A CASE OF FATAL PHLEBITIS OF THE INFERIOR VENA CAVA, WITH REMARKS.

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Martha Wright, aged 26, unmarried, a domestic servant, but who, from the history of her habits, had led somewhat of a wandering and irregular life, was admitted on the 14th of August, 1846, into the Union Hospital, labouring under sub-acute rheumatism of the fibrous character, attended with simple derangement of the stomach and bowels. She was forthwith confined to bed, put upon low diet, and the Vinum Colchici, with Nitre in Julep of Acetate of Ammonia was prescribed for her.

On the 17th, she had, in addition to the above, which was then given in intermittent doses only, a pill every night, of calomel and antimonial powder, two grains of each, along with half a grain of opium.

On the 20th following, from her complaining of a pain in the right hypochondrium, she had a blister applied, and her pill was given in the morning as well as at night.

Under this treatment she was entirely relieved from her rheumatism; and on the 24th, the *colchicum mixture* was omitted, as well as her pill in the morning. She was then considered so far convalescent as to be permitted to leave her bed during the day. On the 27th, her pill at night was also omitted, from her gums becoming a little tainted by the mercury, and she had simply at bed-time, a small dose of *Dover's powder*, along with generous diet daily.

On the 4th of September, she was seized with the diarrhoea that, more or less, prevailed at that season as an epidemic, for which she took the *cretaceous mixture*, and from the complaint being rather persistent, she was again confined to bed, and on the 10th she had a pill every six hours, composed of the *diacetate of lead* and opium, which soon relieved the urgency of her symptoms.

Within the subsequent four days, her diarrhoea had entirely ceased, but along with its cessation, her abdomen began to be very tense and painful, and scarcely allowed the least pressure of the hand. In spite of large emollient poultices, and cooling saline medicines to act upon the kidneys, the swelling and tension continued to increase, with much restlessness and pain.

The case having by the 17th put on a very important and serious character, it was more strictly investigated, and the conclusion then arrived at was, that it was one of rapid and diffuse peritonitis, of an adynamic nature, with effusion into the cavity of the abdomen. This result was supposed to be occasioned by the quick stoppage of the diarrhoea, and the repellent effect of cold, while attempting to go about at the time she was constitutionally influenced by mercury; she was besides of a delicate frame of body, and I had some reasons to think that she had been previously intemperate. Her skin was at this stage warm throughout; her abdomen rather hot to the hand; there was

thirst, little urine, the bowels were nearly regular; her tongue clean, but dryish, and her pulse small, frequent, and irregular; she, however, had no cough nor dyspnoea, nor could any *bruit* be heard in the region of the heart. I may also mention, that though her lower limbs were disposed to oedema since she came into the hospital, yet, at this period, the 17th, they had become much infiltrated up to the hips, though they retained their natural warmth. Considering the general debility of her system, it was not thought expedient to apply even leeches, but her saline diuretics were increased, along with half-ounce doses of the bitartrate of potass every second morning, and the constant application of emollient cataplasms and oily liniments.

By these means, the indications that were in view, of promoting a safe hydrocatharsis, and an increased flow of urine, were fulfilled, but there was no amelioration to the increasing tumefaction and tension of the abdomen, and to the swelling of the thighs and legs. In addition to the enlargement, which was early evidently owing to a fluid, from the very characteristic fluctuation elicited, there was by the 24th, observed all over the anterior aspect of the thorax and abdomen, well-marked enlargements of the epigastric and external mammary veins, both of which sets of vessels were perceived to inosculate freely and directly with each other.

This appearance in a few days became still more evident and interesting; the main branches became larger than swan-quills; and in passing the finger across the tract of many of them, a perceptible depression was felt, equal to the depth of half the cylinder of the respective veins, while they became full and distended below, and relaxed above the point of pressure. Some internal obstruction to the return of the venous blood to the heart from the lower parts of the body was now evident, but on what it depended was a problem not easy to resolve. No tumour had been detected nor even suspected in the abdomen during her period of diarrhoea, and nothing could be elicited from the chest or heart that could account for this sudden enlarged and vicarious venous circulation. The only conclusion that was come to at the time was, that the rapid effusion into the abdomen, along with the tensive resistance of the parietes, had acted as a counter pressure on the abdominal cava, and so impeded its transmission of the blood from the inferior parts of the body. With this view our medicines were continued, along with the Linimentum Hydrargyri et Linimentum Camphoræ, and calomel with a little opium was readministered on the 27th.

