

PREGNANCY WITH ALBUMINURIO AMAUROSIS.

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I WAS called June 16th, 1877, to see Mrs. S—, of this village, with the view of having charge of her approaching confinement, and received the following previous history:

About the first of May, 1876, Mrs. S. came up to Lebanon from Cincinnati, and at that time supposed herself to be about seven months advanced in her first pregnancy. She had suffered very much from headache during the period of her pregnancy thus far. On May 7th, headache was so severe that medical advice was had. On the 9th, fell out of bed in a state of partial unconsciousness (probably an epileptic seizure. Up to this time had not *appreciated* any loss of vision, but remembers she was a little nearsighted in using the needle; but *loss of vision was nearly complete immediately* after the fall. About the 17th May, Prof. Reamy, of Cincinnati, was called in consultation. Mrs. S. was very stupid, and on test, the urine was found abundant in albumen. About the 25th, she was confined of a dead and partially decomposed fetus. Prof. E. Williams, of Cincinnati, made an ophthalmoscopic examination of the eyes some time during July, and subsequently she continued under the general supervision of Prof. Reamy for

¹ A condensed account of the history and operations of this charity by Dr. F. C. Valentine will be found in the *Hospital Gazette* for September, 1877.

several months. About the last of July, vision began to return (two months), and by September she could distinguish sufficiently to go about and pursue her ordinary household pursuits. During all the time of the imperfect vision, there was also a distorted expression of the eyes, the strabismus continuing for a long time. Also, while the improvement of vision was steady but gradual, after the miscarriage in May, yet there was at no time a *complete* restoration of the sight to its normal condition, though Prof. Reamy reports the urine as having become entirely free from albumen, and the general condition of health had become excellent.

Jan. 1st, 1877.—Is again pregnant, the last catamenia appearing during December previous.

May.—About the last or latter part of this month, vision again begins to be imperfect, and from this time on, the dimness of vision becomes more and more marked.

Such was the condition of things, previous and present, when I was called, June 16th.

For some days she has had a great deal of headache; is "nervous;" sleep irregular. Directed bromide of potash grs. xv. every four hours, with good effect in relieving the headache and restlessness. On examination, find the urine excessively loaded with albumen, and on inquiry, the patient is very hearty in her diet—uses meat at nearly every meal, and coffee two or three times a day. Directed to restrict the animal food and coffee to once a day, and, so far as comfortable, to adopt a "milk diet."

To continue the bromide of potash, and to have tinct. ferri chlor. gttss. xv. ter die.

June 21st.—Free from headache, rests better, apparently doing well; reports the motions of the child as distinct; urine in good quantity, but still abundantly albuminous; vision stationary—sufficient to enable her to go about and attend to ordinary pursuits, and in all respects there was no material change until

July 8th.—I find her again suffering from headache, vertigo, increased dimness of vision. The bromide fails to-day to relieve these symptoms.

July 9th.—Appears better; has rested some; but there is a good deal of headache still, and vertigo.

Venesection to the extent of f oz. xxv., which promptly relieves the headache and disturbed sensorial faculties; expresses herself as "very comfortable." Nevertheless, during the day, there was a rapid further impairment of vision. At the time of the bleeding, in the morning, she could still distinguish ordinary objects, as the features of a house with its front portico, on the opposite side of the street; but very soon the upper part of the house and portico became lost in mist, and within a few hours she could not distinguish any part of the building, vision disappearing as by a sort of downward wave, or the drop of a dark curtain.

July 14th.—Is entirely blind.

July 15th.—Heavy and stupid, and disposed to be partially delirious. Has at times severe attacks of pain in the stomach, which appears

to be neuralgic, as there is no disturbance of digestion; pain relieved by subnit. of bismuth, but returns at frequent intervals.

Aug. 2d.—Confined of a dead fetus, apparently about six months developed, and considerably decomposed.

Nov. 1st.—There has been nothing very noteworthy in the further history of this case. During her "getting up" she continued to have neuralgic pains at times; these pains not confined to any particular region. She has pain in the region of the kidneys much of the time, for which I have directed dry cups with good effect. Prickling, numbness, and slight paralytic sensations of right limb complained of at times. The urine continues albuminous, though not by any means so abundantly as before confinement. Still, at this date, *Nov. 1st*, the usual tests show a decided flocculent appearance. The vision is not improved. She is still (now three months) entirely blind.

