(Allen *et al.*, 1949). This is speculative. The thrombocytopenia present in these afibrinogenopenic states may be secondary and due to the excessive demand on platelets at the bleeding sites.

Macfarlane has shown the critical level of fibrinogen to be 0.06 g. per 100 ml., below which blood clotting is inhibited. In our case none of the above-mentioned factors could account for the lowering of the fibrinogen level. The plasma proteins show a normal albumin-globulin level and the A./G. ratio is 1.5:1. Clinically there was no evidence of any liver dysfunction, nor could the afibrinogenopenia be attributed to a toxic state. The condition here seems to have been due to some inborn defect of metabolism.

Fresh blood or plasma transfusions may be effective. Fraction I of Cohn (antihaemophilic globulin) contains the fibrinogen portion of plasma, and Diamond (quoted by Down, 1949) has reported its successful use in one of his patients, as a prophylactic to be given every third day. In our case no beneficial effect was shown by the blood transfusion.

Summary

A case of congenital afibrinogenemia is reported in an infant of 11 months of mixed European and Asian parentage.

Ten other cases collected from the literature are also reviewed.

The principal features in this case are the total absence of fibrinogen in the blood, the history of recurrent haemorrhages beginning three days after birth, the complete non-coagulability of the blood, the increased bleeding time, the thrombocytopenia, and the low erythrocyte sedimentation rate.

Death occurred from a severe haemorrhage due to a minor surgical wound inflicted for the purpose of giving a blood transfusion.

An intramuscular injection of maternal blood was of little avail in arresting the bleeding.

The aetiology of the hypofibrinogenopenic states is discussed.

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A CORNEO-SCLERAL SUTURE IN CATARACT EXTRACTION

BY

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There is, I think, a growing trend of opinion, at least among some of the less conservative ophthalmic surgeons in this country and particularly in America, that a corneo-scleral suture is an important and purposeful essential in cataract extraction, both for the intra-capsular and for the extracapsular operation. Since 1933 I have used a corneo-scleral suture in all cataract operations and have tried several methods of suturing. I have been impressed by the security that a properly placed corneo-scleral suture affords during operation and for the subsequent days of post-operative care.

During operation the section may be quickly, accurately, and effectively closed immediately the lens is out of the eye, and so the rare but serious hazard of vitreous loss is either obviated or checked at once and catastrophe is averted.

After operation the wound is kept securely closed over the critical period, during which a small degree of re-opening may lead to iris prolapse and hyphaema, due to the tearing of newly formed blood vessels bridging the lips of the section. It is evident that a corneo-scleral suture reduces quite appreciably the incidence of iris prolapse and hyphaema; indeed, in the series of 80 cases in which the technique described below was used no case of post-operative prolapse and only five cases of hyphaema—2 mm. in two cases and 1 mm. in three cases—occurred, four of which were in patients known to be suffering from arterial hypertension.

One corneo-scleral suture placed in the 12 o'clock meridian is sufficient, but in cases in which the intra-ocular contents bulge forwards on completion of the section and in which the iris, despite accurate replacement, tends to move upwards and forwards towards the section wound, two or three corneo-scleral sutures are inserted at equidistant intervals in the section. In America some enthusiastic surgeons use as many as five sutures to close the wound securely.

It is, I think, preferable to insert the corneo-scleral suture before the section is made, when it is technically easier to do this with precision and accuracy than is the case after the section has been made. It is argued that a disadvantage of this "pre-fixed" suture, as it is called, is the greater skill needed to bring the cataract knife out of the eye exactly between the two arms of the suture. With a good assistant holding the two arms of the suture apart at the right moment, and with the correct degree of tension, this technical point is not difficult for an accomplished surgeon. For those who make the section with a keratome and enlarge it with scissors this does not apply.

Inaccuracy in the choice of exactly opposite points for the insertion of the needle in the lips of the incision is likely if the section is made first and the eye is soft. The slightest lack of precision in coaptation of the wound edges may lead to overriding of the section, with the immediate risk of aqueous leakage and a drawn-up pupil, and the ultimate complication of epithelium growing down into the wound. Also there is in some eyes, such as those of high myopes and those in whom the iris bulges

Presenting the university accounts for 1949–50 and the estimates for 1951–2 to Convocation in Oxford on June 6, Dr. Keith Murray said that during the eleven years from 1938 to 1949 Government assistance to the university had increased sevenfold. During 1949–50 the income of the university was £1,608,000. Of this sum £933,000 came from Government sources.

forwards, a hazard that extra manipulations around the section after this has been made may disturb the intra-ocular structures to the extent of damaging the anterior face of the hyaloid membrane.

Instruments.—The instruments for this work must be exquisitely fine and in perfect order. Grieshaber's needles at each end of a very fine 000 black silk suture are essential; so are a fine scleral hook 0.5 mm. long bent back (not curved) at an angle of 45 degrees from the shaft, and a fine needle-holder (Down Bros. have made for me both the hooks and the needle-holder to the desired pattern). Michaelson's counter-pressor may sometimes be useful in delivering the needle through the cornea.

