

ANGULATION OF THE JUNCTION OF THE HEPATIC AND COMMON DUCTS AFTER CHOLECYS- TOSTOMY, SIMULATING COMMON DUCT OBSTRUCTION.

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ON several occasions the writer has been rather puzzled by observing that, after a comparatively simple cholecystostomy for gall-stones, when it was apparently obvious that the bile-passages were completely cleared of calculi at the operation, either the biliary fistula persisted, or, if it closed, symptoms of biliary obstruction,—jaundice and colic,—developed. Under the impression that an incomplete operation had been performed and that one or more stones had been left in the common duct, a second operative attempt would show that the choledochus was entirely free of stones, that a sound could easily be passed into the duodenum after choledochotomy, and that after cholecystectomy, or even after freeing the gall-bladder from the abdominal wall, closing it and dropping it back into the abdominal cavity, the patient would make an uninterrupted recovery. To satisfy one's conscience, that euphemism "adhesions" would be advanced in explanation of these incongruities. In discussing the question with several of my colleagues, I learned that they have had similar experiences, and that they were at quite the same loss to explain the problem as I was.

Very recently I was able to make most accurate observations on such a case.* I am convinced that these observations explain many of my previous experiences, and I also believe that they constitute a very potent argument against cholecys-

* Patient present at the Surgical Section of the New York Academy of Medicine, November 1, 1912.

tostomy and for cholecystectomy. I also believe that the complication of cholecystostomy depicted in the following case is by no means uncommon and deserves serious consideration when this operative procedure is contemplated.

E. S., female, married, age 19 years, admitted to the surgical service of the German Hospital, July 20, 1912.

Patient has one child, five months old.

For two months she has had frequent attacks of cramp-like pain in the right hypochondrium. The pains radiate to both sides and also to the right scapula. With the severe attacks there has been nausea and vomiting. There has been slight jaundice after the severe attacks. She has lost considerable weight in the past three months. Her appetite is poor and her bowels are constipated. She has never noticed any stones in her stool.

Status præsens.—There is decided tenderness and some rigidity in the right hypochondriac region. There is a slight subicteric hue to the conjunctiva. There is no distinctly palpable tumor. Temperature 100.2° F. Pulse 84. Respiration 20. Urine contains bile, and the stools are light in color.

Diagnosis.—Subsiding cholecystitis. Calculi in the gall-bladder.

Operation (July 24, 1912) *by author.*—Longitudinal incision through right rectus. Gall-bladder large, slightly congested, but walls not thickened. Gall-bladder aspirated at fundus, slightly viscid bile. Gall-bladder opened and five medium-sized stones removed. Ducts carefully palpated and found empty. An attempt to bougie the choledochus through the gall-bladder was unsuccessful. As the gall-bladder was not much diseased, a cholecystostomy was performed by inverting the opened fundus of the gall-bladder over a drainage tube by means of a Lembert purse-string suture. The gall-bladder was then fixed to the parietal peritoneum by several sutures. It is to be emphasized that the gall-bladder was neither shrunk nor retracted, and that its fixation to the abdominal wall was accomplished without the slightest tension. A gauze drain was placed below the gall-bladder, and the abdominal wound, except for the drainage opening, was closed in layers.

The patient reacted well after the operation, and there was a free drainage of bile through the tube.

August 1, 1912.—Tube and gauze drain removed. Small gauze tampon inserted.

There was a prompt stoppage of the biliary drainage. There was a mucopurulent discharge from the wound.

August 9 to 16, 1912.—Frequent attacks of severe colicky pains. Evident icterus. Acholic stools.

August 17, 1912.—Reopening of gall-bladder wound at dressing, by forcible insertion of dressing forceps into sinus. Profuse biliary discharge. The discharge of bile continued, the stools

FIG. 1.

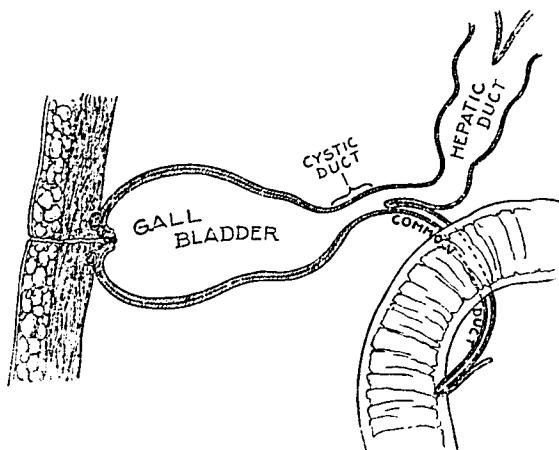


Diagram showing angulation of the junction of the hepatic and common ducts after cholecystostomy. Note dilatation of the hepatic duct and valve-like formation at junction of hepaticus and choledochus.

were clay colored, and it was apparent that there was an obstruction to the flow of bile into the intestine. It was assumed that the original operation had been an incomplete one and that there was now one or more stones in the common duct. Operation was decided upon and performed by the author on August 24, 1912.

