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20

OBSERVATIONS

ON CASES OF

ACUTE TUBERCULOSIS.

BY

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ACUTE TUBERCULOSIS.

THERE is no point in Medicine which has been more debated of late years than the origin and production of Tubercle, and there is no term in the definition of which more confusion exists in the present day than that of Tuberculosis.

The great genius and influence of Laennec so dominated over this subject, that all his dogmas were received as infallible truths which could never be reversed, until Virchow and his followers began to question the accuracy of his statements. They showed that the fact of a substance having undergone a caseous metamorphosis was no proof of its tubercular origin, and they asserted that every form of pneumonia, under certain conditions, may terminate in a cheesy infiltration. They, therefore, held that Laennec's doctrine of the consolidations met with in the lungs of phthisical patients being due to tubercular infiltration, or to their having been converted into tubercle, was erroneous; and that these consolidations were, in the great majority of cases, the result of a primary chronic inflammation, while the occurrence of miliary tubercles was a secondary process. Not only so, but Virchow also attacked the existence of miliary tubercles, and stated that, in very many cases, they were merely pneumonic and bronchitic deposits, or transverse sections of bronchi with cheesy contents. Niemeyer, however, considers that in this assertion Virchow has gone too far, and that we must receive as tubercles those gray transparent miliary granules which are so often met with in chronic phthisis quite as much as those which occur in acute tuberculosis. The views of Niemeyer on phthisis and tubercle, as opposed to those of Laennec, are now familiar to the profession, by means of the New Sydenham Society's Translation.*

The following cases are examples of acute miliary tuberculosis occurring in persons who had previously enjoyed good health, and who succumbed to the disease in the course of a few weeks. The supervention of acute tuberculosis in cases of chronic wasting disease, as first pointed out by Walshe, is not uncommon, and the probability of its occurrence may be anticipated; but the other variety is more rare, and the difficulties experienced in the diagnosis are often very great. In itself a constitutional disorder, it often commences with the symptoms of a common cold; subse-

* Niemeyer: Lectures on Phthisis.

quently it may assume the characters of a specific fever—an enteric fever; and then, even with the aid that the thermometer affords, the practitioner finds himself oppressed with doubts as to the real nature of the case.

Trousseau, in his *Clinical Medicine*, divides tuberculosis, or galloping phthisis, as he calls it, into two forms—the typhoid and the catarrhal. In the typhoid form, he states that the invasion is more acute than in the catarrhal form, and marked by more or less violent rigors, and also that the course of the disease is more rapid. The catarrhal form, on the other hand, he says, commences with a gradual failure of health and strength, attended sooner or later with dyspeptic symptoms, cough, night sweats, and a general feverish condition. I am doubtful whether it would be an easy matter to make all cases of acute tuberculosis range themselves under these two types.

The duration of the disease and the symptoms in tuberculosis and enteric fever are so much alike that it is probable the one is not unfrequently mistaken for the other, and that the rarer disease is set down as an example of typhoid fever presenting, it may be supposed, anomalous symptoms. In other cases it is apt to be mistaken for capillary bronchitis, or even meningitis.

CASE 1.—W. G——, aged seventeen, a farm servant, was admitted into the Aberdeen Infirmary on April 13th, 1864, complaining of cough and weakness; no expectoration. His face was of a dusky hue, and there was great expansion of the nostrils during inspiration. There was also considerable aphonia, but he made no complaint of pain in the larynx, or in any other part of his body except the small of his back. On inspection the body was slight and spare, and the chest well formed. The respiratory movements of the thorax were much exaggerated and quickened, and, on applying the hands, rhonchal fremitus was extremely well marked. Percussion elicited a clear sound over both lungs. Auscultation gave fine dry sibilant rhonchi equally over all the chest, but they were not very intense. Heart sounds normal. Pulse 120. Tongue moist, with a light-brown fur. Bowels regular. Urine 1025; gave no precipitate with heat or nitric acid. Burning heat of skin.

He stated that his present illness came on with a cough a fortnight before admission, and he attributed it to overwork and exposure to cold and wet.

April 14th.—Ordered beef-tea, and a mixture containing small doses of antimony.—15th: Cough less frequent; no expectoration. Had been delirious last night.—18th: Crepitation is heard, along with sibilus, in both mammary regions. Stop mixture.—19th: Crepitation audible over both backs. Cough has almost ceased, and there is still no expectoration. Nocturnal delirium continues.

