A probationary surgical essay on cataract : submitted ... to the examination of the Royal College of Surgeons of Edinburgh, ... / by James Keith.

A

PROBATIONARY SURGICAL ESSAY,

ON

CATARACT:

SUBMITTED,

BY AUTHORITY OF THE PRESIDENT AND HIS COUNCIL,

TO THE EXAMINATION OF THE

ROYAL COLLEGE OF SURGEONS OF EDINBURGH,

WHEN

CANDIDATE FOR ADMISSION

INTO

THEIR CORPORATION,

IN CONFORMITY TO THEIR REGULATIONS RESPECTING THE ADMISSION OF ORDINARY MEMBERS.

BY

JAMES KEITH, *Surgeon*,

MEMBER OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH.

Edinburgh:

PRINTED BY J. PILLANS & SONS, LAWNMARKET.

September 1810.

TO

ANDREW WARDROP, M. D.

F. R. S.

FELLOW OF THE ROYAL COLLEGE OF SURGEONS,

THE FOLLOWING ESSAY

IS INSCRIBED,

AS A SMALL TESTIMONY OF RESPECT,

BY

THE AUTHOR.

TO

ANDREW WARDROP, M.D.

F. R. S.

FELLOW OF THE ROYAL COLLEGE OF SURGEONS,

THE FOLLOWING ESSAY

IS INSCRIBED,

AS A SMALL TESTIMONY OF RESPECT,

BY

THE AUTHOR.

SURGICAL ESSAY

ON

CATARACT.

By JAMES KEITH.

By the term Cataract is to be understood, an opacity in the crystalline lens, or its capsule, which, by obstructing the passage of the rays of light to the retina, produces partial or total blindness.

Although this disease occurs at any period of life, yet, except in the instances of Congenital Cataract, it may be considered as more peculiar to those past the meridian of life, and the aged.

The commencement of its attack is in general gradual; nor can we often connect it with any marked exciting cause. The patient first complains of a dimness or weakness of vision, sometimes with the sensation of insects, or dark variously-figured forms floating before the eyes; more commonly objects appear as if seen

through a mist, or any other slightly opake medium. If the eye is now examined, the pupil will appear to have lost its usual darkness, and to have obtained a whitish glistening opacity, which is sometimes only partial, but more commonly extends over its whole surface, most remarkable in the centre, and from thence diminishing to its circumference, which, being thinner and less affected, has the appearance of a blackish ring surrounding the opake centre.

The pupil, during the course of the disease, when unaccompanied with any other affection of the eye, retains its usual irritability to the impressions of light. From this circumstance, those affected with Cataract see better in an obscure light, and when objects are presented to the eye laterally, as, from its dilatation, some rays of light can still pass through the thin edge of the lens to the retina.

The opacity of the lens, and diminished vision, gradually advance, till they terminate, either in the patient being able to discover the brighter colours, and well-marked form of objects, or he can merely discriminate between light and darkness.

On examining the opake crystalline lens, either when it has been removed by a surgical operation during life, or by dissection, the seat of the opacity and its consistence will be found to vary in different cases; and according to this diversity, it has been divided into different species, with different denominations. Of these the most common is, when the body of the lens is alone

affected,

affected, and the opacity extending nearly uniformly through it. In others, though more rarely, the anterior or posterior surface, or the Liquor Morgagni*, forms the seat of the disease. These varieties are all included under the general term of Cataract. In the other species, the capsule alone, or the capsule and lens are together affected. The former has been termed the membranous, and the latter the mixed Cataract.

