left costal margin. It was correctly judged, under these circumstances, that there were no adhesions. In cases of gastrotomy, as in a case recently recorded by Dr. David Newman, where the patient died exactly one year after the operation had been performed, the opening into the stomach was found to be much nearer to the pylorus than would have been supposed at the time of the operation. This would seem to show that when the stomach has been empty for a considerable period, as in a case of stricture of the gullet, the pylorus tends to pass upwards and to the left. There can be no doubt, then, that in the normal condition the pylorus has great freedom of movement, and the determination of the degree of mobility in a pyloric cancer necessarily gives valuable indications as to the extent of adhesions. It has been suggested to estimate the extent of adhesions by using effervescing powders, or by actual inflation through a stomach tube, in order to distend the stomach. It is clear, however, that such procedures should not be adopted, at least immediately before any operation. In concluding this part of our subject it is necessary to state that although a tumour may appear to be very movable during life it not infrequently happens that at an operation, or at the *post-mortem* examination, the tumour is found to be very adherent.

When we consider the question of secondary cancerous formations in its bearings upon the radical surgical treatment of malignant disease of the stomach, our analysis of cases gives us very unfavourable results. In 16 out of the 19 cases subjected to examination there was secondary extension from the primary growth. When a cancerous tumour of the stomach has given rise to the formation of secondary nodules, it is obvious that the chances of success from a radical operation are reduced to zero. Of course it might be urged that a careful exploration, when the abdomen had been opened, would inform us of the presence of any secondary involvement. It certainly might, but on the other hand it must be clearly borne in mind that it might not. I have careful notes of one case, included in the analysis I have just submitted, in which it was written down at the time in the *post-mortem* journal that the disease was, from the absence of adhesions, from the size of the tumour, and from its free mobility, in all respects suitable for the operation of pylorotomy. Yet when we removed the liver a large secondary nodule was found on its posterior surface in such a position that no amount of abdominal exploration could possibly have revealed its presence during the life of the patient. An exploratory incision then would not seem to give us all the information necessary to judge with tolerable accuracy of the probably ultimate results of an operation, even in otherwise apparently favourable cases.

Regarded from a physician's or a pathologist's point of view, I do not think that the mere size of a gastric tumour need offer any serious obstacle to the possibility of its successful removal apart, that is to say, from the mere mechanical difficulties it may place in the way of the operation. I have seen a pyloric tumour as large as the fist successfully removed so far as the surgical operation was concerned. Of more importance than the size is the actual histological nature of the tumour, as upon this depends very largely the liability to secondary extension. Some of the worst and most extensive secondary cancers of the liver that I have seen have originated from comparatively small and trifling primary tumours; whilst the large tumour, to which I have just referred, had given rise to no secondary nodules. Upon the histological nature of the tumour also depends the manner in which it involves the gastric wall. Some tumours are comparatively localised and well demarcated; others infiltrate the surrounding tissue in a most irregular manner, so that it would be very difficult for the surgeon to be sure whether he had got quite clear of the growth or not. When "*la gastroscopie par le miroir*," as practised by Mikulicz, has been perfected we may be able to arrive at a more precise knowledge of the true nature of a gastric cancer, but at present it is almost impossible to make an absolutely accurate clinical diagnosis on this point.

I have thus endeavoured to place before you some of the results of my observations and study of cases of gastric cancer, having had mainly in view the surgical treatment of the disease. The details of surgical procedures and the statement of surgical statistics would have been quite outside my

province, and I have not discussed them. I have merely dealt with the pathology of gastric cancer in so far as a knowledge of this would guide the physician in forming a general opinion as to the prospects of surgical interference; and I desire to conclude my remarks with the following personal expressions of opinion:

1. In the present state of our knowledge and diagnostics of gastric cancer the radical operation of pylorotomy can only be very rarely justifiable.

2. As all radical operations, if there is to be the slightest chance of ultimate success, must be undertaken as early in the course of the disease as possible, any exploratory abdominal incision, made merely with a view to finding out whether the tumour is suitable for attempting removal, and not for the palliation of distressing symptoms, can only be justifiable if the patient can be assured with tolerable confidence that he will not be worse after the operation than he was before it.

