A little examination of the plate (fig. 4) shows that the right femur is more bent than the left—the result of the accidental fracture; and, had this not occurred, there is no doubt that the knees would have been almost, if not quite, in contact. Even as it is, the result is such as to render it doubtful whether she is now a fit inmate of an institution for cripples.

These cases show clearly that osteotomy with the chisel is an operation unattended with danger, with fever, or indeed with more than very trifling pain; by its means we can rectify deformities and lameness, hitherto considered beyond the reach of art; and, as in the case of ankylosis, may substitute a very mild operation for one greatly more severe. In none of the many cases on which I have performed this operation has the fracture suppurred or inflamed, but the bones have united with remarkable rapidity, even when a large wedge-shaped gap must have existed.

Fig. 4.

[To be continued.]

CASE OF PARTIAL CONVULSIONS (JACKSONIAN EPILEPSY); WITH OBSERVATION ON PERCUSSION OF THE SKULL IN DIAGNOSIS.*

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I SHALL first record this case, and afterwards direct attention to its points of special interest.

J. N., aged 38, engineer, while in Madras, in 1868, had sunstroke. Previously, and also after its occurrence, he was of drunken habits. In 1869, he had syphilis—a chancre on the penis, followed by indolent bubo in the groin, and a severe and protracted attack of pains in the joints and bones, which were worse at night. There is not, however, any history or existing indication of nodes, nor are there any glandular enlargements, and he has a healthy aspect. About seven years since, he began to suffer from seizures of an epileptiform character, recurring every six weeks or two months, but latterly at rather shorter intervals. These have occurred in different forms; but the following has, upon the whole, been the most frequent. Spasmodic action, usually without premonitory symptoms, begins in the right hand as a whole, though, in a number of instances, it has begun in the little finger; then the hand becomes clenched and bent at the wrist, the forearm is flexed on the arm, and the head is drawn towards the right shoulder. The arm, in this contracted state, is then jerked across the breast for about a minute, after which the attack ceases. Consciousness is not impaired during the whole time. On a number of occasions, the convulsive seizure has been limited to the right lower extremity; beginning in the right foot, extending thence upwards to the thigh, and ending in forward and backward movements of the leg, which lasted for some minutes. At other times, however, and more frequently of late, the attacks, beginning in the arm and progressing as described, have extended to the side of the body and right leg, and have advanced to unconsciousness. When this happens, the last event he is aware of is the forearm turning outwards from the chest and becoming supinated. So far as can be ascertained, the convulsive action seldom affects the left side. The succeeding unconsciousness may last a quarter of an hour or even longer. All the fits are accompanied by severe pain in the convulsed members. They are also followed by more or less of paralysis in the same parts, which, however, does not generally last above three or four hours, and

may pass away in a much shorter time should the preceding convulsions be slight.

On September the 24th, he had a severe fit. The convulsions were stated by an intelligent patient beside him to have lasted about three minutes, and the unconsciousness about ten minutes. I saw him just after he had become fully conscious, and proceeded to test the motor power and the sensibility in the extremities which had been convulsed. The following notes were then made. At twenty minutes after the fit began, when I placed my fingers in his right hand and asked him to squeeze them, no appreciable pressure was felt on his attempt, while the pressure with the left hand was moderately firm; at thirty minutes (tested by dynamometer), pressure by the right hand two pounds, left hand thirty-five pounds; at fifty-five minutes, right hand twenty-six pounds, left thirty-seven pounds; at two hours, right hand fifty-four pounds, left fifty-one pounds. The patient is right-handed. At twenty minutes, he could scarcely raise the right leg from the bed; but after that, power was restored to it nearly *pari passu* with the arm. At twenty minutes, he scarcely felt sharp pinching in either the right upper or lower extremity; at thirty minutes (tested by æsthesiometer), both on the back and front of the right hand and wrist the two points of the instrument were felt as one at nine inches, whereas on the palm of the left hand the points were felt as two at one inch and a quarter, and at three inches on the back of the same hand; at an hour, on the front of the middle finger of the right hand both points were felt at an inch, and, on corresponding finger of the left hand, at three-quarters of an inch—sensation being all but fully restored in the affected hand.

Some months ago, I happened to be in the ward, when he had a seizure with very different features from those hitherto described. He began to cry out in a mournful strain, "Oh dear! oh dear!" and, on my going up to him, he asked me, with a wild frightened aspect, what was going to be done to him. In about half an hour, he regained his mental composure. There were no convulsive movements. He states that previously he had suffered from three other such turns.

He is of average intelligence; and, in illustration, it may be mentioned that he has the charge of the galvanic batteries in the hospital. He states, however, that his memory is rather impaired. He does not suffer from headache, but, on tapping somewhat firmly with the point of the finger all over his head, he feels pain of moderate severity on the left side, above the centre of the left ear, over a nearly circular area two inches in diameter. The lowest part in the circumference of this space is two inches above the highest point of the ear. He was not aware of any pain or uneasiness in this region till his attention was directed to it by the percussion. There is no indication of any other impairment of nerve-function, except a little deafness of both ears, probably due to his occupation, and a just appreciable greater width of the right pupil than the left one. The retinae are normal in appearance.

