Wood (H. C.)

Path 204

ON A CASE

OF SPLENIC AND LYMPHATIC HYPERTROPHY WITHOUT LEUCOCYTHÆMIA (HODGKINS' DISEASE — ADÉNIE—PSEUDO-LEUCÆMIA).

BY DR. H. C. WOOD.

IN the month of August I was asked by Dr. Fricke to see, with him, a case in the northern part of the city. Mr. ——, aged about 30 years, had served in the army during the last six months of the rebellion, chiefly in Virginia, much of the time in malarious districts, during which he suffered severely from camp-diarrhœa or dysentery, but never had any distinctly malarious disease. After his return, he resumed his occupation, that of a confectioner. At this time, he states, he was an exceedingly powerful man, lifting a barrel of flour with ease. His habits were in every respect moral; strictly temperate; never had syphilis or gonorrhœa. His work was very heavy, consisting chiefly in kneading and handling immense pound-cakes, and was done altogether with his right hand, his body being bent sharply to the left in a constrained position. To this he himself attributed his attack. His wife, after his death, stated that ever since she had known him—three years—he had been troubled with looseness of the bowels and sudden attacks of diarrhœa. Four months ago, in April, he was taken with pain in back and left side; this pain was chiefly dragging and heavy. During the next two months he had occasional attacks of diarrhœa, but was treated chiefly for the persistent pain, which was believed to be rheumatism. During the last two months he has lost flesh and strength rapidly, and a few days ago sent for Dr. Fricke, who at once determined the case to be one of diseased spleen. The following is taken from my note-book:

August 15. Man very thin and weak, but able to walk about the room. Skin natural in color but pale, and temperature normal. Tongue clean. Heart and lungs normal. Abdomen enlarged, apparently free from fluid. Spleen very much enlarged; the area of decided percussion dulness 5½ inches

vertically, 6½ transversely; its surface smooth, hard, its edges rounded; decided tenderness when strong pressure is made upon it. Liver enlarged, its smooth edge reaching about an inch below the ribs; vertical percussion dulness 5½ inches. Urine normal, save only that it contains some minute crystals of phosphates and a good deal of mucus. Has not either sexual desire or power, nor has he had for two months. Legs slightly œdematous. Has had iron and quinine, and an ointment of iron and belladonna over region of spleen. Examined, with Dr. Fricke, blood microscopically: certainly no increase in white blood corpuscles. 16. Has decided fever this morning. Ordered tr. iodin. comp. gtt. v, t. d. 17. Has some fever; skin hot and dry. 25. Patient worse since last entry; feet very much swollen; is weaker and more emaciated; has had fever occasionally; a good deal of irritation of the stomach, possibly caused by iodine, and also diarrhœa. Examined blood carefully microscopically; the white blood corpuscles found were very few in number, certainly below rather than above the normal proportion. Ordered tr. ferri chl. gtt. xxxv and cinchon. sulph. grs. ii, t. d.; also decoction of broom (Scoparium). 28. No decided change, but marked increase in flow of urine. 30. No especial change since last entry. Patient has had no fever for several days. *September* 12. Not very much changed, but decidedly paler and weaker; hardly able to walk a few steps; occasionally has fever, no regularity perceptible in its attacks; spleen, by palpation and percussion, 8½ inches transversely by 6 vertically, apparently not quite so hard as before, smooth; vertical liver-dulness 5 inches; pulse 96, excessively dichrotic; a very decided basal systolic murmur, anæmic in character of its sound; tongue clean; appetite pretty good; legs very œdematous. 29. No change since last entry; merely a steady advance in severity of symptoms; more or less frequent attacks of diarrhœa and of fever; progressive emaciation; great loss of strength, so that he is not able to stand alone now; general hue of skin that of intense anæmia; lips almost white; nothing like cancerous cachexia; no œdema now (probably partly from his being constantly recumbent); decided ascites; spleen very hard; lymphatics of neck, axilla, and groin decidedly but not greatly enlarged. *October* 1. Examined blood microscopically: certainly diminution, rather than excess, in proportionate number of white blood corpuscles; not more than one field of an ⅛th in three contained any, and only once, out of a number, were two found

in a single field; red corpuscles pale, showing no tendency to adhere in rouleaux. 8. Man died quietly of exhaustion.

