The history points to a partial closure of the common bile duct, and to the existence of a cavity beneath the diaphragm, which was either a distended gall bladder or an abscess with which the gall bladder communicated freely. Direct communication also existed between the biliary passages and the pleura and bronchi. Before the second opening was made the obstruction in the common duct was apparently not so complete but that it was overcome, and the bile passed into the duodenum. Afterwards the exit through the chest wall was easier, and the bile ceased flowing through the natural channels.

It is difficult to make an accurate diagnosis in such a case as this. There is no doubt a displacement of the liver backwards, so that the anterior border with the fundus of the gall bladder were brought into close contact with the diaphragm. A rupture of the diaphragm may have taken place at the time of the accident. This would account for the very severe pain and possibly for the pulmonary hæmorrhage. If the diaphragm had been ruptured one would have expected greater shock. Direct contusion of the lung might have accounted for the pulmonary hæmorrhage.

Cases of laceration of the liver have been described which we followed by little hæmorrhage, although the opposite is the general rule. Such lacerations have been known to occur from very slight injuries. A blow which is not heavy enough to produce much contusion of the skin may cause laceration of the liver. One case is mentioned where a quick turn in bed when the patient was very much frightened was the only cause which could be discovered for a laceration in the posterior part of the right lobe of the liver.

Dr. Peters² reports a case in which a blow over the liver resulted in perihepatitis and pleurisy on the right side. Dr. Peters thought there had been a wound of the liver substance. There was no interference with the biliary functions.

Drs. Thomson and Wardlaw, of Galt, to whom I am indebted for the history of this case, have recently (April 26th) written to me that the patient is slowly recovering. The bile passes largely into the bowel, and the stools have become normal in colour. The patient coughs up very little bilious fluid, and very little finds its way through the lower opening.

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ITALIAN MEDICAL CONGRESS.—The Società Italiana di Medicina Interna will hold its eighth congress at Naples in October next under the presidency of His Excellency Professor Guido Baccelli, late Italian Minister of Public Instruction. In connection with the congress there will be an exhibition arranged in two sections—one of hydrology and climatology, the other of instruments and appliances used in medical practice for purposes of diagnosis and treatment.

REMARKS

ON A

CASE OF PANCREATITIS FOLLOWED BY CYST OF THE PANCREAS.

By ALEXANDER MCPHEDRAN, M.B.,

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CONCERNING disease of the pancreas there yet remains much to be made clear. Since the publication of the extensive studies of Senn¹ in 1885 and of Fitz² in 1889 our knowledge of these diseases has been added to chiefly by the reports of cases, each serving to demonstrate some special characteristics. The following case possesses some features that render it of special interest:

G. A. B., aged 53 years, a member of the Civil Service. His father had some liver affection, and died suddenly; his mother died of carcinoma of the breast. In all other respects the family history is good. His own history is good until 1891, when he had his first attack of what appeared to be biliary colic, lasting about one day, with well-marked jaundice and pale fecal discharges; otherwise the attack was uneventful and recovery satisfactory. The jaundice disappeared within a few days. After this he had annually two or three similar but milder attacks. On the first threatening of an attack he would call upon the nearest physician for a subcutaneous injection of morphine and then return to his official duties. Each physician of whom he sought relief accepted the diagnosis of gall-stone colic, and advised operation; one assured him that he had a "gall bladder full of gall stones." During the winter of 1894-95 the attacks became more frequent and his health began to suffer, in consequence of which he obtained leave of absence and spent the summer at the seaside. While there the attacks recurred very frequently but were not severe, nor was there any jaundice. There was indigestion with considerable flatulence, and almost constantly some degree of discomfort in the epigastrium.

After his return home he was taken with a severe paroxysm of pain, with vomiting and prostration. This was the first occasion on which I saw him since his first attack in 1891. This attack was very severe, and not fully relieved until the third day. There was pain and tenderness in the epigastrium, from which pain radiated in various directions. Vomiting did not recur after the first day: the tongue was heavily coated; no appetite; considerable thirst; bowels constipated. There was slight jaundice and some bile pigment in the urine. The temperature was elevated for five days, rising as high as 101° F. There was fulness in the gall-bladder area, but tenderness was too great to permit of examination of the deeper parts. There was some pain across the back in the lower dorsal region.

