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ON THE
DIVISION OF THE CILIARY MUSCLE IN
THE TREATMENT OF GLAUCOMA, AS
COMPARED WITH IRIDECTOMY.

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ETC. ETC.

A RECENT number of a medical journal contains a paper, by Mr. J. W. Hulke, entitled "Glaucoma and Iridectomy," in which it is stated by that gentleman that Von Graefe's operation of iridectomy "is the only known successful treatment of this previously incurable disease" (glaucoma).

Mr. Hulke, it is well known, is, and has been, a very strenuous and consistent supporter of Von Graefe's operation, and he is also well known to have been an equally strenuous opponent to my operation of dividing the ciliary muscle, from the time it was first announced in October, 1859, up to the present period, as is shown by his letter published in THE LANCET of the 19th of November last, and more recently by his paper, read before the Medico-Chirurgical Society on June 26th, 1860. Of this no one can reasonably complain. Mr. Hulke has every right to entertain an opinion of his own, and to support the one operation in opposition to the other if he thinks proper to do so; but it becomes quite another matter when he so unhesitatingly makes an assertion (to use his own expression) "so utterly at variance with fact," and one which he cannot possibly substantiate.

My first operation for the division of the ciliary muscle was performed on the 9th of September, 1859; and on the 11th of February, 1860, I published an account of the operation, with cases; at the same time stating that I was led to adopt this mode of treatment from the belief "that the pathological and ophthalmoscopic appearances of the bloodvessels in glaucoma were due mainly to the constriction exercised by the ciliary muscle;" and that to remove this constriction I operated as follows—"I introduce a Beer's cataract knife at the outer and lower margin of the cornea, where it joins the sclerotic. The point of the knife is pushed obliquely backwards and downwards until the fibres of the sclerotic are divided obliquely for rather more than one-eighth of an inch; by this incision the ciliary muscle is divided." This is the description of my operation which I published: it does not contain one word about "striking a knife through the ciliary region towards the axis of the globe," which is the incorrect version given by Mr. Hulke—a proceeding which would be carefully avoided by anyone conversant with the anatomy of the eyeball, from the risk of wounding the lens which would inevitably attend it.

As my operation has now been before the profession above twelve months, and still continues to be attended with the best results in the hands of my colleagues and myself, I cannot admit that iridectomy is the only known remedy for glaucoma. I propose, therefore, to consider, in the first place, the validity of Mr. Hulke's objections to my operation, as set forth in the paper already alluded to, and read before the Royal Medical and Chirurgical Society. Next, to inquire into the results of the operation of iridectomy, as furnished by Dr. Bader's papers in the "Ophthalmic Hospital Reports" (Nos. 9 and 10); and lastly, to give the results of my own operation up to the present time, with my reasons for submitting it to the profession, not as the "only known," but as the best operation for the treatment of glaucoma.

1. The principal points upon which Mr. Hulke insists are, "That the leading features of glaucoma are due to excessive tension of the eyeball, from a superabundance of fluid within it, which distends the vitreous humour; that this fluid (serum) is derived mainly from the choroid; that it might be considered a serous choroiditis."

2. "That the excessive tension of the globe is suggestive of the evacuation of some of the superabundant fluid by tapping."

3. That he has "demonstrated, by microscopical examination, advanced atrophy of this muscle (ciliary) in many glaucomatous eyeballs; whence it follows that the ciliary muscle is not actively concerned in maintaining the glaucomatous process."

4. "To avoid certain alleged disadvantages, paracentesis

scleroticæ has been advocated by Middlemore, Desmarres, and Hancock."

5. "That in all probability the success of Mr. Hancock's operation is solely due to the drawing away of some of the superabundant fluid. According to this view, it is simply a peculiar mode of paracentesis, and cannot rank as a substitute for 'iridectomy,' until it has been thoroughly established that it permanently relieves excessive intra-ocular pressure," which, in common with most surgeons, Mr. Hulke has found that tapping the vitreous humour fails to do.

The assertion, "that the leading features of glaucoma are due to excessive tension of the eyeball from a superabundance of fluid within it," and that "excessive tension of the globe is suggestive of the evacuation of some of the superabundant fluid by tapping," are contradicted and rendered untenable by other portions of Mr. Hulke's paper; whilst the results he gives of the operation of iridectomy directly prove, that the operation is only of value when the fluid, for the evacuation of which it is performed, is actually not in existence to be evacuated.

We are told that the reason why iridectomy has failed in the hands of some surgeons "has proceeded, in many instances, from its having been performed at far too late a period.....that the propriety of operating in the premonitory period cannot be doubted.....that in acute glaucoma, where the operation is done during the first inflammatory attack, or soon afterwards, vision is very completely restored; whilst, in chronic glaucoma, the results are less uniform and less decided."

