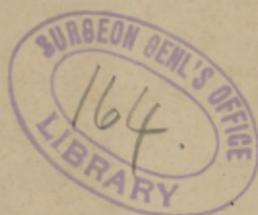
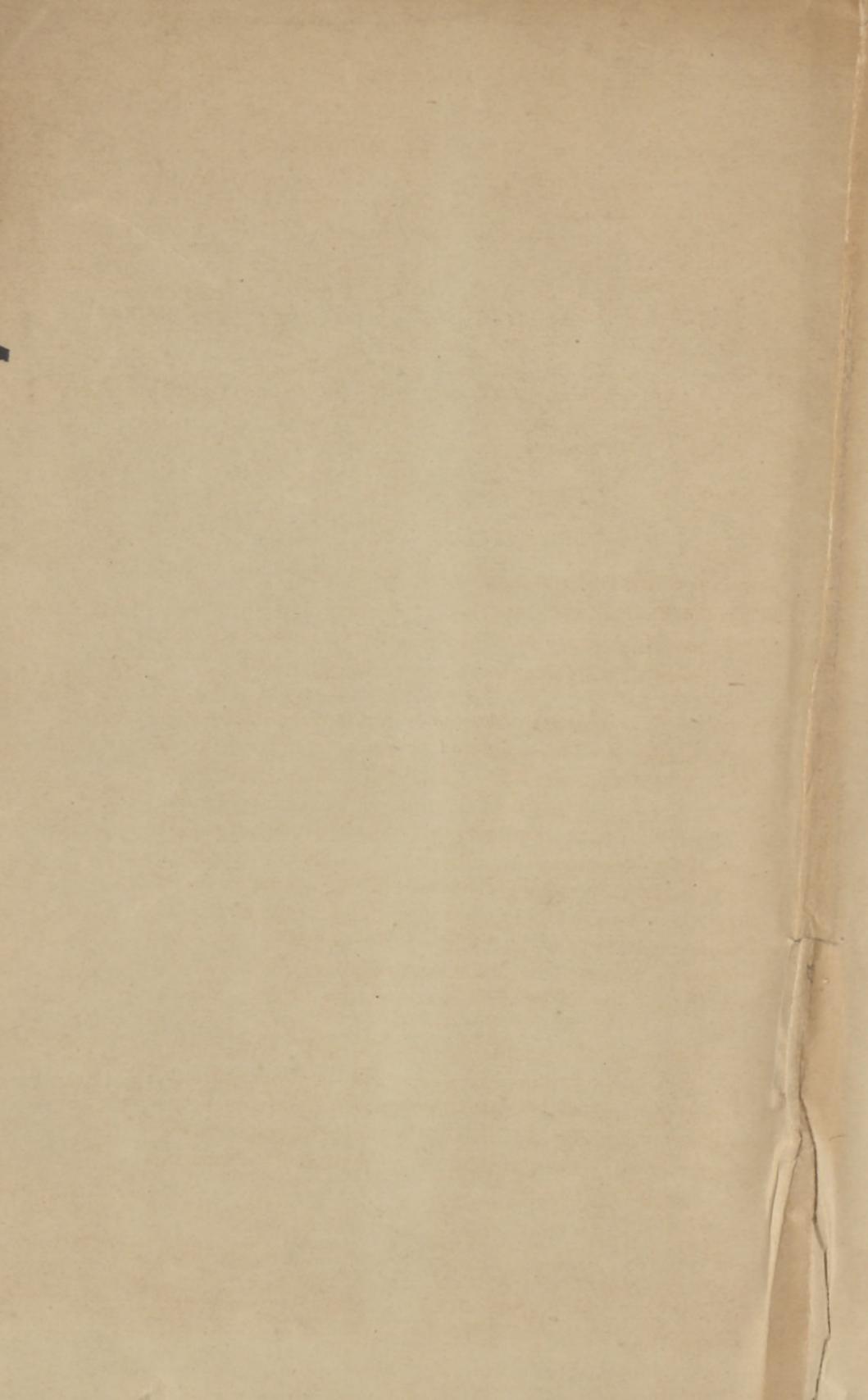


Da Costa (J. M.)

Remarks on diabetes x x x x





REMARKS

ON

DIABETES INSIPIDUS AND ITS TREATMENT BY
ERGOT.

By

J. M. DA COSTA, M. D.,

PROFESSOR OF THE PRACTICE OF MEDICINE IN THE JEFFERSON MEDICAL
COLLEGE; PHYSICIAN TO THE PENNSYLVANIA HOSPITAL, ETC.

[Read April 7, 1875.]