He improved gradually, and in ten days—September 16th—he returned to the office. His digestion improved, the bowels being kept open with Carlsbad water, but there was considerable flatulence. The discomfort in the epigastrium persisted, with some tenderness; on deep pressure slight thickening could be made out about the head of the pancreas and extending to the left. He had occasional attacks of pain, many of them due to intestinal colic. For these he took half a grain of codeine from time to time. In the severe attack he lost flesh, and still continued to fail a little, but he was not emaciated. His complexion was of a peculiar ashy-grey colour.

On October 5th it was noted that there was an increase in the thickening in the deep part of the epigastrium to the right side; some tenderness. He was feeling ill, and had to cease work; but on the 8th, when next examined, a large, smooth, cyst-like tumour was found in the epigastrium extending from the right parasternal line to the left mammary line and downward to the umbilicus. The upper boundary was ill-defined; stomach resonance was above and to the left. It was most prominent to the left, where the percussion note was flat; there was slight resonance over the right part of it. (Fig. 1.) There was no increase of tenderness.

FIG. 1.

The temperature was 99.5° F.; pulse quiet. He was feeling quite ill. From the sudden formation of the tumour and its situation it seemed evident that it was formed by fluid in the lesser peritoneal cavity, and on account of the absence of symptoms of hæmorrhage it was probably a

serous accumulation therein. On October 17th, Dr. Irving H. Cameron, assisted by Dr. George A. Peters, opened the cyst by an incision in the median line above the umbilicus, and evacuated a large quantity of clear straw-coloured serum. The stomach lay in front of the upper part of the cyst, and at the bottom lay the pancreas irregularly enlarged and firm, but somewhat elastic. The peritoneum over it was smooth and healthy looking. There was no sign of hæmorrhage anywhere. The liver, as far as could be examined, was healthy; the gall-bladder could not be reached.

From the conditions found it was thought that probably there was malignant disease of the pancreas, with some inflammation, to which the exudate was due.

The incision was closed without drainage. Next day there was extreme prostration. Pulse 130; temperature 101.5° F.; marked cyanosis and irritable cough, with a little ropy mucous expectoration.

On the following day (13th) he was much better, and continued to do well until the 17th, when the temperature rose to 102°. It fell next day. The stitches were removed on the 18th; the union appeared healthy. The general condition improved satisfactorily, but the discomfort in the epigastrium required the subcutaneous injection of morphine every night. On the 20th the upper part of the incision opened and discharged half an ounce of thin white curdy-looking fluid. It came from a subcutaneous cavity to the right of the incision; there was no pain or tenderness about it, and little evidences of inflammation. It was slow in closing up. It was not an ordinary abscess; unfortunately, an examination was not made of the discharge. It is possible that it was due to an area of fat necrosis. After the removal of the dressings the deep tumour was found to have enlarged considerably.

On January 10th, 1896, the following note was made: He has improved so much as to be able to resume a moderate amount of his office duty. His face is thin, but has lost the ashy pallor and is of good colour. He is flatulent; the tumour is much larger; the stomach lies in front of the upper and left part of it, and is so compressed by it as to give a flat percussion note in the part overlying the tumour. By applying pressure at the left costal margin, and extending it to the right, gas can be forced through the pyloric orifice with a gurgling sound. The transverse colon crosses below the tumour. The urine is normal; it has always been free from sugar.

By March 12th the tumour had attained large dimensions, extending downward to the level of the anterior superior spinous process of the ileum, and laterally to the mammary line on the right, and the anterior axillary line on the left. It forced the diaphragm upward, so that the impulse of the heart was in the fourth intercostal space. (Fig. 2.) Pos-

teriorly it extended into the left lumbar region, rendering it full and upward as high as the ninth rib, producing the signs of effusion into the left pleural cavity. Its anterior surface presented a prominent quadrilateral area above the umbilicus, over which the percussion note was flat. The tumour felt elastic, but did not fluctuate. There was no pulsation communicated to it by the aorta, nor did it move with respiration.

On March 13th Dr. I. H. Cameron, assisted by Dr. George A. Peters and Dr. F. R. Eccles, of London, operated. The incision was again made in the middle line in front, and a cyst exposed lying behind the stomach. There were no adhesions. The cyst wall was about 2 mm. thick. A large quantity of fluid was evacuated; the fluid was opaque, whitish, and contained many flocculi and fibrin masses. Dr. R. R. Bensley, of the University of Toronto, Biological Department, reported that "the fluid contained considerable albumin, and held in suspension large numbers of leucocytes of the hyaline polynuclear variety. The solid particles were fibrin flocculi, in the meshes of which were large numbers of the leucocytes. The fluid was slightly alkaline in reaction." This showed the fluid to possess no digestive ferment. On bacteriological examination the fluid proved to be sterile. A good recovery was made, and Mr. B. was able to walk out early in April. The cyst cavity contracted rapidly, but a fistula persisted, extending to the original depth of the cyst—5½ inches—backward to upper part of left kidney. The discharge was free, and in April began to excoriate the surface about the opening. This trouble from excoriation has recurred from time to time since then.