Cataracts also differ much in their consistence, and are found varying from the fluidity of milk or pus, to a hardness equalling that of horn or bone. As it has been imagined to be of considerable importance in guiding us in the choice of the operation to be performed, and in forming our prognosis of its event, previously to ascertain the particular state of the lens, so various appearances have been described by authors, as characteristic of the different varieties of Cataract; a few of which may be mentioned:

The Fluid Cataract, which, with few exceptions, occurs in the congenital instances of this disease, is of a milky whiteness, with streaks and spots of a different consistence from those of the rest of the lens, varying their place by the motion of the eye. The lens is large, and appears immediately behind the pupil. When the lens is of a consistence harder than natural, it may sometimes be distinguished by its pearly, yellowish, or brownish colour; it appears to be flat, and at a consi-

 derable

* Janin sur l'œil, &c. obs. 12.

derable distance from the pupil, which is often contracted; the patient can distinguish light readily; and when removed, it will generally be found of a size smaller than natural. This form of the disease is most commonly met with in old people. In the intermediate degrees of consistence, the lens is found of a white or greyish colour, with immoveable striæ; it appears large, and sometimes by its pressure obstructs the motion of the iris.

The Capsular Cataract may be suspected, by coming on suddenly, (after an injury inflicted on the eye, or a violent attack of ophthalmia), by the opacity commencing from the circumference, and spreading to the centre; from its white, radiated, or striated appearance; and sometimes from its being only partially affected. The anterior surface of the capsule is generally the seat of the disease, for the posterior surface is rarely affected *. The capsule of the lens is also frequently connected by adhesion to the posterior surface of the iris; this is a circumstance of much importance to be ascertained

---

* There seems to be a considerable difference between the two surfaces of the capsule of the lens, the anterior being much thicker, though of less extent, than the posterior; and from the observations of Scarpa and Janin, it would appear that they are nourished by vessels derived from different sources, and that the union between them and the circumference of the lens is but slight. What has been observed of the Capsular Cataract seems to confirm these remarks.—Scarpa, Malades des Yeux par L'Eveillé.—Janin.

tained before deciding on an operation, as it forms one of the chief obstacles to its successful performance. When the capsule adheres to the iris in its whole extent, the pupil is contracted and immoveable; there is no black ring observed at its circumference, and the patient has no sensation of light. When the adhesion is only partial, the pupil is irregular and extends unequally, and light only is perceived when it comes from the side opposite the adhesion. In the adherent cataract, the same cause, operating at the same time, produces both the adhesion and opacity of the capsule, and also of the lens. Severe injuries done the eye, and repeated attacks of violent ophthalmia, generally are the causes of this species of the disease; hence the secondary cataract is frequently an adherent one.

As it is also evident that some of the same exciting causes that induce Cataract may also operate in producing other diseases of the eye, so we sometimes find, that an opacity in the lens is combined with other affections of the eye, either simultaneously produced, or during the progress of the disease. These diseases do not in general much affect our diagnosis, nor are they often prejudicial to the success of the operation. Amaurosis is, however, one serious exception to this, as its presence is not easily determined, and the combination must always render the event of the operation very doubtful. Several symptoms have been mentioned as characteristic of this complication of the disease; most of them are, however, very fallacious. The least fallacious, perhaps,

is

is when, along with a cataract not adherent to the iris, and in which we would expect the patient to have still some sensation from light, the pupil is dilated, and the iris and retina remain insensible to its most vivid impressions *. And if, along with these, the patient has been subject to severe headachs, pain in the eye-brows and ball of the eye, our suspicions will be farther confirmed. At all events, in doubtful cases, the operation may be performed with a guarded prognosis, for it can have no effect in retarding the cure of the other disease, and may ultimately prove beneficial.

The causes of this disease are in general very obscure. It sometimes arises from external injuries, with or without inflammation of the eye. In the former, it may be a consequence of the inflammation; in the latter, it may in some cases arise from the violence of the injury detaching the lens from its connections, and consequently depriving it of its sources of nourishment.

When it occurs independent of local injury, it is generally met with, as before observed, in those rather advanced in life; but here no particular habit of body is observed to be peculiarly predisposed to it. Those who, from their occupation, have been in the custom of examining minute objects, or having their eyes much exposed

* It has been imagined, that the absence of any luminous sensation in the retina from the application of galvanism, would afford a test for the presence of amaurosis in Cataract; but this has been found fallacious. Persons with pure amaurosis perceive flashes of light on the application of this active agent.

posed to strong light, are said to be very liable to this affection. Cataract has also been mentioned as arising from general affections of the body, as scrofula and syphilis, but the examples of the disease arising from such habits of body are too limited to allow us to draw any general inference from them.

