RECURRENCE OF ALBUMINURIA DURING PREGNANCY.*

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WHENEVER a primiparous or a multiparous woman exhibits puffiness of the face and eyelids, and oedema of the legs and body, as she approaches the period of labour, an examination of the urine will generally disclose albumen, which, in proportion to its continuance and the low specific gravity, indicates more or less danger of puerperal convulsions before, during, or after labour. The recognition of this condition by the medical attendant is, therefore, of great importance to the successful conduction of the confinement. It is not uncommon for the patient, unaware of the gravity of her situation, to neglect to inform her medical attendant, who, called in only at the moment the labour has set in, finds himself face to face with a most serious complication, with which it is difficult, or next to impossible, to grapple.

Many years ago, I was called to attend a labour with the patient in this condition of general oedema. She passed through her labour without accident; twelve hours afterwards, however, she was seized with puerperal convulsions, and, despite treatment, died in eight or ten hours, without a single lucid interval or intermission of the fits. So frightful a result determined me to visit every case of pregnancy a month anterior to the impending labour, and by observation, and, where needful, by examination of the urine, determine whether measures of prevention were necessary or not. In pursuance of this determination, several cases were subjected to treatment, with the satisfactory result that the labours passed over without the occurrence of abnormal symptoms; and the albumen disappeared from the urine within a fortnight after the labour was accomplished.

In the special case to which I desire to call your attention, the patient has had albuminuria coming on from four to six weeks previously to the full term of pregnancy; and this has recurred in three successive pregnancies. The patient is a woman of delicate and spare habit, of highly nervous temperament and acute feelings, and, moreover, of distinctly strumous family history. All her children have died of tubercular affections within a year, except the last but one. The means adopted to remove the oedema, deplete the blood, and check the escape of albumen, consisted, first, in aperients of sulphate of magnesia and powdered jalap; and, second, in a mixture of iron and ergot, combined, also, with sulphate of magnesia. Although the labours have come on sometimes fourteen days before the full period of utero-gestation, this is not necessarily attributable to the effects of the ergot, but to a distinct lapse in the growth of the fetus *in utero*, indicated even before the appearance of the albuminuria by the foetal motions becoming gradually feeble, which feebleness increased as the albuminuria set in and deepened. The premature labour, therefore, seemed rather the result of a conservative reflex act of the uterus to save the life of a waning child, or, to express the matter in a more scientific way, the uterus took on action in consequence of the failure of its own and the child's nutrition.

Now, the question arises, What is the cause of this recurrent albuminuria? Until recently, the connection of albuminuria with eclampsia was but imperfectly known. Eclampsia was largely treated of by the older authors, but its pathology and causes were very obscurely described. Latterly, the finger of observation has steadily pointed to a deranged function of the kidneys as the first in the chain of causes leading to eclampsia as the effect. Dr. Robert Barnes, in his address at a recent annual meeting of the Association, has largely contributed to fill up the gap between the older and more recent writers in midwifery. More recently still, Dr. Galabin, in the *BRITISH MEDICAL JOURNAL* for October 30th, 1880, summarises the causes giving rise to the albuminuria of pregnancy in its relation to puerperal convulsions. He collates these causes under several heads, some of which I enumerate for the purpose of contrasting them with the view I have formed of the cause operating in the present case. 1. He enumerates as a cause increased, venous tension of the kidney, from pressure on the renal veins by the pregnant uterus, this favouring mechanical transudation of albumen from the kidney. 2. He says that arterial tension exists during pregnancy throughout the whole body, the heart developing some degree of hypertrophy, which would tend, by pressure, to a mechanical transudation of albumen, and even produce interstitial nephritis, with consequent depraved function of the kidney. 3. He cites rhythmical contractions of the uterus occurring at definite intervals throughout the pregnancy, as inducing congested kidney and consequent depraved function. 4. He gives nervous sympathy between

the growing uterus and the kidney, which may interfere with the healthy function of the latter. This sympathy is illustrated in non-pregnant women by the copious secretion of urine occurring during certain menstrual troubles and hysteria, the kidney suffering an active state of hyperæmia. 5. He cites as a cause the increased work thrown upon the kidney during the period of utero-gestation; the kidneys, having to deplete the blood of two individuals instead of one, suffer in function in proportion as parturition approaches; and if to this cause already mentioned be added, viz., the pressure of the gravid uterus upon the uterine veins, then congestion, especially of the tubular structure, will be induced, and consequent nephritis, with albuminuria, result.