It has been difficult to obtain a sufficient quantity of the discharge to test its digestive power. On one occasion, while Mr. B. was in London, there was a free discharge, which Dr. Eccles examined and found to possess marked action on albuminoids, fats, and starches, leaving no room for doubt as to the presence of pancreatic secretion. Lately, what fluid can be obtained is mixed with slight purulent discharge, so that the pancreatic ferment is rapidly decomposed. It dissolved fibrin, however, but this property may possibly have been due to bacterial products.

The general health is now good. The sinus still persists, the discharge being so great as to necessitate a change of dressing three or four times a

day. There is no retraction of the epigastrium, and the probe passes still as far as it did after the cyst contracted into the sinus—5½ inches.

From the foregoing history it appears probable that the cause of the repeated attacks of colic, during the five years preceding the formation of the cyst, lay in the pancreas. Of the precise nature of the condition giving rise to the disturbance we cannot be certain. It may have been a calculus or some localised inflammatory process. Such recurrent attacks of pain, protracted over long periods of time, have been ascribed to disease or irritation of the semilunar ganglia and the solar plexus; but the moderation of the attacks on the formation of the cyst and their complete relief by its evacuation point strongly in this instance to mechanical obstruction, whether by stone, cicatricial contracture, or external pressure. The attack of September 6th, 1895, was probably caused by acute pancreatitis; it was certainly not due to gall-stones.

To produce symptoms resembling biliary colic it is not necessary that the obstructing body should be hard and unyielding. Kümmel³ reports a case with the symptoms of gall-stone colic with icterus, in which, at the necropsy, the pancreatic duct was found dilated and containing many rice-grain-like bodies of soft consistence. To these apparently the colic had been due. Körte reports similar experiences. Before the formation of a perceptible tumour some inflammation of the pancreas or the peripancreatic tissue occurred possibly in repeated attacks, one of which was more severe than the others, and extending to the omental bursa, caused sudden exudation into it. With the inflammation there seemed to be no hæmorrhage; at least, there were no signs of such either in the serum evacuated at the first operation or in the appearance of the elongated tumour occupying the situation of the pancreas. Nor yet did the constitutional symptoms present signs of hæmorrhage. If this be correct, then the case will occupy another class than any of those given in the admirable monograph by Fitz, in which he divides cases of pancreatitis into the three classes of hæmorrhagic, suppurative, and gangrenous. It is quite conceivable that acute inflammation of the pancreas may be produced without the occurrence necessarily of any of these results.

That the cyst was actually formed in the pancreas there is little room for doubt. The physical characters of the tumour found at the time of the first operation, occupying the situation of the pancreas, could scarcely be produced except by obstruction of the duct of Wirsung. The obstruction probably caused distension of the whole duct, and some of its branches, giving rise to the elongated, irregular tumour found at the time.

The character of the contents of the cyst and of the subsequent discharge from the fistula is worthy of remark. That the contents of the cyst contained none of the active elements of pancreatic secretion does not render it even improbable that the cyst was of true pancreatic origin, because these elements may have been present at an earlier period, and have become absorbed or destroyed. Nor, on the other hand, does the appearance of pancreatic secretion in the discharge from the fistula at a later date prove that the cyst was developed in the pancreas and not in its neighbourhood, for the fistula may communicate with some of the ducts of the pancreas, or the digestive activity of the secretion may be due to the products of bacterial growth. Many instances are recorded in which the contents of cysts in contact with the pancreas possessed both amylolytic and emulsifying properties.⁴ Such cysts are probably more frequently found as the result of injury in which the pancreas is lacerated. It is important to note, however, that cystic or other fluid formed in any part of the body may possess considerable emulsifying and amylolytic power, as may also fresh normal urine.⁵

It is unfortunate that the term pancreatic cyst has been applied, especially of late years, to all varieties of cysts occurring in the neighbourhood of the pancreas. Many of these so-called pancreatic cysts result from accumulation of fluid in the omental bursa, or are formed in the transverse meso-colon. This is especially true of the cases following traumatism, and they constitute a large proportion, if not the majority, of all cases of cysts reported. On this account it is difficult to make satisfactory analysis of the cases on record, as it is impossible, for want of accuracy in the details given, to separate the cases of pancreatic cyst from collections of fluid in the lesser peritoneal cavity, the transverse meso-colon, and possibly in the adjacent structures.

