Lectures

ON

CHRONIC HYDROCEPHALUS.

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LECTURE III.

TREATMENT.

GENTLEMEN,—With the diverse circumstances under which cerebral dropsy arises, remedies which are beneficial in one case may be hurtful in another. The treatment of the disorder must be guided by its cause.

Those rare cases in which the effusion is encysted in the arachnoid cavity are seldom recognised during life, and may be dismissed as not included in our therapeutical experience. If such a case presented itself in an unmistakable shape, and the skull were still membranous, we might hope to do good by puncturing the cyst, and approximating its walls by external pressure.

As to ventricular dropsy, which is the only form we need consider, treatment may be productive of good or harm, as it is well or ill adapted to the nature of the case in hand. We must first consider whether we have to deal with increased cerebral pressure, or diminished cranial resistance.

If the disorder has commenced with active brain symptoms, convulsion, coma, or vomiting, these symptoms having preceded enlargement of the head, and more especially if they have come on subsequently to the general ossification of the skull, we may infer that there is an increase of fluid pressure in the ventricles, and may attribute the complaint to venous obstruction or inflammatory disturbance. Under such circumstances our hope of doing permanent good will be small, inasmuch as we know of no therapeutical measures which will reopen occluded channels, remove tubercle, or even put a stop to simple inflammatory exudation. Our endeavour in such cases must be to prolong life by keeping under the effusion of fluid—in most cases only a temporary relief. Purgatives, diuretics, and evacuant of the mercurial class, appear to offer the best chance; purgatives telling upon the effusion, and also upon the strength of the patient, more decidedly than diuretics. It has been sometimes found that hydrocephalus has promptly subsided upon the spontaneous occurrence of purging or diuresis; and it is equally a matter of observation that the same result has followed upon the use of medicines which exaggerate secretion. Of all drugs directed to this end mercurials give, as far as I have seen, the best results. The old view that mercury arrests inflammation and causes the absorption of effused lymph has indeed been abandoned. We know that inflammation (excepting, perhaps, syphilitic inflammation) runs its course regardless of calomel. A layer of “coagulable lymph” upon a cerebral or serous surface is incapable of removal, excepting by such mechanical means as cannot be employed during life; it passes through its natural transformations in contempt of the Pharmacopœia, and in its most favourable issue will form a layer of false membrane which will last as long as the individual of whose structure it forms a part. We must not, therefore, expect more than a limited advantage from mercury; but a limited advantage we may hope to secure. The solid products of inflammation are beyond our reach; but not so the liquid. Experience bears strong testimony as to the use of mercury wherever there is *fluid* pressure within the head; and as this occurs in a considerable proportion of the cases of cerebral disturbance which come under the care of the physician, there is reason in the rule I was once taught—“when in doubt, give mercury.” A grain of grey powder or calomel two or three times a day, with or without mercurial inunction, will often diminish the pressure of intra-

cranial fluid, and avert threatening symptoms. An efficacious mode of applying the remedy is in the combination of blue-pill, digitalis, and squills, as recommended in cases of dropsy by Dr. Matthew Baillie. A grain of blue-pill, with a third of a grain of squills, and a sixth of a grain of digitalis, will answer the purpose.

Such remedies are for palliation rather than cure; for the mitigation of symptoms rather than the arrest of disease. There may be cases in which such measures may, by gaining time, enable the patient to outlive such a temporary morbid condition as a limited coagulum in a venous channel, or an inflammatory attack independent of tubercle or permanent change. Such favourable circumstances are, however, unfortunately rare.

In those more numerous cases of chronic hydrocephalus in which there is no evidence of increased pressure within, in which the enlargement has not been heralded by convulsion, vomiting, or any other sign of cerebral disturbance, in which we may infer that the fault is in the cranium rather than in the brain, connected with imperfect ossification rather than with obstructive or inflammatory disease,—in these cases we can generally relieve and sometimes cure. The judicious use of external pressure is of the first importance; it seldom fails to stop further increase, and will often, in conjunction with other measures, occasion a decided diminution in the size of the head. I have found it the best way to surround the head with a fillet of elastic webbing, the size of which is adjusted to keep a pressure upon the head just short of causing red marks or impressing the skin with the texture of the material. It should be from two to three inches wide; the lesser width answers best unless the enlargement is very considerable. Care must be taken, by shifting the bandage, to prevent irritation of the frontal eminences, which are often inconveniently prominent in these cases. Cod-liver oil, iron, and other remedies adapted to the rickety constitution, may promote ossification, help time to solder together the disjointed bones, and put an end to the progress of the disease. These remedies may be conjoined with others, chiefly of the diuretic class—digitalis, liquor hydrargyri, or acetate of potass, which may help to lessen the accumulation. I have learned, however, in these cases, to attach a less importance to evacuant measures than to those directed to the rickety state.

