Illustrations

OF

HOSPITAL PRACTICE:

METROPOLITAN AND PROVINCIAL.

ROYAL LONDON OPHTHALMIC HOSPITAL.

ON ENUCLEATION OF THE EYEBALL.

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ENUCLEATION of the eyeball—that is, its removal by dissecting it out of its capsular fascia—was proposed in 1841 by O'Ferral and Bennett, nearly at the same time, and independently, as a comparatively safe and simple substitute, in certain cases, for the method of extirpation then commonly practised. In this proceeding, after division of the outer and occasionally also of the inner commissure, for the purpose of gaining space, the eyeball was transfixed by a thread or hook, which served to pull it forcibly forwards, while it was scooped out of the orbit with a scalpel. The ocular muscles, the lacrymal gland, and the orbital cellular tissue, were more or less completely removed, together with the eyeball. The unavoidable division of the larger branches of the ophthalmic artery, occasioned copious and often troublesome bleeding; and the exposure and frequent injury of the periorbital membrane, which is continuous with the dura mater, made the operation so severe as greatly to restrict its employment.

O'Ferral and Bennett pointed out that these sources of danger were avoidable, if the incisions for the removal of the eye were restricted to the inner surface of the capsular fascia, and the tendons of the external ocular muscles and the optic nerve were severed close at the outer surface of the eyeball. In this way, only the smaller arterial twigs would be cut, the muscles and cellular tissue would be left, the periorbital membrane would be uninjured, and the risk of inflammation extending from the orbit to the cranial cavity correspondingly diminished.

Their suggestion was adopted in the following year by Stoeber of Strasbourg; and ten years later, the first enucleation in this country was, so far as I can learn, performed by Mr. Critchett, in the Royal London Ophthalmic Hospital.

Instruments. A wire speculum, a dissecting-forceps, a small strong blunt-pointed scissors curved on the flat, and a strabismus-hook, are the only instruments required. Some small pieces of soft sponge, a little cotton wool or charpie, and a bandage, complete the apparatus.

Operation. The patient lies on his back chloroformed. The eyelids are held apart by the speculum. The operator pinches up the conjunctiva with the forceps, and divides it with the scissors in its entire circle, close to the cornea. He next opens the capsular fascia, in the same way, over the insertion of the rectus externus, catches up this tendon with the hook, and cuts it. The tendons of the other recti and of the oblique muscles are similarly divided close to the sclerotic. Any cellular connections between the eyeball and its capsule are next severed. Lastly, the optic nerve is cut, and the eyeball being now free is lifted from its bed, and its removal is complete.

The order in which the muscles are divided is unimportant. It is sometimes convenient to leave the division of the oblique muscles till the nerve has been cut.

Where the eyeball is not unnaturally enlarged, nor abnormally adherent to its capsule through inflammation, the strabismus-hook may be laid aside, and the recti tendons caught by slipping one blade of the scissors beneath them, as recommended by Mr. Dixon.

I think, owing to the slope of the outer wall of the orbit, the optic nerve is more easily reached from this side (the cornea should be drawn to the nasal side by seizing the stump of the tendon of the outer rectus, which may be left rather longer for this purpose); but some operators reach the nerve from the nasal side of the orbit. From whichever side it is reached, it is important to keep the scissors against the surface of the globe until the nerve is felt.

The bleeding is generally slight, and soon ceases spontaneously. Where it continues, the wound should be held open, and a stream of cold water squeezed on it from a sponge, or a small soft sponge may be bound upon it with a turn of bandage as a temporary compress. When the bleeding has entirely ceased, the conjunctival wound may be drawn together with a fine silk thread passed through its edge at three or four points. In order to avoid unnecessary pain, the suture should be put in loosely before the chloroform stupor has passed off, but need not be tied till afterwards. Where the orbital tissues are inflamed, or much infiltrated with extravasated blood, suppuration will ensue. Here the suture is not advisable, since the early closure of the external wound prevents the escape of the pus, and adds to the suffering.