Second Operation.—Incision through old scar after curetting and tamponing sinus. The contracted gall-bladder was freed down to the cystic duct. No stones were felt in the gall-bladder or in any of the ducts. A kinking of the junction of the hepaticus and choledochus was found. The angle formed by the junction

of these two ducts was less than 45 degrees. After ligation of the cystic artery, the gall-bladder was removed. The stump of the cystic duct was then split upward into the hepatic and downward into the common duct. Though there was a valve-like formation (Fig. 1) at the junction of the two ducts, a large probe was easily inserted into the duodenum and also upward into the hepaticus, which was dilated. No sign of a calculus. A tube was inserted into the hepatic duct for drainage and sutured in place. One gauze wick was led to the opening in the ducts and another to the bed of the gall-bladder. Wound, except for drainage opening, closed in three layers.

The reaction after the operation was rather severe, but after 24 hours the patient began to make a prompt and uneventful recovery. The drainage through the tube was not good, but the dressings were constantly soaked with bile.

August 30, 1912.—Drainage tube and gauze wicks removed.

The flow of bile began to decrease at once. The stools were well colored and the wound healed rapidly. There was no recurrence of the colicky pains.

September 9, 1912.—The wound is almost closed. There is very slight biliary drainage. The stools are normal. There is no pain. The patient is out of bed.

September 10, 1912.—The wound is closed and the patient is entirely cured of her gall-bladder condition.

September 28, 1912.—Discharged cured.

An epicritical review of this case must lead us to the following conclusions: After a simple cholecystostomy done in the most approved fashion on a comparatively normal gall-bladder, which was not in the least retracted and which was fixed to the peritoneum of the abdominal wall without the slightest tension, a symptom-complex develops which most strongly suggests the presence of a stone in the common duct. On relaparotomy no stone is found, but it is seen that an angulation has developed at the junction of the hepaticus and choledochus. At the angulation a valve has formed so that the flow of bile into the intestine is almost impossible. Hence the pain and jaundice when the biliary fistula was closed and the tendency toward persistence of the fistula after it was reopened. Though there was no tension originally when the

gall-bladder was fixed to the abdominal wall, there must have been a decided contraction of that organ after the first operation. This contraction, probably aided by the pull of the respiratory movements, resulted in the angulation. The condition was promptly cured by cholecystectomy, which permitted the angle at the junction of the ducts to straighten out.

A careful perusal of the literature of gall-bladder operations shows that this complication of cholecystostomy has been more or less overlooked. To be sure most of the text-books mention the persistence of a biliary fistula after cholecystostomy according to the old technic when the gall-bladder was fixed to the skin and "Lippen" fistulæ were common. Kehrer on several occasions mentions in most general terms that occasionally very disagreeable distortions of the biliary tract may follow cholecystostomy, and even in his excellent review at the Second International Surgical Congress he is no more specific. Only in his text-book on gall-stones, published in 1905, does he really definitely suggest the possibility. In speaking of the causes of biliary fistula after cholecystostomy, he says: "The fixation of the gall-bladder to the parietal peritoneum may produce too great a tension on that organ and on the choledochus, so that the flow of bile into the intestine is impeded. This was a common occurrence when the technic of gall-bladder surgery was in its infancy. If the gall-bladder is pulled too forcibly to the parietal peritoneum for the purposes of fixation, or if the fundus of that organ is sewed to the muscle or skin, one need not be surprised if a permanent biliary fistula is the result. With good technic these fistula can *always** be prevented. One must not put too great a tension on the gall-bladder, and small, contracted gall-bladders must not be sewed to the peritoneum at all. They should be drained by the tube method or, better, excised. . . . One must avoid all tension, one should sew the gall-bladder as high up as possible in the abdominal wound, and one must always remember that a secondary shrinkage is possible. The less frequently one performs cholecystostomy the less frequently

*Italics mine.

will one have to deal with biliary fistulæ. Cholecystectomy is the best means to prevent a biliary fistula, and likewise the most radical method of curing an existing one." Kehr also publishes a diagram that in some respects resembles my illustration, which was made from a sketch of my own, drawn immediately after the operation.

As will be seen, Kehr attributes this complication to improper technic in the performance of the cholecystostomy. I believe it is perfectly possible for it to be due to the operation, *per se*, with the observance of the most accepted technic. Kehr believes that this distortion of the ducts can only occur if too much tension is put on the gall-bladder at the primary operation, as, for instance, by sewing, forcibly, a contracted or retracted gall-bladder into the abdominal wound. I am convinced that it may occur by secondary shrinkage and respiratory pull when the anatomy and location of the gall-bladder are entirely satisfactory at first and when the gall-bladder is sewn to the peritoneum without the least tension primarily. I agree absolutely with Kehr that a certain means of preventing this angulation of the hepaticus and choledochus junction is primary cholecystectomy.

Of course, if one uses what Kehr terms the "tube method," dropping the gall-bladder back into the abdomen, the chances of kinking are greatly reduced. Still the sinus itself may contract and the method, in my opinion, is not one of choice. Leakage into the peritoneal cavity is, at least, theoretically possible, even if, practically, this danger is minimal.

To avoid this angulation of the junction of the ducts ideal cholecystotomy might be performed in the type of case under consideration. The advantages of this operation are very questionable, however. The calculous gall-bladder is inflamed and requires drainage, if it is not removed; the danger of recurrence is greatly increased if the gall-bladder is left in and is not drained; stones that may have been overlooked can escape through the drainage opening if one exists; finally, the possibility of leakage of the gall-bladder suture must also be considered.