

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. XLVIII.

CHICAGO, ILLINOIS, JUNE 22, 1907.

No. 25.

Original Articles

IMMEDIATE AFTER-TREATMENT OF PATIENTS OPERATED ON FOR CATARACT (WITH BANDAGE).*

WILLIAM H. WILDER, M.D.
CHICAGO.

The result of cataract operation is so frequently dependent on the skillful after-treatment of the case that the importance of this subject can not be overestimated. It is my purpose in considering it to limit whatever I have to say to the results I have had and the judgments I have formed from a fairly large experience, rather than to quote from literature the conclusions of others whose larger experience gives them claim to authority.

To begin, the after-treatment should be started before the operation by preparing the patient in much the same way as for operation under a general anesthetic. A thorough bath, shampoo of the head and cleansing of the face and field of operation are, of course, necessary, but, in addition to this, a complete emptying of the bowels by a good cathartic the night before and an enema on the morning of the operation is a practice that should be pursued in every case. This usually insures the bowels remaining closed for several days after the operation, which is desirable.

Patients who are restless or excitable, or who have an excessive nervous fear of the operation should receive a hypodermic injection of morphin, $\frac{1}{4}$ gr., together with $\frac{1}{120}$ gr. of atropin about one hour before the extraction, unless for some reason it should be contra-indicated.

The same remedy in smaller doses, or codein, may be administered some time after the operation if there is any excitability or tendency to coughing. This will aid also in keeping the bowels inactive for several days.

The dressing used after the operation should be of such a kind that it will keep the eyes closed. Personally, I do not see the *rationale* of the treatment of leaving the eyes open after such an extensive injury of the cornea as that made in the incision for cataract extraction.

Furthermore, both eyes should be closed for a time, for if one is left uncovered and the patient looks around, as he certainly will do, the operated one will move under the dressing much more than it should. This is avoided by placing the dressing over both eyes.

The kind of dressing used varies according to individual preference, and there is no fixed rule about this, except that it should accomplish the purpose of keeping the eyelids closed without exerting undue pressure

on the globe. My own practice is to place a couple of layers of thin gauze moistened with boric acid solution or sterilized water over the closed lids; on this the pads of absorbent cotton are carefully arranged so that there may be no difference of thickness to make unequal pressure, and then the bandage applied as a figure of eight over the eyes and around the head.

In this connection, and thinking it may not be known to all, I want to mention the value of the moist netting bandage used at the Illinois Eye and Ear Infirmary, and which, so far as I know, originated there. It is made of a fairly good quality of mosquito netting, cut into strips about three inches wide and four or five yards long, rolled, and then sterilized with dry heat. Just before use it is moistened and applied as a starch bandage. There is just enough sizing in the fabric to make the layers adhere when it dries, and yet it is not as cumbersome or as irritating as the ordinary starch bandage. It is lighter and will keep its place better than the gauze or muslin bandage. The edges on the cheeks, nose and forehead may be stuck down with collodion, after the manner of my colleague, Dr. Beard, to prevent the patient from inserting his fingers beneath the dressing. Further protection can be given by some form of shield, either the wire shield of Fuchs, or, better in my judgment, the light but firm mask of Ring.

If the operation has been done on a table or chair the patient is not allowed to walk to the ward, but is placed on a stretcher or ambulance and taken to his bed. If a folded sheet has been placed under him on the table he can easily be lifted by this from the table to the cart and from that to the bed without his making any exertion or being disturbed. He is cautioned to lie quietly in bed and not to disturb the dressings. The room should be darkened. If there is much restlessness sedatives may be given.

If the patient disregards the injunction to keep the hands away from the face, they must be tied with a bandage to the sides of the bed so that he can move them but can not reach his face. If there is any doubt about the patient's self-control this precautionary treatment should not be neglected. The patient should be enjoined to lie quietly in bed, and particularly not to move the head about. This is not an easy thing to do, and the nurse or attendant must be ready to relieve discomfort by shifting his position slightly or partially turning him and supporting him with pillows.