Technique

In using the suture described below it is essential to have an assistant whose dexterity and timing are skilful and flawless and who is able to keep his hands from obstructing the surgeon's view and manœuvres. (This, however, does not apply when using the transverse mattress suture knotted at the corneal end which I used from 1933 to 1950, for with this suture the surgeon is able to do all the manipulation himself. It is, however, likely that with this suture in some cases deep closure of the section is not so exact as with the suture described below.)

Orbicular akinesia is effected by van Lint's method: 1 ml. of procaine hydrochloride and adrenaline is injected around the ciliary ganglion and another 1 ml. into the belly of the superior rectus behind the equator. Surface anaesthesia and vasoconstriction is achieved by amethocaine hydrochloride and adrenaline. The lids are retracted by sutures placed transversely near the lid margins and fixed to the head drapings. A traction suture through the belly of the superior rectus keeps the eye in a forward position and looking slightly downwards.

The bulbar conjunctiva is incised about 5 mm. above the limbus in the 12 o'clock meridian, and curved incisions, concave downwards, are made from this down to the limbus in the 9 to 3 o'clock meridian. The flap of conjunctiva is undermined to the limbus, from which it is cleared by a few light strokes from Tooke's corneal splitter and is then reflected over the upper part of the cornea.

Any obvious blood vessels in the 12 o'clock meridian at the limbus are touched with a heated probe for 2 mm. concentric with the limbus. A scleral hook held in the operator's left hand is now inserted at this site so that its shaft lies over the cornea in the 12 to 6 o'clock meridian. This hook, together with the superior rectus suture, fixes the eye and also retracts the anterior lip of the limbal incision made 2 mm. long concentric with the limbus vertical to its surface and about 0.5 mm. deep (Fig. 1). The incision opens under traction from the hook. Any bleeding points are touched with a heated probe. A Grieshaber needle held back-handed in a needle-holder is now passed through the scleral lip of the 2-mm. incision, and when the needle point appears in the depths of the incision it is made

to traverse the incision, and when securely engaged in the corneal lip of the wound it is turned forward to emerge on the cornea about 1 mm. in advance of the conjunctival flap, which is now reflected upwards to expose the needle point. Seldom is there any difficulty in passing the needle through the cornea, but, if this is so, gentle counter-pressure around the emerging needle point is made with Michaelson's counter-pressor. The needle is removed and the strand of silk which has emerged from the cornea is knotted with a substantially large knot which is drawn back flush with the cornea.

The conjunctival flap is again reflected over the cornea, the edges of the 2-mm. limbal incision are retracted by scleral hooks, and the suture as it traverses the depths of the wound is either seized with fine plane forceps or caught with a hook and drawn out into a loop (Fig. 2 (1)) which is laid on the temporal bulbar conjunctiva, placing the lower arm of the loop close to and parallel with the corneal strand of the suture and the upper arm alongside the scleral strand of the suture in the 12 to 6 o'clock meridian (Fig 2 (2)), the latter with its needle attached.

The section is then made, and as the cataract knife approaches the end of the section the assistant turns the conjunctival flap well down over the cornea so as to expose fully the site where the corneo-scleral suture traverses the incision. With a pair of plane forceps he takes hold of the corneal end of the suture together with the lower arm of the loop, and with another pair of plane forceps he does likewise with the scleral end of the suture and upper arm of the loop; gentle traction is then made downwards with the former and upwards

FIG. 1.—The conjunctival flap has been reflected downwards over the cornea. A fine hook is placed at 12 o'clock in the corneo-scleral junction, and immediately above this a 2-mm. incision is made with a small cataract knife through half the thickness of the corneo-scleral junction.

FIG. 2.—(1) The corneo-scleral suture is drawn out of the incision with a hook. (2) Section through the site of the incision to show the passage of the suture and the knot where it lies at its exit on the anterior surface of the cornea. (3) Traction on the two arms of the suture to allow the exit of the cataract knife in completing the section.

with the latter so as to separate the edges of the 2-mm. incision through which the suture passes. The surgeon then turns the cataract knife slightly forwards and upwards to complete the section in the deeper layers of the corneo-scleral junction between the corneal and scleral arms of the suture and so out through the original 2-mm. incision made for the insertion of the stitch (Fig. 2 (3)).

The assistant releases his hold on the scleral arm of the suture, but, keeping the corneal arm in his grasp, gently lifts this so as to expose the root of the iris for a peripheral iridotomy. This done, the surgeon takes over the grip of the corneal arm of the suture, having first drawn the scleral end of the suture upwards so as to reduce the size of the loop sufficient to allow the exit of the lens from the section wound. The clamp holding the traction suture through the superior rectus is released, and this suture is left lying in the 12 o'clock meridian on the head draping. The surgeon then raises the corneal arm of the corneo-scleral suture in order to pass the capsule forceps into the eye and to proceed with extraction of the lens, either by the intracapsular or by the extracapsular technique.

