TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

STATED MEETING HELD MAY 5, 1930

The President, Dr. George P. Muller, in the Chair

Calvin M. Smyth, Jr., M.D., Recorder

INTRAHEPATIC CHOLELITHIASES

Dr. William B. Swartley reported the case of a man sixty-seven years of age, a painter, who was admitted to the medical ward of the Germantown Hospital August 22, 1929; complaining of pain in the right upper quadrant of the abdomen, jaundice, chills and fever.

He had had the usual diseases of childhood and gonorrhœa. He had never had typhoid fever. The family history was irrelevant.

Two days previous to admission to the hospital he had a mild pain in the right upper quadrant of the abdomen which became severe the next day, and radiated to the right scapular region. This pain was colicky in character and never entirely disappeared. The stools gradually became lighter in color and constipation was pronounced. The urine was highly colored. With the onset of these symptoms he had chills and fever. Previous to this attack, he was not constipated, but had difficulty in digesting fatty foods. Two years ago, he had an attack similar to this one except that the pain was not so pronounced. He did become jaundiced, however, but at that time, a diagnosis of lead poisoning was considered because of his occupation. There were no symptoms of peripheral nerve involvement or severe constipation. He has had a severe grade of pyorrhœa and much trouble with his teeth. Occasionally, he has had indigestion, belching of gas, and usually vomits during an attack of this nature. He has lost twenty pounds in weight during the past year.

When admitted, there was decided tenderness and rigidity of the right upper quadrant of the abdomen. The liver margin could be felt three fingers' breadth below the costal margin but the gall-bladder could not be palpated.

Five days after admission to the medical ward, the jaundice had considerably lessened and the patient was transferred to the surgical ward, but his improvement was so decided that he refused operation until September 12, 1929, when he had another acute attack of vomiting and pain with increased jaundice.

At operation, on September 25, the gall-bladder was found normal in size, not tense, walls thin, and it contained no stones. When passing deeper under the liver in the neighborhood of the porta hepatis (a "quarry" of stones was palpated. An incision was made into the duct containing these stones and sixteen large stones, three to ten millimetres in diameter, black in color and faceted, were removed. The incision into the hepatic duct was large enough to admit a finger so that the stones could be palpated. Most of them were in the hepatic duct, but a few were found in the common bile-duct. One stone, slightly smaller than the ones removed from the hepatic duct, was lodged high up in a duct in the liver; this could not be removed, but could be palpated. Because of the condition of the patient, it was decided that

further manipulation or destruction of tissue was not justifiable and the stone was allowed to remain. The liver was enlarged and showed evidence of hepatitis. The pancreas also was very hard throughout. The gall-bladder was then opened to make certain that there were no stones present. A rubber tube was sutured into the gall-bladder and a large rubber "T" tube was placed into the hepatic and common ducts for bile drainage and a cigarette drain deep into the transverse fissure and the abdomen closed.

Convalescence was normal. The drainage from the "T" tube was free. The tube in the gall-bladder was removed on the eleventh day. All jaundice had disappeared and on the twenty-eighth day the remaining tube in the hepatic and common ducts was clamped. No jaundice developed and the patient's appetite improved and he gained strength. On the fortieth day, the "T" tube was removed. There was very little bile drainage the next three or four days after the removal of the tube. Ten days after its removal, the wound was healed and the patient discharged, 11-14-29.

Lewisohn[1] states that at the time he wrote his article (May, 1916), "the surgical literature of intrahepatic calculi is a very small one; it comprises only two cases (Hawkes and Noguchi). Noguchi removed a solitary stone from a patient thirty-four years of age, from the hilus of the liver. The stone had a diameter of one and one-half centimetres. Noguchi reports that the exposure of the operation field was by no means satisfactory. It may be doubted whether Noguchi's interpretation of his case (solitary intrahepatic stone) is a correct one. It is very possible that he was dealing with a solitary stone in the cystic duct which had perforated into the surrounding tissue, where it became encapsulated. The gall-bladder was not removed in this case."