The dressing is changed on the next day after the operation, this being done with the patient in bed, and with antiseptic precautions. It is exposing the patient to a needless risk to have him brought to the surgical dressing room in a hospital, even if he is transported on a stretcher. The edges of the lids are gently wiped with pledgets of cotton moistened with boric acid solution or sterilized water. Unless there is some evidence of conjunctival secretion or edema of lids or some indication of prolapse of the iris, such as pain, the eye is

* This paper, and those of Drs. Scales and Callan complete the Symposium on Cataract, which was read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, June, 1907. The discussion on the symposium appears under Section Discussions in this issue.

not opened at the first dressing. Should there be a suspicion that all is not well the eye may be carefully opened, after cleansing the edges of the lids, and the wound inspected.

The conjunctival sac is not irrigated unless there is evidence of infection or an undue secretion of mucus. I have found it better to abstain from cleansing the conjunctiva with any solution unless there is a positive indication for it, such as would be given by considerable secretion. However, a drop of 1 per cent. atropin solution may be instilled at this time and also at each subsequent dressing. Both eyes are bandaged as at first and the protective shield replaced. Each day the eyes are dressed in the same way, and, barring complications, nothing more is done than to wipe the edges of the lids and the surrounding parts of the face with moistened gauze or cotton, instil atropin and apply the dressing to both eyes.

At the end of the fourth day, if all is well, the unoperated eye may be left uncovered and the patient allowed to sit up, at least for part of the time. If the bowels have not moved, and usually the treatment before the operation and the light diet for the first two days after keep them closed, a laxative or an enema may be used at this time to induce a free movement.

If, at the end of the fifth day, it is clear that the wound is firmly healed, the bandage is left off entirely and the eye is covered with a dark shield so constructed that it will not touch the eyelids but will protect the eye entirely from the light. Such a shield can be made by cutting the Ring mask in two, trimming it so that it fits the contour of the nose and cheek and sewing on tapes with which to hold it in place. Or a shield can be made of light pasteboard or cardboard, shaping it in such a way by cutting out a narrow wedge-shaped piece from the upper edge, that it will stand away from the eye, and then blackening or covering it with some dark fabric. The purpose of this protective shield is to avoid the irritation that comes from keeping the eyelids closed with the gauze and cotton dressing under a bandage, and, therefore, no dressing should be placed under this shield to interfere with the motions of the eyeball or lids.

I have observed that my patients recover with less reaction and have less discomfort with this dressing than with the bandage. Naturally it would not be used until one was reasonably sure that there had been firm union of the wound. If there is no great reaction at the end of ten days the patient is allowed to accustom the eye to the light by taking off the shade for short intervals, and usually at the end of two or two and a half weeks he is ready for the discission of the capsule.

GENERAL TREATMENT. DIET, ETC.

As stated in the beginning, I think cataract cases should be prepared as for an operation of greater magnitude under narcosis. If the bowels are thoroughly emptied prior to the operation, and a light diet given for two days after, there is less danger of toxic substances absorbed from the intestines affecting the healing of the wound. Furthermore, the resulting constipation, which may even be favored in certain cases by hypodermic injection of morphin, is an advantage because many of these patients use the bed pan with difficulty, and any attempt to have them sit up may jeopardize the prompt healing of the wound.

By light diet I mean milk, weak broths, toasted bread or crackers, custards, certain cooked fruits—such as apples or peaches, and in rather small quantities; in

other words, easily digested foods that leave very little residue. At the end of the second day full diet is usually allowed.

GENERAL COMPLICATIONS.

Many elderly people have bladder disturbances and can not void the urine while lying down. In the case of men this is frequently due to stricture of the urethra or the enlargement of the prostate, while in both sexes a spasm of the sphincter may prevent it. Such patients will probably require catheterization, and the physician should be prepared for it and instruct the nurse accordingly, so that for the first two days at least, the patient would not have to even turn on his side. In case of a difficult stricture it might be necessary to aspirate the bladder.