Now, the existence of such causes in inducing the majority of cases of albuminuria in the pregnant woman, and at the same time (and this is the main element in eclampsia) the retention of the effete saline constituents of the blood, may be freely granted; but it is not my purpose, and it is foreign to the object of this note, to enter upon the subject of eclampsia. I will merely remark, in passing, that my mind is made up, as, I do not doubt, yours is, that the direct cause of the convulsions is the irritation of the brain by the uræmic blood; the brain being in a prepared state for excitement by the general exaltation of the nervous system during parturition. Thus, while admitting that the majority of the cases of albuminuria during pregnancy are referable to the pressure of the uterus upon the renal veins and kidneys, still I am of opinion that this and the other causes cited are not applicable to the case of the patient of whom I speak. I am rather inclined to regard the cause, at least in this case, as in atonic nervous and vascular condition of my patient—a patient with a hereditary tendency to tuberculosis, and possessing feeble and delicate powers of constitution, resulting in failure of the functions of nutrition. The result, indeed, proves this view. She showed, in fact, a sheer inability to support two lives at once beyond the seventh month of pregnancy. From the first, there was no evidence of great tension of the abdomen, or pressure of the uterus and its contents upon the kidneys and renal veins. The inability successfully to complete pregnancy itself was continued after the birth of the child. She either broke down in the attempt to suckle her infant, or the child pined and sank away under some form of tuberculosis. The child previous to the present one survived, and was comparatively well at sixteen months, solely because it had been reared by a wet nurse. As in the cases fortunately diagnosed and successfully treated, arising from other forms of albuminuria, no actual degeneration of the kidney followed the recurrence of albuminuria in this case. The oedema and albumen disappeared after each labour within a fortnight. The danger which we have to fear in these cases is, that the recurrence of the albuminuria may at last become persistent, and terminate in complete degeneration of the kidney and confirmed Bright's disease.

It appears to me that much light is thrown upon this case by those which are cited under the head of Intermittent Albuminuria in the *BRITISH MEDICAL JOURNAL* of October 19th and 26th, 1878. In a letter of Dr. T. Morley Rooke of Cheltenham, cases of intermittent albuminuria are mentioned as occurring in girls from fourteen to sixteen years of age, all of whom were suffering from anæmia, with *bruit de diable* in the cervical veins. Dr. Rooke alludes to Dr. Moxon's and Sir William Gull's observations upon the same affection in young men. A peculiarity in all these cases was, that the albumen disappeared when the recumbent posture was maintained for some time, but reappeared when the patient resumed the upright position. Thus it would disappear after a night's rest, and reappear after the upright posture was resumed for a few hours, gradually increasing towards evening. The administration of tonics, especially perchloride of iron and strychnia, either greatly relieved or cured these cases. The rationale of these cases in atony of the nervous and vascular systems is plain, the transudation of albumen being a mere mechanical effect of the weight of the column of blood upon weakened vessels.

Viewing my case somewhat in this light, I determined, when she again became pregnant, to recommend a course of steady exercise without fatigue, change of air and scene, and the administration of phosphate of iron and lime with strychnia, coupled with a nourishing if not generous diet, not excluding such stimulants as malt liquors. Fortunately, the patient's position in life permitted a prolonged stay at the seaside. The result was all that could be desired. She improved in general health and appearance; became stout and rosy; went to the full period of pregnancy without oedema, albuminuria, or sign of weakness; and was delivered of a strong healthy child, which she trusts to be able to suckle.

The satisfactory termination of this case authorises the addition of another cause to those stated by Dr. Galabin, and renders it clear that every case of recurrent albuminuria in pregnancy deserves special study

* Read before the Yorkshire Branch.

not merely to prevent the possibility of convulsions, but to avoid and cure a constitutional state which gives origin and persistency to the escape of albumen.