The disease, however, suffered no remission; for though the bowels acted freely when required, and the urine was kept to a normal amount of excretion, with a diminution of the tension and pain in the abdomen, yet the amount of effusion seemed to increase with more encroachment on the capacity of the thorax; the anastomosing veins continued enlarging, and the vital forces of the body and powers of the mind evidently began to give way under the incumbent affliction.

On the 8th of October, regular medicines were omitted,

and only extemporary anodynes and diuretic carminatives were given, along with strengthening broths, and a little gin daily. By these dietetic and negative medicinal measures, the patient struggled on till the 19th, when it was thought expedient to attempt to give her a little relief by paracentesis, which was performed by Dr. Francis, and sixteen pints of clear amber-coloured serum, without any flakes, were taken away, leaving a considerable quantity still unevacuated in the abdomen. Nothing but very temporary relief was the result of this measure, and our poor sufferer departed very quietly on the 21st of the month.

Post-mortem on the 23rd. The trunk, neck, and upper extremities of the corpse emaciated; abdomen not conspicuously enlarged, but discoloured; and the thighs and legs were much distended with serous infiltration. The large anastomosing veins on the anterior aspect of the body had nearly disappeared. The *lungs* were healthy, without pus or tubercles; the right lung adhered a little to the costæ, by an old band of adventitious membrane, while the left was posteriorly condensed, seemingly from moribund congestion. The heart was natural, only the right ventricle was less than the left; the valves were normal; the inner surface of the right auricle, and the corresponding ostium, with that of the base of the pulmonary arteries were much stained on the depending half by supposed imbibition; there were about four ounces of coloured red fluid in the cardiac sac. The *liver* was somewhat enlarged, obtuse at its margins, and slightly uneven over its peritoneal covering; on section it was very buffy, with the light-coloured element of the organ, or of the acini much hypertrophied, while the interlobular tissue was hyperæmiated. An encysted depôt of thick creamy pus, about two inches in diameter, was found in the posterior and upper part of the viscus, nearly on a line over the track of the inferior vena cava, and close to the hepatic vein; the sac seemed a little dense in its walls, and its interior was villous and soft. The *kidneys* were normal, but hyperæmiated, and a urinary cyst was in the lower end of the left one, and its dark sanguineous condition might have arisen from *post-mortem* gravitation, or from retrograde congestion from obstruction in the cava inferior. The *stomach* and *intestines* were much distended with gas, and had a dark grumous magma throughout the whole tube to the caput coli. The interior coat was thin not villous; in some places of the ileum it was uneven, but no ulcers nor cicatrices were observed. There were about four pints of yellowish limpid serum in the peritoneal cavity, but the lining membrane was natural, with the exception of some suffused and arborescent patches of capillary blood. The *bladder* was empty, and the *uterus* was natural, with the ovaria dense and enlarged.

The *vena cava inferior*, from the opening in the diaphragm to its junction, within a short space, with the iliac veins, was filled with irregular lymphous coagula and shreds, which adhered firmly to the inner coat of the vessel, and were connected with similar deposits in the azygos, renal and lumbar veins, but not to the same extent. Pus was found lodged in several of the upper parts of the vena cava inferior, but especially

where it passed under the liver and just through the diaphragm. The right ovarian vein was much enlarged and somewhat tinged with blood; so was the left renal vein. The whole condition of the caval vein thus disclosed, very plainly showed that the returning amount of blood through the vessel must have been for some time previous to death much interfered with, if not totally obstructed.