I BEG to call the attention of the College to-night to diabetes insipidus, and especially to the influence ergot exerts on it, and shall preface my remarks with a case in which this treatment proved successful.

Stephen S——, native of Bavaria, a tailor, was admitted into the men's medical ward of the Pennsylvania Hospital on the 19th of October, 1874. A small, thin man, about 43 years of age, hollow-eyed, with prominent cheek bones, his complaint of weakness and prostration agreed perfectly with his emaciated appearance. Suffering continually from shortness of breath, from indigestion with acid eructations, a burning sensation in the epigastrium, complete anorexia, and from immoderate thirst; having his rest at night broken by the frequent necessity for micturition—he considered but too correctly that his health was lost, and that he was rapidly failing.

No family history could be obtained, and he positively denied any venereal taint. He had always regarded himself as a healthy man until two years ago, when he met with a serious accident. By a fall from the roof of a house he was badly contused, besides sustaining a fracture of his clavicle

and some of his ribs, and hurting the back of his head; for nearly a year after this fall he suffered from headache and vertigo.

I learn from the records of the Hospital that he had been within its walls before he came into my hands. On the 2d of June, 1874, he was received complaining of muscular pains which were considered rheumatic. About two weeks before this he had noticed that he was obliged to urinate more frequently than usual, rising for this purpose two or three times during the night. His urine, judging from the report of its examination the day after admission, was acid in reaction, its specific gravity 1024, and contained no albumen; the sugar test was not applied. He improved under treatment, and was discharged cured of his rheumatism July 27th, 1874; but no note was made of the state of the renal secretion at that time.

For the succeeding months the abnormal frequency of micturition gradually became a more prominent symptom, and one month before his re-admission into the Hospital it underwent a sudden exacerbation.

Conjointly with the troublesome and exhausting flow, the torturing thirst, progressive impairment of hearing, *muscæ volitantes* principally in the left eye, and shortness of breath, increasing gradually from very slight disturbance to positive dyspnoea, were making his existence a very miserable one. The day after admission (October 20th) the urinary examination gave the following result: The urine in color was very light, almost limpid, slightly acid in reaction, the specific gravity only 1001; it contained neither albumen nor sugar; the quantity in twenty-four hours was 224 fluidounces, corresponding exactly with the amount of water he had drunk.

He was ordered by Dr. Hutchinson, who saw him for a few days, two drachms of infusion of *digitalis*, and half an ounce of a compound gentian mixture thrice daily; and from this treatment, combined with good diet and rest in bed, he derived marked benefit for the first week. The specific gravity of the urine increased to 1004, and the amount

passed daily was, on the 24th, 160 ounces, and on the 26th only 108 ounces. His general appearance was improved, the appetite was increasing, and he felt so much better that he was allowed to get up and walk about the ward. Unfortunately the improvement was but transitory; for, on the 3d of November, he was passing 252 ounces, of specific gravity 1004, and was obliged to return to bed. The previous prescription was now discontinued, and nitro-muriatic acid, three drops in a drachm of compound tincture of gentian, was given him every four hours; he also took ten drops of deodorized tincture of opium four times daily.

An ophthalmoscopic examination made on the 4th of November showed an apparently normal fundus in the right eye, but the branches of the central artery of the left eye were comparatively diminished in their calibre.

The patient now became very weak indeed, the radial pulse could scarcely be distinguished, and for some days he appeared to be entering a state of what threatened to be fatal collapse. The amount of urine continued to be very large; in truth his condition was more than grave, it appeared hopeless. Quinine, stimulants, large supplies of animal broths were administered, and, on the 7th, the opium, which had been given irregularly during this serious illness, was finally discontinued, as was the acid mixture. He slowly rallied, and when his special treatment was resumed he was placed on a liberal mixed diet, and on the fluid extract of valerian one drachm four times daily. On November 7th, it was noted that he was passing 208, and, on the 8th, 209 ounces of urine, of specific gravity 1006, and very faintly acid.

The specific gravity on the 10th had increased to 1008, and the quantity decreased to 128 ounces; this diminution being, perhaps, in great part attributable to an intercurrent diarrhœa which began on the evening of the 8th, but ceased spontaneously on the 11th of November. At this date he reported himself as feeling much better; he slept well; his appetite was good, and his tongue moist and clean. Two days later the improvement was still evident, the daily ex-

cretion of urine being 146 ounces, of specific gravity 1006, containing—as carefully ascertained by Dr. Longstreth, who made all the volumetric examinations here recorded—16 grammes of urea (247 grains). On the 17th, the urine was found to be of the same specific gravity, slightly acid, and measured 195 ounces. This contained 16.446 grammes of urea (254 grains) and 8.358 grammes of chlorine.