Pulse 120, weak. He is unable to stand when taken up to stool, and has occasional rigors followed by profuse perspirations. To have port wine and an extra allowance of beef-tea.—20th: Cough has entirely ceased. Left side of chest expands more than right. Breathing still forced is now more abdominal. Dulness on percussion in right infra-axillary region. Crepitation and sibilus over other parts of chest. Great thirst. Tongue dry, with thick brown fur; dental sordes. Bowels regular. No abdominal tenderness on pressure, and no rash on skin.—21st: Confused and delirious to-day. Brandy to be added to the wine.—22nd: Diurnal wandering and nocturnal delirium continue.—23rd: Bathed in profuse perspiration; pulse 130, fluttering; is evidently sinking. Died at 4 P.M.

Autopsy, nineteen hours after death.—(Reported by Dr. Beveridge, Pathologist.)—Between one and two pints of sero-sanguinolent fluid was found in the right pleural cavity. The right lung weighed 34 oz., and the left 29 oz.; both were in a state of venous engorgement, and equally and thickly studded with gray tuberculous granulations. The tubercles in the apex of each lung were about the size of split peas, and were larger, softer, and more isolated than those on the base, where they were of the size of pins' heads. The pericardium contained about half an ounce of fluid. The heart was small and flabby. The liver was very soft, and had small yellow tubercles sparsely scattered through its substance. The kidneys, small and softer than natural, were thickly studded with gray tubercles. Intestines very pale; mucous membrane not examined. Spleen healthy. Brain not examined.

The duration of the disease in this case was less than four weeks. After the examination on April 14th I set down the case as one of capillary bronchitis; but for the next four days I could not reconcile in my own mind the intensity of the febrile symptoms and the dyspnoea with the comparatively slight amount of bronchial râles, the diminution of the cough, and the absence of expectoration; and when I found, on the 19th, that the nocturnal delirium was increasing, prostration rapidly advancing, and sordes forming on the teeth, I was disposed to look upon it as a case of typhoid fever, although there were no rose-coloured spots, abdominal pain, or diarrhoea. There was none of the orthopnoea usually found in capillary bronchitis, and during the whole period of the illness he lay almost entirely on his back with the shoulders moderately raised.

CASE 2.—J. S——, aged twenty-two, a farm servant, was admitted into the Royal Infirmary on Jan. 7th, 1871. About five weeks previous to his admission he got wet, and a few days after he had, as he supposed, a severe cold, which, however, did not disable him from work for nearly two weeks. About the

middle of December the cough became very severe, and the expectoration was scanty. His appetite was bad and thirst great.

On admission he complained of weakness, want of breath, and pain in the chest, while his general expression was dull and stupid, and his countenance of a dusky red, almost approaching to lividity. Inspection showed that the chest movements, even on deep inspiration, were very restricted. The percussion note over both sides was equal, and, although not very resonant, still could not be called dull. On auscultation nothing was to be heard beyond soft feeble breathing. The number of respirations was 40 per minute. The sputum was scanty, frothy, and viscid. The urine contained no albumen, and the bowels were regular. The temperature was 102.2° at noon. The next two days he felt easier and better, and he was ordered beef-juice and four ounces of wine. On the 11th he complained of diarrhœa, but it was slight; and sub-crepitant râles were heard over the right lung. On the 14th he was delirious. On the 16th his temperature was 104° at noon. He died on the 17th.

At the autopsy the lungs were found much congested and equally disseminated with miliary tubercle, which in the apex of the left lung was beginning to break down into a few cavities about the size of split peas. The right lung weighed 49 oz. and the left 55 oz.; the liver 60 oz.; the right kidney 5 oz., the left $4\frac{1}{2}$ oz., and they each contained a few tubercles about the size of pins' heads. The spleen weighed 8 oz., and was profusely studded with very minute tubercles about the size of pin-points. The mesenteric glands were healthy, but the solitary glands of the large intestine were enlarged and a few of them ulcerated. The small intestine was congested, but Peyer's patches were healthy.