Jan. 25th, 1878.—Saw Mrs. S. Urine this day: sp. g. 1015—acid—and shows about 10 per cent of albumen. Health good in all respects, but there is as yet no improvement of the vision. It is now nearly six months since delivery.

Remarks.—It is fair to say that at the present time we have no obstetric inquiry of greater interest than a study of the relations which exist between pregnancy and albuminuria. We have had many suggestive contributions to this inquiry during the past thirty years; but still we are unsettled in many of our most important points, both of pathology and therapeutics.

The relations of this subject to the pathology of the kidneys have been well developed by M. Rayer. The peculiar relations to obstetric pathology have been sufficiently expressed in the memoirs of Braun, Goubeyre, Frerichs, Simpson, and others.

"And still, while albuminuria has been recognized by these observers as an important factor in puerperal disturbances, its influence has been chiefly confined to the production of eclampsia, or as a reason for inertia of the uterus, suggesting hemorrhage. But I think Cazeaux has very well said, 'It may possibly be shown in the future that albuminuria is a *central point* towards which converge a multitude of diseases of various characters, and these researches may throw light upon *their treatment*, which is still obscure.'"

Hitherto our attention has been but casually called to the relation of albuminuria to amaurosis, as especially peculiar to the albuminuric pregnant condition. It is true that Dr. Bright showed that, in certain cases of organic lesion of the

kidneys, we had amaurosis as one of the results; but no practical obstetric deduction was made of this fact. Indeed, so far as I know, Simpson is the only writer who has made amaurosis a prominent probability of the presence of albumen in the urine of the pregnant woman. In one of his papers he has reported quite a number of cases in illustration of this possible result, and I shall draw from some of them before I close these remarks.

1. *What, then, does albumen in the urine mean?* Albumen does not appear in healthy urine; it does not appear in the urine of the healthy pregnant woman; what then has happened?

So good an authority as Dr. O. J. B. Williams contents himself with saying that albumen in the urine means "congested kidney," and very many credible authorities have so far assented to this expression that, in a study of this question, our thoughts have been chiefly directed to congestion or other lesion of the kidney as the constant factor in albuminuria.

The physical condition of the woman in her first pregnancy, as compared with second or subsequent pregnancies, favors the idea of a congested kidney, as the result of pressure on the renal veins by the developing fetus. The correlative fact that albuminuria *usually* appears in first, and not in subsequent pregnancies, tends to enforce this idea.

But there are some other facts pretty well established. Congestion, even organic lesion, is not always associated with albuminuria; while, on the other hand, we have various pathological conditions producing albuminuria which are but temporary—as the albuminuria of cholera, of scarlatina, and of typhoid fever. So, too, in pregnancy, the completion of labor, either complete or premature, brings in most cases rapid relief of pathological symptoms, and a disappearance of the presence of albumen. Indeed, we have post-mortem observations of eclampsia with albuminuria, and yet no lesion whatever of the kidney.

So, then, is there anything behind the kidney of which we ought to make inquiry? We are apt to suppose that this organ is exclusively intrusted with the office of urinary secretion. But M. Pidoux very well observed, a long time ago, that the secretion of the urine is not confined to the kidney,

since it takes place previous to the formation of that organ. The blood which flows to the kidney is already charged with the elements of urine which are to be separated from it in the passage. So M. Pidoux seems right in saying that the secretion of the urine is at once a local and general function; general, because it commences everywhere, and local, because it ends in the kidneys. [Cazeaux, Am. Ed., 1863, p. 283.]

It would seem, therefore, that in our inquiry we may have regard to the condition of the kidney, and also to the condition of the blood, and any circumstances that may influence this condition, or the elements contained in that fluid.

For example, if we find albumen in the urine, what may we find in the blood that is unusual? It appears very well settled that *urea* makes its appearance in the blood very much in proportion as albumen is found in the urine. The question then arises, if this change is sufficient to account for the toxic symptoms which are apt to appear in these cases? Urea is pronounced a poison by various authorities, and sufficiently so to account for all the disturbances of the brain and nervous system that we observe. But others insist that, of itself, urea is comparatively innocent, and that we must look for something else to explain these toxic conditions. A further decomposition of urea into carbonate of ammonia is suggested, and has been made the basis of certain therapeutic procedures.

