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REMOVAL OF A SMALL SOLID TUMOR FROM THE LIVER.

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IN the *American Journal of the Medical Sciences* for June, 1888, attention was called to the fact that in certain cases of liver disease or injury an area of liver surface more or less extensive could be shut off by suture from the general peritoneal cavity while remaining exposed to the air, thus enabling the surgeon to operate for abscess, wound, etc., with but small risk of inducing septic peritonitis. Eighteen months ago it was my fortune to have recourse to this procedure when removing a small solid tumor of the liver. The history is as follows:

J. M. H., aged twenty-five, occupation farmer, was admitted to the University Hospital May 17, 1890, and was referred to me by Dr. Luther M. Hunley. He is married; family history is negative; he has always been healthy up to the commencement of the present illness, and never suffered from malarial fever, scarlet fever, or measles. He enies venereal troubles; is temperate; does not use tobacco. His first knowledge of his present illness dates from a colicky pain in the left side at the margin of the ribs ten years ago. At first the pain was but momentary, and appeared but once in two or three weeks. In July, 1886, he had an attack of what was denominated bilious fever, and since then has had pain continuously in his left side up to one year ago. When the pain in the side ceased, he suffered pain in the epigastric region. Sixteen months ago he noticed a swelling to the left of the middle line in front, just below the cartilages of the ribs, also at times slight pain in the lower part of the abdomen; bowels constipated. In consequence of the pain he has suffered for the past four years he has been unable to do farm work. He is well developed, of medium height, tongue slightly coated, chest expands normally. There is a slight swelling in the epigastric region, to the left of the middle line, about two inches below the xiphoid cartilage. This lump is extremely tender on pressure. The patient thinks that this swelling has increased in size since he first noticed it. Deep inspiration causes the tumor to descend two inches. On expiration, it resumes its former position. The tumor is hard and resisting, dull on percussion, and appears to be about one and a half inches in diameter. Area of splenic dulness not increased; kidneys act freely; examination of urine negative. Pain is caused at the seat of the tumor by very deep inspiration.

The patient was prepared for operation in the usual way; and two days after admission to the hospital he was operated upon as follows: An incision five inches long was made over the tumor through the left rectus muscle in the direction of its fibres. The wound edges were separated, the peritoneum was exposed, and all hemorrhage arrested. Bleeding was free. The apex of the tumor was adherent to the parietal peritoneum. The abdominal cavity was opened and the liver examined by touch.

The tumor was found to be in the left lobe of the liver, about two inches from the lower free border. A finger passed beneath the liver found that the tumor did not extend through the viscus. A hypodermic needle passed into the tumor gave exit to no fluid. The peritoneum was stitched to the liver around the circumference of the growth, which was then excised with curved scissors and the Paquelin cautery applied. The cavity left in the liver substance was an inch deep by one and a half inches across. The wound was packed with iodoform gauze. Ether was the anæsthetic used, and a good deal of nausea followed. There was much bloody oozing through the dressing for twenty-four hours. Urine had to be drawn by a catheter for three days.

With the exception of extremely constipated bowels, the patient's recovery was uneventful. In three weeks the patient returned home well and without pain. The photograph was taken three weeks after operation, the wound being superficial but not healed. Within the past month (eighteen months since operation) I have heard from the patient as follows: He is in excellent health, suffers no pain, and attends to the necessary work on the farm of which he is the owner. Examination of the tumor which we removed showed that it was composed of liver tissue in which there was much exudation, while scattered through the growth were many fine grains of sand, —no doubt, minute calculi.

It will be found, probably, as clinical records accumulate, that the methods of operating on the liver more and more conform to methods applicable throughout the body, and as a necessary result the extreme hesitancy which now characterizes the undertaking of an hepatic operation by the surgeon will pass away, and as a sequence more favorable results may be expected.

A glance at traumatisms of the liver is not uninteresting.

