

TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

STATED MEETING HELD APRIL 2, 1934

The President, DR. WALTER E. LEE, in the Chair,
CALVIN M. SMYTH, JR., M.D., Recorder

SPONTANEOUS INTRAPERITONEAL RUPTURE OF THE GALLBLADDER IN A CHILD

DR. RICHARD H. MEADE, JR., reported the case of a thirteen year old boy, admitted to the Episcopal Hospital in the service of Doctor Mutschler, complaining of pain in the right half of his abdomen. This pain had started three days previously, following a cold of three days' duration. Family and past history were negative. Examination showed râles at the base of the left lung; the right upper quadrant of the abdomen was rigid and tender; temperature 100°, pulse 88, respirations 28, leukocytes 9,000. Diagnosis of acute appendicitis with the appendix in a high position was made in spite of the objective evidence of an acute cholecystitis, because of the patient's age and absence of previous symptoms of gallbladder disease. At operation under spinal and nitrous oxide-oxygen anesthesia, a considerable amount of clear peritoneal fluid was encountered, the appendix showed slight inflammation of its tip, but the gallbladder was found to be greatly distended, lightly adherent to surrounding structures and its wall thickened and edematous. Aspiration of the gallbladder gave clear fluid followed by thin pus, which was in turn followed by clear dark bile. Cholecystostomy and appendectomy were done. The postoperative course was marked by bronchopneumonia during the first week, and by a slight wound infection, but the patient was discharged in good condition with the wound entirely healed January 25. All drainage had stopped three days previously. Culture of the peritoneal fluid was negative, but the bile showed *B. escherichia alcalescens*. The appendix showed a slight degree of chronic inflammation.

The patient remained in good health until February 11, 1933, seventeen days after his discharge from the hospital. At this time, after a hurried lunch, he was suddenly seized with sharp right upper abdominal pain. He came at once to the hospital and vomited en route. Pain radiated to the back and the right shoulder. In the receiving ward he was thought to be suffering from acute indigestion, and securing prompt relief from gastric lavage, he was allowed to go home. Here he vomited on arrival and had a return of his pain. The pain persisted and fever developed. On his return to the hospital two days later, he was obviously very sick, with bulging

and marked tenderness of his right upper abdomen and lower right chest, with physical and x -ray evidence of high fixation of the right dome of his diaphragm. Temperature 101° , pulse 120, respirations 48, leukocytes 40,000. Diagnosis of subdiaphragmatic and subhepatic abscess secondary to previous gallbladder infection was made. Operation was performed as soon as possible under local and nitrous oxide-oxygen anesthesia. The peritoneal cavity was entered through an incision extending laterally from the original paramedian incision. There was a sudden outpouring of a large amount of normal looking bile, which apparently surrounded most of the right lobe of the liver, and was walled off in the right upper quadrant of the peritoneal cavity by adhesions which had developed during the first illness. The gallbladder could be felt to be in a collapsed state and its wall seemed to be soft and not thickened. A small bean-shaped stone seemed to be present within the gallbladder. Due to the patient's condition, further exploration was thought to be inadvisable, and the abdominal wall was closed around a large cigarette drain which had been placed down to the gallbladder. His post-operative course was again marked by a short period of bronchopneumonia involving the left lung, during the first week, but was otherwise uneventful. Drainage was profuse at first, but gradually decreased, and had entirely stopped by March 16. On this date the patient was discharged in excellent condition and with his wound healed. Culture of the bile at the time of this last operation showed the same organism that had been found on the first admission. Since his last discharge the patient has been free from all symptoms, although cholecystographic studies done July 14, 1933, showed evidence of a nonfunctioning gallbladder.

The speaker remarked that gallbladder disease is no longer thought to be limited to patients of mature years. Its occurrence in children has been drawn to the attention of the profession by an increasing number of reports, and yet the age factor continues to play an important rôle in our differential diagnoses. The foregoing case illustrates this point. It is presented, however, mainly because of the unusual sequel of spontaneous rupture of the gallbladder following its apparent healing. The cause of the rupture of the gallbladder in this case was probably due to the rapid overdistention of the weakened gallbladder as a result of disturbance of the muscular mechanism of the duodenum at the entrance of the common duct, and an increase in bile flow in response to the dietary indiscretion which immediately preceded the second illness. The evidence of gastric dilatation as found in the quick relief of symptoms following gastric lavage seems to support this hypothesis.