The treatment has consisted chiefly in the administration of the iodide and bromide of potassium. He is at present getting the iodide in thirty-grain doses, twice daily. Besides, since the discovery of the local pain, which is only lately, the first of what is intended to be a succession of blisters has been applied over the affected region.

REMARKS.—1. The lesion is probably situated on the surface of the brain, involving the inner membranes, in the area corresponding with the dull pain, and thus implicates the motor region for the extremities, as indicated by Hitzig's and Ferrier's experiments.

2. Percussion of the skull was of material aid in the diagnosis. By this mode of examination, namely, smart tapping by the finger, the force applied may apparently be transmitted to the membranes and surface of the brain, to such a degree as to induce pain in these parts, if they are in a morbid condition. Obviously this test will more likely be of service when the disease is circumscribed than when it is generally diffused. It is worthy of note that, as no pain is felt till the part is percussed, probably the lesion does not implicate the skull, or the skull and dura mater; for when these parts are involved, and particularly when syphilis is the cause, the pain at the affected points is usually distinct enough, especially at night, and indeed is often very severe.

3. The starting-point of the morbid action inducing the fits would seem to have been sometimes in the centre for the arm, at other times in the centre for the leg, and occasionally in that for purely mental function.* This suggests the propriety of not too hastily arriving at a conclusion respecting the limits of a lesion, by reason of the convulsive movements occurring in the same order in two or three successive fits.

4. The paralysis which followed the convulsions, though at first very complete in degree, was of brief duration; and is explained in accordance with the view now being generally accepted, that this form of palsy is due, not to organic change, but rather to temporary exhaustion

* In a paper published in the *Edinburgh Medical Journal* for December 1869, I directed attention to this occasional varying mode of commencement of the fits in the same patient.

* Read before the Glasgow Pathological and Clinical Society.

of the nerve centres, and perhaps also, I would add, of the nerves involved. It apparently corresponds with the transitory paralysis induced by physiologists in the lower animals, by passing a strong galvanic current through the spinal cord or motor nerves; or, in a minor degree, with the fatigue that follows unwonted and excessive voluntary muscular exercise.

5. It seems probable, from the fact that the severe pain which accompanied the convulsions was followed by ephemeral anæsthesia in the affected members, that the centre for sensation, and possibly also the corresponding sensory nerves, were in a state similar to those for motion. This association is analogous to what is observed in hemiplegia due to organic lesion, and, just as in it, the sensory defect was even of shorter duration than the loss of motor power.

6. It is worthy of being recalled that analogues of convulsions with excessive pain, followed by temporary palsy and anæsthesia, exist in the sphere of special sensation, as in a case recorded by me in the BRITISH MEDICAL JOURNAL (April 18th, 1874), in which, at the beginning of an epileptic seizure, a ball of red fire was seen by the patient, who for some hours afterwards was unable properly to recognise that colour. And I think we also see an analogous condition in the sphere of mind in the degree of dementia which ordinarily follows an attack of acute mania before restoration of full mental power.

ON THE TREATMENT OF PUERPERAL HYPERPYREXIA BY COLD.

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DR. PLAYFAIR'S case of puerperal septicæmia, with hyperpyrexia, treated by the continuous application of cold (recorded in the JOURNAL for November 17th), opens up for discussion the practice of treating such cases by the rapid abstraction of heat, a remedy which has proved of inestimable value in other grave maladies accompanied by hyperpyrexia. As I am able to contribute particulars of two cases similarly treated by a method which appears to possess some advantages, I avail myself of the opportunity now afforded by Dr. Playfair's communication to lay them before the readers of the JOURNAL.

The cases were briefly narrated at a meeting of the South-Eastern Branch on December 9th, 1875 (see the JOURNAL for December 25th, 1875); but no particulars have until now been published.

In the autumn of 1873, I succeeded my friend and colleague Dr. Edis in the charge of the in-patients of the British Lying-in Hospital, an institution to which I was then physician. In giving the patients into my charge, Dr. Edis remarked that there was something wrong about the place; for none of the mothers had a temperature under 100 deg. Fahr., upon which I observed that I should feel compelled to close the hospital, if things continued in an unsatisfactory state. I regret to say that closure immediately became necessary, on account of the serious symptoms which arose in two newly admitted patients.

A day or two after I took charge, two healthy young women, primiparæ, were delivered in the hospital. Both were married, were aged respectively 23 and 26, and had fairly good labours, there being nothing abnormal in either case. I had the temperature watched, as has now for many years been my custom, and very speedily it attained high figures. There was no local condition in either case to account for this abnormal elevation of temperature, and it appeared to be only too clearly due to the unhealthy surroundings of the patients. Finding that quinine in large and repeated doses, intra-uterine irrigations, purges, and so on, were ineffectual for the reduction of the excessively high temperature, which in each case exceeded 106 deg.; and feeling persuaded that such hyperpyrexia was incompatible with life, if long continued, I had the patients packed round with vessels containing ice; hot water-tins, soda-water and other bottles, being filled with broken ice.