The *after-management* is of the simplest kind. The patient need not keep his bed. A light compress of cotton wool, or a fold of wet lint, whichever is most comfortable, is commonly all that is necessary. When suppuration impends, warm water dressing or a light poultice is the best application; and, when the discharge is free, lead-lotion. The latter is also useful where the eyelids are ecchymosed. Where the wound heals, as it frequently does, without suppurating, an artificial eye may be worn at the end of a week; but in other cases not until the acute symptoms subside. Its introduction should not be deferred indefinitely; for the support it affords to the eyelids is usually grateful; and, by preventing the accidental intrusion of the eyelashes, it hastens convalescence. At first, a smaller eye may be worn provisionally, and a larger when cicatrisation is complete. I always warn patients that, under no circumstances, ought they to continue to wear the eye when it has become rough. I have seen great distress produced by the neglect of this. The rough edge of the eye at first frets and inflames the conjunctiva; then it causes ulcerations and granulations, compelling the patient to lay the eye aside; and irregular scars result which make it difficult, and in some cases impossible, to adopt another.

Indications for Enucleation. I know no other operation of equal magnitude which is attended with so little risk and followed by so quick a recovery. This enables us confidently to recommend it in cases where we should hesitate to perform extirpation in the old manner. The domain of the operation naturally varies with different surgeons, some giving it wider, others more restricted limits; and it has changed at different times in the practice of the same surgeon, as improved methods of treatment and operating have been substituted for it. Taking the practice of the Royal London Ophthalmic Hospital as a guide, I find from an analysis of 135 cases which occurred

there in the year 1863-64, the following indications in the order of their frequency: 1. Painful, otherwise intractable, states—often sequelæ of recurrent deep-seated inflammation—sometimes eventuating in staphylomatous enlargement, or wasting of the eyeball; 2. Sympathetic irritation and inflammation; 3. Severe injuries destroying the eye at once; 4. Acute, recent, internal ophthalmia, idiopathic and traumatic, disorganising the eye, and attended with tedious convalescence; 5. Intraocular tumours; 6. Conditions preventing the adaptation of an artificial eye.

1. The two following cases are examples of the first class.

CASE I. A woman, aged 27, was admitted into the Royal London Ophthalmic Hospital on April 13th, 1861. She complained of severe aching pain in the left eye, which was only half its proper size. In its present severity, the pain had lasted nine weeks; and during the four preceding years, she had been frequently laid aside by it.

Ten years previously, she had inoculated the eye by using a towel with which the eyes of an infant with ophthalmia neonatorum had been wiped. Violent inflammation ensued; sight was lost; and she had a tedious convalescence.

April 15th. I enucleated the eye. Four days later, she was easier than she had been for a long time. The wound had contracted so much that it was nearly closed. The conjunctiva was slightly œdematous; but there was no swelling nor ecchymosis of the eyelids. A few days afterwards, she returned home convalescent, and continued free from pain.

CASE II. A feeble nervous woman, aged 47, came under my care at the Royal London Ophthalmic Hospital in October 1857, for chronic neuralgia of the left eye. At that time, it perceived only differences of light and shade (quantitative perception of light), and it had no perception of the shapes of objects (qualitative perception). Its cornea was hazy, and its vitreous humour cloudy and diffuent. Large white patches, fringed and speckled with black pigment, told of former extensive choroiditis. The optic nerve was atrophied. The lens had been removed fourteen years previously by Mr. Mackmurdo. In each eye, there were characteristic signs of a staphylomatous extension of the coats at the posterior pole; and in the right eye myopia of a very high degree was found with trial-glasses.

She attended regularly during several months; but did not derive any relief from treatment. Quantitative perception of light ceased. The neuralgia increased. Frequent accessions of inflammation occurred; and I proposed enucleation, but she could not then make up her mind to it. She came, however, on April 17th, 1860, worn out with pain, and begged to have it done. The cornea was ulcerated, the pupil closed, the aqueous humour cloudy, and ciliary region congested. I enucleated the eye the same day; and in a few days afterwards she left the hospital convalescent.

2. Passing to the second class of indications, we find cases of sympathy much more numerous in hospital than in private practice. This is owing to the exigencies of the poor, which do not allow the rest and care requisite after an accident. The mechanic, whose family lives from hand to mouth upon his daily wages, too often returns to work while his injured eye is yet tender; and, by exposure, he provokes an inflammation which destroys not only this, but frequently the other eye also. Sympathetic cases fall into two subclasses; the one characterised by hyperæmia and hyperæsthesia, with little disturbance of visual acuity—symptoms indicating a state of irritation; the other marked by the superaddition of exu-

dations and other evidence of inflammation of the choroid and iris, with secondary implication of the retina. The distinction of *irritation* from *inflammation* is important, since the first is less dangerous, and the prognosis is less unfavourable; for it almost certainly ceases on enucleation of the wounded eye; while sympathetic inflammation, particularly if it has already made some progress, is much less certainly controlled by this measure.

