

noted, and the suspicion still lurked, although the evidence seemed greatly in favor of the diagnosis of cerebral syphilis. With the subsequent history as it now stands, however, it must be admitted that the correct diagnosis might be made.

For the excellent photomicrographs which illustrate this paper we are indebted to Dr. A. Letèvé, of the Magee Pathological Institute of the Mercy Hospital.

A CASE OF MYXEDEMA, WITH A STUDY OF THE BLOOD AND URINE DURING TREATMENT.

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THE following study of a case of myxedema may not be uninteresting in connection with the views respecting the exact function of the thyroid gland. The broad symptomatology, indicating as it does a disturbed condition of the various organs of the body, tends to some confusion in the interpretation of functions. Many of the symptoms of myxedema are merely secondary, and many of the so-called functions of the thyroid gland are very secondary in character. That the chief function of the thyroid gland, however, has to do with the matter of the destruction or elimination of some substances which are prejudicial to the body, and which, if retained, produce various symptoms of an intoxication of peculiar type, with an ultimately fatal result if untreated, is accepted by most clinicians, and this view is amply supported by clinical and experimental facts.

On the morning of May 22, 1900, I was called to see Mrs. F., aged forty-three years, married, mother of seven children. Present illness dates from about fifteen years ago, when she began rapidly to gain flesh, having previously weighed about 110 pounds. Periods of occasional fainting, with marked irritability of temper, characterized her condition up to about five years ago. The gain in flesh continued without intermission, and during the winter of 1895 and subsequently she suffered intensely from the cold. At about the same time the skin began to show unusual dryness and marked thickening in some portions, especially the scalp, with areas of yellowish discoloration, and the hair lost its soft texture, became dry and brittle, and began to fall out. The increase in flesh continued; the abdomen became pendulous, and the limbs puffed with a solid edema, which tended to become more marked toward evening. Some puffiness about the eyes was also present, and a certain amount of deafness was noticed by members of the family. Patient was exceedingly irritable and was easily angered. On slight provocation passed into periods of unconsciousness. These were occasionally preceded by a period of motor excitement characterized by acts of violence. Latterly these acts of violence have been more infrequent.

At the present time she complains especially of inability to concentrate her attention or to accomplish anything. Little difficulties appear

insurmountable, and the ordinary requirements of living, such as bathing, dressing, walking, and riding, require great effort. Walking is done with some difficulty. In fact, for some time patient has confined her walking to the house, and experiences great difficulty in getting up and down stairs. Before the last child was born, about sixteen months ago, there was great swelling of the limbs and general discomfort, but the labor was uncomplicated and uneventful. For the past five years, but more especially during the past two years, she has suffered from a severe type of metrorrhagia. Some giddiness and pain in the head are experienced when standing erect, and latterly she has been rising late in the morning and taking but little physical exercise during the day. At present she is unable to do anything requiring effort, takes little interest in her family, household, and social affairs, and dreads and avoids all physical exertion. It is with great difficulty that she manages to take a carriage ride daily.

Examination showed a peculiar solid edema over the whole body, especially marked in the extremities; skin very dry, thick, and scaly, and of yellowish cast; scalp thick, dry, and very scaly; hair dry and very thin; eyebrows thin. There were marked pockets beneath the eyes and some puffiness of the upper eyelids. The nails were thick and brittle; voice heavy and husky; hearing very poor; sight poor; many small warts about the neck and hands; marked fulness in both supraclavicular regions, and the thyroid gland appeared atrophied. Heart very slow and a little irregular; sounds weak and greatly muffled, no murmur; abdomen large and pendulous; bowels constipated; appetite poor; gait very unsteady and tottering. Mentally she evinces a poor memory, especially as regards recent events, and is very dull and apathetic, indifferent and markedly suspicious. Temperature 98.6° F.; pulse 57; weight 201 pounds. Patient wears spectacles, but states that they are no help to her, notwithstanding the fact that they have recently been fitted.

Urinalysis showed the presence of albumose and a trace of serum albumin. Urine pale, specific gravity 1007. The sediment presented an occasional cylindroid and many epithelial cells. Urea excreted in twenty-four hours, 16 grammes. The blood examination showed red blood-cells 4,293,000, and white blood-cells 7200 per c.mm.