But the knowledge of the exciting causes is not in this, as in most diseases, of importance in influencing our practice; for, with the exception of a few rare cases, a natural case, or by medical treatment, is not to be expected in a completely formed Cataract, whatever may have been the cause of this affection.

When recent, and accompanied with inflammation, when induced by external violence, or other causes; the most effectual means should be employed in subduing it; and afterwards, if the opacity still continues, trial may be made of stimulating local applications, such as electricity *, the vapours of ether or ammonia, &c. In the use of internal remedies we have still less dependence: If the disease arises, as in some cases it may be supposed to do, from an increased action and subsequent deposition from the vessels of the lens and its capsule, such stimulants as are known to increase the action of the absorbent vessels may be employed: Along, therefore, with the external use of the stimulants already mentioned, mercury used internally may also be tried. Recourse has also been had to antimony, alkaline salts, different vegetables

* Medical Commentaries, vol. ix.

tables of the narcotic tribe, as hycogamus, cicuta, and aconite, in different cases according to the supposed cause of the disease, but with a success that can afford us little confidence in our employment of them.

In confirmed Cataract, therefore, recourse must be had to surgical means to restore vision, by removing the opake lens from its natural position. For accomplishing this end, two different operations have been proposed. The first, which has been the longest employed, consists in displacing the opake lens from its situation opposite the pupil, and leaving it under the vitreous humour, termed couching or depressing the lens. The second, in extracting it from the eye, by an incision in the lower part of the cornea.

Of the Operation by Depression.

As in all operations connected with the eye, the consequence most to be dreaded is inflammation, previous to performing the depression of the Cataract, recourse should be had to such diet and treatment as may diminish any tendency to it. This, however, should be entirely regulated by the habit of body of the patient at the time; for in irritable or debilitated constitutions, the antiphlogistic regimen might induce such a morbid sensibility of the system, as would be prejudicial to the success of the operation.

In performing this operation, the sound eye should be

bound

bound up, and the upper eye-lid of the one to be operated on secured by a speculum, without pressing on the ball, which may be fixed by the fore and middle fingers of the operator. The patient should be seated with his head somewhat lower than the surgeons; and the light should fall obliquely on the eye. The needle, of which the most preferable shape seems to be that with the spear-point, recommended by Richter and Bell *, should be introduced, with its edge horizontal, at the external angle of the eye, a line, or a line and a half from the cornea, and somewhat below the centre of the pupil; the operator should seize the moment after the application of the speculum, to plunge it rather quickly in the above direction; in general, immediately after, the eye becomes fixed; it should then be carried on a little obliquely backwards, so that it may be fixed in the body of the lens, which will be known by the length of the needle introduced, and by the movement of the Cataract, especially if a hard one, either towards the external angle of the eye, or pressing on the pupil, the handle of the needle is then to be raised in such a direction, that its point, with the Cataract, may be carried downwards and backwards, so that, on withdrawing the needle, the lens may be left in the vitreous humour at the bottom of the eye. If, on raising the point of the needle to the pupil, now clear, the lens does not follow, the operation is concluded by withdrawing the needle, in the same direction that it was entered; if, however, the lens follows the

 needle,

* Richter, Anfangsgründe der wundarzneykunst Dritter Band.

needle, the same method is to be pursued until it becomes fixed.

After the operation, the eyes should be lightly bound up, without any wet application, which only seems to act as useless irritation; the diet should be restricted for some time. At the end of three or four days from the operation, the eye may be examined, and if the pupil remains clear, and the symptoms of inflammation not severe, the patient will be sensible to the impressions of light, and his vision will afterwards gradually improve. In some cases, however, where the operation has succeeded, so that the Cataract has been displaced from the sphere of vision, yet the patient has no perception of light; or, though at first vision may be partially improved, yet, in a short time, the eye becomes again insensible. In the first case, this may arise from a previous complication of the disease with Amaurosis, and is consequently incurable; in the latter, it may have been produced from injury done to the retina, or the ciliary processes, by the needle during the operation, or by the pressure of the lens, if a hard one, on the retina *. In such a case, we can only hope for its spontaneous dissolution in the course of time; though instances have been mentioned, where it has remained unchanged, and discovered entire in dissection †.