Attention was drawn to these facts by Jordan Lloyd, in a valuable paper published in 1892,⁶ in which he relates two cases of accumulation of fluid in the lesser peritoneal cavity, in one of which the middle two-thirds of a gangrenous pancreas was detached and lay free in the fluid. A similar case to this last one of Lloyd's was reported by W. W. Ashhurst, of Mexico, in 1894,⁷ in which a piece of the pancreas lay at the bottom of the cyst cavity, whose contents were seropurulent. The case is recorded as a cyst of the pancreas. Pancreatic cysts always result from obstruction of the duct, with retention of secretion and subsequent dilatation of the duct; or, in case of a laceration of the gland, from escape of the secretion into its parenchyma, and the subsequent dilatation of the capsule into a cyst. Neither of these cases is consistent with such a pathology.

The close resemblance as well as the points of contrast of pancreatic cyst to effusion into the omental bursa are well brought out in the history I have detailed. Both cysts occupied the same area, but differed in shape, the peritoneal effusion extending less to the right and further downward, being somewhat irregular in shape, with its longest diameter nearly vertical, while the pancreatic cyst was somewhat quadrilateral in shape, with the long diameter transversely. The peritoneal effusion took place within a few days, more rapidly than a cyst could form in so firm and friable a structure as the pancreas; while the pancreatic cyst formed comparatively slowly, increasing steadily in dimension.

The constitutional disturbances attending the development of both kinds of cyst bear a very close resemblance, as indeed they should, because they would press upon and injure the same nerve structures—the solar plexus and semilunar ganglia. In the peritoneal effusion, as well as in the pancreatic disease, there may be pain, vomiting, and prostration; emaciation and anæmia may be much more marked than these symptoms would account for. The temperature is usually little disturbed in either affection, and may be subnormal throughout in both. In a case of supposed tuberculous disease of the lesser peritoneal cavity closely resembling pancreatic cyst, under observation a few years ago all these symptoms were very marked.⁷ After the cyst was incised and drained recovery was very rapid, the sinus being completely closed in less than a month, with much retraction of the epigastrium. It is probable that herein lies a distinction between the true and false pancreatic cysts, the latter becoming closed in a much shorter time than required by true cysts of the pancreas, especially if some of the gland tissue remains communicating with the cyst cavity.

Some years ago Senn⁸ pointed out that complete obstruction of the pancreatic duct uncomplicated by morbid changes in the parenchyma of the gland never resulted in the formation of a cyst, the pancreatic juice accumulating in the duct being removed by absorption. If, however, pathological changes have occurred in the gland, absorption of the fluid is interfered with, and gradual distension follows, it may be, to enormous proportions. In this case repeated attacks of inflammation of the organ probably took place, the most severe being in September, 1895, and a second one before the sudden distension of the omental bursa with serum.

It has been thought that true, as well as false, pancreatic cysts are due to hæmorrhage, and that the hæmorrhage results from a lesion of the sympathetic system.⁹ The first proposition is doubtless generally true of cysts following traumatism, but of those originating apart from traumatic causes, in many—perhaps the majority—no hæmorrhage takes place. In the case here detailed is an instance of a true pancreatic cyst without hæmorrhage.

There is ample evidence in this case in the preservation of a good state of nutrition and general vigour, together with the absence of excess of fats and of undigested proteids in the fæcal discharges, and of any symptoms of diabetes, that a part of the gland remains intact, discharging its secretion into the intestinal canal, as well as furnishing to the blood the "internal secretion" peculiar to it, without which general metabolism would be deranged. At no time during his protracted illness did he apparently suffer from derangement of the function of the pancreas.

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CLINICAL LECTURE

ON

HÆMATURIA.

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I PURPOSE giving short clinical reports of a few cases of hæmaturia that have come under my observation, adding afterwards some general and individual remarks.