We may hence infer, that three stages of this disease are recognised: the premonitory, the acute, and the chronic, and that the success of the operation is greater the earlier it is performed. It is this great practical fact which seems to me to be fatal to Mr. Hulke's theory of glaucoma being due to a superabundance of serum distending the "vitreous humour," more especially as that gentleman, in the same paper, describes the vitreous humour as being "unnaturally firm in this disease;" and that it is only at a late period, when all the component structures are undergoing atrophy, that the vitreous humour becomes fluid, at which time the results of the operation are admitted to be "less uniform" and "less decided." And I am still further supported in the opinion I have expressed here and elsewhere, that fluid is not the cause, but the result, of the disease termed glaucoma, by the following very corroborative paragraph, extracted from Mr. Hulke's paper on the "Pathology and Morbid Anatomy of Glaucoma," read before the Medico-Chirurgical Society, Dec. 12th, 1857:—"With a view to relieve the tension of the globe, I have seen the sclerotic freely punctured with an extraction knife, after which firm counter-pressure with the finger upon the opposite side of the globe only caused the protrusion of a very small bead of yellowish vitreous humour, such great firmness had it." Whether the tension of the globe was relieved by the puncture is not stated.

Nor is it by any means so conclusive as Mr. Hulke appears to imagine, that, because he has "demonstrated advanced atrophy of the ciliary muscle in many glaucomatous eyeballs, this muscle is not concerned in maintaining the glaucomatous condition." The word "many" is very indefinite and inconclusive. Mr. Hulke does not state in how many instances he has found this muscle atrophied, or what proportion these instances bore to the number of glaucomatous eyeballs which he examined microscopically. He does not inform us whether these glaucomatous eyeballs were obtained after the death of the patient or before, or, if from the former, the time which had elapsed between the death and the examination; for the changes which take place, especially in diseased eyes, are so rapid, that very little reliance can be placed upon such examinations when they have been deferred for any length of time. Neither, where the glaucomatous eyes which he examined had been obtained from living patients, does he tell us the stage of the disease at which they were extirpated, or the circumstances which necessitated their extirpation. It had been but justice that these particulars should have been mentioned before a sweeping pathological statement was unhesitatingly advanced.

I have already alluded to the three stages of glaucoma described in Mr. Hulke's paper—the premonitory, the acute, and the chronic; to his admission that it is only late in the disease that the component structures of the eyeball undergo atrophy; and that whilst iridectomy is most successful during the first two stages, its results are less uniform and decided in the last; whilst Dr. Bader states, in his report, "that the prognosis of chronic glaucoma depends upon the stage in which the eye affected is operated upon: when blind for some time, it is not expected to regain sight; a chronic glaucomatous eye, with mere perception of light, is rarely improved by operation."

Mr. Hulke's microscopical examinations, therefore, cannot be admitted as at all conclusive or of much value against my proposition, "that the ciliary muscle exercises considerable influence in maintaining and aggravating the glaucomatous condition," and still less against my operation for the division of this muscle. They only prove that in certain cases of advanced glaucoma, in which an operation is admitted to be rarely successful, the ciliary muscle may have undergone atrophy with the rest of the tissues; but they by no means prove that this is the case in all or even in average instances, as we cannot for one moment imagine that any surgeon would extirpate a glaucomatous eye capable of relief by operation, unless under very peculiar circumstances. I presume it is only recently that Mr. Hulke has discovered this condition of advanced atrophy of the ciliary muscle in glaucomatous eyeballs, otherwise he would scarcely have omitted all mention of a fact of so much importance in his paper upon the "Pathology and Morbid Anatomy of Glaucoma," read before the Royal Medico-Chirurgical Society in December, 1857.

On the other hand, my friend and colleague, Mr. Hogg, has kindly furnished me with the particulars of two glaucomatous eyeballs, extirpated at an advanced period of the disease, in which his microscopical examination demonstrated the ciliary muscle as highly developed, and anything but in a state of atrophy. I do not, however, advance these cases as of themselves sufficient to controvert Mr. Hulke's assertion—their number is too small; but, at the same time, they afford pretty conclusive proof that the ciliary muscle is not atrophied in all cases even of advanced chronic glaucoma. Neither can I admit that the success of my operation in any way depends upon, much less is solely due to, the drawing away of some of the superabundant fluid; or that it is a peculiar mode of paracentesis, to be classed with the operations of "paracentesis scleroticæ" of Middlemore and Desmarres.

I think I have succeeded in showing that, according to Mr. Hulke's own statements, there is no superabundance of fluid in those cases most likely to be benefited by the operation; therefore the drawing-away theory falls to the ground, and is still further negated by cases Nos. 15 and 16, appended to this paper.