THREE SUCCESSFUL CASES OF SPONGE-GRAFTING; WITH REMARKS.*

By T. SANCTUARY, M.D., Hayle, Cornwall.

CASE I.—In the January of 1881, a boy, aged 11, tied a piece of cotton three or four times round his penis, two inches from the abdominal wall. Great swelling followed, completely obscuring the cotton. He was treated by a surgeon with cold water compresses, and the swelling was much reduced; but during this time, the cotton became completely embedded in the tissues, and finally cut through the urethra. In June, the urine, which for some time had been passing in diminished and irregular flow, found its way through two small apertures in the upper surface of the penis, and gradually the distal part of the urethra (*i.e.*, the part beyond the cotton) became almost impermeable, so that, when I first saw him, on November 24th, 1881, hardly any urine was coming the natural way. At this date, a piece of cotton was projecting from one side of the old cicatrix which it had formed as it cut its way through; and there was a deep fissure on the upper half of the penis, extending down nearly to the urethra, and at right angles to it. As I could pass no instrument of any kind into the bladder, I determined to operate, and on the following day (November 25th) chloroform was administered, and I cut down through the upper cicatrix into the urethra, which appeared gristly, tortuous, and closed; and instead of being a pliable tube, was composed for an inch and a half of a semi-cartilaginous cord. Having dissected through this, I passed a No. 6 catheter from before backwards, till it came out at the incision. Then came the difficulty of getting it into the bladder, for there was still a stricture, or rather a mass of hard cartilage-like substance, where the urethra had been, behind my incision. I therefore cut into the urethra from below, behind this mass, and passed a catheter forwards until it came out at the first incision. Then, having divided this part of the stricture, a No. 6 gum elastic catheter was passed into the bladder, and tied there. Lastly, I pared the edges of the upper fissure in the usual way, united them with silk sutures, and covered the wounds with dressings steeped in an alkaline solution of creasote. On the 26th, the boy's temperature was 100.6° Fahr.; and on the 27th, 99.6° Fahr.; on the 28th, it was 98.6° Fahr.; and there was no subsequent rise. On the 29th, I found that he had moved the dressings, and allowed some urine to trickle over the wounds; and in spite of the greatest care, the incision on the under surface, which was granulating nicely before this, began to slough over a surface rather larger than a sixpence. I then determined to see whether I could obtain healing without loss of superficies, by means of sponge; so, having applied a solution of zincchloride on the 29th, I arranged flat pieces of fine Turkey sponge on December 2nd, cut in irregular shapes, and nearly a line in thickness, so as to exactly fill up the wound, and fit under the edges of it wherever these projected. The sponge was covered by gutta percha, this by lint, and the whole kept firmly in place by a strip of India-rubber plaster round the penis. In four days, the sponge adhered, and bled when pricked, and by December 28th the wound was whole, and the sponge entirely absorbed. The catheter was taken out on December 9th, and the urine passed the natural way in a good full stream, the boy remarking that he made water now as well as ever he did. The upper wound healed without any sponge. I advised the boy to come to me, and have a catheter passed occasionally, as it was probable, under the circumstances, that stricture would otherwise eventually result; but I have not seen him since January 18th, 1882, when he was perfectly well. There was then a very slight depression where the sponge had been inserted, and the cicatrix was sensible, though not acutely, to the prick of a needle. He would not allow me to pass a catheter, though I was anxious to do so, to ascertain the state of the urethra.

CASE II.—This was not so interesting in its previous history as Case I. A workman had one side of the terminal phalanx of his left forefinger shaved off by a plane, a clean cut surface being left. When all bleeding had ceased, I applied to this surface a single piece of sponge in the same way as in Case I; and the finger was sound by the end of three weeks. The only difference in the two cases was that, whereas in the former there was a very slight and doubtful odour of putrefaction on the day after application, in this there was a distinctly putrefactive odour for a week after the sponge had been applied, and adhesion took place on the third day instead of the fourth. In both

cases, the sponges were saturated with clear watery discharge on the second day.

