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IMPLANTATION OF FAT INTO TENON'S CAPSULE AFTER ENUCLEATION.*

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It should be the first thought and aim of every surgeon, in such operations as the removal of the eye or the amputation of the leg, to secure a good, healthy, and useful stump, in order that the deformity and defect shall be as slight as possible, and also that the after results shall be such that the patient does not feel embarrassed or inconvenienced through the loss of the member.

With these thoughts in mind, and with the progress that has been made in surgery, the ophthalmic surgeon has for the past twenty-five years tried many forms of enucleation and implantation into Tenon's capsule and the orbital tissues, of different materials, with the hope of securing a more freely movable stump for a glass eye. So far these efforts have been successful to a moderate degree only. Before this time it was thought sufficient if the ophthalmic surgeon removed the diseased or disfiguring eye without giving any special thought to the after appearances or the movements of the artificial eye.

It was de Wecker who first suggested a simple procedure as an improvement upon the mere removal of the eye. He sutured the conjunctiva, the capsule of Tenon, and the tendons of the muscles together with a purse string suture and after the eye was enucleated, this suture was tightened and all of the tissues were brought together to form a stump. Since his first efforts to improve the orbital stump, many different operations have been devised.

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A great many of these operations have been tried, but have failed for one reason or another. Perhaps the most serious objection that can be raised against this form of surgery is the liability to increase the danger of sympathetic ophthalmia. This has followed some of these modified operations for enucleation and must be remembered. The one operation that has been followed by sympathetic ophthalmia more often than all the rest is the one devised by Mules. It consists in the amputation of the cornea, the removal of the contents of the eyeball, and the implantation in the sclera of a glass ball. Since this operation of evisceration has been in vogue there have been thirty-six cases of sympathetic ophthalmia reported. Thus we see that this is a dangerous procedure, and one which exposes our patient to the loss of his sight, when there is no danger of such an accident if enucleation is performed.

A modification of this operation was suggested by Frost and Lang to remove the danger of sympathetic ophthalmia. They remove the eyeball and then implant the glass ball in the capsule of Tenon, conjunctiva, and the cone of ocular muscles. The one drawback to this operation is the frequency of extrusion of the glass ball from the socket.

I will mention only some of the many things that have been tried from time to time to secure a more movable stump for the glass eye. Mules used the glass ball and Fox suggested the gold ball; others have tried celluloid, sponge, peat, bone, fresh and decalcified; agaragar, petrolatum, rubber, wire, silk and catgut, rabbit's eyes, and fat from the gluteal region. It is to the latter, the use of fat as an implant, that I would like to especially call your attention. This is not a new operation, as it was first tried by Barrequier, some fifteen years ago, and has been done by many ophthalmic surgeons with varying degrees of success. The operation is comparatively simple and not attended with any danger to the patient.

The enucleation is performed in the usual manner, with the exception that just before each muscle is severed from the globe, a catgut suture is attached to it, and this suture is held by a hemostat. After the eyeball has been removed, we place in the capsule of Tenon a mass of fat tissues that has just been dissected from the gluteal region of the patient. The quantity of fat tissue used should be governed by the size of the eyeball. If we find a normal sized eye, the quantity of the fat tissue used will be greater than in these cases after removal of a shrunken or tuberculous bulb.

The external and internal recti muscles are brought together and tied with catgut sutures, and then the superior and inferior recti in the same manner; after this the conjunctiva and Tenon's capsule are brought together with a purse string suture of silk thread. Bandage is applied, and the patient is put to bed for two days. There is usually slight or no reaction after the operation. In case of severe swelling, ice pads should be applied constantly.

I have performed this operation three times so far and it is my desire to do it at least thirty or forty times before I should feel justified in drawing any definite conclusions. This brief report is offered as a preliminary statement of the work.

CASE REPORTS.

CASE I. T. P., aged twenty-eight years, Italian, enucleation for old iridocyclitis, the eye being of normal size. Fat implant about the same size as the globe, 25 x 25 mm. No reaction, discharge slight, some tendency to formation of granulations on stump, which were removed with applications of silver nitrate. Very good motion of the eye obtained. Considerable shrinking of the fat tissue, leaving an elevation in the socket about one half the size of the implant.

CASE II. H. H., aged fifty-eight years, German, enucleation of a tuberculous bulb, and fat implanted same size as globe, or perhaps a little larger. Considerable reaction and discharge. Microscopic examination of the discharge showed mucous cells and shreds of mucus, but no bacteria. The constant use of ice compresses and

protargol reduced the inflammation in a few days. One month later, the implant had shrunken to one third of its former size.

Case III. R. P., aged thirty-eight years, Italian, enucleation of a supposed microphthalmic globe and fat implanted. Some reaction and discharge, which was treated with ice compresses and protargol. Microscopical examination of discharge negative. Six weeks later, the stump was reduced to one half its size.

In Cases II and III the reaction, i. e., swelling and discharge, was quite free, and this may have been due to the fact that the implants were too large for the size of Tenon's capsule. I used these large implantations purposely in these cases, as I had in mind the one fault of this operation, namely, the great tendency to necrosis or shrinking and absorption of the fat implant. Necrosis and absorption of the implants have followed this method of operation so often that this is the one reason that it has not been done more generally by ophthalmic surgeons. There have been some cases of infection reported, but with no more serious consequences than the loss of the stump by suppuration. This operation does prolong the patients' stay in the hospital and keeps them from their work for a longer time, and this might be considered a disadvantage in the case of wage earners.

The advantages asserted for this operation are:

I. There is nothing that can be broken at any future time, as in the case of a glass ball stump.

II. The fat being removed from the patient's own body, overcomes the objections that have been raised against the implanting of a foreign body in the orbit.

III. There is no danger of sympathetic ophthalmia.

IV. The fat is easily inserted and moulded, and is soon held in its place by the adhesions and ingrowths of connective tissue.

V. It is nonirritating and therefore is not extruded.

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