In the "Medical and Surgical History of the War," second surgical volume, p. 130, are recorded twenty-six recoveries from punctured or incised wounds of the liver, gathered from various authors. Of these cases, in three, portions of the liver were cut off at the time of the injury; in two instances, portions of the liver were torn away; in three instances, portions of liver were tied and divided distal to the ligature; in one case a portion of liver is recorded as protruding, and "came away" on the fifth day; while as showing what might occur while the world was still wrapped in septic darkness, Theden, in the year of grace 1782, records a case of self-inflicted wound of abdomen, followed by escape of small intestines, removal of piece of diaphragm and liver one-half inch by three inches, and complete division of ileum. As the man was not expected to live, the protruding portions were returned pell-mell, and the wound in the abdominal wall was sutured;

escape of fecal matter for four weeks took place; the patient recovered and lived seven years.

Sufficient has been learned by experience, in gunshot and other surgical wounds of the liver, to justify the opinion that hemorrhage is not to be greatly feared. Hemorrhage stops spontaneously, without doubt, in many cases, even in grave wounds perhaps, either punctured or gunshot. Pressure direct or with gauze suffices in the great majority of cases to bring about cessation of bleeding. In hemorrhages from deeper and larger vessels, a thread passed through the liver substance and then tied more or less tightly around the bleeding point arrests blood pretty thoroughly. In wounds resulting from resection of liver substance, if hemorrhage is not arrested spontaneously, sutures, Paquelin cautery, or the tampon leave little to be desired. Bleeding from the very large vessels of the liver, or even the inferior cava, will of course not be arrested by the method stated, but, so far, such accidents are not recorded as needing treatment. It is presumable that death occurs before surgical interference could be obtained. Ligature of individual vessels does not seem to be possible in this respect, the liver substance behaving in the same manner as kidney substance.

In Langenbuch's well-known case of resection, the pedicle was tied in sections, hemorrhage following the same evening, which necessitated re-opening the abdomen. Hochenegg[1] records a method of pressure by gauze which is worthy of note, and seems of general utility,—a wedge of liver substance had been excised.

"The severe hemorrhage ensuing after the excision of the wedge-shaped portion should have been stopped by the sutures, but they did not succeed in doing so, for all the stitches made in the parenchyma of the liver tore out again.

"The wound, therefore, had to be cared for in the following manner: The angular wound caused by the excision of the wedge was clapped together and covered with iodoform gauze, which was fixed in place by knotted sutures, and then the parietal peritoneum was attached to the visceral peritoneum by means of fine catgut sutures. The bleeding ceased entirely. The further progress of the case has been entirely uneventful up to the present time; the patient has continued free from fever and is to-day (first day after operation) doing well. The speaker will not fail to report the final result."

The arrest of bleeding after removal of a solid tumor presents rather a different view of the question; hence the importance of the following, which I quote at length.[2]

"Male, aged fifty, came to hospital to be treated for a hard tumor in the abdomen and great consequent debility. Diagnosis, carcinoma of the peritoneum. On account of the great suffering of the patient, laparotomy was performed at his request. A large tumor was found extending from the parietal peritoneum, but the point of its

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[1] Wiener Medicinische Blätter, 1889, No. 25, p. 391.

[2] Prof. Bruns, reported by Garré, in Beiträge zur Klin. Chir., Tübingen, 1888-89, iv. 181 et seq. (in extenso). (Case on page 188.)

origin could not be accurately ascertained. Moreover, a yellowish lump the size of a pea was found adhering to the margin of the right lobe of the liver near the incisura hepatis. A piece of liver the size of a hazel-nut, attached to the lump, was excised with the knife for microscopic examination, and the thermo-cautery was applied to the wound.

"The examination revealed the little tumor to be a metastatic carcinoma of the liver. The extirpation of the tumor was therefore desisted from, and the wound closed. Healing of the abdominal wound occurred without reaction."

These cases seem to indicate that hemorrhage after excision of the liver substance may be definitely arrested by ligature, cautery, or pressure.

The influence which may be induced by bile when poured into the peritoneal cavity is not yet to be stated definitely; the serous membrane is unquestionably more tolerant of its presence than has been supposed; but any discussion of the question is outside the limits of this brief paper.