Autopsy, about 36 hours after death.—Body emaciated, pale. *Thorax*.—Pleura containing a large quantity of serous fluid. Lungs healthy. Blood-vessels normal. Heart small, pale, somewhat soft; valves healthy. *Abdomen*.—Liver very much enlarged, fatty, nutmeg; no heterologous deposits in it; consistence much firmer than normal. Pancreas large, hard. Stomach normal. Intestines thin; their mucous membrane pale; no enlargement perceptible of the simple glands; Peyer's glands a little more prominent than usual; not ulcerated; suprarenal capsules normal. Kidneys rather small, normal; no heterologous growths discovered. Spleen very much enlarged and hardened; as laid on a plate, eight inches long, five and three-quarters broad, and nearly four thick; color very bright red, almost scarlet, mottled with numerous dark spots and with some yellowish ones; capsule readily detachable; showing on section a narrow external zone of bright red; internally, darker red, a sort of reddish liver-colored, with numerous very dark spots or masses closely placed. There were also a few masses of a straw-yellow color scattered through the spleen. These masses were of various shapes and sizes; not very numerous. The largest was of a wedge-shape, the base against the surface of the spleen; the edges irregular in places, folded in, with one or two lines of deep red external to them and everywhere following their contour. This patch is one and a quarter inches long and three-quarters of an inch across the base. The whitish material appeared to be formed in centre of the dark patches; at least, quite a number of such spots exhibited a minute central whitish spot, similar in appearance to the larger whitish ones. *Lymphatics* enlarged both in thorax and abdomen, and still more so in the axilla, neck, and crural regions. The only superficial glands taken out were from the groin. These were about an inch in length, and were larger than the internal glands.

Microscopic Examination.—*Spleen*.—Pulp containing usual elements, fibrous tissue, nucleated trabecular cells, and pulp cells. The latter appeared more granular and less distinctly nucleated than normally. *Red Spots*.—These appeared to be chiefly colored by an intense hyperæmia; not so much, however, by the distinct presence of blood as by an excessive overplus of coloring-matter. The latter was not contained so much in distinct globules, as it appeared to penetrate everything. There were a very few pigment granules. The red spots could

be in great measure washed out, and, under the microscope, presented no other elements than such as were found in the pulp elsewhere; only everything intensely red. A very few pigment granules were seen, and in one place was found, in the centre of a dark spot, a somewhat cylindrical, dark-green, hard, flattened mass of nearly a line long. Nowhere else were any indications found of masses of blood having existed. *Whitish Spots.*—Composed almost entirely of cells similar to those of the pulp, but smaller ($\frac{1}{2400}$ to $\frac{1}{4000}$), shrunken, a little more inclined to be globular, never nucleated, and filled with granules; some oil, but not much. *Malpighian corpuscles* were not at all evident. I dissected one out of the centre of one of the dark spots. It appeared normal, save that it was of an intensely red color.

Among the first distinct recognitions of a disease whose anatomical characters were great enlargement of the lymphatic glands and of the spleen, with which I am acquainted, is that of Dr. Hodgkins (*Medico-Chirurgical Review*, vol. xvii.). In this paper, however, there were no microscopical examinations of the blood, and it is therefore uncertain whether the affection was actually the disease since known as Hodgkins' disease, or whether it was leucocythæmia. In a paper published in *Recueil des Travaux de la Société Médicale d'Observation*, 1857–58, to which I have not, however, had access, Dr. Bonfils appears to have described for the first time what have been considered since as the chief characters of the disease,—namely, glandular enlargement without increase of the white corpuscles of the blood. Since this time there have been some half a dozen papers upon this affection; and in the *Archives Générales* for 1865 there is a good *résumé* by Dr. Cornil of our knowledge upon the subject, with one or two excellently observed cases. In the last edition of the Clinique Médicale, by Professor Trousseau, there is a brilliant lecture upon this affection, its clinical history and pathology. The doctor gives to the disease the name of Adénie, and assigns to it, as clinical characteristics, great and progressive enlargement of the lymphatic glands, without any tendency to suppuration or resolution, and finally death of the patient, sometimes from intercurrent accidents, as suffocation from

the pressure of the enlarged glands upon the respiratory passages, or, escaping these, from intense anæmia, with diarrhœa, hectic fever, colliquative sweats, etc. In only three out of twelve observations was there any enlargement of the spleen, and in these this was preceded by enlarged lymphatics, and belonged, Professor Trousseau states, strictly to the second stage of the disease. The disease was chronic in its nature, lasting from twelve to eighteen months, or even longer; and in several cases the patient was apparently in excellent health, although enormously enlarged lymphatics had already existed for months.