In making my remarks upon this very interesting case, we may first consider the history of the patient before death, and I am sorry I have not kept a more detailed account of her consecutive complaints. We have next to exercise our pathological reasoning after inspection, as to the morbid sequences, and to see if we can trace anything like cause and effect to have existed among the several lesions.

Little or nothing definite was ascertained concerning our patient before admission, except that she had been leading a rather irregular life, and had been discarded by her near relatives, and from her own account she had for some time been complaining of the same ailment for which she was admitted—namely, rheumatism.

When first prescribed for, this disease had a sub-acute form, from which in about thirteen days she was wholly relieved, with her gums very slightly affected. Diarrhœa then set in in a very persistent form, and from the tormina and discharges there was some fear of ulceration, the remains of which, if it had existed, were not, however, observed on inspection. In a fortnight afterwards she was also relieved from this complaint, when the swelling, pain, and tension of the abdomen made their sudden and unexpected appearance. There was a probability that the diarrhœa was occasioned by an impression of cold while she was going about in the ward with her system not free from mercurial influence; but how this third and novel phase in her disease was occasioned was not so easily accounted for.

The first explosion of the entirely new symptoms suggested to us that we had to do with a case of sudden and diffuse peritonitis in a cachectic subject, attended with early effusion. In this view we thought ourselves supported by the pain and great tenderness on touching the abdomen, accompanied as they were with increased heat of skin, thirst, and a more frequent yet small and thready pulse. It was also assumed that the attack might have been accelerated, if not occasioned, in a constitution of so much mobility, by the cessation of the diarrhœa, a fuller diet with wine, and also having suffered a fresh accession of cold.

At this time she had long ceased to complain particularly of any pain in her right hypochondrium, for which a blister had been applied on the 20th of August. In the view then, of our patient being now affected with diffuse peritonitis, but occurring in a very asthenic subject, she was treated accordingly, but with no other result than a mitigation of pain and tenderness, while

the abdomen and lower extremities continued to swell, with increasing exhaustion of the whole system.

On observing the growing anastomoses and enlargement of the abdominal and mammary veins, our views of peritonitis became modified, for it was evident there was some obstruction in the abdomen to the due return of blood to the heart. This diversion of blood to the periphery of the trunk was at first attributed to the counter-pressure of the abdominal effusion, so rapidly generated under great resistance from the enclosing parietes, on the inferior cava and renal veins, and beyond this we had no farther data for speculation, as the patient had no ulcers nor varices in her legs, nor had she been for some time previously parturient. Our diagnosis at length became more doubtful, and I may say subverted, when on paracentesis the effused fluid was found limpid, without any shreds, flakes, or albuminous granules, while it was observed, subsequently to the operation, that the enlarged anastomosing vessels in the outward integuments did not in any marked degree subside. The case was thus left for an opportunity of nature revealing her own secrets and operations.

It will be seen from the record of the *inspection*, that the principal lesions worth notice were found in the purulent cyst of the liver, and in the vena cava, for the length of about six inches below the diaphragm, consisting of adherent shreds and plugs of lymph, along with coagula, extending into the renal and lumbar veins, and scattered depôts of pus, but especially where the caval vein just entered within the tendinous pillars of the diaphragm, and was joined by the hepatic veins. It was now evident that there were sufficient appearances in the state and contents of the vena cava to occasion most serious, if not total obstruction to the returning current of the blood, and that such obstruction was the cause of death. The important question, however, arises,—What occasioned this mortal affection of the vein? Was the lesion independent in its origin, uninfluenced by any previous affection of the bowels? or was it caused by sympathetic phlogosis with, or on actual absorption of pus from, the cyst of pus in the liver? Considering how seldom veins do inflame or suppurate in the absence of injury to themselves or their branches, or of any focus of pus within reach of their circulation, and also considering the near allocation of the hepatic cyst to the portion of the vein that was most affected, which exhibited pus very similar to that in the cyst, it must be inferred that there was an intimate morbid connection; and the question is,—Which was the primary lesion that stood in the relation of cause to an effect? The density of the walls of the purulent cyst, and its appearance of some chronicity, compared with the filamentous and shreddy condition of the lymph, mixed with interrupted cysts, in the vein, and its purulent exudations of interspersed pus, which, at

the upper part of the cava was to the extent of two to three teaspoonfuls, led to the inference, that the lesion of the vein was posterior to the formation of the purulent cyst in the liver, and that the phlebitis of the cava, was, moreover, either caused by pus being transmitted from the cyst by the hepatic veins, or by mere proximity of morbid action, as the two lesions were in very close collocation of parts.