SPLENECTOMY AND CHOLECYSTECTOMY

IN TWO CASES OF SPLENOMEGALY WITH JAUNDICE AND CHOLELITHIASIS

DRS. HUBLEY R. OWEN and J. P. NORTH remarked that when disease is present in two organs simultaneously attention is apt to be centered upon that viscus which gives rise to the more conspicuous symptoms. Thus, in

coexistent cholelithiasis and hemolytic icterus, the associated and often symptomless gallbladder disease may be overlooked. This coexistence has been marked upon by many authors (Boyd, Balfour, Pool). Pemberton,¹ in a review of The Mayo Clinic series of splenectomies for hemolytic jaundice, observed conclusive evidence of gallbladder disease, with or without stones, in 68 per cent. In spite of this, the advice of Moynihan is not often followed by operating surgeons. Moynihan² states that "no operation for hemolytic icterus is complete until the bile passages have been thoroughly explored." Where both diseases are found, a rational treatment would seem to be splenectomy and cholecystectomy, in either one or two operations.

In two cases to be reported herein, splenomegaly and jaundice were present together with cholelithiasis. In each case splenectomy and cholecystectomy were performed. In the first patient the operation was performed in two stages; in the second, the operation was accomplished in one stage. The first patient presented difficulties in classification. Many features of acquired hemolytic icterus were present. However, blood cell fragility was within normal limits. The pathologist described the spleen as characteristic of the preascitic stage of Banti's disease. Since Thompson³ and others believe that, in the true hemolytic icterus, the microscopic pathology of the spleen is distinctive, the case herein reported can be designated only as hepato-lienal disease with anemia. The spleen in the second case presented no such difficulties in classification as a true hemolytic icterus. In neither patient could a familial history of jaundice be elicited.

CASE I.—W. D., male, 24 years old, in September and again in December, 1932, had attacks of epigastric pain with massive hematemesis but without jaundice. He first developed jaundice in January, 1933. This attack was painless but was accompanied with malaise and weakness. He was referred from the Medical Service of Dr. Robert Torrey, at the Philadelphia General Hospital. Examination revealed a greatly enlarged spleen. The laboratory examinations revealed erythrocytes 3,300,000; leukocytes 2,400; hemoglobin 70 per cent; platelets 120,000; reticulocytes 1 per cent. Bleeding and coagulation time normal. Hemolysis of red cells began at .42 and was complete at .32. There was an indirect van den Bergh reaction and icterus index of 65. Urine contained both bile pigment and salts.

After three weeks in the hospital there was improvement with icteric index decreasing to 35. Splenectomy was performed February 6, 1933, by Doctor Owen, under ether anesthesia. There were extensive perisplenic adhesions. The liver was somewhat enlarged but its surface appeared normal. Stones were palpated in the gallbladder. Convalescence was complicated by pulmonary atelectasis. The jaundice gradually receded and after four weeks the icteric index was 18. The blood picture did not greatly change save for a persistent postoperative leukocytosis of 12,000 to 17,000, platelets 180,000.

Six and a half weeks after splenectomy, the gallbladder was removed under ether anesthesia. No stones could be palpated in the ducts. Again pulmonary atelectasis complicated the recovery. The patient was discharged April 3, 1933. There have been no further hemorrhages. No jaundice has been perceptible and at present (fourteen months after operation), the icteric index is 7. His blood shows: erythrocytes 4,350,000; leukocytes 8,300; hemoglobin 90 per cent; platelets 410,000.

The pathologist (Dr. Philip Custer) described the spleen as typical of the preascitic stage of Banti's disease (the clinical picture was not that of Banti's). The conspicuous microscopic changes were follicular hyperplasia, and an increase in stroma, the rigidity of the latter preventing collapse of the sinusoids which remained widely open and filled with blood.