In the cases described by Dr. S. Wilks, in *Guy's Hospital Reports*, 1865, under the name of Hodgkins' disease, the enlargement of the spleen was a more constant and more striking feature; but in other respects the agreement is complete,—the same enlarged glands and the same peculiar whitish masses found in the spleen. There is, therefore, a disease described by these authors closely allied to leucocythæmia,—so closely, that it is impossible to distinguish between the two, either before or after death, save by the microscopic examination of the blood, their clinical history and post-mortem appearances being otherwise exactly similar. In leucocythæmia, however, there are, as is well known, two sets of cases,—namely, the lymphatic and splenic,—in the one of which the glands are chiefly, or even solely, affected; whilst in the other the spleen bears the brunt of the disorder.

The splenic variety is certainly the most common; but that there are certain cases of leucocythæmia in which the spleen remains healthy whilst the lymphatic ganglia become enormously enlarged, is attested, from personal experience, by both Virchow and Niemeyer. All the cases of the allied adénie hitherto published have corresponded more closely to the rarer form of leucæmia, the glands being very greatly and primarily affected.

The case herein detailed, I conceive, presents hitherto unnoted clinical characteristics, in that the affection of the spleen was primary, and the enlargement of the lymphatics was manifested late in the disorder and was

at no time sufficient to attract attention. The parallelism between the two diseases is therefore now complete, both of them exhibiting a splenic and a lymphatic form; although it is worthy of remark that, so far as I am aware, no case of Hodgkins' disease has been reported which ran its full course, with death from anæmia without accident, in which the spleen was not finally enlarged.

There is one anatomical change, occurring not infrequently in leucocythæmia, which has as yet scarcely been noted in adénie, namely, the formation of masses of lymphatic tissue in the liver, kidneys, etc. I do not think this, however, can at present be allowed to be a point of difference. The masses alluded to are not new tissue formation. Von Recklinghausen and other German histologists have demonstrated, or at least rendered extremely probable, the existence of minute lymphatic masses or cells in all these glandular organs; and the interpretation of the appearances alluded to is simply that such minute portions of the lymphatics have partaken in the general hypertrophy. Friederich, to be sure, claims to have demonstrated that these formations take their origin in the connective tissue corpuscles; but I do not think, at present, this can be acknowledged. I see, therefore, nothing more than was to be expected in the leucæmic tumors of the liver and kidneys, and believe the reason that they have not been more frequently found in Hodgkins' disease is the exceedingly small number of the cases that have been well observed. According to Dr. Cornil, moreover, M. Hérard has observed this formation of apparently new lymphatics in a case of adénie, in the lungs, ovaries, and mucous membranes of the stomach: so that I do not see how the exact parallelism between the two affections can be denied.

In regard to the nature of Hodgkins' disease, Dr. Wilks advances the opinion that it is a constitutional disorder, closely allied to tubercle and cancer, characterized by a peculiar exudation in the spleen tissue. This is evidently an erroneous theory. It is hardly possible to conceive a disorder of the same class as tubercle in which the deposit is always confined to a

single organ; and, moreover, similar masses are found in the spleen in leucocythæmia, more rarely in chronic malarial hypertrophy, and also in ulcerative endocarditis. They are, in truth, not deposits at all, but are the results of arrest of circulation, and are the so-called "hemorrhagic infarctions." In heart-disease, they are often directly traceable to the presence of emboli stopping up the smaller splenic arteries. In the case described in the present paper, their method of formation was very clearly shown. The first step was evidently a damming of the circulation in the intertrabecular spaces by the rapid multiplication of cells. In this way were formed the very numerous and prominent dark spots. The changes into whitish tissue evidently commenced in the centre of these dark masses, as the result of a complete arrest of the circulation, and gradually spread as the effect of this arrest widened. Where a large triangular mass of tissue was involved, there was, without doubt, a secondary formation of a thrombus in a large vessel by coagulation taking place owing to the impeded blood-current. The microscopical examination bore out entirely this view, as the cells of the "deposit" consisted simply of shrunken splenic pulp cells, with oil granules and *débris*, and a small proportion of trabecular tissue.

The post-mortem study of the case fully carried out the view held by Trousseau, Cornil, and Niemeyer, that the changes in the spleen consist principally in a hypertrophy of the pulp of the organ, the cells, as I think, being less fully developed than normally, exhibiting, in a word, the characters found wherever there is excess of formative at the expense of developmental action.