On May 23d and 24th patient took three grains of desiccated thyroid two hours after breakfast. Another three-grain powder was added on the 25th and subsequently, so that the patient received six grains of thyroid daily. This amount was not increased for several weeks because of the effect on the heart. Until May 31st the patient continued to spend most of the time in bed, and subsequent to this date was kept in bed continuously. The pulse gradually increased in frequency until on the evening of May 31st it was 74 and fuller and stronger. Mentally she was very much better and more cheerful than for many months, and a "stuffy feeling" of which she had complained for a long time had entirely disappeared. She seemed especially elated over a return of her hearing, and repressed members of her family who continued to deem it necessary to converse in a loud tone of voice. Weight, May 31st, 185½ pounds. Blood examination was made on June 1st, with the following result: Red blood-cells, 3,520,000; white blood-cells, 4500. The urinalysis still showed a trace of albumin. The urea excreted rose on June 3d to thirty-one grammes, and on the 4th was twenty-seven grammes. Patient continued to take six grains of thyroid

daily throughout the month of June, and showed marked improvement in all her symptoms. Once the thyroid was discontinued on account of a rapid and compressible pulse, ranging from 90 to 100, but these symptoms subsided in three days, and the thyroid was again resumed. The weight on June 10th had fallen to 177½ pounds, and on June 17th to 176 pounds. The skin showed marked improvement over the whole body, and she heard so well that the noises of the street were troublesome, notwithstanding the surroundings of a quiet country home. The eyesight was greatly improved, and she read without glasses. On the 12th and 13th patient suffered considerably with ovarian neuralgia, which she said resembled very closely some similar periods during her girlhood. This ceased on the 14th, and did not return. The heart-sounds, which were very weak in the beginning of the treatment, became firmer and better punctuated as it progressed. The skin of the face improved in color and texture, and the pockets beneath the eyes rapidly disappeared. The June menstrual period was normal, for the first time in many years, and latterly the bowels have moved without a cathartic and are very regular.

During the month of July the general improvement continued. Patient suffered from occasional periods of faintness after slight exertion, but for the most part remained in bed and was very comfortable. Weight on July 8th was 173 pounds, on July 15th, 171 pounds, on July 22d, 168 pounds, and on July 29th, 166 pounds. The month was eventful in that the patient suffered from functional disturbance of the liver, with diarrhoea, and neuralgic pains in various portions of the body at irregular intervals. The urine still showed a trace of albumin, but no casts, and the amount of urea ranged from 25 to 30 grammes daily while thyroid was being given. Albumose was not detected after the first urinalysis. During the periods of illness above noted the thyroid was discontinued for a brief time and the urea dropped immediately; thus on the 13th, 14th, 15th, and 16th the daily amount of urea excreted was respectively 18, 14, 24, and 20 grammes. The rise on the latter two days was probably due to the administration of certain hepatic stimulants. The action of thyroid in increasing the daily amount of urea has been noted by a number of authors. In this case it was very striking, falling regularly during its omission and rising to the normal amount during its administration. This would seem to warrant placing the thyroid substance among the direct hepatic stimulants.

The blood examinations are presented below in tabular form. The examination on May 22d was preliminary to the administration of thyroid; all the others were done during treatment.

Date.	R. B. cells.	W. B. cells.	Lymphocytes.	Large mononuclear leucocytes.	Neutrophils.	Eosinophiles.
May 22. . .	4,233,000	7,200	25.6 per cent.	8.2 per cent.	63.4 per cent.	2.6 per cent.
June 4. . .	3,520,000	4,500	16.8 "	4.0 "	78.2 "	1.0 "
" 11. . .	3,872,000	5,400	28.6 "	6.4 "	64.4 "	0.6 "
July 14. . .	4,384,000	6,000	18.0 "	9.4 "	71.0 "	1.6 "
Aug. 8. . .	4,704,000	6,266	21.6 "	7.2 "	69.4 "	1.8 "

The blood examinations were all made between 11 and 12 o'clock in the morning, about four hours after the patient had eaten breakfast. In every instance 500 cells were counted in making the differential count.