CASE II.—M. W., female, aged 29. Seven years ago the patient had an attack of intense epigastric pain associated with jaundice for a week. There was no further jaundice noticed until shortly before she entered the Jefferson Hospital. She presented herself not because of the jaundice but for a red papular eruption on the body. This skin lesion, presumably purpuric, had appeared on six occasions during the past year. Examination showed a palpably enlarged spleen. The erythrocytes were 3,000,000; hemoglobin 60 per cent; leukocytes 12,000. Hemolysis of the red cells began at .50 and was complete at .40. There was an indirect van den Bergh of 2.8 units and icteric index of 25. Urobilinogen was present in the urine. Cholecystogram was reported as showing a poorly functioning gallbladder with stones.

While in the hospital anemia was progressive and there was an increasing leukocytosis. The patient had several attacks in which she became very weak and faint, accompanied by cold sweats. She was given two small blood transfusions which were followed by severe reactions with increase in anemia and deepening of jaundice. The van den Bergh increased to 4.5 units. On one occasion blood smears showed microcytosis and 4 per cent reticulocytes.

On February 1, 1934, an adherent spleen was removed under gas-ether anesthesia. The gallbladder wall was thickened and there were many calculi but none were palpated in the ducts. Cholecystectomy was performed. Convalescence was uneventful. There was an immediate leukocytic response to 55,000. Erythrocytes and platelets increased gradually until at discharge there were 1,500,000 platelets and 4,400,000 erythrocytes. The fragility of the red cells and the van den Bergh had returned to normal. Two months after operation the patient is in good health and free from jaundice. Erythrocytes are now 5,160,000 with 92 per cent hemoglobin and 31,600 leukocytes, blood platelets 684,000.

Microscopic sections of the spleen showed some thickening of the capsule and a striking hyperplasia of the sinusoids. The latter were distended with blood. The follicles were not increased in number and those present appeared essentially normal. There were many thick hyalinized connective tissue strands scattered throughout the tissue.

REFERENCES

- ¹ Pemberton, J. de J.: ANNALS OF SURGERY, vol. 94, p. 755, 1931.
² Moynihan, Berkeley: The Spleen and Its Diseases. London, 1921, p. 95.
³ Thompson, W. P.: Bull. Johns Hopkins Hosp., vol. 51, p. 365, 1932 (*et seq.*).

CHOLEDOCHUS CYST WITH A DOUBLE COMMON BILE DUCT

DRS. WILLIAM B. SWARTLEY and S. DANA WEEDER read a paper with the above title for which see page 912.

ACUTE CHOLECYSTITIS

DR. BENJAMIN LIPSHUTZ read a paper with the above title for which see page 902.

DR. DAMON B. PFEIFFER said that the profession is now focussing its attention upon this important matter of immediate *versus* delayed operation in the case of acute cholecystitis and upon the correct solution will depend many lives. His feeling, therefore, is one of great caution but of open mind. There are no available statistics to throw definite light on the situation. Medical statistics are notoriously lacking in value. The few small series so far published present many variables which entirely invalidate sweeping conclusions and the speaker did not believe that any set of statistics gathered from existing records will settle the matter. Many surgeons speak of immediate operation, meaning that they operate promptly on admission of the patient to the hospital. In the protocol you find that the patient has already been sick several days. In spite of this fact these surgeons are apt to speak as though they are employing a policy similar to that which the profession has worked out in appendicitis. Actually, hospitals and surgeons see but few of the cases of acute cholecystitis occurring in general practice. The practitioner has not been educated to believe that an acute gallbladder is excessively dangerous. He treats such cases expectantly. The vast majority subside without perforation or gangrene, as every one knows—a situation quite different from that in appendicitis. A certain proportion, however, do fail to improve and either as a result of pressure from the patient or the physician's apprehensions, they are sent to the hospital, arriving, as before stated, two or more days after the attack has begun. Since these are presumably the serious group of cases containing within their numbers a certain proportion of actual or potential perforations or gangrene, they cannot be made subject to a general rule of waiting. That must be conceded. On the other hand, there are in this group a majority, in the speaker's experience a large majority, who under a few days' careful treatment will improve greatly in their general condition, will not perforate or become gangrenous, and can be operated upon more safely in the descending phase of the attack when they are already getting the upper hand of the infection, when the heart, kidneys and other vital organs have been brought into a better condition, a state of affairs

urgently demanded in many instances, since gallbladder disease, unlike that of the appendix, usually comes to our hospitals ensconced in the old, the fat, the debilitated, the organically damaged. It has been the speaker's practice to try to differentiate between these two groups, considering it equally unwise to operate upon the patient in bad general condition but whose gallbladder is not at the time a source of danger to the general peritoneum, as to fail to realize that the risk of operation must be undertaken in other cases because of the severity of the local disease, its probable course and the possible existence of complications such as pancreatitis. This plan seems to be working out satisfactorily.