In

* R. A. Schiferli abhandlung uber den Grauen Starr, 1797.

† Treatise on the Cataract, &c. by Wenzell, translated by J. Ware, 1791.

In general, the operation of depression gives little pain to the patient, and is followed by no severe symptoms. If pain and swelling of the eyelids, with inflammation of the sclerotic and conjunctiva, occur, anodyne warm fomentations, with the common means of obviating inflammation of the eye, should be had recourse to. In irritable persons, vomiting is no uncommon occurrence, a few hours after the operation, and by the exertion it produces, is very apt to cause the re-ascent of the Cataract; it is most readily checked by opium, either by the mouth, or in the form of a glyster.

During the operation, hæmorrhage may take place, either from the conjunctiva or choroid; this is a rare occurrence, and of little importance, either escaping by the puncture, or forming a small ecchymosis round the external wound, which readily disappears of itself.

Occasionally, also, the vessels of the iris or ciliary processes are wounded, and it is always a more unfortunate occurrence, for the blood being effused into the chambers of the aqueous humour, obscures the pupil, and impedes the operator. When this takes place, the needle should be withdrawn, and every precaution taken to avoid or moderate the inflammation, which will most probably ensue; when this is removed, it will in general be accompanied with the absorption of the effused blood.

In the operation, such as I have described, it has been a matter of doubt, whether, in general, the capsule of the lens is detached from its adhesions, and carried a-

long with the Cataract to the bottom of the eye; Richter seems to be of this opinion, as he imagines that the connections of the capsule of the lens with the membrane of the vitreous humours, and ciliary processes, are so slight, that in the operation of extraction, both, with a little care, may be expelled together; and that, otherwise, the Cataract, long after depression, could not again rise to its former situation, as the capsule must then be contracted, and pressed together by the aqueous and vitreous humours *. Scarpa, on the contrary, denies the probability of this, and considers the opacity of the capsule, and the difficulty of its removal, as the most serious obstacle to any operation for the Cataract; and that this is the case in the sound eye, or even in Cataract, where the capsule is not affected, seems probable from the anatomical examination of the parts; for the capsule of the lens is, posteriorly, intimately united to the membrane of the vitreous humour, so that it is difficult, even in dissection, to separate them. And when in extraction, the lens with its sound capsule is forcibly pressed out, it is always followed by a portion of the vitreous humour. Scarpa therefore recommends, in depressing the lens, in order to prevent the occurrence of secondary Cataract, or to remove it when present, to tear, with the round curved needle, which he employs, as much of the anterior capsule of the lens as corresponds

* Anfangsgründe, 3ter. band. seit. 230.

sponds to the pupil, previous to removing the lens to the bottom of the eye *.

But it is also probable that cases, in which the lens and capsule are both opake, do occur, in which a disunion, either the cause or an effect of the morbid changes produced in them, has taken place between the usual natural connections of the capsule of the lens; we cannot otherwise readily account for these cases, when, immediately on the incision of the cornea, in the operation for extraction, the lens inclosed in its opake capsule was expelled from the eye, without any artificial pressure, and without being followed by any portion of the vitreous humour, and for those dissections, where the lens, with its capsule, has been found unchanged at the bottom of the eye, many years subsequent to the operation of depression †.

As it is now well ascertained, that the lens, deprived of its capsule, and lodged in the vitreous humour, is gradually absorbed, and in process of time altogether disappears, so the idea that formerly was entertained of the state of ripeness, or fitness of the Cataract, necessary for its successful removal, are now discovered to be without foundation. For in milky and soft Cataracts, which were formerly considered as conditions of the disease unfavourable for operation, the cure may be undertaken with every reasonable prospect of success. For if, on the introduction of the needle into the capsule, the lens is

* Scarpa Maladies des Yeux. † Janin, p. 167.

is found to be fluid, from the effusion of its milky contents into the two chambers of the eye, obscuring the pupil, the needle must be turned in such a direction as to tear the anterior capsule of the lens, which in these cases is generally opake. The milky effusion will in a few days after be quite absorbed.

