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RECURRENT AMÆBIC DYSENTERY

WITH SUCCESSIVE
LARGE HEPATIC ABSCESSSES

BY

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OBSERVATIONS ON A CASE OF
RECURRENT AMŒBIC DYSENTERY,
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THE following case, occurring in the practice of Dr. George M. Edebohls, is believed to possess points of interest from a clinical, a surgical, and a pathological standpoint. During a period of time extending over about six years five different hepatic abscesses, the result of amœbic dysentery, were diagnosticated and successfully operated upon, the patient finally succumbing to a sixth hepatic abscess which opened spontaneously and led to death by exhaustion. Post-mortem pathological investigation determined the presence of amœbæ coli in both the large intestine and the liver, and, in addition, occupied itself largely with the question of the reproduction of glandular hepatic tissue to supply the place of that destroyed by suppuration.

For the following clinical history I am indebted to Dr. G. M. Edebohls:

J. R., a married grocer, was thirty-eight years of age when he first came under the observation of Dr. Edebohls in August, 1886. He had been a sailor in early youth, but had never visited the tropics and had never been sick a day until 1885, many years after he had abandoned the sea. He had an attack of dysentery in July, 1885, and again in May, 1886. A few weeks after convalescence from this last attack he noticed the formation, with accompaniment of fever, of a painful tumor im-

* The histological studies recorded in this paper were made in the Pathological Laboratory of the College of Physicians and Surgeons, Columbia College, New York.

mediately beneath the xiphoid process of the sternum. The clinical symptoms pointed to hepatic abscess, and this diagnosis was confirmed by exploratory puncture.

To avoid unnecessary repetition in the further history of the case, it may be stated at once that each of the six hepatic abscesses from which the patient suffered was preceded by an attack of acute dysentery, the bowel affection antedating the hepatic abscess by intervals varying from two to six weeks. In each instance the abscess was diagnosticated and located by exploratory puncture and the removed pus examined microscopically, with negative results, the beginning of the case antedating the introduction of the amœba coli into pathology. The amœbæ were first found post mortem. In the interval between the operative cure of each hepatic abscess and the next attack of dysentery the patient was apparently quite well and followed his avocation as grocer. All the operations, extending over a period of five years, were performed by Dr. Edebohls.

Abscess No. 1, in right lobe of liver, was operated upon, under cocaine anæsthesia, August 31, 1886. Incision five to six centimetres long, parallel to and two centimetres and a half distant from the free border of the right costal cartilages. Peritoneal surfaces adherent over abscess which was situated at a depth of a centimetre and a half from the surface of the liver and contained ninety grammes of pus. Drainage and irrigation with sublimate solution (1 to 4,000) for two weeks. Definite healing of abscess and fistula one week later.

Abscess No. 2, right lobe, was incised, under ether narcosis, December 5, 1886. Incision somewhat lower and some three centimetres to right of scar of former incision. Abscess at a depth of three centimetres from liver surface; eighty grammes of pus evacuated. Drainage for three weeks; then again definite closure and good health for three years and a half.

Abscess No. 3. Operation in two sittings. Cœliotomy, September 16, 1890. The patient being etherized, an incision, seven centimetres in length, closely hugging the free border of the right ribs, led into the free peritoneal cavity. Thorough digital exploration of stomach, liver, gall bladder, and neighboring parts, all of which were normal except liver. No adhesions anywhere, not even behind scars of two former incisions into liver. Abscess situated deep in right lobe and well beneath cover of ribs. Parietal peritonæum stitched to surface of liver in circular form and abdominal wound filled with iodoform gauze. On September 25th, without an anæsthetic, an incision was made penetrating the liver substance to the depth of five centimetres, when a small abscess was reached, emptied, and drained. During the following days immense quantities of bile

were discharged with the pus. The symptoms, however, did not improve.

Abscess No. 4 was discovered in the posterior portion of right lobe of liver, and opened on October 17, 1890, under ether narcosis, by an incision through the eighth intercostal space posteriorly on a line with the outer border of the scapula. The pleura, lung, diaphragm, peritonæum, and liver were divided with the Paquelin cauterizer until a large abscess was reached from which over five hundred grammes of pus were evacuated. A finger was inserted into the still open, smaller, anterior abscess, a uterine dressing forceps introduced into the larger posterior abscess, the septum between the two (composed of healthy hepatic substance two centimetres thick) perforated by the forceps, and a double drainage-tube of large caliber drawn through the liver fore and aft. By this means perfect drainage and irrigation was possible, the patient sitting up and catching in a basin at the front incision the sublimate solution (1 to 5,000) which his wife allowed to run in at the intercostal incision posteriorly. This drainage was kept up for nearly three months, when both abscess cavities and incisions healed definitely.