The theory that leucæmia is owing to an overaction in the lymphatics and spleen, resulting in the production of an overplus of white corpuscles, which, from being imperfectly developed, are unable to pass into red corpuscles, although by no means proven, seems to me to be the best that our present knowledge will allow. The physiology of the spleen is certainly not finally settled. Indeed, Dr. Flint, Jr., in his great work, asserts that our knowledge of it amounts to nothing; yet its connection with formation of the blood

seems to me very plainly shadowed forth. It is well known that two theories have been advanced,—the one of which attributes to the spleen the function of forming white blood corpuscles; the other, the destruction of the red. It is by no means impossible that both of these are true; for the idea of such a double function involves no absurdity. If it be so, the two affections leucæmia and pseudo-leucæmia, connected as they are with apparently identical changes in the spleen, represent respectively abnormal states of the two functions,—in the former, an excess of imperfectly developed white corpuscles resulting; in the other, a rapid destruction of the red corpuscles, and consequent deterioration of the blood. In this connection, it is interesting to observe that no case is as yet recorded* in which the patient died of the characteristic anæmia without splenic hypertrophy. There have been, it is true, several instances in which the disease proved fatal without marked implication of the spleen; but the cause of death was not anæmic exhaustion, but gradual suffocation from pressure upon the trachea or bronchi by the enlarged glands. Moreover, there have been cases in which the lymphatics were enormously hypertrophied, and had been so for years, the general health of the subject remaining good, until, the spleen commencing to enlarge, the characteristic anæmia appeared.

These clinical facts or coincidences are certainly very interesting; but a much greater number of well-observed cases and more complete knowledge of the healthy organs are requisite before any permanent theory of the disease can be made out.

As to the etiology of the affection, our ignorance is at present absolute, and the case here reported is in strict agreement with most of those hitherto observed, in having no tangible cause. Professor Trousseau endeavors, it is true, to connect adénie with a prolonged irritation of some mucous membrane; but I do not think he at all establishes this. There have been several cases reported in which no such irritation had existed; and

* Perhaps this is asserted too positively; I certainly have not been able to find such case.

some of the cases upon which Professor T. relied as establishing his theory were observed so loosely that it is not certain they represented the disease. In the present instance the previous camp-diarrhœa had too long passed away to bear any direct relation to the fatal disorder. It is true, there was an indistinct history of subsequent disorder of the bowels made out after the death of the patient; but, from close cross-questioning of his friends, it appeared to have been more of the nature of relaxation than irritation. The circumstance that no affection of the bowels in the years previous to the attack was spoken of by the patient, although closely and frequently questioned on his history, would appear to forbid any importance to be attached to the after-statement of friends.

BIBLIOGRAPHY.

The following list comprises all the more important papers upon the subject which I know of. Although making no pretensions to completeness, it may be of value to some desirous of following the subject.

HODGKINS. (*Medico-Chirurgical Transactions*, vol. xvii.)

BONFILS.—Hypertrophie ganglionnaire générale, fistules lymphatiques, cachexie sans leucémie. (*Recueil des Travaux de la Société Médicale d'Observation*, t. i., 1857-58.)

WILKS.—Hodgkins' Disease. (*Guy's Hospital Reports*, 1865.)

PARY.—Case of Anæmia lymphatica, a New Disease characterized by Enlargement of the Lymphatic Glands and Spleen. (*London Lancet*, vol. ii., 1859.)

POTAIN.—Double tumeur lacrymale; engorgement lymphatique sous-maxillaire considérable; érysipèle de la face, etc. (*Bulletin de la Société Anatomique*, 1861.)

PENRIN.—Double fistule lacrymale, hypertrophie généralisée de tout le système ganglionnaire, ramollissement du tissu osseux. (*Idem*, 1861.)

COSSY.—Mémoire pour servir à l'histoire de l'hypertrophie simple plus ou moins généralisée des ganglions lymphatiques sans leucémie. (*Écho Médicale*, Neuchâtel, 1861.)

HALLÉ.—Altération des ganglions lymphatiques. (*Bulletin de la Société Anatomique*, 1862.)

BILLROTH.—Schmidt's Jahrbücher, vol. cxxiii. Sydenham's Year-Book, 1864.

TROUSSEAU.—De l'Adénie. (*Clinique Médicale de l'Hôtel-Dieu*, 2d edition, vol iii. p. 555.)

CORNIL.—De l'Adénie ou hypertrophie ganglionnaire suivie de cachexie sans leucémie. (*Archives Générales de Médecine*, 6e sér., tome vi., 1865.)

LABOULBÈNE.—Cas de l'Adénie. (*Mémoires de la Société de Biologie*, 1864.)

NIEMEYER.—Hypertrophy of Spleen: Text-Book of Practical Medicine, vol. ii.

BLACK.—Progressive Enlargement of the Lymphatic Glands. (*American Journal of the Medical Sciences*, 1868, p. 382.)