This dry cold method was selected because it obviated the necessity of removing the prostrate patients from their beds: a point which has always seemed to me to be of much importance in the treatment of hyperpyrexia by cold, since the patients for whom it is necessary are usually extremely exhausted. The temperature in each case was promptly reduced, but it rose again, after a variable fashion, when the cold was removed, and occasionally, I am bound to say, apparently in spite of it. Still, in the main, when it was carefully and assiduously applied, the effect of this method of reducing temperature was distinct, and the relief experienced by the patients was at times great and palpable. The only inconvenience arising from its use was the inability of the patients to sleep during its application. Chilling of

the skin appeared to be attended by increased vascular supply to the nervous centres, and consequent wakefulness. This might doubtless have been obviated if we had then had at command the efficient means we now have for cooling the head; viz., the ice-cap. As it was, sound sleep speedily followed the removal of the cold; the cerebral vessels being obviously relieved by the flushing of those of the skin. For many days, a weary fight was kept up with fluctuating success, the temperature occasionally remaining normal for several hours. Ultimately, one of the patients recovered, and the other, to my great regret, sank. Unfortunately, no necropsy was obtainable.

I believe that, could we have removed the patient whose case ended fatally from the building, she also would have recovered; for, again and again, her temperature fell to normal or near it, and she appeared to be on the verge of convalescence; she seemed, however, to get fresh doses of poison and relapsed accordingly. What tends to confirm this view is the fact that the other patient, who oscillated in like manner, only recovered on being removed, though at some risk, to her home at Croydon. In neither case was there any purulent collection or other abnormal condition, except that, in the one that ended fatally, there was at one time slight tenderness of the uterus. Both were what might be called ichorrhæmic cases; they were poisoned by their environments, the poison exerting in them powerfully phlogogenic effects. This is by far the most fatal form of "puerperal fever"; in my experience, it is much more rapidly and certainly fatal than where "puerperal fever" is accompanied by suppuration.

Some weeks afterwards, on attending a meeting of the South-Eastern Branch at Croydon as the guest of Dr. Alfred Carpenter, I found the surviving patient in the Croydon Hospital, whither she had been taken shortly after her removal to her home. Her appearance interested me greatly; for, from a plump blonde with plenty of fair hair, as she was when I first saw her, she had changed to a thin dusky-skinned woman with scarcely any hair. Her appearance showed plainly the severity of the struggle she had gone through: her epidermic structures generally had withered, as usually happens after *post partum* inflammations.

In both the cases just related, the skin was occasionally sponged with cold water. There was one noteworthy difference between them, inasmuch as only one of the patients perspired, and that was she who recovered. The other's skin was obdurally dry, and it is obvious that her power of radiating heat was correspondingly diminished. Efforts were made to induce sweating, but unsuccessfully. Her friends said they had never known her to perspire.

The advantage of applying cold to hyperpyretic patients without moving them is obvious. It is especially useful, for example, in acute articular rheumatism, and in cases of typhoid fever where perforation of the bowel from ulceration is dreaded, since movement from the bed to a bath, or *vice versa*, might precipitate bursting. This plan has already been attempted with partial success by wet packing and so on; but the packing around with vessels containing ice in addition to the wet sheet or sponging appears to be a ready and powerful means of abstracting heat without unduly disturbing the patient.

Besides its value in puerperal cases, as illustrated by Dr. Playfair's case and by the foregoing, I have also found it of great value after ovariectomy. During the past year, I used it in conjunction with another and similar method, also very valuable—the ice-cap—in, among others, two cases of ovariectomy at the West London Hospital. Both patients recovered, and I believe they owe their recovery in no small degree to the prompt abstraction and subsequent control of heat by the continuous application of cold.

My own observations enable me to concur fully in the opinion that the control of abnormally high temperatures by the application of cold is not only largely feasible, but that it is a therapeutic agent of immense value in a great number of cases. I mean that, by the rapid reduction of hyperpyrexia, not only do we remove excessive and dangerous heat, but also that probably we, at the same time, hinder its production: a result of enormous importance. I am, therefore, quite at one with those who consider that we ought not to wait for *foudroyant* manifestations of hyperpyrexia, but that alarm should be taken early, and efforts made, if possible, to suppress its genesis. There are doubtless still unused methods of doing this, and it will well repay those who are called upon to employ cold to devise means suitable to different cases. For example, where the patient can bear removal from the bed to a bath of cool water without risk, nothing can be better; but numbers of patients could only be so moved at great hazard, and then such measures as water-beds and cushions filled with cold water, vessels containing ice, ice-caps, sponging with cold water, wet packing, exposure to cold air, and so on, might be adopted. Wet packing may, in a modified way, be advantageously combined with ice-packing; and, as both are applicable without undue disturbance of the patient, they are