On December 1, 1890, the patient, with drainage-tubes in position, was shown at a meeting of the German Medical Society of New York.

Abscess No. 5, situated in the left lobe of the liver, one centimetre and a half from the surface, was opened on April 1, 1891, under mild cocaine anæsthesia, the patient being almost moribund and too feeble to bear a constitutional anæsthetic. Adhesions had formed between the liver and parietes, and no difficulty was experienced in this operation. Eighty grammes of pus were evacuated, and drainage maintained for a week. The abscess cavity closed definitely in a month.

Abscess No. 6, situated in the right lobe, was not operated upon, Dr. Edebohls being summoned after spontaneous opening had occurred and when the patient was already *in extremis*. This last abscess opened on March 18, 1892, and discharged a large quantity of dirty, shreddy material and pus. Patient died of exhaustion, due to the combined dysenteric and hepatic affections, on March 23, 1892.

The entire large intestine and the liver, which had been removed at autopsy a few hours after death, were presented in a fresh state by Dr. Edebohls at a meeting of the New York Pathological Society held the same evening.

Two features of the clinical history deserve special attention. The first was the intense and terrible shock on

each of the three occasions when the hepatic tissue was cut through without the employment of a general anæsthetic. While the incision through the abdominal walls left the patient unmoved, the brave man collapsed totally as soon as the liver was incised. The pulse became small, on one occasion imperceptible; profuse, clammy perspiration suddenly broke out; respiration was suspended; and during one operation Dr. Edebohls feared his patient had died under the knife. In a fairly large surgical practice he had never seen anything so profound in the way of shock and collapse.

The second point of interest was the total disappearance, after three years, of the firm peritoneal adhesions through which the first two abscesses had been opened and drained.

The autopsy was made twelve hours after death. The body was fairly well nourished. In the right hypochondriac region, just below the border of the ribs, was a small opening from which pus oozed. The liver was firmly adherent to the abdominal wall in front and to the diaphragm above. At several points on its anterior surface there were deep furrows associated with an extensive development of fibrous tissue. This fibrous tissue extended into the substance of the liver to the depth of from two to five centimetres in places. In the anterior middle portion of the right lobe of the liver there was a large, thick-walled cavity, lined with a pyogenic membrane and containing a large amount of neurotic tissue and pus. This cavity communicated with the external opening above referred to below the costal margin.

There were no other abscesses in the liver. There was no involvement of the lung in the process in the liver, nor was the lung adherent to the diaphragm. The intestines were in places bound together by old adhesions. There was no evidence of recent inflammation of the peritonæum. The small intestine was normal. The large intestine was the seat of extensive ulceration of the mucous membrane, most marked in the descending colon and the rectum. The ulcers were mostly irregularly oval in shape and of greater or less depth. Some of them extended into the muscular coat of the bowel. The other organs of the abdominal and thoracic cavities presented no noteworthy changes.

The contents of the hepatic abscess were examined for living amœbæ, but with negative result. The autopsy was made

late in the day and the microscopic examination was, unfortunately, rather hurried. Cover glasses prepared from the pus also failed to show amœbæ. Portions of the intestinal ulcers and of the abscess wall of the liver were hardened in strong alcohol. Sections were then made and stained with various media. The methylene-blue stain seemed to offer no advantages over the more usual hæmatoxylin and eosin stain. By means of the latter stain the amœbæ were recognized both in the intestine and in the liver. They were not found in all the ulcers, though this may have been due to insufficient search. In some ulcers they were present in large numbers, lying apparently in the lymph spaces at the edge of the ulcer. No amœbæ were found in the blood-vessels. The amœbæ in the liver were much more difficult to recognize and were in much smaller number. They lay always in the outer fibrous wall of the abscess; none were seen in the liver tissue itself.