3. Gastro-enterostomy and other palliative surgical procedures are likely only to be undertaken in the later stages of the disease as a means of relieving distressing symptoms, of rendering life more bearable, and of probably postponing the fatal issue, and they are therefore in the highest degree justifiable in all suitable cases. Under such circumstances, at a comparatively late stage of the case, and under the pressure of great bodily suffering, an exploratory incision with a view to palliation is quite justifiable.

OBSERVATIONS

ON

THE CURE OR SUBSIDENCE OF ASCITES DUE TO HEPATIC DISEASE.

Read before the Medical Society of London.

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THE subject of the subsidence of ascites dependent on portal obstruction, and the apparent restoration to health of persons thus affected and also suffering from permanent organic disease of the liver, is one that has interested me largely for many years, and is of great practical importance; for (notwithstanding that many experienced medical men know differently, and that the excellent papers on "The Varieties of Hepatic Cirrhosis," by Dr. Saundby, and on "Œsophageal Varices as a Cause of Hæmatemesis in Cirrhosis of the Liver," by Drs. T. Stacey Wilson and J. R. Radcliffe, read before the British Medical Association in 1890, throw a very instructive sidelight on the whole subject) I believe I am correct in saying that most medical men at the present time regard the development of ascites in connection with liver disease as of fatal omen, or, at any rate, the beginning of the end. In most cases I am free to admit that it is so, but it is certain that in no inconsiderable minority of such cases recovery takes place under suitable treatment.

I propose now to place before you several striking examples of recovery from ascites due to organic disease of the liver, and to add or interpolate such remarks in relation to them, and to the subject generally, as the cases suggest.

CASE I.—H. H., married, and a governess, about 44 years of age, was admitted into St. Thomas's Hospital under my care on August 8th, 1886. She had been a hard-working woman, had had much domestic worry, and for several years, though not getting drunk, had taken to drink. Her health had begun to suffer and her strength to fail about two years previously, and about six months before admission uneasiness or pain in the belly had come on, followed shortly afterwards by swelling of this part and in the legs. She had had diarrhoea for a few weeks, had been liable to a cough for years, but had never observed that she was jaundiced.

She was a fat woman, with a slight but quite distinct icteric tinge. She had a cough unattended with expectoration, but there was more or less sibilant rhonchus over both lungs; the heart was healthy; the abdomen was large and somewhat tense, and contained some fluid, but there was no manifest enlarge-

ment of the liver, or tumour; the legs were cedematous; she was suffering from diarrhoea; the urine contained a little biliary pigment but no albumen. There was no further evidence of disease.

She remained under my treatment in the hospital from August 8th to May 24th, a period of nine months and a-half. Although there was some variation in her symptoms, her health gradually deteriorated during the first seven months or so; she got progressively weaker, and a fatal issue seemed inevitable; then, after a short period of oscillation, she began to mend, her symptoms subsided one by one, she rapidly regained strength, and when she left the hospital she was stronger and better than she had been for years. The case is, of course, a long one, but its main facts may be epitomised in a comparatively few words.

Her mental condition for the greater part of the time she was under observation was peculiar; she had constant delusions and hallucinations; she saw children and cats moving about the ward; she saw persons getting in over the balcony; she heard the sister say her husband had been run over and killed, accusations made by the patients and others against her character, threats that she was to be taken downstairs and beaten; and she was generally low-spirited and often in tears. Her mental state began to improve about the beginning of February, and by the middle of the month had become normal.

During the whole period of her residence in the hospital she suffered more or less from bronchitic symptoms. Generally these were not of much moment, but occasionally she had a good deal of wheezing, with troublesome cough, attended with some muco-purulent expectoration. But there was never evidence of any organic lung disease; and the heart remained healthy, and for the most part its beats were not unduly rapid.

Her appetite was at first, and for a long time, in absolute abeyance; and she suffered a good deal from sickness and diarrhoea during the first month or two. She never, indeed, acquired a good appetite, and she suffered even to the last from occasional looseness of bowels. The motions always contained bile. The jaundice increased somewhat during the first two or three weeks, and was attended with the presence of bile pigment in the urine; but during the third month it gradually disappeared.