Now, as I have said, this state of things, as to pathological changes, has been expressed by Williams as "congested kidney," and the tendency has been to refer these changes to the effect of pressure by the enlarged and enlarging uterine body with the progress of pregnancy. But I cannot but think this explanation very incomplete and unsatisfactory. The fact that albuminuria *usually* occurs in a first pregnancy, and *rarely* in later pregnancies, is suggestive; but I think we may see that it is suggestive of something else than *pressure*. The further fact that albumen is now known to appear within *the first few weeks* of pregnancy is still further suggestive. Cazeaux, in his excellent résumé of this subject [Am. Ed., 1863, p. 286], quotes M. Bach, of Strasburg, as saying "that he has seen it at six weeks in a very nervous person;" and yet I am surprised that he has made no practical deduction from this fact.

In the *Obstet. Journal of Gr. Britain and Ireland* for July, 1877, I find a case of puerperal eclampsia, reported by S. Thomas Oliver, of Preston, with remarks from which I quote liberally as follows; views that I believe are not only satisfactory, but not very well understood, or at least very well accepted. This explanation, it will be observed, recognizes the lively sympathies which are called out by the condition of pregnancy—especially, perhaps, in *first cases*—and patients of marked *nervous excitability*, even, I say, as we see from the very earliest days of impregnation.

Dr. Oliver says: "An explanation is necessary for those cases of albuminuria occurring in the second, third, and fourth months of pregnancy, in patients not the subjects of Bright's disease." Martin, an American writer, informs us that albuminuria occurring in the earliest months of pregnancy, in patients not the subjects of Bright's disease, is more common than has hitherto been supposed.

He quotes the case of a healthy lady, who, when she passed a period or two, presented the symptoms of incipient uremic poisoning. There was no doubt as to the reality of her illness, nor was there any doubt as to the causal relation between the symptoms and the state of the kidney; for the urine, which was passed in large quantity, and had a specific gravity of 1.010, was found on examination to contain albumen, granular and hyaloid casts. A sound was introduced into the uterus to its fundus, and in ten days thereafter the albumen had almost entirely disappeared from the urine. Two days after the introduction of the sound, the symptoms had ceased, and the patient considered herself well, although the uterus did not empty itself until the twenty-first day. The observation in this case extended over three pregnancies, each attended by the same morbid and curative result—that is to say, albuminuria always appeared on the presence of pregnancy, and the symptoms almost immediately disappeared on the death of the ovum.

Now, in Martin's case, as the pregnancy never reached the fourth month, there could be no pressure from an enlarged uterus, nor can the idea of altered quality of the blood be for one moment entertained. There is still another cause, and this, though gained from the misty and uncertain region of speculation, and on that account not so physically true and mathematically clear in its explanation as pressure from an enlarged uterus, is sufficiently clear through its physiological connection as to be more than worthy of mere mention. Mar-

tin's observation verifies the connection of albuminuria with the early months of pregnancy; but it also shows us that it is totally independent of the mere size of the uterus and its contents. It shows us that *albuminuria arising in the earliest months of pregnancy is associated with a growing vitality of the ovum, and an increased functional activity of the uterus.* The fertilization of an ovum must be followed by an impression being made on that part of the nervous system which guides the process of nutrition, and the uterus cannot become enlarged and develop itself as to be a suitable home for its growing tenant, nor be the means of its expulsion on the attainment of its majority, without the acquisition of nutritive force. The great sympathetic nerve underlies all these actions, the first steps of which are accomplished by the vaso-motor supply. Practically speaking, we have a blood ready to furnish material, and all we want is a capillary circulation made ready to take it up—a step which can only be accomplished through the agency of the sympathetic nervous system. We know that the uterus is supplied with nerves from the spermatic plexus, and anatomy teaches us that the spermatic plexus is chiefly derived from the renal. "With this close anatomical relation (Martin), is there not a close physiological and pathological association? The impulse sent forth by the common nerve-centre over one set of nerves to one organ may sometimes react, and send a similar impulse through another set of nerves to another closely related organ. A sort of internal reflex action may in this way be propagated from the uterus to the kidney; or, to speak more plainly, in the early months of pregnancy, when the uterus is in a state of increased functional activity, there may be the propagation of an influence from it to the renal nerves, which, lasting for a time, stimulates or alters the interstitial circulation of the kidney as to produce albuminuria."

If these views, thus elaborated in the article by Dr. Oliver, are not as yet to be regarded as demonstrably complete, they still appear to me too plausible a suggestion to be overlooked in this discussion of what constitutes the incipency of albuminuric conditions in pregnancy.