It may be worth speculation to inquire, how was the purulent cyst occasioned? To fathom its initial steps, the inner surface of the ileum and colon was examined; but beyond what I have noted, no adequate causation could there be placed, whatever abrasion or mucous ulceration might once have existed.

In referring to the history of the case, we find that the patient had been complaining of a pain in the right hypochondrium, for which a blister was applied, on the 20th of August, being about nine weeks before her death. Though this pain was in a short time relieved, and was not specially complained of afterwards, there is every probability, from what was observed in the liver on inspection, that at that period the local phlogosis had commenced in this viscus, that eventually terminated in the purulent cyst. A remote consideration then arises, whether this topical affection of the liver was purely indigenous and original, or was owing to purulent metastasis from some of the other chylopoietic viscera. In the absence of any derangement of the stomach or bowels for the first six days she was in the hospital, beyond those of a simple character, (rheumatism being her chief complaint,) and failing of any exact knowledge of her state of health before admission, we are led to infer that the local phlogosis of the liver was idiopathic, and independent of any metastasis of purulent inflammation, or of absorption of pus from the intestines or other organs, through the medium of the vena portæ.

Taking then, this view of the primary state of the case, and that the purulent cyst in the liver had been slowly forming or of some standing, we have next to consider how the vena cava came to be affected; for the lesion of this vessel and its contents had every appearance of being acute and comparatively recent. The cyst being situate very closely to one of the large hepatic veins, though no ulcerous nor other communication was discovered between these cavities, and from the cyst also being in that part of the liver close to the notch for the vena cava, there seems little difficulty in attributing the lesion of the cava to either a venous absorption of pus from the cyst, or to a radiant irritation and inflammation from it. I should be inclined to assign the lesion of the great vein to the agency of purulent transmission and contamination. We know what disturbance and adynamic phenomema are occasioned by pus getting into the veins, either from purulent ulcers or wounds in the extremities, or from the iliac and hypogastric veins in

cases of puerperal phlebitis, and therefore I need not enlarge upon them,—suffice it to say, as far as our case is concerned, that that part of the vena cava opposite the hepatic veins seemed to have advanced most in the consequential lesions. It was at this spot and immediately below the diaphragm that the most perfect depôt of pus was found, while lower down the pus shaded off intermingled with lymphous shreds and clots, and thence coagula of blood intermixed with fibrinous shreds closely adhering to the inner coat, and irregularly filling the veins, terminated the lesion at the inferior part, to within a short space of the bifurcation.

How far death was specially occasioned by the toxic effect of the small quantity of pus that would thus likely find its way into the general circulation, or from the effects of the great abdominal effusion and œdema of the limbs on the vital and nutrient organs, it may not be easily absolutely to state. That the one lesion materially assisted the other in bringing on so rapidly the mortal event is very probable, as they were severally of a very grave nature. I should however, be inclined to attribute the acceleration of death more to the interruption of the vital and organic functions from the fluid pressure, conjoined with the very probable contamination of the systemic blood by even a small quantity of pus, than to the mere obstruction of the returning blood in the *vena cava*; for the vicarious and collateral circulation by the integumental vessels seemed to have been well established, and there are several instances on record, where this collateral circulation had been observed to go on for a much longer period, and where death was obviously ascertained to be caused by the direct effects of other diseases, as in the kidneys, though almost complete organic or chronic obstruction had been detected in the *vena cava inferior* after death.