In the same manner, when the Cataract is found to be of such a consistence, that the needle passes through it, without its being displaced, the surgeon must endeavour to divide it, and the capsule, if opake, in such a way, that its fragments may be disposed in the aqueous chambers, where, by the process of absorption, they will in time disappear. The same management is also required in the secondary Cataract, which generally appears soon after the operation, if followed by inflammation, but often at a greater or less period of time, without any evident cause. If, in the course of a short time, it should not disappear spontaneously, recourse must be had to the use of the needle, to divide the portions opposite to the pupil, and to push them into the anterior chamber, where, according to Scarpa, they will disappear within three weeks at farthest *.

The second operation practised for the cure of Cataract, viz. by *Extraction*, is of a much later invention than the one now treated of, being first prepared and performed

---

* Scarpa, p. 109.

performed by a French oculist, Daviel, in the year 1747.

Although the general principles in performing this operation are still the same as proposed by him, yet, from the number and form of the instruments, being much simplified, and from the gradual improvements in the different parts of the operation, it has attained a degree of perfection, much surpassing that recommended by him.

In performing this operation, the same management, with respect to guarding against a state of the system favourable to inflammation, as recommended in depression, should be attended to. But here it is proper to carry it to a greater extent; in almost every instance, therefore, blood should be taken from the arm, and the bowels well evacuated. The patient and surgeon should also be seated in the same way, the sound eye bound up, and the speculum applied to the other, in such a manner as to retain the upper eyelid, without much pressure on the ball of the eye, which is to be fixed with the fore and middle finger of the left hand, supposing the left eye to be operated on; the fore finger being placed near the internal angle of the eye, so as to prevent, as much as possible, the eye turning in that direction, which it is apt to do on the first introduction of the knife, and thereby conceal the greater part of the cornea. The knife being well oiled, its point should be introduced into the cornea, about a line's distance from

its

its union with the sclerotica, and somewhat above its transverse diameter, whilst the handle is considerably elevated. After penetrating the cornea, the point is to be carried forward in a direction parallel to the plane of the iris, and somewhat downwards, so as to perforate the cornea at the opposite side, at the same distance from the sclerotica it was entered; the aqueous humour will now be evacuated, and all pressure on the eye being removed, the incision is to be completed, by turning the edge outwards, at the same time that the point is carried forwards, in such a manner, that a larger portion of the inferior part of the cornea is left, than would happen if the incision was continued round, at an equal distance from the sclerotica. By this mode, the first incision is made directly into the aqueous chamber, and not through its laminæ, which is apt to happen when it is entered obliquely; the internal incision, from its size nearly corresponding with the external one, readily admits of the passage of the lens. A larger portion of the cornea is left for the support of the iris, which is otherwise apt to protrude through the wound, when the incision is carried all the way round, parallel to it; and the wound of the cornea unites more readily, and leaves a smaller cicatrix. When, by the too sudden evacuation of the aqueous humour, or by the eye turning towards the inner angle, the incision of the cornea cannot be carried to its proper extent, it must be enlarged by the use of curved scissars; and

this

this part of the incision is found to heal as readily as the other *.

Occasionally, either, by some unsteadiness in passing the knife, the aqueous humour is evacuated, previous to its edge having passed the inferior rim of the pupil, or, in turning the edge of the knife outwards, the iris protrudes over it, and is apt to be wounded; and this is an accident, which, with the utmost steadiness and care, cannot always be prevented. If, however, in such instances, the progress of the knife is stopped, and gentle frictions are applied on the cornea, over the entangled part, the iris will retract, and by keeping the finger on the cornea till the edge has passed beyond the pupil, the incision may in general be safely completed.

After the incision of the cornea is finished, in a few instances, the lens, with its capsule, is immediately discharged †; but in general the surgeon should wait for a little, and moderate the light, by applying the hand over the eye; the upper flap of the cornea is then to be raised by a probe, and a curved needle, with its point somewhat blunted, introduced into the pupil, and the capsule of the lens opened by repeated scratches,

* Ware, Inquiry into Causes.