As said before, constipation, at least for a few days, is rather to be desired than dreaded. If the patient has not had a natural movement by the fourth day a laxative or an enema should be given, and after he is sitting up it is important that the bowels should move regularly. After the period of enforced constipation there may be irregularity, but this should, if possible, be corrected by diet and proper treatment.

Mania.—It should not be forgotten that in some elderly people there is a disposition to great mental excitability or even mania when both eyes are closed with a bandage. Many of the old people are childish, and, finding themselves in the dark and unable to see anything, are seized with terror or dread that is uncontrollable. The physician or attendant should be on his guard concerning this, for the patient might get out of bed and spoil the eye. In such cases it may be necessary to reassure the patient by removing the dressing from the sound eye, or he may have to be quieted with sedatives or hypnotics. I prefer to try this latter measure first, but frequently they are more quickly and effectively pacified by uncovering the healthy eye, and it may be better to do this than to run the risk of the other being injured by attempts to get out of bed.

Vomiting and Indigestion.—If the case has required a general anesthetic the vomiting after the operation may be annoying. Previous general preparation of the patient will do much to prevent this, but it should be checked as quickly as possible, if necessary with sedatives, so as not to jeopardize the eye which has been operated on.

Cough.—Cough is to be dreaded and should be promptly controlled for fear the wound will be opened by violent efforts. For this reason if the patient has a bronchitis or a considerable cough from any cause it would be best to postpone the operation until the diseased condition is relieved. If, however, after the operation the patient develops a cough, every reasonable effort should be made to relieve it. If the trouble is pharyngeal or laryngeal, sedative sprays may do good, sipping ice water or eating shaved ice will help. Bronchial cough may be controlled by heroin, codein, or, even if necessary, hypodermic injections of small doses of morphin until the patient has been tided over two or three days, when probably the wound will have healed.

LOCAL COMPLICATIONS.

Leakage of the Wound.—If the lips of the wound are not perfectly coapted the aqueous humor may drain away and the anterior chamber not reform for several days. This should be looked for at the first inspection of the eye, and if the anterior chamber appears shallow the eye should be dressed with the utmost care, so that there

will be just enough pressure on the globe to insure immobility. The patient should also be cautioned against making any movement for fear of opening the wound. Such a condition would naturally delay the time when it would be safe to allow the patient to sit up.

Prolapse of the Iris.—This usually occurs as the result of some movement on the part of the patient or from coughing, sneezing or pressure on the eye. It is favored, of course, by an imperfectly coapted wound, and so might occur more readily after a faulty technic. It usually announces itself by more or less pain, which, if at all marked, is strong enough evidence to indicate immediate removal of the dressing. Sometimes, however, there is not much complaint of pain, and the prolapse is not discovered until the next regular dressing of the case. The sooner it is discovered the better. If the accident is very recent and the prolapse is slight, an attempt may be made, after thorough cocaineization of the eye, to gently replace the prolapsed iris, but in most cases this will be unsuccessful and it must be excised. In doing this care should be taken to gently free the iris at the angles of the wound, so that when the prolapsed portion is excised, the rest will draw back into the anterior chamber. This may be facilitated by gently stroking the wound with a spatula. After cleansing the wound with mild irrigation, the dressing is reapplied and additional precaution taken to prevent a recurrence of the accident.

If prolapse occurs after an extraction by either the simple or combined method made with a large conjunctival flap, we frequently find that the conjunctival wound has held perfectly and the prolapsed iris is covered by the conjunctiva. If in such a case the knuckle of incarcerated iris is small I prefer to leave it rather than to remove its covering of conjunctiva and excise it, and so expose the eye to the additional risk of infection. A slight additional pressure of the bandage and dressing may help it to heal firmly.

An incarceration of the iris in a part of the wound without a prolapse would be treated similarly. In all cases of this kind, if seen recently, an attempt may be made to draw the iris away from the wound by eserin, but the continued use of this drug should not be practiced because of its liability in such cases to excite iritis.

