REMARKS

ON THE

SURGICAL TREATMENT OF INTRACRANIAL FLUID PRESSURE.

By J. BATTY TUKE, M.D., F.R.C.P.E.,

Medical Superintendent to the Fife and Kinross District Asylum; and Assistant Physician to the Royal Edinburgh Asylum.

THE patient, R. S. W., whose case was reported in the *BRITISH MEDICAL JOURNAL* of January 4th, 1890, died at the Royal Edinburgh Asylum on January 18th from the sequelæ of influenza. *Post-mortem* examination revealed nothing of special importance. The usual indications of "general paralysis" were well marked. The dura mater was strongly adherent to the skull, especially in the neighbourhood of the trephine holes. Microscopic examination showed the usual lesions of vessels, neuroglia, and cells.

In March of the same year two cases presented themselves almost identical in every respect. The first was seen in consultation with Dr. Berry Hart. A well-formed strong young man of 24, a clerk, of steady habits, having no indications of specific disease, and with no history of hereditary predisposition, had shown since January symptoms of restlessness, stupidity, and inability to do ordinary work. Early in March he fell when walking with his brother. It was stated that he had a "fit." On examination the following symptoms presented themselves: Headache over vertex, contracted pupils, tremulous tongue and lips, slurred speech, knee-jerk absent, uncertain gait, feeble response of muscles of leg to faradic current, impaired memory, and general stupidity.

The second case was identical as to age, history, and symptoms, except that the mental condition more nearly approached to contentedness. In both the same treatment was adopted. The neck and upper part of the back and chest were kept constantly very red with irritating liniments for four months; almost complete rest was enjoined; gentle massage of the limbs was employed twice daily, hog's lard being used. For the first three months of this treatment no change was observed; the symptoms, however, did not increase. Early in July, in both cases, the general conditions were improved; knee-jerk became better marked, the motor symptoms were much reduced, and the pupils were natural. At this point the first case stopped short; he is still stupid and unfit for work, but the progress of the disease is apparently arrested. His health is good, he can walk, read a little, and enjoys life after a fashion. In the second case complete recovery has been obtained. The patient has been at work (shopkeeping) since August, and to all intents and purposes is quite well, all symptoms having disappeared.

Nothing in these two cases militated against the diagnosis of "general paralysis," except the age and improvement of the patients. The condition has, however, been often observed at an earlier age than 24, and cases are on record in which long remissions have occurred, or what appear to be arrests of the morbid process. Anyone would have been justified in offering a guarded opinion that these were cases of incipient "general paralysis."

In December, 1890, the subject of the following case was seen in consultation with Dr. Bannerman.

General Paralysis after Influenza: Temporary Improvement: Relapse: Death.—J. R., aged 40, married, wood carver; always a sober, industrious man; no history of specific disease. About a year ago, after an attack of influenza, he became sleepless, restless, irritable, and prone to exaggerate everything good or bad; his speech was noticed to be slurred, and he complained of general weakness and pain in the head, compelling him to give up work in October. From this date he gradually grew worse, showing marked "biedêtre," increased alteration in speech, and difficulty in walking. A few days before admission he developed maniacal symptoms. I took him under my immediate care so as to be able to watch the progress of the case thoroughly.

Physical State on Admission.—Beyond an accentuated second sound in the mitral area the various systems, except the nervous, showed nothing of importance.

Nervous System.—The pupils were contracted, the right being slightly larger than the left, almost immobile. The Argyll-Robertson phenomena

was present, the tongue was thrown out with a distinct jerk, was deflected to the left side and showed marked fibrillar twitching. The upper lip hung; before he articulated the facial muscles twitched convulsively. Speech was slow, hesitating, and slurred. In walking, the basis of support was broadened, the gait was staggering and uncertain; the erect posture could be maintained with the eyes shut. The tendon reflexes were diminished, and cutaneous sensibility impaired. The muscles responded feebly to the faradic current. The evening temperature was regularly higher than the morning.