On admission the abdomen was large, measuring 43½ inches in girth, fat, and somewhat tense, and obviously contained fluid; and on August 21st was tapped for the first time. On that occasion only about 5 pints were removed. For a week or two there was no manifest change, but early in September it was noted that fluid was accumulating; and this process continued slowly, until on February 8th (or after a period of nearly six months) the abdomen had become very tense, and its girth had increased to 47½ inches. She was then tapped for the second time, and 32 pints of serum were withdrawn. After the operation her circumference was found diminished by 10 inches. The ascites developed rapidly after this second tapping, and by March 11th she had become as large as ever, and on that day she had 34 pints of fluid removed, with an equal reduction of bulk to that observed on the previous occasion. Again there was rapid reaccumulation, so that on the 22nd of the month (March) her girth was 43 inches, and on April 6th 47 inches. But, although there had been this rapid development of ascites since her second tapping in February, her health in every other respect had been undergoing marked improvement, and from about April 6th, when for the third time her abdomen had attained its greatest degree of distension, improvement as regards the abdominal dropsy began also to take place. On April 14th her girth was only 43½ inches, on May 6th it was 39½, and at the time of her discharge from the hospital only 33½, and all evidence of ascites had disappeared. The great diminution in the size of her abdomen at this time compared with its diminution after her tapplings was doubtless due to the fact that, in addition to the removal of fluid, there had been a considerable removal of fat. During the whole of the time she was under observation the liver could never be felt, and there were no enlarged veins visible in the abdominal walls. The urine was always free from albumen.

At the beginning of May she had an attack of rheumatism (or gout), in which some of the small and several of the larger

joints were successively affected. For this she was treated with salicylates, and recovered in the course of a fortnight.

Her temperature during her residence in the hospital rarely reached 100°, and was generally normal or subnormal; it became somewhat elevated, however, at the beginning of the rheumatic attack, and on one occasion rose to 102.8°.

As before stated, the patient left the hospital apparently in unusually good health on May 24th, 1887; and she continued in excellent health and capable of performing all her duties for the next two years. I used often to hear of her, and occasionally to see her, during all this period, and have reason to believe that for a large portion of it she either abstained wholly from alcohol or partook of it very sparingly, but that latterly she resumed her evil habit; and on August 29th, 1889, she was again admitted into the hospital under my care.

She had then been ailing for three months, mainly from gradual enlargement of the belly, but also from gradually increasing muscular debility.

On admission she was well nourished, of sallow complexion, but not jaundiced, and had no cedema of the legs. She had some cough, and wheezing was heard all over the chest, but she was not specially short-breathed. The abdomen was large and tense. Her legs were weak, and she had muscular hyperæsthesia with absence of knee-jerks; but there was no definite paralysis or loss of feeling. She did not now suffer, as she had done on the former occasion, from sickness or diarrhoea, or from mental disturbance, with the exception that there was some loss of memory. Her tongue was clean, her appetite fair, her urine free from albumen, her pulse about 80, and her temperature normal.

She remained in the hospital on this occasion from August 29th to January 12th, 1890, a period of about four months and a-half.

The day after admission 18 pints of clear straw-coloured fluid were removed from the abdomen. The muscular weakness which was observed at this time, more particularly in the legs, was the first indication of the coming on of peripheral neuritis. This affection increased upon her for two or three weeks, and was characterised by numbness and a sense of tingling and grittiness in the fingers and palms of the hands, with some tenderness of these parts, and in the arms, and with some tremor, but no marked paralysis; and, as regards the lower extremities, by numbness and tingling in the feet and lower part of the legs, tenderness in the calves and feet, loss of power which prevented her from standing and walking, but not from moving her toes or feet while lying in bed, and abolition of knee-jerks. Then improvement gradually took place, and after she had been in hospital three months she began to get up and walk about a little. Excepting that her knee-jerks had not returned, all her paralytic symptoms had disappeared by the time she left the hospital. There was never any obvious wasting of the muscles of the affected limbs. During the earlier part of her stay in the hospital she had slight swelling and pain in the knee-joints, and during the whole of the time more or less of the bronchitis to which she was liable.

After the paracentesis, performed the day after admission, she gradually refilled, and on October 4th, by which date her girth was 43½ inches, she was again tapped, and 20 pints of fluid were taken away. After this she again filled, until on December 13th her girth had attained 42 inches. From this date the dropsy gradually subsided; and a few days before her discharge the abdomen, though still containing a little fluid, measured only 39 inches. No enlargement of the liver or spleen was ever detected; and when she left the hospital on January 12th, 1890, she was fairly well.