Whichever of these several lesions had the greater share in anticipating the fatal issue, the case is very interesting, and as far as my researches have extended is a peculiar one. Instances of obstructed circulation in the cava inferior are recorded by Baillie, Reynaud, Wilson, and Cline;* and also by Rayer, Bright, Cruveilhier, and Dr. Barlow,† in all of which the obstruction was found to have been occasioned by either organic and impervious contraction of the coats of the vessel, fibrinous or bloody coagula, tumours of different kinds pressing on the cava, or from fungoid or medullary deposits in the vessel. I have not been able to meet with any case where *purulent* phlebitis was detected, nor any deposits of pus, either independent or metastatic. In looking over the details of these cases, it is curious to see that the blood in its return to the heart did not always work out for itself the same circuitous route, depending no doubt on the extent

downwards of the more or less perfect occlusion of the inferior cava.

In Dr. Baillie's case the returning blood found its way to the heart by the lumbar and azygos veins.

In Mr. Wilson's case, as the obstruction had extended down to both sets of the iliacs, the recurrent blood had worked out a path through the vena pudica into the inferior mesenteric veins, and thence into the vena portæ, through the liver to the heart, a small portion of the cava inferior remaining pervious. Mr. Wilson refers to two similar cases in women dying after delivery.

In M. Reynaud's and Mr. Cline's cases, the vicarious circulation was effected by the abdominal and thoracic veins, as in the case now submitted to the profession.

Dr. Peacock relates a very interesting case in the last volume of the "*Medico-Chirurgical Transactions*," wherein the abdomen and limbs were much swelled for a month before death, and the patient died of hæmatemesis and hæmorrhage from the bowels. On inspection the liver was found free from disease, but it weighed only twenty-four ounces, though the subject, a female, was 47 years of age. The kidneys were in an advanced stage of degeneration. Coagula filled the cava, from the iliac veins to within an inch and a half from the diaphragm, and at this part the vein was contracted to an impervious ligamentous cord. The spermatic veins were large and firm, and the vena azygos, major and minor, were unusually large. The veins of the integuments of the abdomen were not enlarged, and Dr. Peacock saw no reason to suppose that the epigastric, thoracic, or mammary veins contributed to form collateral channels to the returning blood. No pus was anywhere discovered. He considered the disease inflammatory, but it was not easy to assign its period. He supposed death to have been occasioned by the renal disease.

In Hasse's "*Pathological Anatomy*," translated by Dr. Swaine, (Sydenham Society,) there is a very full exposition of phlebitis in general, as well as its affecting the *vena cava*; but nowhere is mention made of a case similar to the one above described, or as connected with purulent cysts in the liver. So far as rheumatism has any pathological agency or relation to the disease, there is notice quoted of a case where it seemed to give rise to phlebitis and obstruction in the hypogastric veins of a male. Hasse, however, observes, that "phlebitis from rheumatic affections is less prone to purulent formations than to plastic exudations," though in another part he says, "that in a great majority of instances phlebitis inevitably leads to suppuration."

I may here mention, though I have not noticed any analogous obstructions occurring in the vena cava superior, a very remarkable case of a patient that was presented by Dr. Carson, at the Medical Meeting at Newton, last summer,* after the patient being, with

* Edin. Med. and Surg. Journ., Vol. 43.

† Medico-Chir. Trans., 2nd Series, Vol. 10.

* Provincial Medical and Surgical Journal, August 5th, 1846.

much probability, cured of the pathognomonic symptoms, arising from obstruction in the upper cava. The disease seemed to have been well diagnosed, and at the period of exhibition, being twelve months after the sudden and painful attack, the man appeared in robust health. His complexion was, however, of a dark hue, and the veins of the forehead, neck, and upper extremities, and of the anterior trunk, were dilated, while veins as large as a swan-quill proceeded over the anterior part of the chest, to a tortuous cluster of vessels in the epigastrium. From this cluster also ran large veins to the groin, and the course of the blood in all these vessels was, from above downwards, the very reverse to what obtained in our fatal case.