Mental Condition. December 9th.—He was in a maniacal condition; whistling and singing, alternately; bursting into tears or shouts of laughter, and posturing. When he spoke it was always in a grandiloquent manner, saying he was the strongest, cleverest, and best man in the world. He would tell what his name was, but beyond this no coherent answer could be got from him. He had no idea of his position or surroundings. During the next three days his condition got steadily worse, the excitement continued, he was sleepless and noisy at nights, hypnotics having little effect. He refused his food, and had to be fed artificially on four occasions. Physically all the symptoms became intensified, and he showed every indication of a rapidly fatal case. The hopeless nature of the illness was explained to his wife. She was told that the operation of trephining offered a faint hope of improvement, and she willingly consented to the procedure. On the morning of December 14th, the head having been shaved and carefully disinfected—

Operation.—Dr. John Duncan performed the following operation: A semilunar flap was made on the right side, exposing the skull between the parietal eminence and the suture. On the removal of the disc of bone (which was hard and dense), the dura did not bulge more than normally, but on pressing gently with the finger there was a distinct feeling of a layer of fluid between the membranes and brain. The wound was temporarily closed; and a disc was removed on the corresponding spot on the left side (it was somewhat thinner than the right). The membranes showed a slightly greater degree of bulging, and a much thicker layer of fluid was felt. The dura was then opened; it was very thick and tough. Very little fluid escaped, but the arachno-pia bulged through the opening as a bulla, and presented the gelatinous appearance of oedema. The pial vessels were deeply injected; in fact, they presented as distinctly marked indications of inflammation as an inflamed conjunctiva. On the arachno-pia being opened, a small quantity of fluid, roughly estimated at 1 drachm, escaped. The right side was then reopened; the feeling of a layer of fluid was much diminished, but the brain pulsations were very distinct; more so than at first, and much more than on the left side. The membranes were opened, and about the same quantity of fluid as on the left side escaped. Drainage tubes were put in both wounds, and the head dressed, dry wood-wool being used. Very little blood was lost. It was noticed that during the operation, when the trephine was being used, the pulse fell from 90 to 70, rising immediately when it was removed.

After-history.—On the third day the temperature rose to 102°, but fell immediately after the head was dressed; after which it was never above 99°. The head was dressed four times; one drainage tube was removed on the third day, the other on the ninth. On the twelfth day the wound was practically healed. At the first dressing there was great serous oozing; it saturated the large thick pad of wood-wool, and even wetted the pillow. A good amount also was found at the second dressing, practically none at the others. On the evening after the operation, patient showed distinct mental improvement; the excitement had gone; he told what his name was, where he lived, etc., and took whatever nourishment was given to him. The pupils were equal, distinctly larger in diameter, although not normally dilated. This improvement continued. On the third day it was especially marked; he asked for food, and answered simple questions rationally, was quiet and tractable, and for the first time recognised persons around him. The physical symptoms also showed improvement; the tongue was protruded more easily, was no longer deflected to the left side, and was much less tremulous; but most marked of all was the way in which the upper lip no longer drooped over the teeth, and the enlargement and increased mobility of the pupils. The speech also was more distinct. He continued in much the same state, showing marked improvement mentally and bodily till about the ninth day, when his mind seemed to cloud over again, and the pupils became more contracted. For the next month his condition did not vary much; he was quiet, took his food remarkably well, and continued much brighter mentally, though never so clear as during the first week after the operation. The physical symptoms, with the exception of the contraction of the pupils, continued relieved. On February 7th he was transferred to Morningside Asylum, where he died on April 6th, after a congestive attack, the disease running its usual course. *Post-mortem* examination was not allowed.