Owing to the various symptoms she presented and her many complications, she was subjected while in the hospital to much variety of treatment; but the aim always in view was to treat her with tonics, to feed her well, and to withhold alcohol.

I have seen her occasionally since, the last time being one day last week, when she brought her daughter to consult me; and, excepting that she has continued to suffer more or less from slight chronic bronchial catarrh, she has remained quite well, and there has never been any further development of dropsy. I am not sure that she does not occasionally drink even now, but I know that her family keep a very close watch over her.

That the case just narrated was a typical case of chronic alcoholism there can be no reasonable doubt; her history, her mental condition during her first spell of illness, and her neuritis during her second spell, all support this view. And it may therefore be accepted, I think, that the ascites was due to cirrhosis of the liver, and that (though she seems well) her liver is still cirrhotic.

CASE II.—A gentleman, with whom I was formerly well acquainted, had a wife who for the last ten years of her life suffered from hysterical paraplegia, and became also irritable and exacting—a combination which made his home miserable and led him to neglect his family and to become immoral and intemperate in his habits. In the latter part of 1878—at which time he was 35 years of age—his wife died in her confinement. He at once deserted his house and children, leaving the latter dependent on his relatives, and went into cohabitation with a woman of loose character with whom he had been familiar for some time, and whose acquaintance he had made at some refreshment bar in the City. Shortly afterwards he married her, and I lost sight of him until October, 1882, when I received information that he was lying very ill at a public house, kept nominally by himself but really by his wife. I called upon him on October 8th, and then learnt that he had been drinking very heavily ever since his first wife's death; that during the previous six months he had two or three times been on the verge of delirium tremens; that for some time he had been suffering from constant sickness, and getting weak and thin; that about three weeks ago his legs had begun to swell, and a little later enlargement of the belly had been observed; but that under medical treatment the sickness had now subsided and his appetite was returning. I found him very ill, very thin and weak, and with a good deal of fluid in the abdominal cavity and in the lower extremities. I saw him two or three times during the following few weeks, and on November 20th made the following note:—

"Is getting much worse; is very thin and weak and irritable, and constantly rambling. Takes little food, but is not sick; tongue clean, bowels regular. He is short-breathed; his pulse is weak and rapid. The abdomen does not appear to have enlarged materially, but it contains abundant fluid. There is also some fluid in the left pleural cavity."

On November 22nd he was removed to St. Thomas's Home, and on November 24th I saw him there. He was then very ill, slightly jaundiced, and suffering much from dyspnoea. The abdomen contained as before a good deal of fluid, but the left pleura was now distended. Paracentesis thoracis was performed, and three pints of serum were removed with much relief to the patient. A month later—namely, on December 22nd—I made the following note:—

"He has been improving in all respects. He has been steadily gaining flesh, strength, and appetite. His jaundice has disappeared. There has been no reaccumulation of fluid in the chest; the ascites has almost wholly subsided, and he has no oedema of the legs. He is still, however, very thin and weak, and has the aspect of a person suffering from grave organic disease of the liver."

He continued to improve, and, excepting that he remained weak and extremely thin, he left fairly well on January 24th, 1883. I should add that he had no trace of cardiac, renal, or other visceral disease.

During his residence in the home his wife disappeared; and shortly after leaving, his friends (who retained the charge of his children) helped him to emigrate to New Zealand. And there he has remained ever since leading a lonely life, earning a scanty pittance by the sweat of his brow, but continuing physically in good health. As to his habits I know nothing, but assume that if he drinks at all, as probably he does, he drinks in moderation. There is no record of this patient's treatment, but I know that the treatment relied on was such as was calculated to give appetite and promote strength.

Now here again there was a very clear alcoholic history; and, although the ascites got well without tapping, there can be no doubt, from the fact of the development of this form of dropsy and of jaundice, that his liver was at that time affected with early cirrhosis.

CASE III.—On October 24th, 1888, I saw, with Dr. Purkiss of Brentford, an eating-house keeper about 40 years of age. He was a highly-respectable, energetic, and successful business man, but for a long time had been in the habit of taking many

glasses of spirits daily. He had generally had good health, but for some months his complexion had been getting sallow. He considered, however, that he had been ailing only for a month or six weeks, during which time his belly had been getting large and his legs oedematous. Nevertheless, he had eaten and slept well, and had felt well.