When the capsule forceps are in place on the lens capsule the grasp of the corneo-scleral suture is released and the assistant, keeping his hand as flat as possible over the frontal region, holds the scleral end of the suture between his finger and thumb so as to exert prompt and even traction on the suture as the lens emerges from the section. The loop of the stitch is at once obliterated; the knot on the corneal side prevents the suture from being pulled through by this manoeuvre and at the same time is effective in coapting the corneal and scleral edges of the wound. This manoeuvre requires perfect timing and co-ordination by the assistant. It may be done by the surgeon in cases in which he uses the erisiphake and so has one hand free to manipulate the suture. With the wound securely closed the suture is held by pressing it against the supra-orbital margin with the pulp of the index finger. A pause of a few seconds at this point after an intracapsular extraction will allow the face of the vitreous to become settled.

If the iris is obviously in the wound it may be replaced whilst this hold on the suture is maintained. The needle on the scleral end of the suture is now held in a needle-holder, the conjunctival flap is gently lifted, and the needle is passed through the conjunctiva from its deep to its superficial surface about 1 mm. above the site where it joins the cornea. The suture is then tied firmly enough to coapt the edges of the section wound without producing any lines of tension in the cornea. The surgical knot is manipulated so that this runs down over the scleral exit of the suture and is thus above the stay-knot on the corneal side.

Final reposition of the iris, if necessary, and wound toilet are then done, and if blood or soft lens matter lie in the anterior chamber these are removed by gentle anterior chamber irrigation.

If the iris tends to bulge into the wound more than one peripheral iridotomy may be done and one or two more corneo-scleral sutures inserted to close the wound securely. Rarely is this necessary.

The conjunctival flap is replaced and its edges are coapted with a few fine silk sutures tied firmly with the first loop of a surgical knot, so that after these have played their part for 48 hours they may separate spontaneously from the conjunctiva.

Results

I have used this corneo-scleral suture at Moorfields Eye Hospital for one year in 80 patients, drawn from all strata of society and from the Dominions, India, Iraq, and Iran, of various sensibility about post-operative co-operation. Their ages ranged from 39 to 82. Some, who were very senile, were allowed out of bed on the day after operation, and a few had mental aberrations within 24 hours of operation from occlusion of both eyes, but suffered no harm to the operated eye after this disturbance and disorientation. In no instance to date has there been any infection in the track of the suture. The suture makes no contact with the skin of the lids, which is completely covered with muslin gauze up to and over the lid margin; a non-touch technique is used by the surgeon, and the assistant wears gloves.

A very mild striate keratitis affecting the upper 3 mm. of the cornea was noted in 17 cases. It is no worse and of no greater incidence than in cases of cataract extraction in which no suture has been used. The anterior chamber has never failed to re-form. There has been no case of iris prolapse, and post-operative hyphaema of 1 to 2 mm. has occurred in five cases.

The removal of the suture with very fine forceps and small de Wecker's iris scissors is done most carefully 10 days after operation, adequate surface anaesthesia having been effected by the instillation of amethocaine and adrenaline.

It is difficult to know who should be acknowledged for the design of this corneo-scleral suture, for it combines certain features practised by several surgeons, in particular Maclean, Gomez, Lindner, and Leonardi.

Summary

A corneo-scleral suture for secure closure of the section in cataract extraction is described. Its advantages are the control it affords during operation and the security it has in either preventing or reducing the incidence of such post-operative complications as iris prolapse, opening of the wound, and hyphaema. There has been to date no complication attributable to its use.

Opening Nunthorpe Hall, near Middlesbrough, as a home for old people, Mr. Hilary Marquand, Minister of Health, said on June 22 that in 1901 the average man of 50 in Great Britain could expect to live to the age of about 69 years. The average woman of 50 had an expectation of living to be 70. In 1949 the average man of 50 had a good chance of living to be 72, the average woman of 50 of living to be 76. That was a striking indication of the improvement in our health in the last half-century. This improvement in health meant that there were more elderly people to be cared for. In 1939 there were seven people under 65 for every one above that age. To-day the proportion was 6 to 1, and in ten years' time it was likely to be 4 to 1. The Government had recently been asking all employers to give elderly people a better chance to go on working as long as they were able, and it was going to set an example as an employer itself. For an elderly person who was still fit, light work was healthier and more enjoyable than idleness. He hoped they would never see the day when families ceased to feel it their duty and pleasure to care for their own elderly members. But there were some old folk who for various reasons had no relatives who could care for them. Local authorities then had the job of caring for them. They had so far provided 322 small homes with places for over 8,500, and they had arrangements with voluntary associations for the care of over 6,500 people. There were also over 450 proposals for new homes on the way. The authorities were also providing bungalows and flats for old people living together.