## *REPORT OF TWENTY-FOUR CASES OF ACUTE MILIARY TUBERCULOSIS.*

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THE following analysis of twenty-four cases of acute miliary tuberculosis of the lungs has been made in order to furnish, if possible, some clews toward the detection of a disease that not infrequently bewilders the most careful practitioner. The cases have been taken from the records of the Boston City Hospital, and it is to the courtesy of the members of the staff that I owe the pleasure of presenting this brief consideration. For the use of some valuable private notes made on a number of the patients by Dr. Samuel Delano I feel greatly indebted also.

All the cases were fatal, occurring within the last five years, and only those in which a post-mortem examination was made have been chosen.

The number is too small to attempt to draw percentage conclusions, and some factors, generally considered of importance, have been passed over because of insufficient data.

Fourteen patients were males, with an average age of thirty-eight years, that of the females (not including one child two and a half years old) being only thirty-two years. The oldest, a man, was sixty-five years of age, while eight were between the ages of forty and sixty years. Over half were born on or near our eastern coast; two were negroes.

The majority were ill in February, March, or April; their occupations were of various kinds and apparently had no causative influence.

Only three gave a phthisical family history; in

twelve it was not phthisical, while in nine no history could be obtained.

Three-fourths of all the patients had always been well up to the time of the present illness, and although in thirteen cases the autopsy revealed a chronic tuberculosis in addition to the acute miliary process, yet of this group only a single patient had given a history of having suffered from phthisis; in fact, the remainder had always been looked upon as healthy. Even though there was a history of cough for one or more months in quite two-thirds of the cases, it was noted as being slight, with a muco-purulent expectoration and had excited no alarm except in one instance where several attacks of profuse hæmoptysis had occurred. Severe cough was recorded in two cases, but in each it had begun less than a month before admission to the hospital.

Among the exciting causes might be mentioned the following: overwork and exposure in a damp cellar; several weeks of hard drinking, with but little food; partial asphyxiation from drowning; measles, scarlatina, whooping-cough with measles, and vaccination each in one case.

The clinical diagnoses varied considerably, from tubercular meningitis in eight cases, to exhaustion, typhoid, bronchitis, etc. Two patients died immediately after admission to the hospital, so that very little history and no physical examination could be obtained.

About one-third of the cases gave a clear history of a marked chill ushering in the disease; a few more complained of feverishness and malaise, while headache, naturally frequent in those with a meningeal affection, was pronounced in a few others.

Loss of flesh, strength, and appetite, wherever noted, came on rapidly and was very marked. Likewise night-sweats, though recorded too few times to be of much value, were always profuse.

In one-half of those cases where derangement of the menstrual function could serve as an indication of any general trouble no record is made, but in the

other half all the patients had had amenorrhœa for from one to four periods.

In the two cases that had had hæmoptysis an old cavity was found in the lungs at autopsy.

The condition of the bowels gave no light in making a diagnosis; cases with tuberculous ulceration of the intestines were apparently affected neither one way nor the other by the lesion.

The tongue was generally coated and dry; in a few cases cracked.

The temperature in a majority of the cases at entrance was 100° F. or over, the pulse 100 or over, and the respiration 28 or over; of the course of each throughout the disease mention will be made later.

In seventeen cases an examination of the urine was made, and albumin, generally a slight trace in amount, was found in eleven. Of the latter, autopsy showed an acute tuberculosis of the kidneys in over seventy per cent., whereas of the six cases in which albumin was not found, only three (fifty per cent.) had a similar lesion. Notwithstanding these numbers are too small to warrant definite conclusions, they at least suggest that there may be some connection between the two conditions.

The eyes were examined in four patients; one, with sarcoma of the hypophysis had atrophy of both disks; two had a double optic neuritis, and, finally, one had tubercle of the choroid. Considering the importance that some writers attach to this latter condition, it is unfortunate that more cases were not examined with the ophthalmoscope.

