REMOVAL OF BILIARY CALCULI FROM THE COMMON DUCT BY THE DUODENAL ROUTE.[1]

By CHARLES McBURNEY, M.D.,

OF NEW YORK,

SURGEON TO THE ROOSEVELT HOSPITAL.

CASE.—Eliza M., forty-four years of age, came under the care of the writer on the 12th of April, 1898. Fourteen months before she had a sudden attack of moderate pain, referred to the right hypochondriac region, and radiating into the right shoulder and across the abdomen. The pain subsided after a few days. During this attack the stools were noticed to be of a white color. A month later a much more severe attack occurred. Intense pain was felt throughout the upper part of the abdomen, and on the following morning deep jaundice was noticed. The acute symptoms lasted for two days throughout a period of four weeks. During the next five months six or seven similar seizures occurred, and some of these are said to have been accompanied by fever. During the last eight months there have been no attacks of real severity, but jaundice of varying intensity has been continuous throughout this period, and the stools have been always clay colored. The evacuations have been carefully examined for some six months, but no foreign material has been discovered. The patient's weight during this period has fallen from 119 pounds to ninety-six pounds. At present no pain is felt. The patient, when she came under my observation, was deeply jaundiced, without pain or tenderness on pressure, and physical examination detected a very much enlarged liver. Her temperature was normal; her pulse 100. The diagnosis lay between calculus obstructing the main bile-duct and carcinoma, the existence of

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calculus being favored, on account of the absence of cachexia and gastric symptoms.

Operation was done on the 15th of April, 1898. A vertical incision, five inches long, was made through the skin, beginning just below the ninth costo-chondral articulation on the right side, passing through the rectus muscle parallel to the course of its fibres, about two inches from the median line. The liver was at once noted to be much enlarged and congested. Firm adhesions existed between an atrophied gall-bladder and the duodenum. Palpation of the gall-bladder failed to detect the existence of calculus within; the cystic duct seemed to be in a normal condition. Examination of the common duct revealed no abnormality until its extreme lower end was palpated through the anterior wall of the duodenum. Here a firm, hard body, apparently about an inch in diameter, was readily felt. This body seemed to be located at a point corresponding to the lower end of the duct just before the latter opened into the duodenum. Adhesions were so strong, and the situation of the mass so low down and so far behind the duodenum, that its examination from the posterior aspect of the duodenum was hardly possible. It was evident that a biliary calculus formed the centre of this mass. The duodenum was incised vertically at the middle of its descending portion, the incision made being about one and a half inches long. The orifice of the common duct was found on the posterior wall of the descending portion of the duodenum, directly opposite the incision just referred to. A probe, introduced through this orifice, immediately came in contact with a calculus. Slight enlargement of the mouth of the duct with the scalpel permitted the end of the calculus to be seen. The finger being then passed behind the descending portion of the duodenum, the lower end of the common duct containing the calculus was easily pushed forward into the incision, in the anterior wall of the gut, and a little additional pressure being made with the left hand, with the right the incised orifice of the duct was pushed back from the calculus, allowing the latter to at once escape into the intestine. A probe was then introduced, which passed freely up the common duct, but no other calculus was found. Bile flowed freely into the intestine as soon as the stone was removed. The wound in the duodenum was now closed by three rows of fine catgut sutures, the application of these sutures being very easy and

complete. The surface of the intestine and the surrounding area of the abdominal cavity was then carefully washed with hot saline solution, and the wound in the abdominal wall was completely closed, in separate layers, with catgut sutures. The skin wound was closed with silk, a bit of thin rubber being introduced at the centre to drain the subcutaneous cellular space. The gall-stone removed was oval in shape, hard, dirty-brown in color, and measured three-quarters of an inch in one diameter and one-half inch in the other. No nausea followed the operation, and no pain. On the following day only sterile water was administered by the mouth, nutrient enemata being given per rectum every four hours. Two days after operation a large ordinary enema produced a natural movement of a light color. The wound healed in a perfectly aseptic manner, the discharges from the bowel rapidly recovered a normal appearance, and on the 1st of May the patient reported herself as feeling perfectly well. Five days after operation the temperature became normal, and has remained so ever since.

