound afterward.

As to the final result, we have for comparison 543 cases of cholecystectomy with drainage, of which fifteen died, a mortality percentage of 2.7, compared with 240 cases of cholecystectomy without drainage of which eight died, a mortality percentage of $3\frac{1}{3}$. The mortality percentage is, of course, in favor of cholecystectomy with drainage. This is the more marked when we consider that cholecystectomy without drainage is done in the simpler cases.

Comparing the late results we have 406 cases of cholecystectomy with drainage with reports available one year or more post-operatively. Of these 365, or 94.8 per cent., reported themselves as being well; ten cases, or 2.5 per cent., reported themselves as having mild symptoms; eleven cases, or 2.7 per cent., reported themselves as having severe symptoms.

Comparing the above percentages with a similar analysis of 134 undrained cases of which reports are available from one to eight years post-operatively we have a marked difference in each class in favor of the cases which have been drained, and this again is the more remarkable as the drained cases undoubtedly showed more advanced pathology.

In view of the favorable statistics which this series of cholecystectomy with and without drainage for acute and chronic gall-bladder disease presents 783 cases with 23 deaths, a mortality percentage of less than 3 per cent., the writer wishes to say that while the common duct was explored in practically every case, this series does not include cases in which drainage of the common duct by T tube was done. Exploration of the common duct through the stump of the cystic duct does not seem to increase the mortality. Choledochostomy, however, with incision of the duct, removal of stones, cleansing of the duct and T-tube drainage raises the mortality about 1 per cent. This is not to be wondered at as such cases, having had their infection for a long time, show more damage to the liver.

In the last thousand cases of cholecystectomy, choledochostomy with T tube was necessary in ninety cases of which eleven died, a mortality percentage for cholecystectomy plus choledochostomy of 12.2 per cent.

When we find, as we do in this study, that in a series of 240 cases the percentage of deaths is greater than in a very much larger series of drained cases more severe in character, and when we find that in the analysis of the final results the drained cases show a considerable superiority in percentage of cures over the undrained, we must conclude that in spite of the temptation not to drain, it is wiser to drain.