In Doctor Swartley's case, the gall-bladder contained no stones and was normal in every respect to gross examination, and, therefore, no adhesions binding it to the quarry of stones under the liver. These stones were removed by opening the bile-duct proximal to the cystic duct (easily located) that is the hepatic duct. Since this quarry of stones was located in the hepatic duct just outside the porta hepatis, and one at least could be felt higher in the liver bile-ducts, waiting to drop down into the quarry with the others, one naturally would think the liver to be the source of origin in this case. The reporter remarked that there may be hundreds more above the one that he palpated and could not remove, as there was in a case that was operated upon by the late Dr. Francis T. Stewart, which case he did not report. His case was operated upon three times for gall-stones. After the third operation, in the Germantown Hospital, the patient died. It was the speaker's duty to perform an autopsy on this patient.

At his operation, the common and hepatic ducts were filled with a material of a putty-like consistency which was removed. At the autopsy the bile-ducts were opened from the transverse fissure throughout their entire extent to the very thin margins of the liver, and gall-stones were found in great numbers, larger toward the central main duct and gradually graded smaller toward the periphery like a string of beads. Lenhartz had just this type of

case. Lewisohn shows the picture of the liver of Lenhartz's case in his article.

Since Doctor Swartley's patient left the hospital he has had no jaundice, pain in the abdomen nor chills and fever. Even though we know he had a stone retained in the liver, it could have passed down into the hepatic duct and out through our "T" tube drainage. However, no such stone was found in the bile drainage receptacles or on the dressings after the operation. In Judd and Burden's case,[2] they mention that their patient had no clinical evidence of a stone in the liver. In the case now reported there may have been only this one or he may have had hundreds more. With the view of determining this possibly by X-ray, an X-ray was made May 1, 1930. There was a shadow shown in the area of the porta hepatis which the radiologist, however, would not definitely interpret as a stone.

BEER, LEWISOHN, ERDMANN, and JUDD have all written interesting articles on Intrahepatic Cholelithiasis.

BEER, in 1904 (Med. News, vol. lxxxv, 1904), studied this condition most thoroughly by dissecting 250 livers of patients who had died of gall-stone disease and found gall-stones in the hepatic ducts within the liver in six cases (2.5 per cent.). He has given three different causes for their formation; first, obstruction; second, cholangitis; and third, an unknown factor (diathesis?).

LEWISOHN, in 1916 (*op. cit.*), was induced to report his case because of (1) the extreme rarity of the condition in surgical pathology; (2) the fact that his case was the first case in which intrahepatic stones had perforated, thus causing a localized peritonitis; (3) the interesting observation that a biliary fistula which persisted for eight months, closed spontaneously (and has remained closed for four months), though the hepatic ducts, and very probably the common duct, are filled with stones.

J. F. ERDMANN, in 1918 (International Clinics, vol. 28, pp. 111, 131, 1918) in his article speaks of these cases as the "bête noir" of the surgeon. The first man goes in and removes a handful or more of gall-stones, the symptoms return and the patient consults another surgeon. He operates and removes the gall-bladder, and says, "Now this patient can have no more gall-stones, for the gall-bladder has been removed." But he forgets the intrahepatic passages. The stone-producer may be present in the small branches of the biliary system, due to the staphylococcus, the streptococcus or the colon bacillus, *etc.*, and this may give trouble even twenty-five years after an operation has been performed and the gall-bladder removed. In an intrahepatic case, there is no question that the stones may come down at successive times and one cannot guarantee to relieve the patient permanently by one operation, but in 92 to 95 per cent. of the cases, there is no recurrence, while in the remaining 5 to 8 per cent. we must expect to get a recurrence.

JUDD and BURDEN, in 1926, reported a case in which they state that the unique features which form the subject of their report are: "The finding of many large intrahepatic calculi in a liver which was grossly normal, more than eleven years after cholecystectomy; and removal of numerous stones from the extrahepatic ducts; and the presence of this condition without the occurrence of jaundice or any clinical evidence of hepatic insufficiency, the condition being an incidental finding in a patient who died from intestinal obstruction."

REMOVAL OF RUBBER TUBE FROM COMMON BILE-DUCT

DR. EDWARD J. KLOPP reported the removal of twenty-six centimetres of a No. 24 soft rubber catheter which had been used, after the method of Duval and Richard, in repairing a stricture of the common bile-duct on April 12, 1926, and presented at a meeting of the Academy held February 7, 1927. The man was aged thirty-six at the time of that operation and had many attacks of abdominal discomfort, gaseous eructations and constipation but was able to work as a clerk.

