AN OPERATION FOR THE RELIEF OF CONGENITAL PTOSIS*

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CASES of congenital ptosis may be conveniently divided, clinically, into three classes:—

- (1) Partial ptosis with fair independent levator action.
- (2) Complete ptosis with little or no levator action but with good upward movement of the globe.
- (3) Complete ptosis with deficient upward movement of the globe.

In order to estimate the amount of levator action present in any given case it is necessary to place one's hand firmly over the frontalis muscle while the patient makes an attempt to open the eye.

With the first and third classes I am not now concerned, except to say that as regards the first class, in my experience the best operation is to shorten the levator tendon, approaching it either by a skin or conjunctival incision (I, personally, prefer the latter). The third class I believe to be extremely rare. In most cases of ptosis a certain disinclination to turn the eyeball upwards is present, probably because this movement is never practised. The best method of determining whether upward movement of the globe is present or not is to bend the patient's head forward while raising the eyelids with the finger and to ask the patient to look at an object immediately in front. If this is done it will be found in nearly all cases that the eyeballs will be raised. Reports of anatomical investigations in ptosis cases confirm my view that the superior rectus is rarely absent. If, however, a case should present itself in which no upward movement of the globe could be elicited, the only possible means of relieving the condition would, of course, be by some form of plastic operation.

My chief concern in this paper is with the second class—which I believe to be much the commonest—namely, those cases with little or no levator action but a good upward movement of the eye.

The results of plastic operations are, in my experience, on the whole, disappointing both cosmetically and functionally, and Motais' idea of making the superior rectus muscle take on the function of raising the lid, in addition to its normal one of raising the eye, has always impressed me as being a good one. In ordinary circumstances the upper eyelid and globe move upwards and downwards

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in conjunction, therefore, theoretically, the result of the operation should be satisfactory both physiologically and cosmetically.

Motais' operation consists in taking a slip of the superior rectus tendon and attaching it to the centre of the upper eyelid. I have performed a good many Motais operations and have been fairly satisfied with the results on the whole, but have found that disappointments not uncommonly occur, chiefly owing to the liability of the suture which holds the slip of tendon to the eyelid, to give way within a few days; when that happens the lid slips back and the ptosis remains unrelieved. Again, the fact that the lid is held in one place only often gives rise to a rather peaked appearance of the eyelid, associated with an ugly dimpling of the skin of the lid at the site of the attachment of the slip of tendon. Again, unless the attachment of the slip is exactly central, the lid is raised more on one side than on the other.

It therefore occurred to me that a better result might be gained by attaching the lid to the superior rectus muscle, instead of the converse, and with this end in view I devised the following operation which may be performed under general or local anaesthesia; with the latter a certain amount of pain, caused by pulling on the superior rectus tendon is, however, inevitable. The eyelashes should not be cut.

A controlling suture is first inserted in the conjunctiva, immediately above the cornea, and the eye depressed as far as possible by its means. The superior rectus tendon and its attachment to the globe are then exposed by a horizontal incision through the conjunctiva and a squint hook is passed under the tendon; a silk thread is then pushed under the tendon and the hook withdrawn; the two ends of the thread being secured by Spencer Wells forceps. This thread is now used to control the eye in place of the preliminary conjunctival suture, which may be removed.

Next the upper lid is everted and the conjunctiva above the incision seized by forceps and dissected upwards until the upper edge of the tarsal plate is exposed. In detaching the thin conjunctiva from the tarsus, some button-holing is apt to occur, but this is of no consequence.

The upper edge of the tarsal plate appears as a convex rounded border; this is gripped centrally by catch-forceps on each side of which a thin strip of tarsus is cut with a fine pair of bent scissors, from without inwards and within outwards respectively, each strip being left attached centrally, the width of the uncut area of tarsal plate between the strips being about the same as that of the superior rectus tendon: as long a strip of tarsal tissue as possible should be aimed at. Sinclair's scissors, which he used for cutting the cornea when extracting cataracts intra-capsularly, are very suitable for cutting the strips. A No. 4 needle, threaded with No. 1 silk,

is then passed through the end of one of the strips and again through the corresponding edge of the superior rectus tendon, a similar suture being passed through the other strip and the other edge of the tendon. The sutures are drawn tight without being tied, in order that a judgment may be made of the relative positions of the eye and eyelid; the position of the edge of the lid should be such that it slightly overlaps the upper part of the cornea. If the position of the lid is judged not to be correct, those parts of the sutures which have been passed through the tendon should be withdrawn and re-inserted in the tendon in a suitable position, either higher up or lower down as required. This part of the operation requires care and judgment, especially as the final position of the lid remains permanently unaltered, and this fact is one of the most satisfactory features of the operation. I have never found that the sutures gave way or that the lid altered its position in the slightest degree at any time after the operation. It is not necessary to insert conjunctival sutures.

With regard to after-treatment, great care must be taken to prevent exposure of the cornea during the healing stage. It is better not to sew the lids together, the best form of dressing being a sausage-shaped pad placed over the upper lid, kept in place by strapping and a bandage; this prevents inversion of the upper lashes

FIG. 1.

Showing the controlling suture, and the exposed superior rectus tendon.

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FIG. 2.

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and keeps the eye efficiently closed. The sutures can easily be removed in about ten days' time.

After healing has taken place and all reaction disappeared it will frequently be found that when the eyeball is raised, the skin of the upper lid is apt to fall in an unsightly fold over the lashes; the skin is flabby and does not seem to possess a normal tone. This can easily be remedied by a plastic operation carried out on the principles of the Hotz operation. A horizontal strip of skin of suitable width is removed from the upper lid, the position of the lower skin incision corresponding roughly to that of the upper edge of the tarsal plate. The sutures which join the edges of the skin incision are carried through the deep tissues in such a way as to stretch the skin over the tarsus and to produce a fold in the skin of the eyelid in the normal position. This little operation can readily be done under a local anaesthetic.

Some years ago, George Young described an operation which consisted in stitching the tarsus to the sclerotic. It was, however, found by some operators who tried it that the desired junction between tarsus and sclerotic was apt to fail to establish itself. I have performed five operations according to the method which I have just described and in each case a firm junction between the tarsal strips and the superior rectus tendon has taken place.

A decided advantage is gained, firstly, by using strips of tarsus as the lid attachment, and secondly, by joining these strips to the sides of the tendon of the superior rectus.

An objection which has been raised to the type of operation in general in which the superior rectus is made to perform two functions (including of course both Motais' operation and that just described), is that in cases of unilateral ptosis when the one eye is not amblyopic, vertical diplopia is apt to result, owing, of course, to

FIG. 3.

The dotted lines indicate the position of the tarsal plate, tarsal strips, superior rectus tendon, and sutures, when the operation is completed.

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the extra weight thrown upon the muscle of the affected side. This statement is undoubtedly true, but this may disappear in time, and even, if it should persist, as far as the patients are concerned I have not found that they are greatly incommoded. For the eyes are, as a rule, straight in the primary position and it is only on looking up that the one lags behind the other, and while an upward movement of the eyes beyond the horizontal meridian is of all the ocular movements that least frequently performed by normal patients in daily life, the ptosis patient who has never been accustomed to raising the eyes before the operation, simply avoids doing so afterwards. He is more than content if he can look straight in front without wrinkling his brows and throwing back his head, and I claim that this result can in most cases be depended upon if the operation which I have described be carried out.