At the time of my visit, he was distinctly though slightly jaundiced; his liver was much enlarged, his abdomen was distended with fluid, and there was some oedema of the legs; but in all other respects he appeared to be sound.

He was, of course, enjoined to give up alcohol; he was ordered a tonic, and also to take a pill of mercury, squill, and digitalis two or three times a day. It was further arranged that he should be tapped.

I received a note from his doctor about two months later (namely, on December 28th), from which the following is a quotation: "I have now tapped our patient five times (namely, on October 25th, November 5th, November 19th, December 3rd, and December 20th, on which occasions 9, 13½, 19½, 19, and 15 pints of fluid respectively were drawn off). I think his liver has now slightly diminished in size; and although he lost flesh considerably for the first four or five weeks after your visit, he has now regained flesh slightly. His urine still contains bile and lithates, but at times has been fairly clear; he takes nourishment pretty well. He has been taking the pills twice a day, and a mixture containing chloride of ammonium, spirits of nitrous ether, and gentian." Though I never saw this patient again, I have had frequent talks with my friend about him, for I was much interested in the progress of his case; and recently I have been favoured with the following brief narrative of his progress since December 28th, 1888.

Subsequently to the last recorded tapping on December 20th, 1888, he was tapped on February 8th, 1889, June 26th, July 30th, and August 19th, the quantity of fluid removed on each occasion varying from 8 to 16 pints. During the greater part of this time, he was taking quinine three times a day, and the diuretic pill.

At the end of August he went to Vichy, where he remained about three weeks. Whilst there he drank the waters, but took no medicine, and was tapped once. Towards the end of his visit he caught cold, which was aggravated while crossing the Channel on his homeward journey.

When seen by Dr. Purkiss the next day (September 22nd) he was found to be suffering from bronchitis and pleurisy. This illness was a serious one, and for a time a fatal issue was feared; but it was recovered from at the end of two months.

He was next tapped on February 5th, 1890, and then on March 3rd. In April he went to Dublin for eight or ten days to consult Dr. Hamilton, who again tapped him, and gave him a prescription for a mixture containing ½ gr. of iodine in each dose. This he has continued to take off and on ever since. On July 29th he was tapped for the last time, and appears to have had good health ever since.

Dr. Purkiss (in consequence of a letter from me) visited the patient on the 8th of this month, and reports as follows: "I have seen him to-day, and find him in excellent health and spirits; he carries on his business with his old energy, generally gets up about 9 o'clock, and works from that time till 11 p.m. He goes to market three times a week. His abdomen causes him no inconvenience, his bowels are regular, the appetite good. I am sorry to say he still takes some gin and water."

Altogether the patient was tapped fourteen times, the first time being about three years and four months, the last more than eighteen months ago.

In this case, as in the other two, the alcoholic history is indisputable, and that the ascites depended on hepatic disease is shown both by the enlargement of the organ and by the temporary jaundice. The next case belongs to a different category.

CASE IV.—On April 30th, 1890, I saw with Dr. Wyman a young lady about 24 years of age. She belonged to a highly respectable and apparently healthy family; and, although of small and delicate physique, seems to have had good health down to the commencement of her present illness. About the immediately preceding Christmas, as she was about to return home from a foreign country, where she had been on a

visit, she was suddenly attacked with profuse hæmatemesis and melæna. This delayed her return, but she arrived at a seaport in England fairly well about a week before I was called in. There she had a recurrence; but, notwithstanding, was brought home in the course of a day or two, and there had two other attacks, the last being on the evening of the 29th. She had suffered latterly from pain or uneasiness after food and loss of appetite; but (apart from the bleeding) the symptoms referable to the stomach had never been severe.

She was extremely anæmic and weak when I saw her, and complained of noises in her ears, but was otherwise comfortable and free from pain, and after careful examination I failed to detect any evidence of thoracic disease, or any tumour or tenderness in the abdomen. We not unnaturally regarded the case as one of simple ulcer of the stomach, and treated her accordingly.