In a group of 150 cases analyzed recently in the Abington Memorial Hospital, thirty-five patients were of the acute type of disease. The total mortality was five. Two of the deaths occurred in the acute group; one a woman in her eighty-sixth year, who came in with a perforated gallbladder and local peritonitis. A cholecystostomy under local anesthesia was done and she was apparently recovering but died of a sudden heart attack on the third day. The policy in this case was correct. Heart disease had been present many years. The second patient was allowed to subside into the improving stage, was operated upon six days after admission, having previously been sick several days, made a perfect postoperative recovery for the first two weeks, then became feverish and died later of concealed infection which we were unable to locate as no autopsy was permitted.

The speaker believes it is usually possible to recognize gangrene and impending perforation by the symptomatology. The most important sign is tenderness. The exudate from a gangrenous gallbladder is intensely irritating to the peritoneum and there will be spasm, rigidity, and superficial tenderness as of the inflamed peritoneum which may be differentiated from the deeper tenderness due to an inflamed but intact gallbladder. All this requires experience, but what is there in surgery that does not? You cannot make rules that will enable the tyro to be successful.

The speaker shuddered to think of acute gallbladder cases being treated as emergencies whenever and wherever they may be. It seems that many disasters will follow. On the other hand it is clear that there is a very important percentage of mortality in gallbladder disease due to delay in operation. Acute cholecystitis is not a medical disease. Its risks are too great to be entrusted solely to the care of those without special experience in abdominal catastrophes. More cases should be operated upon early in the acute stage than has been the case in the past. It is still, however, the speaker's belief that a brief period of observation to determine the trend of events which may be utilized for preparation of the patient and assessing his general condition is advantageous. The ultrasevere cases should as a rule be operated upon without unnecessary delay. The remainder of the acute group, in Doctor Pfeiffer's opinion, may still more advantageously

be conducted into a period of initial improvement before the operation is done. It is not wise to delay until complete subsidence has occurred.

DR. CHARLES MITCHELL agreed with Doctor Pfeiffer, and said that nearly every case he had had some complication and in nine out of ten he waited. The majority of cases he sees now are four to seven days old.

DR. HUBLEY R. OWEN said it is somewhat difficult to estimate the meaning of "emergency operation." Doctor Lipshutz states that a clinical survey was made in these cases. If a clinical survey necessitates three or four days' duration, then in the speaker's opinion an operation at the termination of that time should not be designated "an emergency operation." He has always waited in these cases for liver function test, administration of glucose in the presence of a damaged liver and electrocardiographic study. The speaker does not favor rushing in to operate upon these cases until after these data have been obtained.

DR. LOUIS D. ENGLERTH agreed with Doctors Owen and Pfeiffer. He was unable to state accurately the mortality in his cases. Most of the cases of acute cholecystitis that he sees have usually been ill for a period of from four to five days. He often practices waiting several days in getting these patients in condition for operation. At times the subserous edema about the gallbladder bed and ducts gives the operator a line of cleavage which renders the technical removal of the diseased organ rather easy. Using this observation as a clue the speaker artificially creates such an edema by injecting, with a fine needle, a small amount of sterile salt solution about the cystic duct and the gallbladder bed. The ballooning up of these tissues facilitates subsequent cholecystectomy.

DR. HENRY P. BROWN, JR., said that aside from the cases in which perforation of the gallbladder is obvious and these are rare, one can well afford to observe these patients for a few hours, and if they tend to improve, continue expectant treatment. If they do not show improvement in eight to ten hours, then surgical interference will in most cases be indicated. Meanwhile fluids can be administered as required. In his experience, cholecystectomy of the acutely inflamed gallbladder usually offers less technical difficulty than in the chronic cases, as the edema of the tissues about the acutely inflamed gallbladder affords a ready plane of cleavage.