There are several points of interest in the above table. The preliminary blood examination on May 22d showed 4,293,000 red blood-cells, and on June 4th, 3,520,000 red blood-cells per c.mm., a difference of 773,000. I attribute this apparent diminution in the number of red blood-cells to the increased activity in the various organs of the body. As a result, the fluid elements of the blood were greatly increased, while the corpuscular elements remained stationary. In other words, the apparent diminution in the number of the red blood-cells was due to the increase in the fluid elements of the blood consequent upon the pouring into it of fluids from the various organs which were recently awakened into activity. These facts tend to negative the view that the thyroid gland is directly a blood-forming organ. Under the conditions here presented it is hardly conceivable that the thyroid, if a direct blood-forming organ, would thus fail primarily to exhibit this property. The subsequent steady increase in the number of the red blood-cells is to be noted.

The drop in the number of white blood-cells per c.cm. at the second examination is to be attributed to the same cause, and their subsequent steady increase is to be noted.

The differential count showed nothing distinctive aside, perhaps, from the primary drop in the number of eosinophile cells and their subsequent gradual increase in number. A feature of some interest was the large size of the blood platelets. Many approached the size of a red blood-cell. They had attained to about their normal size three weeks after the beginning of thyroid administration. The hemoglobin was found somewhat diminished at the preliminary examination, and there was considerable irregularity in the size and shape of the red blood-cells. This condition improved steadily, and at the examination on August 8th the cells were nearly normal.

The albuminuria, which was fairly well marked in the beginning, disappeared completely with the improvement in general symptoms.

The lowest weight attained was 166 pounds, and was recorded on July 29th. During the beginning of September the patient began to sit up regularly, after having spent three months in bed.

The largest amount of thyroid taken while the patient was in bed was nine grains daily, during the last two weeks of August. Notwithstanding this the patient gained some in flesh (two pounds) and evinced an excellent appetite. The hair grew rapidly, and during the first three months attained considerable length. The skin of the scalp presented a perfectly normal appearance. About the middle of September the patient began to go about, and was soon able to resume her normal place in her family. A year has now passed, during which she has been very well.

She is now taking regularly two grains of thyroid daily. During the last winter she took as high as fifteen grains daily and suffered no ill effects. In fact, this amount seemed necessary in order to maintain a state of health. It has been my custom to reduce the daily amount of thyroid when the heart shows its effect in a rapid and compressible pulse. Under these circumstances I have found digitalin useful.

Patient's general condition is excellent at the present time. The pulse, which a year ago was weak and poor, is now strong, full, and regular.

I am of the opinion that it is a mistake to crowd the thyroid in the beginning of treatment. The heart muscle, from a long-continued absence of the thyroid secretion, is so poor and weak that it stands its primary depressing effect badly. When a little time has elapsed, and the heart has again become accustomed to the effect of the thyroid substance, it may be increased with propriety and benefit.

A FATAL CASE OF ACETANILID POISONING.

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B. K., male, aged thirty-seven years, shoemaker, was brought to the Mount Zion Hospital at 5 P.M., January 22, 1897. The history of the case was as follows:

On the morning previous the patient was found by his attending physician slightly delirious and complaining very much of his head and of a pain in the left umbilical region. The temperature was much elevated, the heart rapid, and there was marked constipation, slight jaundice, nausea, and some vomiting. The day before the patient had had one chill. Calomel in small doses, followed by salts, gave a copious but bloody movement of the bowels. The urine, which was clear on the previous day, became dark red. No facts could be obtained from the family which threw any light on the case, and the patient was sent to the hospital, where I saw him an hour after his admission. It was ascertained later that a lodge physician had given him sixty grains of acetanilid in six powders for his headache, and the patient had taken them all within a few hours before his regular attending physician was called.

At the time of entrance the pulse was 78, soft, and easily compressed; the temperature was 100.2° F.; the lips and nails were extremely cyanotic, and there was slight jaundice over the whole body. The heart-sounds were normal and the action fairly strong; respirations shallow and somewhat increased; occasionally a slight, harsh cough. Lungs and spleen normal; liver somewhat enlarged, but not painful to pressure. Abdomen slightly distended in the region of the descending colon; no fecal impaction felt. Patient complained of a slight pain over the whole left side of the abdomen, and was sensitive especially in the epigastric region and over the region of the left kidney. Skin moist, tongue not coated, gums bluish, no hemorrhages into mucous membranes. The urine, 300 c.c. of which were passed shortly after entrance, was strongly alkaline and of a deep red color, nearly black. The color of the filtrate was unchanged; the sediment was small in amount, and contained granular casts, small and medium sized. The granules were fine, and ranged from golden yellow to deep brown. There were a few granular casts with epithelial cells attached. No leucin or tyrosin found. The specific