In April, 1929, the abdominal discomfort increased, the "gas would move from place to place." He was obliged to use laxatives and enemas about every three days. A gastro-intestinal X-ray with a barium meal failed to reveal any evidence of obstruction. In February, 1930, the discomfort became more marked. There was constant pain above the umbilicus. He became slightly jaundiced and was admitted to the Pennsylvania Hospital February 24. His stools were clay-colored and there was itching of the skin. Another gastro-intestinal X-ray showed no evidence of obstruction. The stomach emptied in two and one-half hours.

March 7, 1930, the tube was removed under spinal anæsthesia. There seemed to be fewer adhesions than at the two previous operations. The tube was easily felt in the duodenum, also in the common bile-duct. An attempt was made to dislodge the tube by gentle manipulation of the duodenum. This was unsuccessful. The duodenum was then opened and the tube removed without much resistance. Bile promptly appeared in the duodenum. The common-duct area was palpated (but not probed) for evidence of stone; none could be demonstrated. The hepatic ducts were so buried in adhesions that identification was out of question. The duodenum was closed with two rows of catgut sutures. The suture line was reinforced with omentum.

Two days after the operation there was evidence of peritonitis, resulting in death on the fourth day.

The tube removed was described by the pathologist, Dr. I. J. Wolman, as follows:

"The specimen is a piece of rubber tubing measuring twenty-six centimetres in length and one centimetre in diameter. It is somewhat curved in shape but its ends project straight outward. One end for a distance of six centimetres is crusted with a dry, orange-yellow deposit, not very abundant, but enough to cover the surface. This end has a funnel-shaped dilatation with a diameter of 1.3 centimetres. The remainder of the tube is dark green on the surface, through which the underlying red rubber shows through little cracks. In opening the tube it is found that the gall-bladder end is filled with granular, friable yellow deposit similar to the incrustation on the surface. The deposit has apparently completely blocked the terminal dilatation and almost completely fills the lumen for six centimetres. Beyond that there is a less abundant yellowish-green deposit on the inner surface which extends for the remaining entire length of the tube with the exception of the terminal seven centimetres. The rubber still retains a little of its elasticity. It is red in color. The line of demarcation between the superficial crust at the end which was located at the side of the gall-bladder and bile-ducts and the distal green color, is abrupt and at the site of transition the tube appears a little constricted for a length of one centimetre proximal to the transition."

Autopsy revealed a moderate amount of bile-stained, purulent fluid. There was an abundant yellowish exudate about the suture line of the duodenum, but no defect was demonstrable.

The points of note were that the liver was slightly enlarged; the larger ducts were dilated and contained numerous, irregular, granular concretions; eight of these were .5 centimetre in diameter. There was a soft stone two

centimetres in diameter at the junction of the hepatic ducts, and one, half that size, above in the right hepatic duct.

The common duct was dilated with a diameter of about 1.2 centimetre. wall was thickened, fibrous, and the inner surface was congested and dull in appearance. Five centimetres from the ampulla of Vater on the inner aspect there was a small ulcer-like defect (absence of mucous membrane) three centimetres in diameter. The edges were indurated. Bands of scar tissue were visible radiating out in all directions from its margin. There was a small opening through which a probe could be passed, permitting the escape of bile.

The reporter thought it was a mistake to use a catheter of such large size. There had been two previous attempts to relieve the stricture, one by himself. He was especially eager to prevent another failure. A second error was that the catheter should have been removed long before. One should anticipate the formation of stones. He questioned whether the catheter should have been permitted to remain more than twelve or eighteen months.

DR. GEORGE P. MULLER said that he agreed with Doctor Klopp that it is not a wise procedure to attempt to implant a "T" tube when dealing with the stricture of the common duct. The strictured part seems to extend right to the end of the duodenum. After exposing the area of stricture, it is better to pause a moment to decide what to do and an immediate hepatico-duodenostomy will often give the best result. He has had four this year. He also thought the point was well taken regarding the use of a tube sufficiently small so that it will be easily swept on into the duodenum.