2. *What may happen?* But now, for the present putting aside this inquiry as to causes and changes, if we come to

ascertain the presence of albuminuria at any period of the progress of pregnancy, what may we reasonably anticipate as liable at any time to occur?

Sir J. Y. Simpson, to whom we are so largely indebted for investigations upon this, as other directions of obstetric inquiry, has put the whole in a nutshell. (*Simpson's Works; Am. Ed., 1871, 3 volumes, Obstet. and Gyn., p. 296.*)

1. "Albuminuria, when present during the latter months of pregnancy and labor, denotes a great and marked *tendency* to puerperal convulsions.

2. "Albuminuria in the pregnant and puerperal state sometimes gives rise to other and more anomalous derangements of the nervous system, without proceeding to convulsions; and I have especially observed states of local paralysis and neuralgia in the extremities, functional lesions of sight (*amaurosis, etc.*) and hearing; hemiplegia and paraplegia more or less fully developed.

3. "Edema of the face and hands, going on occasionally to general anasarca, is one of the frequent results of albuminuria in the pregnant female."

As corollary to these, Prof. Simpson makes also this noteworthy suggestion:

4. "The presence of this edema (3), or of any of the lesions of the nervous system (2), with or without the edema, should always make us suspect albuminuria."

By reference to the notes of my case, it will be seen that I had the following train of symptoms at times during its history:

Gradual, but eventually complete loss of vision; pupil widely dilated and immobile; neuralgia appearing in the stomach, face, arms, etc.; slight hemiplegia; vertigo, with stupor and delirium upon two distinct occasions. There has not at any time been edema of more than the slightest character, though for some days there was a decided sparsity of the urinary secretion.

3. *Probabilities.* With our present knowledge of the treatment of albuminuria in the pregnant female, the probability is that, in the *great majority* of cases, the fetus will be poisoned, and abortion or premature labor occur. So far as the mother is concerned, with our present resources, we ought

usually to be able to save her life; though, under the most favorable circumstances, the case is one of grave character. But when derangements of the nervous system remain after confinement, we have still important inquiries as to their degree of permanence.

Usually albumen disappears from the urine very soon after labor is completed, and at the same time a return to normal functional action. But, as in my own case, we may very properly be more anxious. This patient was having her second pregnancy. The disappearance of albumen previous to this pregnancy had been but for a brief period, and the loss of vision from the first pregnancy was as yet not completely restored. Hence, we may naturally suppose the kidney lesion to be of a more permanent character, and the associate amaurosis proportionally uncertain as to its disappearance.

Simpson, however (vide *Am. Ed. of Works, as ante, pp. 300, 301*), affords considerable encouragement in the cases which he has reported; thus:

"CASE III.—It was the patient's second pregnancy. Her face had looked swelled for a day or two previously. During the night she complained of intense headache. In the morning she complained of such a degree of blindness that she could not distinctly see objects and persons. The urine was highly albuminous. She was freely bled. True labor pains supervened early in the forenoon. She was placed under the influence of chloroform for some hours, and delivered of a premature child, which was alive, but did not survive. The amaurosis in a great measure disappeared after the bleeding, and the patient's recovery after delivery was speedy and perfect, the albuminuria passing off within a week subsequent to her confinement."

"CASE IV.—Patient, aged 36, is the mother of six children. In 1847, two days after the birth of her fifth child, she became totally blind in the course of a single night, the amaurosis being found complete when daylight came on. The blindness, however, gradually and entirely passed off in a few days. During the second week following the birth of her last child, in July, 1850, she again became suddenly and completely blind, with some accompanying symptoms of stupor and a very slow pulse. The amaurosis, however, has not entirely disappeared, as in the former attack. The patient's vision is still (Sept., 1851) so imperfect that she cannot read; her memory is extremely defective; she often forgets the proper word to use in the middle of a sentence: the iris now contracts, but for some time was dilated and immobile. The last child died of convulsions about a week after birth. The urine was discovered to be highly albuminous upon her first attack of amaurosis, and this state continues to be found in repeated examinations of it from time to time to the present."

Other cases are given by the distinguished author, but their features are so mainly similar that I need not weary you with their repetition. In a footnote, however, we find some quotations that are too important to omit from this résumé.