CASE III.—On April 14th, 1882, a girl crushed the end of her middle finger in a turnip-machine. There was extensive destruction of skin, and I had to remove part of the terminal phalanx. The wound was dressed in the ordinary manner, but, owing to the loss of so much skin, the wound healed very slowly. On May 5th, therefore, I applied sponge, and dressed it every two or three days until June 1st, when the finger was completely healed, and the sponge absorbed.

REMARKS.—The sponges used were the finest grained Turkey I could obtain. They were boiled in a weak solution of hydrochloric acid for some hours, and then steeped for half a day in a strongly alkaline solution of creasote. Before application, they were rinsed in hot water, and cut in very thin slices; and the wounds were syringed with the same antiseptic solution in which the sponges had been immersed, in which also were dipped the gutta-percha and lint. A single layer of each material was applied in the following order—sponge, gutta-percha, lint—and the whole was covered with a broad strip of India-rubber plaster, applied so as to secure firm pressure. In conclusion, I may remark that I have observed that, unless firm pressure over the sponge be used, the granulations will push the sponge away, instead of growing up through its substance. There are two sets of cases in which I have noticed this adhesion of sponge, where no such adhesion has been intended: 1. Where bleeding cavities have been plugged tightly with sponge, as in excision of the eyeball; 2. Where sponge-tents have been used to dilate the cervix uteri, and have been unavoidably left in longer than usual. In both these sets, firm pressure is probably a *sine quâ non* in obtaining adhesion.

ON A MODIFICATION OF SPONGE-GRAFTING.

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In the *Edinburgh Medical Journal* for November last, Dr. Hamilton, now Professor of Pathology in the University of Aberdeen, brought before the profession a method of treating certain wounds, which he, with some appropriateness, named "sponge-grafting." Prepare a piece of a sponge after certain directions, fit it into a depression in the soft parts, and, ultimately, the foreign body will be replaced, and the gap occupied by newly organised tissue; such was the teaching of Dr. Hamilton, and a number of successful cases were cited in demonstration. The theory of the originator is that the force of the blood-current causes an upheaval of the vessels lying on the surface of the wound, and that if a proper support is furnished, new growth will take place in the vessels and cause them to reach still higher levels. Blood-clot or fibrinous lymph supplies this support in many natural processes; a piece of sponge may be made to serve the same purpose. The sponge, having fulfilled this mechanical function, in virtue of its organic nature then undergoes disintegration, and may either be absorbed or discharged gradually.

I selected a piece of fine Turkey sponge, and treated it as instructed, by steeping in dilute nitro-hydrochloric acid, then washing with liquor ammoniæ, and finally setting aside in a one-to-twenty solution of carbolic acid. Some weeks afterwards, I chose an opportunity of testing sponge-grafting, though not in a crucial degree. A man was admitted to this infirmary who, having received a horse-kick on the shin three years before, sufficient only to produce an abrasion of the skin at the time, by incredible neglect had allowed a progressive loss of tissue to go on till an ulcer of the following characters presented. The sore extended almost round the calf, its width varying from two to five inches, its surface was sloughing, discharging profusely, and smelling offensively; the skin around was firmly bound down, and presented an irregular but hard margin to the sore. The man had gone on submitting to matters so long that the knee and ankle-joints were fixed at an angle implying great lameness, while the greatest circumference of the calf was nine inches, as compared with thirteen and a half inches at the corresponding level of the other leg. Measures were successfully employed to produce a clean, and latterly a richly vascular, surface. The level of the sore was now for the most of its extent almost that of the body surface, but at one angle a deeply scooped depression, its dimensions about an inch by an inch and a half, presented. The case was admitted under the care of Dr. J. P. Bramwell, under whose supervision the following treatment was followed out. To the part level with the skin, particles of skin were transplanted, and the results, save at a portion to be hereafter described, have been thoroughly satisfactory. To the hollow referred to, I adapted a piece of prepared sponge fully a quarter of an inch in thickness. Three days afterwards there was adherence of the sponge, and any attempt to detach it pro-