The history of this case is much the same in that of all others which have been trephined for the intracranial pressure following on "general paralysis." So long as fluid can drain there is relief of symptoms, but as soon as the wound heals they return, and the disease runs its course. But the mere temporary relief is of considerable interest, and points to inquiry as to whether a channel of permanent drainage cannot be found. It is to be feared that this cannot be got from the superior surface of the skull. Were it possible to reach the great cisterns at the base a flow might be obtained; but many anatomical difficulties stand in the way, and even if they were overcome it is doubtful whether permanent drainage could be kept up.

The operation which appears to me most likely to obtain thorough drainage of superabundant cerebro-spinal fluid is laminectomy of the second or third lumbar vertebra, puncture of the loose arachno-pia, and, as suggested by Mr. John Duncan, the insertion into the pial sac of small threads of horsehair. Mr. Duncan also informs me that he

has lately performed the operation of laminectomy at the suggested spot for traumatic injury; that he found little difficulty, and that although the flow of cerebro-spinal fluid amounted to 8 ounces a day for three weeks, the patient recovered. For a time during the great flow he was headachy and uneasy, but no other more serious symptoms presented themselves. The history of Mr. Duncan's case shows that although the flesh wound is deep, it only requires great care to avoid sepsis. There is no difficulty in opening the arachnoid; over the bulbus spinalis it is loose, and, as I found in an experimental operation on the cadaver, can be easily reached by forceps and knife. Experience of the treatment of spina bifida also shows that a very considerable drain of the cerebro-spinal fluid can be maintained without necessarily serious consequences; and it further shows that irritation of the serous sac can be applied with good results. It is not unreasonable to anticipate that the temporary improvement which has followed on the imperfect operation of simple trephining of the skull may become continuous under prolonged drainage. So convinced am I of the justifiable nature of laminectomy, that I shall perform it in the first early case that comes under my observation, after, of course, explaining its experimental character to the relatives of the patient, and obtaining their consent.

The most important pathological feature of the operation in this early case was the absolute demonstration of the inflamed condition of the pia. It was evident to all present. With an inflamed serous membrane we have a right to expect effusion. Effusion is a recognised consequence of inflammation of such membranes, and there is no reason for refusing the inference that it occurs in connection with an inflamed pia. Dr. Claye Shaw seems more to regard it as a secondary accumulation, by which I presume he means compensatory. If that is so, whence the pressure? and if there is no pressure, why the necessity of tapping a passive accumulation of serum? I believe the fluid is the result of an active inflammatory process, and is the immediate cause of the headache and many other symptoms of "general paralysis"; that its removal is the cause of the temporary mitigation of symptoms which has been observed in all cases treated by trephining. So soon as the wound heals and the fluid is again confined, the original manifestations return. The history of all such cases points in the direction of a search for a more perfectly relieving operation. Against the justifiability of any procedure I cannot understand how any moral objection can be raised. The condition is known to be hopeless if allowed to run its course. Are we to sit down and fold our hands before the subjects of diseases which have as yet baffled all attempts to cure?

Two objections have been raised to the "inflammatory theory" of "general paralysis": (1) that cases occur in which headache has not been noted; (2) that optic neuritis does not appear amongst its victims. I cannot, after search of my private records, find a case in which headache was not present, and reference to authorities shows headache to be a very prominent symptom. Still it cannot be doubted that cases do occur in which the indication is really apparently absent. It is probable that in such the effusion is slight, and easily carried off, no obstruction to its downward flow being offered by pathological products. But it must be remembered that general paralytics are not prone to complain; that their answers are influenced by immediate conditions; that memory is very defective, and that they are very stupid. Were I to see such a patient, who could not be induced to admit headache, rubbing the back and top of his head, this action would override all his denials. When well into the second stage (the period when the physician, as a rule, first sees him), little or no weight can be attached to his statements.