Hemorrhage.—Hemorrhage into the anterior chamber or vitreous, either with or without partial opening of the wound, is a serious complication. It is usually the result of some trauma, but it may occur in persons with high arterial tension in whom the arteries of the eye are frail, and in such persons it may occur spontaneously or may be brought on by coughing, sneezing or straining at stool. If a thorough examination of the heart, arteries and kidneys is made prior to the operation the surgeon will be on his guard if a high arterial tension is present and there is evidence of hardened or rigid vessels.

In the treatment of this complication, additional precaution will be taken to keep the patient quiet and arterial tension will be lowered by nitroglycerin or other arterial sedatives, measures to promote flow of blood to the extremities and leeches to the temple to prevent further hemorrhage. The absorption of the blood in the eye should be encouraged by pilocarpin sweats, dionin and hot applications, although the latter should be used with great caution in these cases.

Infection.—Infection of the wound is the worst complication that can befall a cataract case, for unless promptly checked it is almost certain to result in loss of the eyeball or, failing this, in a plastic iridocyclitis

that will obliterate vision. A suspicious grayness of the edge of the corneal flap is the first sign noticed, and usually by the second day this increases and the wound begins to gap. Chemosis and hypopyon appear. In the secretion from the conjunctiva, which may be scanty or considerable, one may usually but not always find germs of a virulent type, such as pneumococcus or some of the pus formers.

At the first sign of infection vigorous general and local treatment should be instituted. A brisk cathartic with calomel should be given. Liberal but easily digested food should be allowed, and such tonics or stimulants as will improve the general tone and increase the vital resistance should be prescribed. Quinin, strychnin and small doses of whisky might be mentioned.

Irrigation of the eye every few hours with boric acid solution or bichlorid of mercury solution, 1/6000, should be practiced. One should not neglect the cleansing of the lachrymal sac, particularly if there is any evidence of retained secretion there. Subconjunctival injections of physiologic salt solution or cyanid of mercury solution, 1/1000, may be tried. Hot applications, continued for fifteen or twenty minutes, should be applied three times a day. Local blood letting, by natural or artificial leeches applied to the temple, may be of some benefit.

In spite of all such measures, if the infection is a virulent one or the vital resistance is much lowered, the eye almost certainly will be lost and the question of evisceration or enucleation will come up.

Iridocyclitis.—The reaction that follows after cataract extraction is not always easy to explain. In some cases, where the operation has been done exceptionally well and every precaution used in the treatment, severe reaction will follow, while in others, in spite of accidents and complications, there will be so little disturbance as to be surprising to the surgeon. I am sure that I formerly had more reaction than was necessary by too zealously treating the eye with irrigation or continuing the bandaging for too long a time. Too early an exposure to the light is wrong and probably accounts for some of the cases of prolonged irritation and iridocyclitis.

But in addition to these more apparent reasons, such as local irritation of the eye of any kind, there must be some deeper underlying cause, which I am inclined to believe is of a toxic nature. This, acting on an eye whose resistance is more or less affected by the injury of an operation, in certain cases with a predisposition to uveitis, or in others already having uveal changes, might cause a severe irritation or even an iridocyclitis of a plastic nature.

In such cases the signs would vary from slight sensitiveness to light and lachrymation up to a severe reaction with ciliary pain and considerable plastic exudate. In these cases I have come to place considerable reliance on the administration of salicylic acid as proposed by Gifford, and I know of nothing that will more quickly influence the condition than large doses of this remedy, 20 grains of salicylate of soda every three hours.

In addition to this, active elimination by means of cathartics and diuretics is valuable, and in some cases I have had good results from the use of pilocarpin sweats, administering hypodermically 1/12 gr. of pilocarpin muriate at the time of the preparation of the patient for the sweat. Locally, hot applications, dionin, and subconjunctival injections of salt will tend to stimulate circulation in the inflamed eye and help to eliminate the toxic elements, whatever these may be.

The continuous use of atropin, in cases where there is unyielding adhesion of the iris to the capsule, will frequently keep up ciliary injection because of the dragging on the synechiae. The division of the bands that prevent the free dilatation of the pupil and the free action of the iris will often correct this condition.