Examination of the heart afforded no assistance in diagnosis so far as the recorded results show.

The signs obtained from careful physical examinations of the lungs, though often confusing and misleading, apparently show an undercurrent of certain definite characteristics. The disease is of such a nature, and the lungs are so frequently the seat of some other morbid process that only examinations most carefully made during life, and compared topographically with the lesions found after

death, can establish what signs belong properly to an acute miliary infiltration. A few cases carefully studied in this way would help wonderfully to clear up certain obscure points. Unfortunately, from the predominance of some symptom, or set of symptoms, pointing elsewhere than to the chest, the lungs are not infrequently hastily examined merely to exclude a more definite lesion, like lobar pneumonia, and are not again considered during the course of the disease. However, in the present group of cases certain characteristics seemed present so far as could be learned from the recorded examinations, many of which were very carefully and thoroughly made.

In the cases where there was a chronic in addition to the acute tuberculous process—that is, in the acute-chronic cases, percussion showed that dulness was not necessarily confined to the region of chronic infiltration, but might be extended to a considerable distance beyond, and be repeated in some other area where no chronic process existed. In a few simple acute cases where no dulness is recorded, it was probably overlooked; in the remainder it varied from a feeling of lessened elasticity to a moderate degree of dulness in localized regions over a single lobe or even over an entire lung.

In nearly every case where fremitus or vocal resonance was increased, the effect of a chronic induration could not be ruled out.

The respiratory murmur in simple acute cases was, for the most part, indistinct, harsh, with a high-pitched inspiration and a lower-pitched, prolonged expiration. In acute-chronic cases all qualities are recorded, but in the majority it was feeble in intensity, harsh, with high-pitched inspiration, and a prolonged expiration grading from a lower pitch to a bronchial quality.

The râles heard in simple acute cases were almost invariably few in number, fine in quality, dry, and sometimes moist, high-pitched, and less often low-pitched (none of the latter being moist). Often several kinds were to be heard in the same patient.

In acute-chronic cases they were coarser in type, more numerous, and more moist, besides being accompanied by those of a fine dry or a fine moist character. In one or two cases, even with a chronic process, only a few râles of any kind were recorded.

The clinical history of the cases while under treatment can be briefly summarized. They rapidly lost strength and flesh, delirium or coma soon appearing in nearly every case. The pulse steadily increased in frequency and decreased in strength. The respiration, somewhat rapid at entrance, increased in frequency, becoming more and more shallow, and often irregular with increasing cyanosis. A few developed abdominal tympanites; a few, pain in the chest. Even though in several cases a slight amelioration intervened for a few days, the course was steadily and rapidly down-hill to death, and no treatment seemed to be of any avail in checking its progress.

The clinical charts showed nothing very significant, except, perhaps, from a negative point of view. The temperature ranged from 101° to 103° F., on the average, making daily excursions of one or two degrees, while very rarely was it higher in the morning than at evening; it seldom fell below the 100° line, and rarely rose as high as 104°. The pulse rarely fell below 100, and often rose to 140 beats or more; its line steadily ascended while the daily excursions were not very marked. The line of respiration followed very closely that of the pulse, both frequently being high without any corresponding elevation of temperature. In no case was there cessation of fever before death.

The duration of the fatal illness, reckoning from the initial chill or other marked symptom, averaged thirty days; in uncomplicated acute cases, where the beginning could be more accurately determined, the duration was shorter by about four days. The average length of stay in the hospital, excluding the two cases that died at entrance and one previously under treatment for measles, was fifteen days, so that they

were all well developed before any systematic treatment had been undertaken.

The following complications of cases while in the hospital are important: One woman, fifty-eight years old, had sarcoma of the hypophysis with a few cerebral symptoms; one, supposing herself pregnant, had just attempted abortion, and during her stay was attacked with facial erysipelas; one man had general psoriasis, and one had probably an acute tubercular pleuritis.