FOREIGN BODY IN HEART

DR. J. R. VEAL, by invitation, presented a man, thirty-nine years of age, who was admitted to Doctor Mitchell's service at the Pennsylvania Hospital at 9:10 A.M., April 26, 1930, with a history that twenty minutes previously he had been struck over the heart by a block of wood thrown by a circular saw.

On admission, patient was cold and clammy, blood-pressure 54/40, pulse 96, poor volume but regular. Over pericardium in the third interspace, just above and to the inside of the left nipple, there was a small, apparently superficial laceration which had bled slightly. Careful examination of the thoracic wall revealed no signs of injury to ribs or sternum. The heart was in normal position; was not enlarged to percussion; the sounds were very weak and distant; rate 96; rhythm regular; no murmurs or adventitious signs were noted. There was definite restriction of expansion in the left lower chest, breath sounds were weak and distant in this area. No râles were noted. Respiration 28. Chest otherwise negative. Abdomen was rigid especially in the upper left quadrant. There were no signs of contusion or external injury to abdominal wall. No shifting dulness in flanks. Physical examination was otherwise negative.

Under treatment the patient gradually improved, his blood-pressure rose to 96/70. He complained bitterly of pain in epigastrium and upper left quadrant. His heart rate remained around 90. He vomited several times. the vomitus containing no blood. Throughout the day the patient continued in this condition. On the following day, at 9:30 A.M., twenty-four hours after accident, blood-pressure was 90/60, pulse 110, temperature 100°, and he continued to complain of intense pain in upper left abdomen. The abdom-

inal rigidity was less marked, and there was no further evidence of injury to any other abdominal organ. The patient was incontinent. There was no bleeding from laceration noted above. The heart rate was 110, sounds weak, poor quality, rhythm regular. The heart was in normal position and not enlarged to percussion. There was a slight impairment over left lower chest with a few crackling inspiratory râles.

At 9 P.M. on this same day the patient's temperature rose to 104, pulse 120 and he became very restless and had to be restrained in bed. His pain continued as above, morphine and sedatives having little effect upon it. At this time the left lower chest revealed signs of consolidation. The heart borders could not be outlined but seemed to merge with the dulness in the left lower chest. The patient soon went into shock again and his condition gradually grew worse. Heart rate was 130, sounds very weak, rhythm regular, pulse imperceptible. Both lungs were filled with bubbling râles and

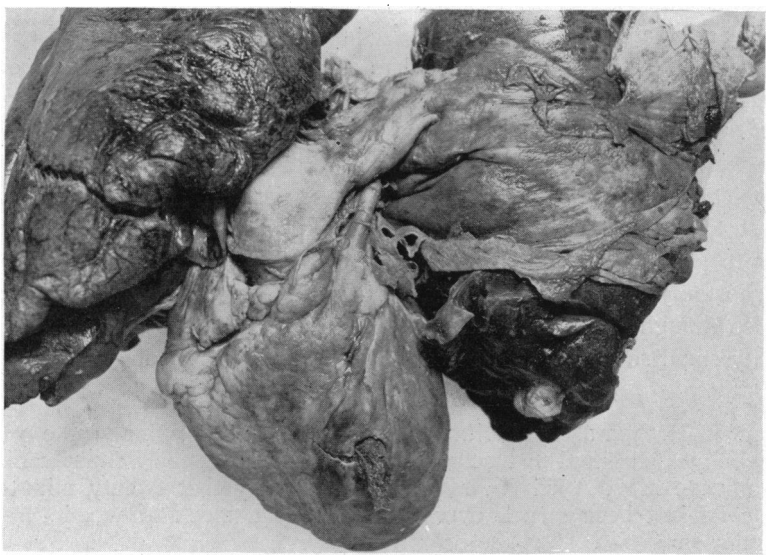

FIG. 1.—Anterior surface, showing heart and lungs, with splinter piercing heart.

respiration became quite rapid. Patient died at 6:30 A.M., April 28, forty-six hours after initial injury.

Post-mortem examination.—The body is that of a muscular male, estimated to weigh 160 pounds. It appears normal externally except for a small skin lesion located 1.5 centimetres medially and slightly cephalad to the left nipple. This lesion has an area measuring .8 by .6 centimetre. It is brown and dry and appears as if pressure atrophy of the skin had occurred. There is no evidence of perforation but probe can be passed through it into the underlying tissues.