Although the duration of the disease in this case was longer than in that of W. G——, still it was not more than seven weeks from beginning to end. I was struck at the very outset by the appearance of the man's face, which indicated very plainly that there was an impediment to the passage of blood through the lungs, and to its proper oxygenation. The general febrile condition, delirium, and diarrhœa, gave a certain resemblance to a case of enteric fever; but the history of cough and pain in the chest, the dyspnœa and lividity of face, with the almost negative information afforded by the physical examination, led me to conclude that the case was one of acute tuberculosis. In fact, a livid countenance, dyspnœa, and greatly quickened respirations, with feeble breath-sounds, or comparatively few rhonchi, and a high temperature, together with the absence of dulness on percussion and of bronchial breathing, seem to be the most positive signs of the existence of a *primary* pulmonary tuberculosis.

It may be well to state here that I hold with Niemeyer that,

“in the present stage of science, there is but one kind of tubercle—miliary tubercle, and but one form of tuberculosis—miliary tuberculosis.” It is necessary, I consider, to make this statement, because it is often a most difficult point at the present day, in reading medical literature, to know what the writer understands by the terms “tubercle” and “tuberculosis.” Some restrict the term tubercle to miliary tubercle; others apply it to infiltrations and cheesy deposits; while others, like Empis, quoted by Trousseau,* apply the term granular disease (granulie) to miliary tubercle, and consider it a distinct disease from what they call tuberculation.

The thermometry of tuberculosis is still a matter of debate. Some observers affirm that tubercles exert no influence upon temperature, whilst others assert that elevation of temperature affords certain evidence of the occurrence of tuberculosis. Niemeyer indicates, in his lectures on Phthisis, that the temperature-curves in that disease are almost as regular as in typhoid fever or acute pneumonia. He states that the difference of morning and evening temperatures is generally from one to three degrees—rarely less and often more; but that, when tuberculosis complicates a destructive pneumonia, the febrile condition is more continuous, and the differences between the morning and evening temperatures less marked. The extent and type of the tuberculosis, however, seem to modify the temperature very considerably. So much is this the case that Wunderlich states that when tubercles occur in patients suffering from advanced phthisis, pneumonia, or cerebral disease, they sometimes fail to affect the temperature at all, or that at least their influence is very slight. Dr. Woodman, his translator, also expresses his conviction that in some cases miliary tuberculosis does not affect the temperature at all. This opinion is certainly opposed to the statements of Niemeyer, and to the experience of Dr. Sydney Ringer, as laid down in his book on the Temperature in Phthisis, and to my own, so far as my limited observation of the temperature in these cases goes. I can only imagine the absence of any rise of temperature as occurring in cases of localised secondary tuberculosis with scanty deposit. Dr. Theodore Williams has very recently (January, 1875) read a paper before the Royal Medical and Chirurgical Society on the Temperature of Phthisis Pulmonalis. In the abstract of the paper which appeared in the *British Medical Journal*, Dr. Williams' pathological views were not distinctly indicated beyond the fact that he believed in the unity of phthisis, and seemed to be opposed to Niemeyer's doctrines; and that the one hundred and four patients on whom the observations were

* Clinical Medicine, Vol. III., p. 163.—New Syden. Soc. Trans.

made were all examples of acute and chronic forms of the disease, except acute tuberculosis. In his opinion, phthisis has a distinct temperature course, marked by great intermissions, which may depend upon "the formation of pus, the liquefaction of adjoining tissues, the imprisonment of purulent and caseous compounds, and their subsequent evacuation." But "tubercle," he considers, may form, and the various processes of lung disorganisation may proceed uninterruptedly without apparently causing any considerable rise of temperature, and may even be accompanied by a subnormal temperature; and he asks the question in a subsequent communication to the *British Medical Journal* (Feb. 20, 1875), whether, in cases where high temperature is present, it may not be caused by the presence of pneumonia set up by the tubercle, rather than by the tuberculosis.

