TENSION OF THE EYEBAL; GLAUCOMA; ETC.

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Tension of the Eyebal; Glaucoma; Etc. by James Vose Solomon

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SOME ACCOUNT OF THE OPERATIONS PRACTISED
IN THE NINETEENTH CENTURY
FOR THEIR RELIEF.

[*A paper read before the Midland Medical Society, February 3rd*, 1868.]

BY

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INTRODUCTION.

To attain a correct estimate of the progress of medical science, it is essential to take a retrospective glance at what has been done by those who have preceded its representative men of our own time, and endeavour, in a spirit of eclecticism, to adjudge the advantages which have resulted to society from more recent discoveries and methods of practice.

The substance of the following paper, entitled "Some Account of the Operations practised in the Nineteenth Century for the Relief of Tension of the Eyeball, Glaucoma, etc.," was read before the Midland Medical Society on February 4th of the present year, and has since appeared in the BRITISH MEDICAL JOURNAL. So great is the interest which continues to be manifested by the profession in the surgical treatment of intraocular tension and glaucoma, that I would fain believe no apology will be required for publishing the paper in a separate form.

A few words in explanation of the meaning of tension of the eyeball.

If a healthy eye be pressed by the point of the finger, it will be found to possess a certain degree of elasticity, which—although varying somewhat in different persons, without a corresponding alteration of the acuteness of vision, or of the power of adjustment—affords a standard by which surgeons, who have patiently studied the subject in a practical manner, may in numerous cases judge of the pathological significance of this sign, when the eye is diseased.

In order to conduct the examination with a due regard to accuracy of diagnosis, the patient should be instructed to gently close the lids, as in sleep; while the surgeon, standing in front, fixes the globe by placing the index finger of one hand and the second of the other on either side of the eye, taking care to avoid active pressure. He then makes one or two delicate and momentary compressions of the eyeball with the point of the index finger, which is at liberty; using sometimes, for this purpose, two fingers at the same instant. In all cases, he should examine in succession the degree of resistance afforded by the vitreous and the anterior chambers, and the irido-ciliary region.

If the examination be conducted in a rude or

sudden manner, an erroneous conclusion will be arrived at, in consequence of an artificial and temporary tension being induced by the spasm which the manipulation excites in the lids and muscles of the eyeball.

The degree of intraocular tension is in some diseases subject to so much variation from local and general causes, that it becomes of importance to repeat the examination at intervals, and even more than once at the first interview with the patient.

The degree of uneasiness or pain produced from a tension in excess of the normal standard depends on the nature of the disease and nervous susceptibility of the patient. Mr. Wardrop does not seem to have known the value of a digital examination, but to have relied on the situation and nature of the pain felt, and the appearance of the cornea. This remark in regard to pain suggests to me it may be useful to notice that considerable and most injurious pressure is sometimes present without exciting any local uneasiness whatever, the patient having only discovered his blindness or impairment of vision from perhaps an accidental closure of the more perfect eye.

The existence of a tension greater than normal does not of necessity entail a surgical operation for

its relief, inasmuch as there is a class of cases, which the ophthalmoscope will serve to determine, that yield to local and general treatment, aided by a due regard to hygienic measures. But where the tension is attended by the appearance of a rainbow round the flame of a candle or lamp (*iridescent* vision), and by contraction of the lateral field of vision, the defining power of the retina remaining good, a recourse to surgical interference is not to be long postponed; and, should it happen that the vision of one of the eyes has already become much impaired, or been lost, any delay in the application of surgical treatment for the relief of the more useful organ would be in the highest degree culpable.

The increase of intraocular tension ranges from a degree a little more than normal to a condition wherein the globe has assumed a stony hardness, and is incompressible by the finger. And, conversely, the reduction of it may be so great that the eye is flattened in the situation of its motor muscles.

In some cases of much exalted tension, the local application of atropine induces a reduction of it for three or four days, when a recurrence takes place, let the alkaloid be used ever so assiduously. I refer the first phenomenon to the constricting action of atropine upon the coats of the arteries, and imagine

the second to be due to the *vis a tergo* incident to the eye disease having overcome the constriction.

The method of ascertaining the extent of the lateral field of vision is extremely simple, and should never be omitted in an investigation of disordered states of the retina, more especially when accompanied by morbid tension. We proceed as follows:—The patient—having covered one eye by placing the palm of his hand in front of it, without making pressure—is directed to fix his gaze on the centre of the surgeon's face, who stands one or two feet in advance. The examiner now places an extended finger on either side of his own face, and notes the width of the field of vision enjoyed by the lateral halves of the retina. Sometimes it is found contracted on the temporal, sometimes on the nasal side. In chronic glaucoma, the greatest extent of the field of vision is commonly downwards and outwards. The examination is concluded by placing the fingers horizontally, one above and one below the face of the surgeon. In this way the extent of the vertical field of vision is discovered. In Dr. Graef's *clinique*, a black board, with a white cross in the centre, is employed for this purpose. The patient having fixed his eye on the object, white lines are drawn with chalk in different directions, and as far only as he can see them. In this manner an accurate dia-

gram of the sensibility of the retina is obtained. Such diagrams, when preserved, are a useful means of preventing all cavil in respect to the result of an operation on the function of the retina. Whichever test is used, the distance at which the patient stands from it, on a repetition of the trials, must always be the same.

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