The following instances show the kind of treatment recommended, and the amount of benefit which may be expected from it:—

Hydrocephalus associated with Rickets; gradual improvement under external pressure, cod-liver oil, iron, and diuretics.—Charles O—, one year and eleven months old, became my patient at the Children's Hospital with the symptoms of chronic hydrocephalus. At birth the head was thought to be rather large, but nothing was decidedly amiss until, at the age of three months, the head began to increase rapidly. A month later the child was described as having had an illness attended with somnolence and convulsive movements. The head continued to increase until the child was brought to the hospital. The head then was globular in shape; it measured twenty-three inches and a half in circumference. The fontanelle was widely open, the sutures gaping; the eyeballs depressed. The child was irritable in temper. The bowels were confined, the motions particoloured. There had been no vomiting. There was a marked rickety diathesis, as shown by the nodulated ribs and swollen wrists. The child was extremely helpless; it could not stand, nor even hold its head up, but lay like a doll in its mother's arms. An elastic bandage was now stretched horizontally round the head. Cod-liver oil with reduced iron was given to counteract the rickety state, while at the same time a diuretic mixture was employed, containing digitalis, nitre, and perchloride of iron. Under this treatment the urine increased in quantity and the aspect of the head improved, the fontanelle narrowing, the eyes becoming less depressed, while the enlargement ceased. Notwithstanding an attack of whooping-cough complicated with pneumonia, the child gradually improved, and when last seen, rather more than a year after the first observation, the eyes had nearly resumed their normal position, the fontanelle was nearly closed, and the child was plump and healthy in appearance, though still unable to walk. The head, now covered with hair, had a circumference of twenty-three inches and three quarters, probably not having increased in size since the commencement of the treatment.

The child was backward in intelligence, though it could say a few simple words.

Chronic Hydrocephalus; diminution of the size of the head under external pressure, cod-liver oil, iron, and diuretics.—**Franklin M.**—, thirteen months old, came under my care at the Children's Hospital in May, 1865. His head had been enlarging out of proportion to his body since he was four months old, and had attained a circumference of 22 inches. The fontanelle was open, and the eyes were depressed. The child was very rickety, as appeared from the swollen condition of the ends of the ribs and of the radii. There were occasional attacks of convulsion. The head was encircled by an elastic bandage, while medicinal treatment was directed both towards the improvement of the rickety state and the removal of the accumulated fluid. Cod-liver oil was given, often with iodide of iron; while iodide of potassium and nitre were administered at the same time for the sake of their diuretic action. Under this treatment the circumference of the head was, in the space of four months, reduced from 22 inches to 20½ inches. It is not necessary to follow in detail the progress of the case. The bandage was constantly worn, and renewed when needful. The diuretics were varied by the addition of digitalis and acetate of potass, and care was taken to keep the bowels loose. Under this treatment the head ceased to enlarge, the skull became completely ossified, and the child got fatter and improved in intelligence. It was last seen in the summer of 1868, then being between four and five years old. The disproportionate size of the head was less conspicuous owing to the natural growth of the body. The head was then completely ossified, all traces of the fontanelles having disappeared. It was thickly covered with hair, and with this addition measured 21½ to 21¾ inches round. The eyes were natural in position, the pupils being equidistant between the lids. There had been no convulsions for eighteen months. The child was sensible, but appeared to be somewhat deficient in memory. He could talk in simple words. He was fat, and had grown much, so that the size of the head was much less conspicuous. The bandage, which had been worn for three years, was now discontinued, and all medicines were stopped as no longer necessary. All tendency to morbid enlargement of the head had ceased, and the general health was good.

I shall relate one other case as an illustration of the advantage of pressure in the treatment of chronic hydrocephalus. It occurred in the practice of Mr. Richard Phillips, and was published by him in THE LANCET of Nov. 28th, 1857. I will give an abstract of his description.