DR. CALVIN M. SMYTH, JR., said that it is true that gangrene and perforation both occasionally occur in acute cholecystitis. However, they are uncommon, if not actually rare. Personally, he has always felt that these patients could be operated upon with much less risk if given an opportunity

to subside. The best index of subsidence is the return of the temperature to normal and a decrease in the amount of pain and tenderness. Like Doctor Pfeiffer, he has never seen a real early case, that is in the first few hours. Doctor Lipshutz' figures are concerned largely with mortality, but the speaker felt that due consideration should also be given the question of morbidity. In other words, it is not so much a question as to whether one can operate upon acute cholecystitis immediately and not kill the patient, but whether patients so operated upon progress as uneventfully to recovery as those in whom the more conservative plan is followed.

DR. ADOLPH A. WALKLING said he thought we must consider the fact that more perforations occur in older people. He believed that the longer an infection is present in the biliary tract, regardless of its position, the more damage is done to the liver cells and consequently the greater the operative risk. This fact is important. If the acute symptoms do not subside readily, then cholecystectomy should be done.

DR. RALPH GOLDSMITH agreed with Doctor Brown. In patients who are not too bad risks, and who are admitted early, say in the first 24 to 48 hours, it is relatively easy and extremely desirable to rapidly increase the fluid and glycogen reserve. He felt that if these people tend to get worse it is advisable to operate without further delay. The speaker had two unhappy experiences with perforated gallbladders due to excessive conservatism. In most cases, however, the acute symptoms tend to subside under appropriate treatment. As regards the choice of operative procedure, he does not hesitate to do a cholecystostomy where the difficulty of a cholecystectomy would add materially to the risk.

DR. JOHN P. NORTH said that it was not very clear as to just what was meant by immediate treatment. Does Doctor Lipshutz mean that the case should be treated the same as, for example, an acutely inflamed appendix or does he mean that a patient with acute cholecystitis should be operated upon after a relatively short period of intensive preparation with glucose, fluids, *etc.*? The speaker's experience with cases operated on in the acute stage has been limited but in cases so operated he has always been surprised at the smoothness of the recovery. In spite of this it would seem that delayed operation is preferable to an immediate procedure unless the patient fails to improve or becomes worse after a few hours of observation.

DR. BENJAMIN LIPSHUTZ said in closing that the premise here set forth is that prompt surgery is the advisable method of procedure in the treatment of acute cholecystitis. No ironclad rule can be advanced here or elsewhere in surgery; careful surgical judgment must be exercised and followed.

Essentially, if the diagnosis is reasonably clear, and the patient is in good condition, early surgery should carry but little risk. Most cases of acute cholecystitis, particularly the type caused by a calculus obstructing the cystic duct, yield positive bacterial cultures. And the early removal of this infective focus would appear to be the safer procedure.

Every patient is gone over by an internist, the routine laboratory studies done, and fluids administered parenterally if dehydration is present. The interval between admission of the patient to the hospital and time of operation ranged between a few hours to three days. The majority of the cases were subjected to surgery within 24 hours after admission. The anesthesia is either nitrous oxide-ether sequence, or spinal. The latter is advisable, if the patient is obese, in order to secure satisfactory relaxation. An intravenous drip is begun simultaneously with the spinal anesthesia, and is continued throughout the operation, being maintained if indicated, when the patient is transferred from the operating room to bed. The use of the intravenous drip with the spinal anesthesia has, at least in his experience, proved to be the best aide in guarding against fall of blood pressure in the presence of spinal anesthesia.

CHOLECYSTODUODENAL FISTULA

DR. HARRY E. KNOX reported the case of a boy, eight years of age, who was admitted to the Episcopal Hospital in the service of Doctor Mutchler, September 20, 1932. His chief complaint was that of pain in the right side of the abdomen, which began the day before in the right axilla, followed by vomiting. At 5 A.M. on the day of admission, he was awakened by pain in the abdomen, again followed by vomiting. The vomitus did not contain blood nor bile, but food he had eaten the night before.