† This probably occurs in those cases where a disunion, either complete or nearly so, has taken place between the capsule and its attachments; and when this, from the movement of the lens in the eye, can be determined previous to the operation, Janin recommends not to open the capsule, but to extract both together. Janin, l. c. p. 161.

in different directions, chiefly about its centre. As soon as this is effected, the lens will be seen pushing forward on the pupil, and by a gentle and slowly applied pressure of the fingers on the under part of the eye, will gradually dilate it, and pass through the incision of the cornea. When the lens is of such a size, and the pupil is contracted, and does not dilate by the removal of light, preventing the passage of the lens through it, it has been advised to make an incision of the iris with scissars, so as to allow of its egress; the wound of this membrane has been followed by no bad consequence, and the oval pupil which results does not impair vision *.

The Cataract, when firm, can generally be extracted in this way entire, but when of a soft consistence, fragments of it are apt to remain, and obscure the pupil; the eye, therefore, must be carefully examined, and when any of them are found remaining, they must be removed by the introduction of a scoop or curette, or by gentle friction of the cornea, applied from above downwards, aided by slight pressure of the finger on the under part of the eye. Both of these must be done with great caution, as by an undue pressure, or use of the curette, the capsule of the vitreous humour is apt to be wounded, and its contents escape by the incision of the cornea. In most instances, therefore, it would appear safer, when the fragments are neither numerous nor large,

* Janin, Richter, Schiferli.

large, to leave them in the eye, where they will probably be absorbed, than to hazard the risk of this accident, by the frequent introduction of the curette.

In some instances, however, either by an involuntary spasmodic action of the muscles of the eye, or by an undue pressure of the surgeon, or assistant, on the eyelids, the vitreous humour, now deprived of its support, and only with-held by the weak resistance of its own delicate membrane, presses forward, and is discharged, in greater or lesser quantity, by the wound in the cornea. Though the loss of this humour is productive of no great inconvenience of itself, as it is either again regenerated, or, what is more probable, its place supplied by an increased secretion of the aqueous humour, that now (when the eye is deprived of the lens, which by its tenacity it supported) seems equally useful; yet this accident should be carefully avoided, as productive of much trouble to the surgeon. For it will prevent the due examination of the state of the pupil, and at the same time may, by its protrusion, entangle the iris in the incision of the cornea; which will either prevent its union, except by a very tedious process, or terminate in contracted pupil, or suppuration of the internal parts of the eye.

Some, in this case, have recommended the removal of the whole protruding part, but this is certainly quite useless; the best practice, on the whole, would appear to be, to close the eyelids, and cover up the eye, and wait for the separation of the protrusion by the contrac-

tion and union of the flaps of the cornea, which, although it may leave a white and disfigured scar, yet this in process of time will frequently disappear *.

When the opacity of the lens is the effect of violent injuries of the eye, or succeeds a severe attack of inflammation, the capsule of the lens will generally be found opake, and in many instances adhering to the iris. When, by the immobility and contracted state of the pupil, the adhesions appear to be general over its surface, no operation of any kind can be attempted with much prospect of success; as the violence inflicted on the iris, in separating the adhesions, will either produce its detachment, or cause some irreparable injury to the eye. If, however, the capsule, either alone or conjoined with the lens, is diseased, and the adhesions are only partial, attempts may be made to remove them. After opening the capsule, and extracting the lens, if the pupil continues obscure, and there be no suspicions of any fragments of the Cataract remaining, the opake capsule should be seized with a small pair of forceps, and by gently pulling in a circular direction, loosened from its connections and adhesions †. If the latter should be so firm, that the iris follows each effort, we may endeavour to separate them by the cautious introduction of a round needle between the lens and iris; but when this cannot be effected, the capsule should be punctured in a circular direction, as close as possible to the edge of the pupil,

* Richter. † Janin, l. c.

pil, and the divided part removed by the point of the needle, or by the introduction of forceps *.