In spite of the extensive destruction of hepatic tissue, which must have resulted from the numerous abscesses referred to above by Dr. Edebohls, the liver itself was of normal size. It was thought at the time of the autopsy that the liver might be an instance of the new formation of glandular tissue described by Ponfick as occurring in both man and animals. With the view of elucidating this point, sections were made in various parts of the organ and studied with great care.

Ponfick,* in his animal experiments, removed large portions of the liver in rabbits, and the animals lived with apparently undisturbed hepatic functions. On killing the rabbits at intervals varying from three to twelve weeks after the operation, the liver was found to have regained its normal size, and Ponfick was able to observe the successive phases of the reproductive process, showing the division of nuclei, increase of cells, growth of young bile-duct radicles, etc.

His studies† in man are based upon six cases of echinococcus of the liver, in which one lobe was entirely destroyed by the growth, but the other was so much enlarged that the liver was of normal size and weight at the

* E. Ponfick. Experimentelle Beiträge zur Pathologie der Leber. *Arch. f. path. Anat.*, etc., Berlin, Bd. 118, p. 209, 1889, and Bd. 119, p. 193, 1890.

† E. Ponfick. Ueber Recreation der Leber beim Menschen; ein Beitrag zur Cellular-Pathologie. *Festschr. Rudolf Virchow*, Berlin, 1891, p. 1.

time of death. In one case, for instance, the remains of the right lobe weighed only 150 grammes, in place of the normal 1,350 grammes, while the left lobe had hypertrophied to such an extent as to weigh 1,580 grammes instead of its normal weight of 450 grammes.

In man the regenerative process had ended and its steps could not be demonstrated; but there was evidence, in Ponfick's opinion, of its having taken place. The arrangement of the hepatic lobules was peculiar, differing from the usual radiate grouping of the glandular elements. The cells lay heaped up together, evidently without plan, and similarly the vessels lying between them did not have the usual relation to a single central collecting vein. The capillaries had many side branches, forming even net-like meshes. Not all parts of the lobules were equally involved, but only certain portions, especially those in the periphery. Here not only the arrangement of the cells was peculiar, but also their size and form, contrasting strongly with the cells in the central and intermediate zones. The diameter was less—only one half or even less that of the normal cells. Normally the central and intermediate cells are said to be smaller than those of the periphery; here the reverse was the case. The form also was peculiar; in place of the hexagonal type, which the majority always have, the cells were short and full, peculiar compressed forms, now quadrate, again and more frequently five-sided, and also noticeable for having usually only one nucleus.

The new liver tissue is thus seen to be more or less atypical in form; yet the hepatic functions were apparently preserved in all the cases observed by Ponfick.

Returning now to our own case, what conditions have we to explain the normal size of a liver which had been the seat for years of a chronic destructive process? We have already referred to the connective-tissue growth extending at several points from the surface of the liver deeply into its substance. This connective tissue evidently represented the cicatrices left by the various abscess cavities. The cicatricial tissue was so abundant that it of itself would go far toward replacing the liver tissue destroyed. In other parts of the liver, far removed from the seat of the abscesses, there was also an extensive formation of connective

tissue. This newly formed tissue not only followed Glisson's capsule between the lobules, but extended into the lobules between the liver cells. In other words, there was chronic interstitial hepatitis, both intralobular and interlobular.

The new tissue was very irregular in its distribution, being more abundant in some portions of the liver than in others. It was nowhere very large in amount and was not visible to the naked eye. It had not shown any tendency to contract; the inclosed liver tissue was not compressed.

But this new formation of connective tissue was not the only process present to explain the size of the liver. Throughout the greater part of the organ the capillaries were large and rather irregular and distended with blood, and contained cells of various sizes and shapes. These cells were apparently either normal or proliferated endothelium.

The liver cells in the region of the dilated capillaries were somewhat distorted, but otherwise not much changed. In no part of the liver was there noted the peculiar arrangement of the lobules described by Ponfick. The regular distribution of the capillaries was maintained and the cells did not vary materially from the normal type in either size or shape.

While it is evident, from the experiments of Ponfick and others, that more or less extensive losses of parenchymatous tissue may be made good by a reproduction of specialized cells, our observations in this case would call attention to the fact that the repair of such losses in an organ restored to its original size can be largely accounted for by a widespread dilatation of the thin-walled blood-vessels.