Optic neuritis is by no means an infrequent symptom in "general paralysis" (Clifford Allbutt and Mickle). It is not the result of mechanical pressure. If we agree with Gowers that it is a descending inflammation, its appearance or non-appearance may be accounted for on the theory that the inflammatory process has not extended downwards and forwards. As a rule in "general paralysis" the heart is free from indications of disease. It is not a basal meningitis, in which condition optic neuritis is not uncommon. If we accept Leber and Deutschmann's views, the absence of this

symptom may be held to depend on the failure of the irritating fluid to reach the nerve.

I have placed the words "general paralysis" in inverted commas to indicate the opinion that it is really a generic term applied to very various and varied morbid conditions resulting in brain paralysis. These have not as yet been discriminated. The case related in this paper affords a typical instance of the congeries of symptoms warranting operation.

REMARKS

ON THE

CONDITIONS OF CURE IN CONSUMPTION.¹

By I. BURNEY YEO, M.D., F.R.C.P.,

Professor of Clinical Therapeutics in King's College, and Physician to King's College Hospital.

ABOUT a year ago the medical profession throughout the whole world were excited beyond measure by the authoritative publication of a statement that a cure for consumption had been discovered. Since then the question of the discovery of a cure for consumption has been the subject of frequent debate in nearly every city in the civilised world. This, then, seems an opportune moment to inquire, What are the conditions of cure in consumption?

The curability of consumption is universally admitted, yet, on the other hand, there is a widespread belief, founded on an overwhelming weight of evidence, that consumption is a very fatal disease, rarely cured, almost incurable. Morbid anatomists report numerous instances of the discovery, in the lungs of persons dying of other diseases, anatomical evidence of arrested and cured pulmonary tuberculosis, whereas it is undoubtedly difficult, even for those who have had the largest clinical experience in the observation of cases of consumption, to point definitely to many cases of the undoubted permanent cure of undoubted phthisis.

These are propositions which will command general assent, which are certainly true, although somewhat opposed to one another. We all admit the curability of pulmonary consumption, but we are all also compelled to admit that phthisis, as we encounter it in its clinical forms, is rarely cured.

It is almost impossible to trace out the past clinical histories of those persons who, on *post-mortem* examination, are found to have had, at some period of their lives, pulmonary tubercle which has been arrested and cured. Many probably had no clinical manifestations of phthisis; their tuberculous affection gave rise to no notable symptoms, was wholly latent, and disappeared, leaving only an anatomical record of its existence. They were never consumptives or phthisical in the clinical sense of the word, and it would be more correct to call them cases of cured or arrested pulmonary tuberculosis than cases of cured phthisis. Quite recently—since, indeed, this paper was written—Dr. Coats, Dr. Fowler, and Dr. Sidney Martin have described the anatomical appearances presented by some of those so-called obsolete or cured tubercles, and they are thus described by Hérard and Cornil.²

"A few pigmented granulations, which are the vestige of a very localised and unimportant tuberculosis, which is extinct, if not altogether cured. The fibrous tissue, and the giant cells which it encloses, appear to be tolerated without of themselves giving rise to any injury. That is a form of tuberculosis which may pass as curable or cured. It is sometimes met with in the necropsies of individuals who have died accidentally of some quite different cause..... These fibrous or calcified tubercles contain very few or no bacilli; bacilli have, however, been occasionally found in calcified tubercle..... Nothing is more common than to find at the apices of the lungs of old men, which are almost always indurated, these hard nodules or cysts filled with whitish or yellowish chalky substance; but it would be an error to refer all those changes indiscriminately to cured cavities, for they may quite as well be simply bronchi, somewhat dilated, which have become isolated by an interstitial pneumonia, or cured abscesses resulting from a simple pneumonia or gangrenous foci, or productions of a syphilitic nature. All lesions which have nothing characteristic in themselves in the stage of fatty or cretaceous change in which they are found;" but they admit that "a great number of these cases may in reality be cured phthisis."

¹ Read before the Medical Society of London.

² *La Phtisie Pulmonaire*, 2nd edition, p. 227.