Before binding up the eye, the surgeon should take care that the edges of the wound are accurately adjusted, and the under eyelid passed carefully over it. A light compress is then to be laid over the eye, and secured by a bandage, with such a degree of pressure as will prevent the motion of the eyelids; if the compress is slightly moistened, it can be applied more equally, and by conforming itself to the shape of the eye, when it dries it will more effectually prevent their motion. A recumbent posture, with the head moderately elevated, the repetition of the venæsection, and the observance of a strict diet, are then to be recommended. The aqueous humour continues to flow for upwards of forty-eight hours, at the end of which time, the wound of the cornea, unless prevented by any foreign body, unites. About the third day, after bathing the eyelids with lukewarm water, the eye itself may be examined, and in successful cases, where there is no appearance of violent inflammation, the patient may gradually enure himself to greater degrees of light, and to the use of his new restored vision. But as, from the loss of the lens, by which the chief refraction of light in the eye takes place, the rays will converge to a focus, previous to striking on the retina, and thereby cause indistinct vision, its place must be supplied by the use of convex lenses;

* Ware, l. c.

lenses; those of four inches and a half focal distance will in most cases be found to answer for distant objects, and those of two and a half for nearer ones, as for reading, &c.

The symptomatic inflammation that sometimes follows this operation, arises from different causes, either from injuries of the internal parts of the eye during its performance, from the peculiar habit of the patient, or from some neglect in the subsequent treatment; in this way, it may arise from undue pressure of the bandage, from premature exposure to strong light, or to the external air *. The period also of its attack varies, from the day following the operation, to the sixth or eighth. When its attack commences soon after the operation, it is in a severe form, the patient complains of much pain in the temple or eye-brow of the operated side, the eyelids are tumified, and there is a copious watery discharge from the eye, the conjunctiva is red and swelled, and in a state of chemosis; the cornea assumes a muddy appearance, pus collects in the chambers of the eye, and the patient is unable to distinguish light from darkness. The most active means for obviating ophthalmia, both general and topical, should be had recourse to, but even these are sometimes insufficient in preventing the suppuration, and loss of the eye.

When the inflammation commences its attack at a later period, it partakes, in general, more of the chronic form;

* Janin, Ware.

form; in this shape it sometimes arises from a protracted deprivation of light; removing the bandages, and a freer exposure will be found beneficial, and if a weakness and redness of the conjunctiva should still continue, the external use of stimulants, such as the unguent. nitratis hydrar. will be found beneficial.

One effect of the inflammation, subsequent to the operation, will occasionally be found to be, an opacity of the capsule of the lens, though perfectly clear at the time of operating; a similar state may also be produced, by a continuation of the same unknown causes that rendered the lens opake. In general, we must wait the effects of time and stimulants in procuring its disappearance; for as it will, for the most part, form adhesions to the iris, a repetition of the operation cannot be undertaken with any great prospect of success; though both Janin and Wenzell recommend a second operation, in the usual manner, which, in several instances, they have found attended with the best success.

Comparison of the Two Operations.

The operation for depression had been practised for a long period, and with considerable success, when Daviel first introduced the method by extraction, and from its novelty, and the advantages it held forth, the practice was soon adopted by most oculists of that time. In the then imperfect state of the operation, it is not to be

be wondered that its failures brought it into some degree of disrepute, and occasioned many doubts respecting its superior advantages to the old method. Subsequent experience, however, and various improvements in the several parts of the operation, suggested by different individuals, have contributed to bring this method of operating to such perfection, that its advantages are acknowledged, and the operation practised by most of the distinguished oculists of the present day; though some authors, and those of no small reputation, still hold forth a contrary opinion *.

As in this disease most operators give an exclusive preference to one mode of operating, they have no opportunity of comparing, in their own practice, the relative success of both; and most practitioners are so biassed by their favourite method, that they are seldom willing to give a detail of their unsuccessful cases, with that candour that would warrant us to draw a direct conclusion in favour of either operation, from the ultimate success in the hands of different individuals.

From the different morbid states of the lens, and from the condition of the eye affected, it has been said that neither method of operating should be exclusively adopted, but that a choice should be made, according to the circumstances of the case. There are, however, few cases, where, if any operation will prove successful, extraction may not be employed.

In

* Richter, Scarpa.