But whatever difference of opinion there may be as to the effect upon the temperature of the deposit of miliary tubercles as a *secondary* affection, there seems to be no question as to the marked rise which takes place in cases where miliary tuberculosis occurs as a *primary* disease in persons who had previously been free from other disorders. It is in these cases, as we have seen, that difficulty is so often experienced in deciding whether we have to deal with tuberculosis or enteric fever. The general conclusion of most observers seems to be, that, in primary tuberculosis, the more acute the pyrexia, and the more closely it approaches to the remittent type, the greater is its resemblance to enteric fever; but that in tuberculosis the temperature wave is less regular and less high, and the remissions greater. The absence of rose-coloured spots is not to be depended on in the diagnosis, as they are certainly not always present in enteric fever. The diagnosis, by means of the temperature, has also been rendered less certain by Sir William Jenner controverting the statement of Wunderlich, that in any case "we may exclude typhoid fever when, between the fourth and sixth day in a child or adult under middle age, the temperature does not reach $103^{\circ}.1$." In a very thoughtful address on the Etiology of Acute Specific Diseases, delivered before the Clinical Society of London, in February, 1875, Sir William Jenner observes that this law has so many exceptions that, as a law it can hardly be said to exist. I am glad to have the confirmation of such high authority for this statement, as my own experience agrees with it to a considerable extent. I have not unfrequently had typhoid cases in Hospital, where, about the sixth day, the recorded temperature never reached 103° , and where I was at first inclined to think that the clinical clerks were at fault, and had not allowed the thermometer to remain sufficiently long in the axilla. But, during the winter of 1874, I attended in private prac-

tice three cases of typhoid fever in young adults—all occurring in one family. They were all well marked cases, without complications, and their temperatures were taken very carefully night and morning, but in none of them during the first week did the temperature exceed $102^{\circ}.5$. In justice to Wunderlich, it must be admitted, he says, that “in this pre-eminently typical disease not a single rule can be laid down which is not subject to exceptions, although these may, as regards some rules, be extremely rare.” There is no doubt, however, that Wunderlich considers the exceptions to this special rule as being extremely rare, while Sir William Jenner’s experience is just the reverse.

In these two cases the absence of cheesy masses in the lungs and other organs tends to disprove the theory—first advanced by Buhl, and since accepted by various writers—that acute tuberculosis is a secondary process, the result of infection produced by the absorption of substances which have undergone caseous metamorphosis. The supporters of this theory, however, admit that in a certain number of cases of tuberculosis they have not been able to find any cheesy deposit from which infection could have originated.

Numerous recent observations have proved, without doubt, that the miliary tubercles are situated in the connective tissue of the lung, in very intimate relation with the blood vessels, and not in the alveoli. The alveoli may become blocked; but in uncomplicated cases this effect is produced by pressure and the swelling of their walls, and not by exudation (Rindfleisch). It is long since Virchow, in his “Cellular Pathology,” pointed out the lymphoid nature of tubercle, and the very close resemblance of the cells of the tubercle granule with the corpuscles of the lymphatic glands; but it is a question whether the tubercles derive their origin solely from the lymphatic system, as propounded by Klebs, so as to be called the result of a lymphangitis. Rindfleisch, indeed, in his *Pathological Histology** describes certain miliary-like nodules in connection with the lymphatic system, which he has often observed in the neighbourhood of large cavities in the lungs, and which present to the naked eye a grayish translucent colour, with a central nucleus of a whiter tint. On further investigation, he found these nodules in the primary stage to consist of a thickening of the inner and outer coats of a lymphatic capillary, and of a proliferation of their endothelial and connective tissue corpuscles. The cells of the inner layer were seen, on a transverse section, to be arranged in a radiating manner, while those of the outer had a concentric disposition, and in the centre of the nucleus there was a light spot corresponding to the contracted canal of the lymphatic

* New Syden. Soc. Trans., Vol. II., p. 43.

vessel. In the secondary stage, a form of sclerosis of the central substance was set up, destroying the individual characters of its cells while the evidence of the peripheral layer being composed of connective tissue, became more manifest. But, in describing this form of lymphangitis as a variety of localised tuberculosis, Rindfleisch expresses great doubt as to the propriety of defining it as possessing a tuberculous character at all, and considers that "lymphangitis nodosa" would be the more appropriate term for it.

May it not have been in cases of phthisis, marked by the formation of these secondary *quasi* miliary tubercles, described by Rindfleisch, that Wunderlich found the temperature not affected?

If further observation tends to show that this is the case, the statements of Wunderlich, and those of Niemeyer and Ringer, with regard to the temperature in tuberculosis, might then be reconciled.

But, to whatever perfection we may attain in our knowledge of the diagnosis and pathology of acute tuberculosis, our efforts at cure, it is to be feared, must ever remain weak and powerless.