The left lung is collapsed and the pleural sac filled with 2000 cubic centimetres of dark red blood, partially clotted. There is a small perforation 0.5 centimetre in diameter in the parietal pericardium, beneath the superficial skin lesion. The pericardial sac is filled with clotted blood. There is also a dull fibrinous exudate on the surface everywhere. Projecting upwards from the anterior surface of the heart from the middle of the left ventricle is a blood-stained splinter of wood. (Figs. 1 and 2.) The splinter measures nine centimetres in length and is pyramidal in shape, its base being about one centimetre square. Its sides are irregular and grooved. The point is fairly sharp. The splinter has entered the heart through the left ventricle wall on the anterior surface. When removed the wound gaps open and blood flows from the heart. The splinter has

perforated the heart and a few millimetres of its tip appears on the posterior aspect of the left ventricle. The heart itself is contracted and not hypertrophied. The great vessels seem normal. It is not opened but perserved intact as a museum specimen. The left lung is somewhat collapsed. The right lung is somewhat voluminous. No consolidation is found anywhere. There is no blood in the right pleural cavity and no exudate on the surface.

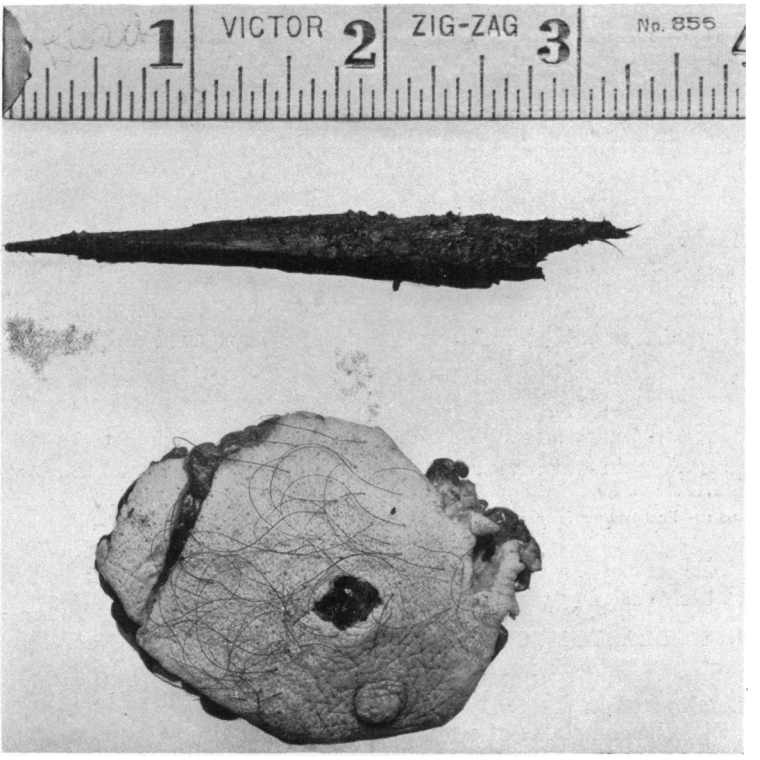

FIG. 2.—Showing length and size of splinter with portion of skin showing where splinter entered the chest wall—nipple, etc.

CHOLECYSTOSTOMY

DR. BRUCE L. FLEMING, by invitation, read a paper entitled "An Investigation of the Functions and Symptoms of the Surgically Drained Gall-bladder."

LYMPH EXUDATE AND FIBROUS TISSUE

DR. EDWARD T. CROSSAN pronounced the annual oration on the above-titled subject for which see page 1019.

STATED MEETING HELD OCTOBER 6, 1930

The President, DR. GEORGE P. MULLER in the Chair

NECROSIS OF BONES OF FOREARM FOLLOWING TRAUMATIC REMOVAL OF PERIOSTEUM

DR. GEORGE M. DORRANCE reported the case of a man admitted to St. Agnes' Hospital, September 4, 1928. The forearm had been injured in a wringer. A large amount of muscle, tendon and fascia had been torn away