A child was born after a difficult labour, in which the head was subjected to unusual pressure. A few days afterwards the head began to enlarge, and became hot and red, the superficial vessels swelled, the eyes were displaced downwards, and were affected with a tremulous movement; at the same time the stomach became irritable. Gradually the enlargement increased, the sutures generally separated, the scalp became stretched, apparently to its utmost limits, and it was thought that the head would burst, and thus terminate life in a scene too distressing to contemplate. The appearance of the child was described as most revolting, the scalp shining and livid, the eyes directed downwards and continually oscillating, the limbs attenuated. An elastic fillet of india-rubber webbing, two inches in width, was now placed round the head, upon which the separated bones drew together, the tension of the scalp and the size of the head diminished, and the threatening symptoms gradually lessened. The fillet was tightened as the head lessened in size until it was abandoned as no longer necessary when the bones of the head had become united. The case was watched by Mr. Phillips for a period of ten years, at the end of which time little evidence of the disease remained. The child was still headstrong and impetuous in temper, and had a slight cast in one eye, but displayed no other marked difference from a state of health.

I might relate many other cases in which the measures described have been successful in arresting the progress of the disease. Such a result may probably be expected more often than not. The younger the child and the more recent the enlargement, the more amenable is the case to treatment. When the head has attained a great disproportion to the body, it seldom happens that much can be done. As our power of reducing the size of the head is at best limited

to a diminution of from one to two inches in circumference, it is clear that in many cases the patient can never hope to recover the natural proportions of humanity. Repeated small tappings offer a chance, which under such circumstances will probably be sometimes resorted to. But the statistics of the operation are eminently unfavourable. Dr. West has collected fifty-six cases of tapping for chronic hydrocephalus. Recovery was alleged to have taken place in fifteen cases, but in only four were the particulars recorded with sufficient accuracy and for a sufficient time after the operation to make the cure a matter of certainty. My own experience of the proceeding, which has been confined to two cases, has not been such as to make me wish it more extensive. The operation has more opportunity of doing harm than good; it may always kill, but can seldom cure. The reduction in the size of the head is limited by the rigidity of the distorted bones, so that, save under very peculiar circumstances, there could be no hope by tapping to bring the skull to its proper dimensions. Besides this, the proceeding involves a risk of fatal meningitis. When there is evidence, in coma or its like, of such pressure that life is in immediate danger, tapping may bring a reprieve. Under other circumstances, I should be disposed to trust entirely to such measures as have been described, on behalf of which it may be said that they are always safe and almost always advantageous.

PALPITATION: ITS DIAGNOSTIC VALUE.

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(Concluded from page 180.)

PALPITATION is intimately associated with a disturbed or altered innervation; whenever, in fact, there is a disturbance in the balance of the heart's nerve-forces it may occur. In many cases of nervous palpitation—it would, perhaps, be thought premature to say all—no increased action is felt in the arteries, great or small. Whatever nerve-derangement may induce the palpitation, there is no corresponding action in the arteries. The condition may be analogous to, and even homologous with, the disordered action of Graves' disease. In Graves' disease, and in some cases of chorea, the whole right ventricle seems violently thrown against the chest-walls with a large and forcible impulse; the impulse, too, being in the normal locality, not the large diffuse beat of dilatation a rib or so lower than natural. Certain it is that, not uncommonly, a violent action of the heart exists where the pulse is small, and even unusually constricted. This condition is common in women. It is evident, then, that, in this condition, where even the sphygmograph may not detect an unusual action in the arteries, the heart's action must be met or neutralised by some altered condition of the arteries. In some cases, too, there is no excitement in the large arteries, showing that the arterioles are not the only part affected. In hysteria we usually see this condition: the heart is acting with evident violence against no perceptible necessity. The patient is cold, the pulse small, the arteries evidently contracted, and the state of arterial tension is followed by a free flow of limpid urine, the result of an increased pressure on the glomeruli of the kidney. This condition has met with much elucidation from experiments performed by Ludwig, Thierry, the brothers Cyon, and von Bezold. (See "Carpenter's Human Physiology," 7th ed., p. 269.) In these experiments an excited action of the heart was evoked after every nerve-communication had been severed between the heart and the organism, the heart only being attached by its vessels. Irritation then applied to the medulla oblongata induced violent action of the heart, increasing its pulsations in rapidity. When only a small portion of the nerve-supply, the accelerator nerve, was left, there was increase of power as well as of rapidity—i. e., typical palpitation.

These experiments have thrown much light on the patho-