In favour of depression, it has been contended, that the superior ease with which this operation is performed, should give it a preference; but this advantage is more in appearance than reality. For, to completely fulfil the intent of the operation, by leaving the Cataract permanently fixed in the bottom of the eye, and that without unnecessarily wounding, or causing much disturbance of the neighbouring parts, requires a dexterity that a long experience can never entirely command. In milky and soft Cataracts, the ease with which the former is evacuated, and the latter divided, and their subsequent absorption, have been adduced as circumstances adapting them for the operation by the needle, but with the former the capsule is almost always found opake; and the tearing this membrane, or the soft Cataract into such fragments as will neither irritate the eye, nor be an obstacle to their speedy absorption, cannot well be effected without much disturbance and injury to its internal parts. In the hard Cataract, or where both the lens and capsule are together affected, the case is still more unfavourable for this operation. For in fixing the lens in such a manner as will afford the best chance of its not again rising, it will, by pressing on the choroid or retina, often induce deep-seated pains and inflammation, or amaurosis *; and when this form of Cataract dissolves at all, it requires such a length of time, on account of its hardness, or being enveloped in its capsule, that these bad

 effects

* Mohrenheim Beobacht. B. 1.

effects may be produced before its absorption. When its dissolution does not take place, the patient is always liable to a renewal of the disease, by its regaining its former situation, on any severe exertion of the body, or by a spasmodic action of the muscles of the eye, and sometimes, perhaps, by a diminished state of tenacity of the vitreous humour; and although the operation may be repeated without much risk, it can only, in these cases, be considered as a palliative remedy, inasmuch as the patient will always be liable to a renewal of the disease, on a repetition of any of these causes.

Besides these, the operation by depression is always improper, and often impracticable, in cases of adhesion of the capsule and iris; and although the prospect of success by extraction is not great, yet it sometimes succeeds.

The operation by extraction is applicable to almost every form of Cataract, and to most conditions of the eye, where benefit may be expected from surgical means. It gives little pain, frequently less than depression, no sensible part is wounded, and there is no risk of the occurrence of hæmorrhage; the wound unites readily, and leaves a scarcely perceptible cicatrix. The escape of the vitreous humour, when it does occur, is followed by no bad effects to vision. It has been said *, that a contraction and immobility of the iris, with subsequent loss of vision, from the dilation or laceration of this membrane by

* Bell's System of Surgery, vol. iv.

by the passage of a large lens through it, is frequently an effect of this operation. But this will rarely occur, if care be taken to distend the pupil by the removal of light, and to produce the gradual escape of the lens by a well regulated pressure; or, if the pupil should not dilate in this way, a few drops of the infusion of belladonna, applied to the eye before the operation, has been found useful in promoting its enlargement; or if it should still continue at the time of operating, the incision of the iris with a pair of curved scissars, in the direction of its longitudinal fibres, may be adopted, without producing any subsequent bad effects. In depression, also, this contracted state of the pupil not unfrequently arises from a laceration of the uvea by the point of the needle.

In small and deep-sunk eyes, with flatness of the cornea, and much irritability of the muscles, the operation of extraction is performed with more difficulty, and in these a preference has been given to depression; but, in the hands of a dextrous operator, such difficulties may sometimes be overcome.

In extraction, the severity of the subsequent inflammation, with its consequences, has been alledged as a strong objection to this operation. But, by obviating the tendency to it, and by avoiding the exciting causes, together with adopting active measures at the commencement of its attack, it may be so prevented or modified, that its occasional appearance cannot be considered as any balance to the superior advantages of the operation, particularly as a similar attack sometimes attends depression.

sion. The secondary Cataract occurs, perhaps, as frequently after depression as extraction, and when its removal is practicable, it will always be found more safely and completely effected by the latter operation.

From all these circumstances, and from the example and experience of most of the eminent oculists since the first introduction of the operation by extraction, we may conclude, that its advantages are superior to any other mode, and that the cure of Cataract, in almost every instance where such is practicable, may be safely and most effectually undertaken by this operation.

FINIS.

J. Pillans & Sons, Printers, Edinburgh.