As his general condition had now improved somewhat, I made a searching examination of the viscera and nervous system, hoping to discover the seat of the lesion. But I could find nothing. There existed a slight increase in the area of hepatic dulness; the splenic dulness was normal in extent and situation. No lung or heart lesion could be detected, but the first sound lacked weight and fulness. He complained of supra-orbital headache and partial deafness in the left ear; yet the examinations of the eye and ear gave the same indecisive results as before. The base of the tongue was slightly furred; the remainder of its surface was clean and moist. The pulse was 84; the respiration varied between 18 and 24. The temperature of the body was 97.5° . It had at no time been higher than 99° , and had repeatedly fallen to 97° , with an evening exacerbation of half a degree, or very occasionally of one degree. A half ounce of cod-liver oil thrice daily was added to the treatment.

The next day (November 22d) he passed 168 ounces of urine, specific gravity 1004, but the daily amount rapidly increased until it reached 260 ounces on the 25th, of specific gravity 1006, containing 24.407 grammes of urea ($376\frac{1}{2}$ grains).

The valerian was now stopped, as it had so evidently wholly failed, and ten grains of hydrate of chloral were given four times a day; but, as the dyspnoea seemed to increase, this in turn was abandoned in favor of bromide of potassium twenty grains thrice daily on the 1st of December, at which date he passed 193 ounces of urine containing, as Dr. Longstreth informed us, 25.124 grammes of urea (387 grains) and 5.813 grammes of chlorine.

During the first days of December the face and ankles

became œdematous, the subcutaneous veins of the leg were enlarged, and dark red lines were visible on the lower extremities, which also pitted readily on pressure. He complained still of a great deal of headache and of a feeling of tenseness of the skin on the forehead, and furuncles became manifest on the face. His condition was thus little, if at all, changed for the better. I now determined to give him ergot, a plan of treatment which, in conversation with my colleague, Dr. Hutchinson, I found had suggested itself also to him. At first it was resorted to hypodermically, but this caused so much local disturbance that the remedy had to be administered by the mouth. The internal use was begun on the 7th of December, one drachm of the fluid extract being given three times daily; this was increased December 18th to two drachms thrice daily. The diet was the same as before; the cod-liver oil was continued for a time, but not with great regularity, and it was presently wholly stopped.

From the time that the treatment by ergot was instituted there was steady diminution in the daily amount of the urine, and rapid improvement in the patient's health; indeed this was without a drawback, with the exception of a slight attack of pleurisy followed by some congestion at the base of the lung, and lasting only a few days. The patient was practically well on the 25th of January, 1875, when the ergot was discontinued, but he was retained under observation until March 10th, in order to decide whether the improvement was a permanent one.

The steady decrease in the amount of urine from the use of ergot may be seen from the following: The remedy was fairly begun on the 7th of December, the amount of urine passed in twenty-four hours had been, on December 4th, 227 ounces, which was the last measurement made before the ergot was commenced. On December 9th, it was 152; on the 14th, 126; and on the 23d, 91 ounces. From this time onward the highest amount passed was 76 ounces on December 27th, and from the first of the year to the date of discharge the maximum was 74 ounces, and had been several times as low

as 40 ounces a day. It is proper to state that during his stay in the hospital the urine was repeatedly tested for albumen and sugar, but with uniformly negative results.

When discharged he was well and strong, and he had never been in better health. During his stay with us he gained in weight forty pounds; and it was difficult to recognize, in the fat, bright-eyed, jovial man who left the hospital, the lean, languid-looking, dejected patient who had come to it but a few months before apparently to die.

He was seen last week (April 3d, 1875), and reported his improvement as permanent.

In concluding this report of the case I have placed in tabular form, for ready reference, some of the points it illustrates. But I wish further to make a few remarks on the features of the disorder. The origin in a blow on the head is in accordance with other cases I have met with, for in two more of the number which I have recorded or distinctly recollect, the affection followed unmistakably, and at no very long interval, an injury to the head. There are, of course, further prominent causes to which the strange malady may be traced, and among these, and in a certain sense allied, I have had my attention strongly called to its following sunstroke and cerebro-spinal fever. Then we meet with instances in which it forms a symptom of a coarse lesion of the brain, as of a tumor; or follows violent emotion; or exists, though this is not often the true well-marked disorder, as part of the hysterical constitution; or, again, it is clearly hereditary; or we encounter examples in which the origin of the trouble is not to be made out. But without pretending that what has been mentioned exhausts even the indubitable sources of the disease, it has made apparent how often it is linked

to some nervous disorder, though it may be one which we may not be able always to unravel. But whether the cause be, as seems most probable, in the sympathetic nervous system, or the derangement leading to loss of control be simply reflected to this from the cerebro-spinal, is a matter, with our present knowledge, of the merest conjecture. In a number of the autopsies made—they are not, it must be stated, very numerous—the lesion has been located at the base of the brain, or in the cerebellum or the medulla; but I have found records of the disease in which injury of the abdominal ganglia by a tumor gave rise to the distressing malady.