Vitreous Opacities.—In cases such as we have been considering, where there has been considerable reaction, one usually finds, on examination, evidences of the inflammation and of the causes that have brought it about, in the shape of vitreous opacities which more or less obscure the vision even after the needling. Among the different means for causing absorption of these I have found syrup of hydriodic acid in one-dram doses three times daily one of the most efficient and most easily tolerated of the iodine preparations.

In conclusion, much of the success in the management of the cataract case will depend on the skillful after-treatment, and of this too great emphasis can not be placed on the importance of general conditions and their appropriate treatment. Furthermore, much will depend on the previous preparation of the case to prevent both local and general complications. While every precaution should be taken and every possible care bestowed on the numerous details in the management of the case, it should be remembered that too much zeal in local applications may sometimes lead one into error.

IMMEDIATE AFTER-TREATMENT OF PATIENTS OPERATED ON FOR CATARACT (WITHOUT BANDAGE).*

J. W. SCALES, M.D.
PINE BLUFF, ARK.

In view of the fact that the postoperative treatment of cataract cases depends to some extent on the technic of the operation, I consider that it will not be amiss to review briefly the technic, or rather a certain feature of the technic, which appeals to me as being most rational, and which in my hands has stood the test of experimentation. The point to which I refer is the construction of an ample conjunctival flap as the knife emerges from the incision, the employment of which seems to produce the most rapid resolution and recovery, minimizes the risk of infection, and at the same time obtains the best possible vision and the greatest comfort to patients during convalescence.

The great fundamental proposition which confronts the ophthalmic surgeon in the treatment of every cataract operation is how he may best prevent infection. This may be reduced to a minimum by a strict observance of the aseptic means at our disposal, with or without a bandage. It is a well-known fact that when the flap is employed the mucous membrane will reattach itself, under favorable conditions, in only a few hours, and it is also a logical deduction that a prompt reattachment is the most important requisite for producing aseptic healing. Since pathogenic bacteria have been proven to exist normally in the cul-de-sac, the secretions of the conjunctival sac being a culture medium for bacteria, and there being no effective means at our disposal by which we may rid the sac of these bacteria, it naturally follows that the prompter the union the less the risk of infection. The question whether or not we shall

employ a bandage and at the same time be able to protect the eye from external injury during the after treatment of these cases, is one which has been agitating the minds of a few ophthalmic surgeons for some time. Suffice it to say that the majority of surgeons still adhere to the use of the bandage. I have long since discarded the bandage, save in exceptional cases in which there may be something out of the ordinary to demand it.

Why should we advise the non-use of the bandage? There are five essential reasons:

First.—The bandage interferes with natural drainage and brings about a retention of secretions which is to be avoided.

Second.—The bandage interferes with uniform pressure on the wound and ball of the eye, such as would be maintained by the natural position of the lid itself.

Third.—It creates a feeling of discomfort and restlessness, which interferes with the healing process in that it increases the involuntary mobility of the eye.

Fourth.—It is a factor in producing entropion of the lower lid, which in many cases is exceedingly difficult to avoid.



Method of using screen after cataract operation.

Fifth.—It is a factor in producing conjunctivitis, iritis and cyclitis, which will be shown later.

The necessity of bandaging is obviated by the use of a wire screen. This screen is constructed before the operation and made to conform to the bridge of the nose, the brow, the temporal and malar processes. It consists of a wire hoop rather quadrangular in shape and is bridged across with numerous wires forming meshes not large enough to admit the patient's fingers. The rim is cushioned on the proximal side with gauze to add to its comfort. The screen is bent into a concave shape that it may be amply out of the way of the lids and lashes. In adjusting it, it may be held in place by strips of adhesive plaster or by strips of gauze tied at the occiput. After the operation is completed the flap is smoothed into apposition, the retractors are removed and the lid is allowed to ease into its natural position. If we feel that the lid may not have fully recovered from the influence of the retractors, and that the lips of the wound may have been disarranged thereby, after a few moments the lid is gently raised to see that apposition

*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.