The post-mortem examination in every case showed an acute miliary tuberculosis of the lungs, and, so far as could be judged, it was the important, or one of the important, pathological conditions. As mentioned before, thirteen showed in addition some degree of chronic tuberculous process going on, often with cavity formation. Where a focus for general infection did not exist in the lungs themselves, one could always be found in one or more groups of lymphatic glands. In thirteen cases, divided almost equally between the acute and acute-chronic, there was an acute tuberculosis of the meninges, causing so marked symptoms during life that the diagnosis was strongly influenced. Next to the lungs, the following organs were invaded by tubercles: the spleen in 15 cases, the kidneys in 14, the meninges in 13, various groups of lymphatic glands in 11, the intestines (with ulceration) in 10, the liver in 9, the pleura in 7, the pericardium and peritoneum each in 3, the bladder, diaphragm, and a supra-renal capsule, each in 1.

In conclusion, these cases would seem to indicate that an acute pulmonary tuberculosis should be suspected when the following indices are present (the existence of other pathological conditions in the lungs giving rise to characteristic signs and symptoms that ought not entirely mask those under consideration): Sudden severe illness, ushered in with a chill, in a person previously healthy or with a history of chronic phthisis; slight cough and expectoration, no hæmoptysis, marked loss of flesh and strength;

loss of elasticity, or a slight dulness over part or the whole of a lung or surrounding a limited area of marked dulness; indistinct, harsh respiration, with high-pitched inspiration and prolonged low-pitched expiration; a few scattered fine dry or fine moist râles, generally high-pitched; a rapid, weak pulse, with quickened, shallow respiration, and cyanosis out of proportion to the physical signs; a temperature steadily feverish, but without marked variations; local evidences of miliary infiltration in other organs.

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## DISCUSSION.

DR. A. L. LOOMIS, of New York: It is a subject that has interested me for a very long time. It has interested me mainly in diagnosis. I have in my mind a case of a man, twenty-six years of age, who came to New York from Chicago, from Dr. Jewett, as a case of nervous disease. I made the diagnosis of pericarditis. The signs were very distinct without fever. There was in this case a temperature at no time over 100°. There was rapid emaciation, and many of those nervous symptoms. These symptoms were followed by paralysis more or less complete on the right side. He died two or three weeks after he came to New York, probably about two months after the first symptoms showed themselves. At the autopsy we found tuberculosis. There were miliary tubercles in the lungs and in every organ that was examined. There is one point in the diagnosis which seems to me to be a very important one, and that is, the rapid emaciation which takes place in all these cases that I have seen. It is not necessary for me to say here to you gentlemen so familiar with this class of cases, that the diagnosis in miliary tuberculosis is very often not made until the post-mortem examination. Not infrequently persons go through Bellevue Hospital and are treated as cases of fever, and at the autopsy are found traces of miliary tuberculosis.

DR. J. B. WALKER, of Philadelphia: I have notes of a case of a mother nursing her first infant. She developed an acute miliary tuberculosis, which ran a very irregular course, developing pericarditis; perfectly normal heart-beat, with a rapid development of pul-

monary symptoms during the early portion of the attack. During the cardiac development the pulmonary activities lessened. With the cessation of the cardiac symptoms there was marked infiltration. The curious point was the development of the pericardial symptoms and their disappearance entirely after the gradual development of the disease toward death. At the time the cardiac symptoms disappeared her temperature recurred to normal. It had gradually been going down, and toward the close it was the ordinary temperature of miliary tuberculosis.

DR. WILLIAMS: Dr. Loomis remarks that the fever was comparatively low. I remember in my hospital experience that the fever resembled that of typhoid, and I think that is our understanding. It seems to me, however, that typhoid fever has been very frequently complicated with this disease, or *vice versa*. But there is not the temperature in tuberculosis which there is in typhoid fever. It certainly seems to me that a temperature of 100° is quite exceptional for miliary tuberculosis.