The object of applying the term paracentesis scleroticæ to my operation, and classing it with the procedures of Middlemore and Desmarres, is transparent enough. Paracentesis of the cornea and scleroticæ, as practised by these two surgeons, has not met with any great amount of success. If, therefore, the profession could be impressed with the notion that my operation was nothing more than one or the other of these proceedings, and that any transient good which it might be the means of effecting was due to the mere evacuation and draining away of fluid, it would be looked upon as deficient both in value and originality, and would, as a matter of course, fall into disrepute, and proportionately give greater prominence to the operation—iridectomy. It is true that the word paracentesis means, literally, a "piercing through," but its application in surgery has hitherto been restricted to the operation of tapping. If we were to attempt to describe the operation of tenotomy in club-foot as "a peculiar mode of paracentesis" of the leg, or of the foot, or if we were to designate the operation for the extraction of hard cataract as "a peculiar mode of paracentesis" of the cornea, we should expose ourselves to the charge of pedantry; yet the name may with equal propriety be applied to these operations, or even to iridectomy itself, as to my operation for the division of the ciliary muscle. Hence the term as applied to this operation by Mr. Hulke is a misnomer.

The operations of Middlemore and Desmarres were introduced for the avowed purpose of relieving intra-ocular tension by the evacuation of fluid. My operation, on the contrary, is introduced for the avowed purpose of relieving the constriction of the several coats of the eye by division of the ciliary muscle.

An increased quantity of fluid may or may not be present, and, when present, some may flow by the side of the knife; but this is merely a coincidence, not by any means the primary object of the operation; for mere evacuation of fluid without division of this muscle is quite incapable of affording permanent benefit.

In my former paper I pointed out the variety of opinions entertained by the supporters of iridectomy in this country as to the *modus operandi* of the operation. I would here venture to suggest another. I believe it will be found in the course of time, that the element of success is the same in iridectomy as in my operation—viz., "the division of the ciliary muscle." That, from the situation in which Von Graefe makes his first incision, he at the same time cuts it through, and I

have very little doubt it will ultimately be found that the extent of this incision may be advantageously curtailed, and the tearing away of the iris altogether dispensed with.

(To be continued.)

A Mirror OF THE PRACTICE OF MEDICINE AND SURGERY IN THE HOSPITALS OF LONDON.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum et dissectionum historias, tam aliorum proprias, collectas habere et inter se comparare.—MORGAGNI. *De Sed. et Caus. Morb.*, lib. 14. Proæmium.

KING'S COLLEGE HOSPITAL.

CHRONIC EMPYEMA, WITH A FISTULOUS OPENING INTO
THE CHEST; ALBUMINURIA; DEATH FROM RAPID
ŒDEMA OF THE LUNG; AUTOPSY.

(Under the care of the late Dr. TODD.)

THE subjoined two cases were both primarily attacks of acute pleurisy of the right side, followed by effusion and intercostal bulging. In the first (for the brief notes of which we are indebted to Dr. Edmund Symes Thompson, when house-physician to the hospital), absorption of the fluid went on, leaving a small, circumscribed empyema, pointing externally. This was opened, and continued to discharge matter for many months. The disease now became complicated with renal dropsy and albuminuria, which mainly influenced the final result. In the second case, thoracentesis was performed four times, with an exit of serum on the first two occasions, and afterwards of pus. The pleura was washed out regularly, with considerable relief, but, as we have now witnessed several times, it proved but temporary.

John B—, a healthy London tradesman, aged twenty-seven, had an acute attack of pleurisy on the right side in December, 1856, followed by much effusion, with bulging of the side. During the three following months, the fluid underwent gradual absorption, except that there was dulness on percussion below the axilla over a space three or four inches in diameter. Subsequently, a fluctuating prominence formed in this situation, into which an incision was made, in the fourth intercostal space, when about an ounce of matter escaped. After a few days the patient left the hospital, the wound still discharging a small quantity of pus.

He was readmitted into King's College Hospital in April, 1859, under the care of Dr. Todd. Several ounces of purulent matter were discharged daily from the aperture in the side. There were considerable ascites and œdema of the legs. (Seven months before his second admission he had an attack of acute renal dropsy.)

The opening in the chest, being small, was dilated by the introduction of sponge tents. The quantity of discharge diminished under this treatment up to a certain point, the dull space proportionately decreasing. He left the hospital, much improved in health; but was again admitted in the following November, with general dropsy, and scanty and highly albuminous urine. About eight ounces of pus were discharged in twenty-four hours from the thoracic opening. The patient was carried off, a few days after admission, by the rapid supervention of œdema of the lungs.

At the autopsy, the right lung was found to be adherent to the pleura costalis, except in the interval between the second and fifth ribs, where the two pleural layers were separated by several ounces (perhaps fifteen) of purulent fluid, contained in a sac, formed externally by the partly bared ribs and intercostal muscles, and internally by the thickened pleura. Liver large; kidneys large and fatty.

EMPYEMA AND HYDROTHORAX; THORACENTESIS FOUR
TIMES; DEATH.

(Under the care of Dr. BUDD.)

The brief details of this case were kindly furnished by Mr. Huxley, late clinical clerk to Dr. Budd.