His family history was negative. His personal history revealed he had had scarlet fever, measles and whooping cough. Otherwise his general health had always been good.

The physical examination showed an internal squint of both eyes; tonsils hypertrophied. His heart and lungs were negative. The abdomen was slightly distended. There was acute tenderness over McBurney's point and marked rigidity of the lower right rectus muscle. Peristalsis were present, although somewhat less marked in the lower right quadrant. His temperature was 100°, pulse 86 and respirations 22. He had a leukocytosis of 16,900 with 90 per cent polymorphonuclears, erythrocytes 3,900,000. A urine examination was negative.

A diagnosis of acute appendicitis led to an immediate operation, which was performed under ether anesthesia through a lower right rectus incision. Upon opening the peritoneal cavity a small amount of free bile-stained fluid was noted. The cecum was delivered, and an appendix only slightly diseased was removed without difficulty. Owing to the bile stained fluid encountered, the gallbladder region was explored by palpation and adhesions

noted. With the idea of making a second incision, the lower incision was closed. As the operation was an emergency and the time was near midnight, the supervising nurse, seeing the wound being closed, decided of her own volition that all was over and promptly dropped all instruments into the sink preparatory to cleaning up; so that, rather than risk prolonged anesthesia, the patient was returned to the ward. His immediate postoperative course was uneventful. He continued, however, to complain of abdominal pain, but at this time he began to localize it definitely in the epigastrium. His appetite was poor, but no vomiting occurred. On October 10, three weeks after his appendectomy, an *x*-ray study of his gastro-intestinal tract was made. The late Dr. Gary Miller reported "all findings point to an ulcer in the first portion of the duodenum, but the diagnosis is made with reservations because of the age of the patient."

With the continuance of pain and positive *x*-ray findings together with our knowledge gained from his previous operation, a second laparotomy was performed through an upper right rectus incision. Upon opening the peritoneal cavity, there was found a considerable amount of dark bilecolored fluid. The intestines were covered with a plastic exudate. Adhesions were separated, and the field thoroughly visualized. There was a distinct joining of the gallbladder to the duodenum. No stones palpable in the gallbladder, the induration of the duodenum prohibited proof of a duodenal ulcer. The gallbladder was separated from the duodenum, the opening in each closed, followed by gastrojejunostomy performed without difficulty.

His immediate postoperative course was stormy, but he reacted well, making a complete recovery, and was discharged three weeks later. To date he has remained well and symptom-free.

The significant points of this case of cholecystoduodenal fistula are that it occurred in a child of eight years without any previous symptoms of duodenal or cholecystic disease, such as epigastric pain, hematemesis, or melena, indigestion, chills or fever, and no history of jaundice, and that treatment of the lesion must be surgical, whether it be primarily in the gallbladder or in the duodenum.

Spontaneous fistulous communications between the biliary tract and gastro-intestinal tract sometimes occur as a complication in disease of the gallbladder or the bile ducts. It is a serious complication of cholecystic disease, increasing the potentiality for further infection of the biliary system already definitely diseased, and increases the morbidity and mortality of operations upon this system. The close proximity or anatomic relationship between the gallbladder and the duodenum favors production of such a fistula in the presence of progressive cholecystic or duodenal disease, and hence is the most common type of internal biliary fistula.

These fistulae may communicate directly with the viscus into which the fistula opens, or indirectly communicate through the bed or route of some

abscess cavity. It has only been within recent years that internal biliary fistula have been removed from the sphere of pathologic interest. The range of these fistulae is almost unbelievable. Cases have been reported as occurring between the gallbladder and its ducts, the stomach, all parts of the intestinal tract, liver, pancreas, portal vein, urinary and the female genital tracts. Fistulae between the gallbladder and abdominal wall are not uncommon. In one series of 1,117 cases operated upon at The Mayo Clinic, Judd in 1932 reported biliary fistulae occurring in only 0.8 per cent. Because of the close association of the gallbladder and duodenum, it is often impossible to say whether a duodenal ulcer has involved the gallbladder or whether an acute gallbladder has ulcerated into the duodenum.