During the following ten or twelve days she progressively improved, had no return of bleeding, and at the end of this time was beginning to take a moderate quantity of appropriate food without much discomfort; but of course she still remained pale and weak. Then the abdomen began to fill, and it filled so rapidly that within two or three days of the discovery of this condition, namely, on May 15th, she had to be tapped, and 11 pints of clear limpid serum were removed. I saw her on the 18th, three days after the operation, and already the abdomen was distended. I need scarcely say that the original diagnosis had now to be rejected, and that her symptoms were referred to portal obstruction presumably dependent on some form of cirrhosis. But there was no reason to suspect her of over-indulgence in alcohol.

The next time I visited her was on May 28th. She had been tapped three times since my last visit, and each time to about 9 pints, the last occasion being the day before the present interview. She looked much better in health than before, and was cheerful. She had a fair appetite, no sickness, and very little uneasiness after food. There was very little water in the abdomen at this time. The part was not tender, and on careful examination no enlarged organ or tumour could be felt. She was passing rather a large quantity of urine.

I never saw her again, but I heard a good deal about her from time to time, and discussed with Dr. Wyman the pathology of the case and its treatment.

Shortly after my last visit a consulting surgeon was called in, who himself performed paracentesis, and took some of the ascitic fluid away with him for examination; and either then, or subsequently, the edge of the liver was detected extending a little below the ribs, and in it a small nodule or area of hardness. The diagnosis then formed was, I believe, that the patient was suffering from malignant disease in the abdomen.

During June she was tapped seven times, at intervals ranging from three to seven days, the quantity of fluid varying between 4 pints 15 ounces and 8 pints 10 ounces. At the end of this month, however, a very suggestive item of information came to light. It was ascertained accidentally that a brother of this young lady had a few years previously been under treatment by a London oculist for some congenital syphilitic affection of the eyes, and naturally at once the suspicion was raised that the lump which had been detected in her liver was a gumma, and that the portal obstruction which had caused gastro-intestinal hæmorrhage and ascites was due to some growth of the same nature. Ten grains of iodide of potassium, to be taken three times a day, were therefore ordered for her early in July, and after two or three weeks the dose of iodide was increased to 12 grains, and a drachm of the solution of perchloride of mercury was added; and this treatment was continued, with a few interruptions, down to February in the following year.

During July (as during June) she was tapped seven times, to quantities varying between 5 pints 9 ounces and 8 pints 10 ounces; and during August six times, to quantities ranging from 4 pints 12 ounces to 7 pints 6 ounces. In September she was tapped three times, namely, on the 5th to 6 pints 17 ounces, on the 13 to 6 pints 10 ounces, and on the 22nd to 6 pints. This, which was the twenty-seventh operation, was the last that was ever needed. The patient thenceforth gradually regained fair health, and is, I am told, at the present time better than she has been for years.

In the case just narrated (although at first the symptoms were misleading and their cause obscure) it was eventually conclusively shown by the collateral history, by the presence of a nodule in the liver, and by the result of treatment, that the obstruction of the portal vein which had caused hæmatemesis and ascites was due to the growth of gummata about the transverse fissure of the liver.

I may add here that a case very similar to the last has been recorded, I think by Dr. Grainger Stewart, and that I can recall more than one case in which identical symptoms have resulted from cancer of the lesser omentum, or in the transverse fissure of the liver.

In conclusion I propose to make a few remarks on the chief causes of obstruction to the circulation through the liver which lead to ascites, on the pathological or physiological means by which this obstruction becomes obviated, and on the treatment of the kinds of cases under consideration.

Without going into minute particulars, we may classify the causes of obstruction as threefold; first of all, true cirrhosis, and other cirrhotic conditions of the liver, in which the seat of obstruction is the smaller and capillary vessels generally throughout the organ; secondly, cancerous and syphilitic growths occupying the transverse fissure of the liver or its neighbourhood, and compressing or involving the portal vein itself, or the occlusion of this vessel by the formation of thrombi; and thirdly, obstructive disease of the heart or lungs inducing nutmeg liver, and (owing to the relatively feeble force with which the blood returns from the chylopoietic viscera to the vena cava) relatively greater sluggishness in the flow of blood in the veins and capillaries of these parts, and therefore relatively greater tendency to dropsy in the abdomen than elsewhere. My first three cases obviously belong to the first class, and my fourth case to the second class. Of the third class I have adduced no examples, partly because I should thereby have added considerably to the length of my paper, and partly because I have made it the subject of a clinical lecture which I am intending to publish.