The operation, which I have just described, was devised by me some six years ago, while I was operating upon a patient who was in an extreme condition of debility, deeply bronzed with bile pigment, who had suffered for many years from obstruction of the common duct. A year previous to my operation the diagnosis of carcinoma of the liver had been made by a prominent consultant of this city, and the advice was given that she be removed to her home, as she must inevitably die. At the end of the year, no especial change having occurred, her husband, who was a physician, brought her once more to New York, and it was then that the operation to which I have referred was done. On opening the abdomen I found a much enlarged and engorged liver, an atrophied gall-bladder, containing no calculi, moderate adhesions covering the cystic and common duct, which were, however, easily broken down, allowing of complete palpation of the entire bile-track. With one finger behind the duodenum and another depressing its anterior surface a large, hard mass was readily discovered lying behind the centre of the descending portion of the duodenum. This was

clearly a calculus. I at first made a somewhat prolonged effort to so raise the duodenum and bring the lower end of the common duct into view as to enable me to open the latter and extract the stone. I found that this was quite impossible, for I could neither bring the lower end of the common duct into view, nor, if I opened it, could I expect to be able to suture it. It occurred to me that if I entered the duodenum through the anterior wall of its descending portion I should come at once to the point where the duct joined the intestine. I therefore made a vertical incision, about one and a half inches long, at the point referred to, and found the papilla which marked the entrance of the common duct, directly opposite the incision. A probe was introduced without difficulty, which, after passing about half an inch upward through the duct, came in contact with a firmly impacted stone. The orifice of the duct was first slightly incised, then with the aid of forceps largely stretched, until it was possible without difficulty to dislodge the calculus and draw it down into the intestine. Large quantities of bile immediately flowed into the gut. The wound in the intestine was then sutured with three rows of silk. The parts that had been exposed were carefully cleansed and the abdominal wound sutured with catgut, leaving only a small orifice for drainage by means of a piece of iodoform gauze. The drainage material was removed at the end of two days, and, although the superficial wound was somewhat slow in healing, the patient made a complete recovery without fever or other abnormal sign of any kind. Her weight, which had been reduced to ninety pounds within six months, has returned to her normal standard of 180. Since that time I have frequently seen this patient, and she has remained in robust health up to the present date.

In all I have performed this operation on six different occasions, the last one less than a week ago, and in no instance has the slightest hesitation in the healing of the wound in the intestine been noted. One patient, who had always suffered from an excessively irritable stomach, died after pro-

longed and uncontrollable vomiting. No sepsis or wound disturbance of any kind was found in this case.

It seems to me that this operation has a very legitimate place in gall-bladder surgery, and one which has not been sufficiently appreciated. Why it has not been more frequently resorted to by others I do not understand, unless it is from the traditional fear, which dates back to a period long before intestinal surgery was understood, of opening and suturing a piece of gut. When a gall-stone lies in the common duct, at any point in the upper two-thirds of that passage, the approach to it through the wall of the duct is not difficult. In most cases, however, the management of the wound in the wall of the common duct is by no means simple, for although the wound may be left open and the space about it drained through the anterior abdominal wall with comparative safety, yet, of course, one would much prefer, when it is possible, to avoid long-continued drainage with its accompanying dangers. Suture of a wound in the common duct can occasionally be accomplished with comparative ease, more especially if the patient is thin and no adhesions exist to interfere with clean intraperitoneal work; but very frequently the complete suture of a wound in the common duct is exceedingly difficult, especially when the wall of the duct has become much thinned by distention, and successful suture may be quite impossible. When a stone is situated at the extreme lower end of the passage, and when it cannot be dislodged to a place higher up in the duct, its removal without opening the intestine is a matter of great difficulty and not a little danger. Under such circumstances it seems to me that the removal of the stone through the intestine—or rather by the duodenal route— is clearly indicated, there being no possible objection to the method, excepting the fact that the intestine is necessarily incised. When one remembers, however, how much easier, on account of proximity, it is to suture the anterior wall of the duodenum than to suture the incised wall of the common duct, and when one remembers the rapidity and perfection with which properly sutured intestinal

wounds heal, the choice of operation in suitable cases seems to me to lie clearly in favor of the method which I have described. My conviction is that this operation has a much wider application than I have thus far given it, and my experience would lead me to prefer this plan for the removal of a calculus situated at almost any point from the termination of the cystic duct to the point of entrance of the common duct into the duodenum. I have found the orifice of the duct very easily dilatable, and it may be freely incised for at least half an inch with perfect safety. The operation is quicker, cleaner, and safer, in my opinion, than the operation which is usually done. It has also the advantages that, by the introduction of a probe, the bile-ducts can be examined for a long distance upward towards the liver, and also, the orifice of the duct having been dilated to a large extent, there is far less likelihood that overlooked fragments of gall-stone, granular material, or thick bile will be retained and give rise to further obstruction.