I am afraid that I have enlarged too much upon this single case, but from its variety, if not from its being nearly unique in its special origin, it is presumed it may be somewhat interesting, as shewing the powerful yet ineffectual struggles of nature to overcome one of the most serious spontaneous lesions that can occur in the body. It is also one of those cases that shews us, that the difficulty of a special diagnosis is equalled by the inefficacy of our means of cure or much relief, even provided such lesions were as palpable as they are obscure.

CASE OF HEPATIC ABSCESS COMMUNICATING WITH THE LUNGS.

By JOHN BARCLAY, M.D., Member of the Royal College of Physicians, Leicester.

A.B., aged 41, Dissenting Minister at a village in this county, first applied to me on the 18th October, 1845. His complexion was dark, his form spare, and his look cachectic. His general health had been good, and he then complained of slight abdominal pain, which was relieved by gentle stimulant tonics. On the 15th of November, he was brought to me much worse. He had had severe rigors and had afterwards spit up half a pint of matter.

Nov. 21st. I saw him at home with the surgeon who had attended him. The auscultatory signs were quite natural; there was no dulness, no resonance of voice, no moist sounds anywhere to be heard, and both lungs expanded properly. He continued to expectorate a very large quantity of most offensive pus, which came up in mouthfuls. From all the symptoms, I formed a diagnosis of an abscess in the liver, communicating with the lungs through the diaphragm. I put him on a tonic plan of treatment, and bid him hope, as it was not "consumption."

December 11th. I saw him again at home. The emaciation was now extreme; the expectoration continued in large quantity, and most offensive. Though his friends had all given him up, I continued firm in a favourable prognosis, as by another carefully-conducted examination I could detect no lesion of the lung; and from this day he began to improve. He rapidly gained flesh and strength, so that in April and May,

1846, he was able to resume his duties and preached frequently with no inconvenience.

On the 30th of June he came to tell me that while stooping in his garden some days previously, a mouthful of blood had come up, and his cough had returned.

July 10th. He now expectorated muco-purulent matter of little or no fœtor; the pulse was more rapid and emaciation proceeded rapidly.

15th. He had slightly improved under the tonic treatment again.

August 10th. I saw him with another practitioner, who had occasionally visited him. We could discover nothing amiss in the lungs, and he coincided with my diagnosis.

24th. Still very ill; still nothing to be detected in the lungs.

September 3rd. Since last visit he had complained much of pain in the lower part of the right side, on which he could not lie; decubitus on the back; the cough was very troublesome; the expectoration purulent and fetid. The lower part of the right side of the chest was now decidedly dull on percussion; the expiratory murmur very rough, loud, interrupted by occasional large moist sounds. The voice anteriorly at that part was tubular and snuffing; pulse 90; respirations 36; skin cool; emaciation great; appetite good.

7th. I put him under a course of the iodide of iron.

16th. A little better, I could detect no moist sounds in the lung.

October 6th. Very much improved; getting round, he hoped quite, as he had done last year. He still coughed and the expectoration became fetid after standing some time.

31st. He came to ask my permission to resume his duties, as he felt quite well. I withheld it however, and he continued to improve throughout November and the first weeks of December.

On the 4th, and again on the 6th of January, he had severe rigors, and on the 8th I found him much worse, in bed, with acute pain at the superior part of the abdomen; the cough very troublesome; much exhaustion and debility; pulse irritable, small and weak.

12th. I found him jaundiced all over; urine dark; stools scanty; cough very bad, and expectoration muco-purulent; much dulness and large moist sounds at lower part of right side.

16th. Peritoneal inflammation had evidently now arisen, and the pain was most intense on the left side.

17th. Blistering had relieved the pain considerably, but he was evidently sinking, and unable to expectorate from weakness. He died on the 18th.

Post-mortem examination thirty hours after death. Body jaundiced deeply, and considerably emaciated; the pleuræ of the left side were slightly adherent, but the lung was healthy; the heart was pushed over considerably to the right side; the upper lobe of the right lung was healthy, but the pleuræ were adherent in their whole extent; the middle and lower lobes were very much condensed and contracted, adhering to the ribs by very old strong fibrous connections, and quite