As regards the symptoms in the case detailed, they are those usually seen. In one respect, however, there is a difference—the urea was not found in the urine in increased quantity. The dropsy I have repeatedly met with, and in one case that came to me from a distance, the worry and exhaustion occasioned by the enormous accumulations appeared to be the immediate cause of death.

Diabetes insipidus is, when well-marked, for the most part a fatal disorder, though the patient may be kept in fair health for years. "The treatment of the disease, so far as our present knowledge goes, is rather compensatory than curative," says the latest authority on the subject; and, notwithstanding the good results published by Trousseau in a few instances from the valerian treatment, he agrees substantially with Dr. Dickinson, for these are his ominous words: "I have, on the other hand, had the pain to see nearly all the polyuric patients whom I had to treat waste away rapidly and die much earlier

than those who had saccharine diabetes." My own experience has been the same; and the case which I have to-night presented to the College is the first one which I have seen recover; I mean the first marked one in which there were the grave symptoms of disturbance besides the excessive flow of urine.

That the recovery was due to the action of the ergot there can be no doubt. The drug has been used in saccharine diabetes, and, it is said, with some advantage, though I have not been able to obtain with it any specially good results. But I do not know that it has before been employed successfully in diabetes insipidus; indeed, when I began to prescribe it, I did not know that it had been suggested. I find, however, casual mention made of it by Roberts and by Niemeyer, the latter stating that, like some other remedies he mentions, it is not based on the results of experience but on theoretical grounds. Indeed, from all the references to it which I have seen, I infer that it has either only been thought of or passingly tried; for I have not met anywhere with a record of its leading to a cure. Its effect on the capillaries, both of the nervous centres and in glandular organs, suggests its mode of action. That the remedy will be available where grave organic lesions exist I do not think, but I indulge in the hope that freely given it will prove of service in cases which without it are incurable.

TABLE SHOWING AMOUNT AND QUALITY OF URINE PASSED, WITH SUMMARY OF TREATMENT.

Date.	Condition of Urine.						Treatment.
	Per diem.			Color.	Reaction.	Specific gravity.	
	Amount in ounces.	Urea, grammes.	Chlorine, grammes.				
1874.							
Oct. 20	224	.....	.....	limpid	slightly acid	1001	Inf. digitalis.
24	160	.....	.....	amber	slightly acid	1004	Gentian and iron mixture.
26	108	.....	.....	.....	.....	.....	Nitro-muriatic acid.
Nov. 3	252	.....	.....	.....	slightly acid	1004	Opium.
7	208	.....	.....	.....	.....	.....	.....
8	209	.....	.....	.....	faintly acid	1006	Fluid ext. valerian.
10	128	.....	.....	very light	.....	1008	.....
13	146	16.007	.....	.....	faintly acid	1006	.....
17	195	16.446	8.358	.....	faintly acid	1006	.....
22	168	.....	.....	.....	.....	1004	Cod-liver oil in addition to valerian.
25	260	24.407	.....	.....	.....	1006	Hydrate chloral in place of valerian.
27	186	.....	.....	.....	.....	1006	.....
Dec. 1	193	25.124	5.813	.....	.....	1008	Bromide of potassium.
4	227	.....	.....	.....	.....	1010	7th. Ergot.
9	152	.....	.....	.....	.....	.....	.....
14	126	.....	.....	.....	neutral	1010	.....
23	91	.....	.....	.....	.....	1012	18th. Ergot increased to fʒij of fld. ext. thrice daily.
27	76	.....	.....	.....	.....	1014	.....
1875.							
Jan. 2	70	.....	.....	.....	.....	.....	Medication discontinued.
25	67.75	18.742	6.679	.....	.....	.....	.....
Feb. 2	48	.....	.....	.....	slightly acid	1018	.....
14	74	.....	.....	.....	.....	.....	.....
19	54	.....	.....	.....	.....	.....	.....
To Mar. 10	40-70	.....	.....	.....	.....	.....	Discharged cured.