CASE I.—Mrs. M., aged 62, mother of four children, passed the climacteric with only the ordinary disturbances, and had fairly good health up to a few weeks ago. On October 27th, 1887, she passed a large quantity of blood. This has since continued intermittently for some days, but with no inconvenience; then, when seen, she had fever, temperature 102°, and quite a number of long rod-like clots (ureteral). The quantity of urine at this time was from 2 to 3 pints, and there was tenderness and enlargement of the kidney. The cardinal symptoms were here present—tumour, hæmaturia, pain (although the pain was not marked); the bleeding occurred from time to time. The bleedings did not seem to be dependent on any exercise or sudden movements; it would come on when she was lying quietly in bed. When blood was not present in the urine there was no albumen, or at times only a trace. On March 24th, 1888, ureteral clots again passed, but only occasionally after that. She gradually lost flesh, and presented the usual cachexia, but lived until April 24th, 1890—that is, for over two and a half years. As a rule, this patient during the greater part of her illness passed more than the average quantity of urine.

CASE II.—Mrs. B., aged 60, admitted August 6th, 1896, for ulcer of the leg, which was treated in the usual manner. On September 2nd, 1896, she passed considerable blood, which was more or less mixed with the urine, and which partly clotted at the bottom of the vessel. The patient was then transferred to me. Upon examination, the kidney was found tender and enlarged—quite a tumour—and displaced forward and internal to its normal position. It was not nodulated. On September 7th, 8th, and 9th she passed blood each day; on the 9th the clots were large, and the temperature went up to 102°. On the 11th and 15th she passed dark blood and clots; temperature 101°. On October 1st chill, temperature 103.4°, and ureteral clots like fish worms. The patient was passing at this time from 40 to 60 ounces of urine in twenty-four hours. On October 2nd, 3rd, and 4th blood in large quantities appeared. On October 5th she had a chill lasting thirty minutes, followed by elevation of temperature to 104.4°. Patient gradually sank and died on the 7th.

CASE III.—W. M., aged 42, and of tuberculous history, and somewhat below the normal weight, complained of pain and tenderness in the right renal region, which became aggravated at times. In addition he had slight hæmorrhages and several attacks of renal colic. The urine contained albumen and pus. He was driving with me at one time when an attack came on. It did not come on very suddenly, but gradually got worse, requiring anodynes and stimulants to enable him to continue his journey. The symptoms were those of stone, and my opinion was thus given; but more advice was sought, and it was thought advisable to determine whether bacilli were present or not. None were found in any examination of the urinary sediments. Inoculation was then advised. After cleansing of the meatus the urine was passed into a sterilised bottle and a portion of the sediment injected into the anterior chamber of the eye of a rabbit; when in four weeks the iris was clearly and plainly packed with tubercles, and a large deposit on the lens capsule. The diagnosis was thus established. Dr. Howard Kelly frequently detected in women which kidney was tuberculous by passing the ureteral catheter into both ureters, and then examining the urine of each kidney, when there were no indications by tumour or otherwise which kidney was affected.

CASE IV.—M. M., aged 19, of good family and personal history. On March 13th, 1891, he had pretty free hæmaturia, no clots, and blood intimately mixed with urine. Temperature 102°, and pulse 140. Aconite, citrate of potash, and buchu were prescribed. On my second visit the temperature was still 102°, but the pulse had fallen to 118. Quinine was then prescribed, 12 grains daily. The bleeding continued for three or four days, and the temperature then returned to the normal. The patient was anæmic from loss of blood, but in the course of six or eight weeks regained her usual health. In June, 1889, this patient also had an attack of hæmaturia, but I made no notes, and do not now remember whether she had an elevated temperature or not. Neither do I know what the treatment then was. She has never had any hæmaturia since.

CASE V.—Mrs. C., aged 27, mother of two children; no miscarriages; no uterine trouble except dysmenorrhœa. She had some bad headaches, suffered at times from rheumatoid arthritis, and had slight lateral curvature. Family history: One brother died of heart trouble; father died of angular curvature of the spine at 33 years; mother alive and well, age 77; one sister in good health. September 16th, 1896, patient had some chills and fever. I first visited her on September 18th, and found a considerable amount of blood in the urine, uniformly mixed. Her temperature was then 102°. I immediately put her on Warburg's tincture, and in four or five days the temperature was reduced to normal, and the hæmorrhage had ceased. She has had no attack since.

CASE VI.—Mrs. J., aged 30, married; one child aged 6 years. She had complete laceration of the perineum, on which I operated June 13th, 1892, with good result. December 29th, 1894, I again saw her, and she com-