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REFERENCE

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THROMBIN TECHNIQUE IN OPHTHALMIC SURGERY

BY

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THE perfect form of wound repair must, we take it, be that, which follows most closely on Nature's methods, and if it were possible in ophthalmic surgery—where the structures dealt with are so delicate—to find some method of wound repair which would obviate the need for sutures and yet help wounds to heal quickly and firmly, then we should be approaching the ideal.

It was speculation on the above lines that led us to think that the use of thrombin for ophthalmic wound repair might be of value and it was decided to try it out on a number of cases.

The use of thrombin is well established in plastic surgery. It is an extract of blood platelets and its action is to reduce the bleeding time at any raw surface, thus securing quick and firm adhesion between two raw areas of tissue such as wound edges brought together in apposition, or where tissue flaps or grafts are placed on a prepared bed. Thrombin is capable of reducing the bleeding time from the normal 6-8 minutes to 15 seconds. There are two commercial preparations in circulation which we have used: thrombin topical (Parke-Davis) and thrombin coagulant (Maw). The preparation is made up in powder form in sealed ampoules and solutions are made from the ampoules of the strength required. This solution must be used immediately and will not keep for any appreciable length of time. Extract of platelets was used systemically before on the assumption that parenteral administration of such extract would enable the body to reduce its own bleeding time. Coagulin (Ciba) was probably the widest known commercial preparation of this type.

Plastic Surgeons apply thrombin to the actual surfaces of the graft and bed and it is generally agreed that the adhesion of such

a graft becomes firm enough in many cases to dispense with sutures, a marked simplification in the technique of grafting.

There are two main operating procedures in ophthalmology where it was thought that the employment of thrombin might be of the greatest value if successful:—

1. Cataract surgery.
2. Conjunctival plastics and operations involving the conjunctiva in general, such as squints.

In cataract surgery a method of quickly and firmly sealing the conjunctival flap would make sutures of any kind superfluous, and in other conjunctival operations—especially those on children—the removal of sutures could be avoided and conjunctival cicatrization should be less extensive.

We accordingly started applying thrombin at operations for cataract and squint in the following ways:—

In cataract cases the section was made in the usual manner with a large conjunctival flap. After completing the removal of the lens, the flap was grasped in two forceps and turned with its inner surface upwards. Previously prepared thrombin was instilled on to the turned-up surface and on to the raw area of the globe and the flap placed back and ironed out—in some cases the thrombin was introduced under the flap while in place.

In cases of squint, catgut was used for suturing the muscle and thrombin instilled over the whole area of operation, then the edges of the conjunctival wound were immediately brought into apposition and held in this position for approximately one minute.

In a few cases slight crushing together of the edges of the wound with a toothed fixation forceps was carried out.

The number of cases operated on with the above-given technique would not justify final conclusions as yet. It is possible, however, to say that after cataract extractions, we managed to get well sealed wounds in which the sealing effect was noticeable immediately after the operation and lasted through the danger-period of rupture of the wound. In squint cases we obtained well healing wounds with good cosmetic results and with less local reaction than a catgut or silk sutured conjunctival wound. There was no local irritation whatsoever—a fine fibrinous layer covered the conjunctival wound; this disappeared on the 6th-7th day. We did not meet with any general symptoms.

The haemostatic power of thrombin was also very noticeable and this property alone might well be made further use of in ophthalmic surgery. It is intended to try out this method further and we hope to be able to give a more detailed account later on.

There is one slight drawback to the use of thrombin at present—the substance is now made up in quantities for major surgical procedures—5 c.c.'s, etc. This is very wasteful in ophthalmic

practice and it is hoped that should the value of the preparation in this branch be further proved, it will be made up in smaller quantities, such as 1 c.c., which would be ample.

Summary

A short preliminary report is given on the use of thrombin for the quick and efficient sealing of conjunctival wounds, without the use of sutures. Attention is also drawn to its possible use as an ophthalmic haemostatic.

SURVEY OF THE TREATMENT OF TRAUMATIC CORNEAL ULCER*†

1941-1944, Royal Hospital, Sheffield

BY

ARTHUR SMITH

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THIS paper consists of a restricted statistical and clinical survey of a consecutive series of cases of corneal ulcer which were severe enough to demand in-patient treatment in the Royal Hospital during the four years from 1941 to 1944.

I have confined my attention to traumatic ulcers in view of their ease of comparison and similarity in aetiology, and particularly because Sheffield claims a high incidence of this type of ulcer. I lay no claim to an investigation similar to that of the W. H. Ross Foundation of Scotland, so I cannot give you the elaborate scientific and pathological detail characteristic of deliberate scientific research. The data are based entirely on the individual case records made as a routine during a patient's stay in this hospital. It can be stated with confidence, however, that periodical surveys of clinical records are valuable in retrospect and in helping to preserve a sense of proportion and perspective when estimating the results of treatment of one's own cases. But comparisons are highly stimulating at times and so I have presumed to attempt a comparison of the final visual acuities from this series of cases with those published in 1942 by the Ross Foundation.

During the years 1941 to 1944 351 cases of corneal ulcer were admitted to the Royal Hospital for in-patient treatment. Of these 89 were of spontaneous origin (at least they gave no history of trauma) and 262 were traumatic.

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