The pathological means by which the portal obstruction becomes obviated, or cured, is a subject of much interest. In the first place, it has been amply proved that there are fairly free communications between the tributaries of the portal vein and neighbouring systemic veins; and that hence, where portal obstruction exists, there is a tendency for the blood of the portal circulation to be shunted into some of these other veins which then gradually undergo dilatation, and thus for the more or less complete relief of this circulation. So that even without any beneficial change in the liver itself, ascites may in this way be permanently cured or circumvented. It has been shown (and very conclusively shown in the paper by Drs. Wilson and Radcliffe already referred to) that the œsophageal veins are largely concerned in this process; and that the consequent varicose condition of the submucous veins of this part is, from their tendency to rupture, one of the sources, if not the main source, of the profuse hæmatemesis and melæna which are apt to follow on portal obstruction. I have no doubt of the frequency of gastro-intestinal hæmorrhage from this cause; but I cannot help suspecting that, while this would be likely to occur mainly in the later stages, the hæmorrhage attending the disease in its earlier stages may be due to the dilatation and rupture of some of the primarily over-distended and dilated submucous veins of the stomach or intestines. At any rate such perforations would be very difficult of discovery. But we cannot refer all cases of apparent recovery to this diversion of the portal circulation; for in many cases of recovery we have no evidence whatever that anastomosing veins have become dilated; and, moreover, if that were the universal explanation, cases like my first, in which after a time the dropsy subsides, to be redeveloped several years later after the lapse into bad habits, would be inexplicable. Indeed one cannot reasonably doubt, that in a slowly progressive inflammatory affection like cirrhosis the progressive increase of which is in many, if not in most, cases due to the repeated influence of an irritant locally applied, the cessation of this influence would be likely to be followed not only by arrest of the disease, but also by some amelioration in so much of it as had recently accrued and was amenable to treatment; and further that, inasmuch as in cirrhosis there

is a point in the progress of the disease at which dropsy does not arise, and a point only a little later at which dropsy does arise, by proper treatment at the right time this last straw that breaks the camel's back might be removed. It is quite clear that in each of my first three cases something of this kind occurred; for in each of them there was jaundice in relation with the beginning of ascites, a condition which implied a wider diffusion or a greater intensity of disease than that causing only dropsy, and which subsided. Again, there are other cases in which, as in my fourth, the obstructing disease is of a specific kind and admits of amelioration or removal by specific treatment.

The question of treatment is an important one, yet one about which I will not discourse at any length. It is almost needless to expatiate on the value of accurate diagnosis in relation to this matter. My fourth case is a striking illustration of this fact, for it was one that would doubtless have ended fatally had it not been for the accidental discovery that a brother had been the victim of congenital syphilis. There are doubtless many cases of visceral syphilis which are misinterpreted to the detriment of the patient. The treatment of ascites, due to cirrhosis of the liver, is, according to my experience, comparatively simple, and in a large proportion of cases proves very fairly successful. It is simply to promote the general health of the patient by appropriate tonics and diet, to cut off as far as possible the alcohol which he has probably been in the habit of taking, and to tap from time to time, not, however, waiting until the abdominal distension has become so great as of itself to impair health. Of course the tonic and dietetic treatment will need to be varied in different cases, and from time to time in the same case, in accordance with the condition of the digestive organs and the different symptoms or complications which may arise; and, further, such symptoms or complications may need specific treatment for their own amelioration or cure. But although I should certainly keep the bowels freely open, I have never seen any benefit from active purging, and should oppose it. Indeed, spontaneous diarrhoea is not an uncommon incident in cases that are going on badly. Diuretics are of more service, and I have often thought that the combination of mercury, fresh squill, and digitalis has aided the removal or absorption of fluid. But they only act vicariously (so to speak) of paracentesis, and, though often beneficial, are not curative in the true sense of the word. Diaphoretics will of course act somewhat in the same way as diuretics, but I have never seen any obvious advantage from their employment. I should not, on theoretical or other grounds, object to the use of mercury or iodide of potassium in the treatment of the disease in its early stage.

ABSTRACTS OF THE INGLEBY LECTURES ON THE CONDITION OF THE VASCULAR SYSTEM IN ANÆMIC DEBILITY.

Delivered at the Queen's College, Birmingham.

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LECTURE III.