"Drs. Bright and Barlow observed amaurosis in four instances of albuminuria, but these cases were not connected with pregnancy. M. Landouzy states that he has seen thirteen cases of weakness of vision commence, cease, and reappear with albuminuria, and without any appreciable change in the eye or its appendages. And he considers some degree of amaurosis as a common complication with albuminuria. (See *Archives Générales de Médecine* for Nov., 1849, p. 370.) Hamilton and other authors incidentally mention amaurosis as a symptom connected with cases of convulsions. Dr. Ingleby has published a case in which a patient was affected with common puerperal convulsions in her first pregnancy; and in a subsequent accouchement was attacked with complete amaurosis, which continued during the whole period of her labor. Vision was gradually restored. See his *Facts and Cases in Obstetric Medicine*, p. 53."

4. *Treatment.* It must be confessed that thus far our views of the management of these cases is anything but satisfactory, the case of each one becoming for the physician a source of constant anxiety. Still there are some points upon which we are pretty well agreed:

In my own case, I gave bromide of potash to relieve headache and control the nervous excitement; cathartics and diuretics as additional means of elimination, in view of the perverted action of the kidneys. In reference to diuretics I notice that Simpson advises ol. juniper. It would seem reasonable that this drug might aggravate the already over-congested kidney. Hence, in my case, I used the acetate of potash, with the effect of securing a very abundant secretion. I put the patient on the steady use of the tinct. ferri chl., as a special restorative blood tonic, and finally I directed the "milk diet," in accordance with pretty well attested reports of the disappearance of dropsy and albuminuria in Bright's disease proper by this plan of diet. Dr. George Johnson, of King's College Hospital, London, has reported for the *Lancet* several very interesting cases bearing directly upon this point. (Vide *London Lancet*, March, 1877.)

In one or two respects I consider my treatment in fault: I bled the patient freely. The result was an immediate relief of the vertigo and threatened convulsions; but the amaurosis, which was still incomplete, became entire within a few hours after this abstraction of blood. Was this result accidental or to be expected? By reference to Dr. Simpson's case III., quoted above, it will be noted that the general features of the case were wonderfully similar; but as he says "she was freely bled," and the "amaurosis in a great measure disappeared after the bleeding." There was, however, this fault: had I been as positive of the death of the fetus as I should have been, premature labor might have been induced probably about the time of my first visit. I did examine for the sound of the fetal heart, and failed to find it; but my patient was all the time quite confident of the sensation of the true "motions." Hence, I felt anxious to prolong pregnancy, if possible, to a period of fetal viability.

But to return to this question of blood-letting. Cazeaux considers the condition of the albuminuric woman one of impoverished blood, and opposes therefore any further reduction of vital force by venesection. But on this point we have always had two strongly opposing views, and probably shall continue to have. There was read before the N. Y. County Medical Soc., Dec., 1870 (see *Am. Jour. Obstet., Feb., 1871*), a paper on "Blood-letting as a Therapeutic Resource in Obstetric Medicine," by Prof. FORDYCE BARKER, M.D. The author thinks we have no agent so valuable in these very cases, and presents cases in illustration from his extensive practice. He even goes so far as to claim that "some of the most striking instances of its usefulness have occurred under my observation, where the patient was *extremely anemic*." And where the symptoms of uremic poisoning are well developed—the coma, convulsion, etc.—he says, "To bleed is to remove tension from the brain, to relieve congestion of lung and set the breathing free, to remove pressure from the laboring heart, and to ease the congested kidney of the load that embarrasses it. These are great points gained, but there is another greater: when we take away blood charged with the active narcotic poison, urea, we for the moment actually supplement the kidney, and do its office."

Frerichs' theory, that the urea which accumulates in the

blood by fault of the kidney is decomposed into carbonate of ammonia, has been alluded to; and the practice of Simpson, of inhaling chloroform, as a purely scientific chemical agent, is familiar to all obstetrical students. Simpson, however, gave chloroform only as the remedy when albuminuric convulsions were present or threatening, believing that he thus established a temporary diabetes, which prevented for the time the decomposition of urea into carb. ammonia. If his theory and practice be correct for the convulsive emergency, why not employ *chloral* somewhat persistently in albuminuric states, and upon the same general chemical principles?

I have suggested that, had I been positive of the death of the fetus, I would have proposed to induce premature labor. It is proper still further to say that, in such cases as these, I presume it will be accepted as good practice to secure the induction of labor, as a rule, as early as there is a fair probability to expect the viability of the child; by this means affording to both, the largest probability of survival, as well as to arrest those processes maintaining the persistent supply of poisonous elements to maternal and fetal life.¹