Venous Pulsation.—To understand this we must first glance at the anatomical and physiological conditions. The internal jugular vein has valves at its entrance into the subclavian, or these may be as much as $\frac{3}{4}$ -inch above this. The external jugular has valves both at its entrance into the subclavian and $1\frac{1}{2}$ inch above the clavicle. The subclavian has valves at a point just distal to the entrance of the external jugular. All these valves are only doubtfully competent, and sometimes are absent. There is a constant pressure from the distal veins towards the heart. Owing to the resiliency of the lungs and the systolic action of the heart the blood is attracted from the veins to the chest; this attraction is essentially a varying one, being more in inspiration and diastole than in expiration and systole; but though variable it is always acting—

except, perhaps, in extreme expiration with cardiac systole. Both this *vis a fronte* as well as the *vis a tergo* from the distal veins will act more strongly on the blood in the jugular veins of the right side than on those of the left, as the left innominate forms a considerable angle with the superior vena cava, whereas the right is nearly in a straight line with it. Gravity will aid both these forces in the erect position. Where the jugulars enter the subclavian they have firm fascial attachments which prevent their collapse at these points; further, the internal jugulars are dilated near their openings into what is called the jugular bulb. Any slackening in the *vis a tergo* will tend to empty the vein, any slackening in the *vis a fronte* to fill it. In anæmia there is a constant lessening of the *vis a tergo*, with a corresponding constant comparative emptiness of the vein. The vein is in no way distended, the slightest force will thus increase its diameter; hence, if there is even a small slackening in the *vis a fronte* the blood will at once lessen the rate at which it flows through the vein, and the vein will fill up a bit as the blood will continue to flow into it as before; this filling up of the vein shows itself to the eye as a pulsation.

The auricular systole produces such a slackening in the flow, and therefore the pulsation should be presystolic; and Drs. Ringer and Sainsbury, in a recent paper, have stated that this is a marked diagnostic feature between venous and arterial pulsation in the neck, or the pulsation due to tricuspid regurgitation. This may be so, but personally I have found it a most difficult difference to estimate; the veins are so flaccid that the pulsation must be considerably delayed in its transmission, whereas the arterial impulse in the corresponding artery is almost simultaneous with the ventricular systole; it is thus very hard to say whether the pulsation is with the auricular or ventricular systole. But whatever the exact time of the pulsation itself, its cause is no doubt the auricular systole.

Why does not this systolic slackening of the *vis a fronte* produce pulsation in health? Occasionally it does towards the end of expiration, or with unusually deep respiration when the slackening is excessive; but this, in my experience, is very rare. At the end of the superior vena cava, as it opens into the auricle, are circular bands of striped muscle extending up the vein for two-thirds of an inch; these must act as sphincters during the auricular systole. We have seen in anæmia how it is probable that the systolic contraction of the mitral orifice fails to take place; the same failure probably occurs here, hence some blood actually regurgitates back up the vein during the auricular systole, and hence the much greater frequency of the pulsation in anæmia, as the slackening thus caused must be considerable.

The pulsation is increased on lying down, or is only noticeable during recumbency. The reason of this is simple; in the erect position, gravity to a great extent nullifies any slackening of the stream from a diminished *vis a fronte*—gravity is always acting, it is a continuous force; the *vis a tergo* is also a continuous force; we have, then, in the erect position a combined *vis a tergo*—the pressure in the distal veins *plus* gravity; that is, the *vis a tergo* is a larger force in the erect than in the supine posture; but the *vis a fronte* remains the same in amount; it bears, therefore, a smaller proportion to the total force moving the blood than in the supine position; therefore any variations in its amount will have less influence upon the blood flow, and will therefore be less liable to produce pulsations.

The Bruit de Diabie.—If pressure be made with the stethoscope in the interclavicular fossa or over the course of the internal jugular vein on the right side, often (40 per cent. Landois) a continuous murmur or hum will be heard even in healthy people. In anæmia, this same noise is heard when the stethoscope is placed on as lightly as possible; very often on both sides of the neck and sometimes over the external jugulars also. It is far more commonly heard in chlorosis than in other anæmic states, and the ease with which it is produced does not seem to depend entirely on the severity of the disease.

This murmur differs from all others in persisting continuously during diastole and systole without a break; but this continuity of sound, though very characteristic, is not always present; sometimes it is heard only during the diastole of the heart, or with inspiration and not expiration, or when the