CASE III. A lad, aged 15, was sent to me at the Royal London Ophthalmic Hospital September 20th, 1857. His left eye was so weak and irritable that he had been compelled to give up work. His right eye (about one-third of its natural size, and quite blind) was neuralgic, the pain during the paroxysms being excessively severe. It had been wounded by an arrow ten years previously.

I excised the injured organ; and the relief was very striking. Neuralgia ceased, and the left eye became strong. I saw him several months after the operation. He was working in a printing-office, and had good sight.

Here the ophthalmoscopic signs in the sympathetic eye were those of congestion, without exudation.

CASE IV. A lad in a shop snapped a capped rifle, not knowing that it was loaded with a blank cartridge, at a girl who was looking in at the window. The glass and part of the sash were blown out, and a splinter struck her left eye. Eleven days afterwards, she came under my care at the Royal London Ophthalmic Hospital. The wounded eye was soft, slightly shrunken, and free from pain, though it had been very red and painful. An oblique scar extended completely across the cornea into the ciliary region at each end. The iris was entangled in the scar, the pupil being obliterated; and the lower half of the anterior chamber was filled with a blood-clot. The conjunctiva was slightly œdematous. Perception of light was lost.

Six weeks and a half afterwards, the wounded eye, which had continued to shrink and be free from pain, became red and painful; and this was followed by congestion, aching, and diminished visual acuity of the right eye. A fortnight later, there were signs of choroiditis—great congestion, with patches of exudation in the choroid, and haziness of the vitreous humour; and a further loss of visual acuity. I now enucleated the wounded eye. At the end of a fortnight, the vitreous humour was less hazy; the exudation-patches in the choroid were sharply defined. In another week, the vitreous humour had regained its transparency; and the exudation had disappeared from the choroid, leaving only a slight irregularity in the epithelium beneath which it had been. During this time there was a progressive increase of visual acuity. She now read No. 2 of Jäger's types (pearl); and, a month afterwards, No. 1 (brilliant).

In the enucleated eye, a piece of wood 6" long by 2" thick was found. It had passed through the iris and edge of the lens, and was imbedded behind the iris in the vitreous humour. Had its presence been known at the first visit, I should then have at once proposed enucleation; but the subsidence of the acute inflammatory symptoms so soon after the injury did not appear consistent with the lodgment of a foreign body.

CASE V. A carpenter, aged 53, was struck by a cricket-ball in the right eye, causing immediate loss of sight. His eye was very red and excessively painful during eight weeks, after which the redness subsided and the eye shrank. It continued frequently painful; and, during these accessions, the left eye was weak and irritable. At length, three years after the accident to the right, the sight of the

left eye began to fail. The diminution of visual acuity slowly progressed; and, five years from the time of the injury, when he came to the Royal London Ophthalmic Hospital, he was only able to read No. 19 of Jäger's types (four-line condensed), and this with hesitation. The wounded eye was a small, irregularly shaped button. Its cornea had remarkably shrunk, being only about 1" in diameter. The pupil of the left eye was dull and sluggish, and the retina congested and œdematous.

In so very chronic a case I did not expect much benefit from enucleation; but, as it was his only chance, I performed it February 11th, 1863. From that time the left eye slowly improved. In the following September, he read No. 4 (minion); and the improvement continued when I saw him a year after.

3, 4. As regards the third and fourth indications, primary enucleation has been lately ably advocated by my colleague Mr. Lawson. I have myself practised it with the best results. The patient is convalescent in a few days; he is spared the suffering and long illness which inflammation of the eyeball entails; and he avoids the risk of the wounded eye sympathising. Unfortunately, but too often acute inflammation has set in before these cases come under our care. When this has occurred, it is prudent to wait till the inflammation begins to subside before operating; for grave symptoms are related in a few instances to have arisen from extension of the inflammatory process within the cranium. I may add, that I have never myself seen this; but the delay is in accordance with the principles which regulate other surgical operations by which portions of the body are removed.

5. With respect to the fifth indication, among those surgeons who regard cancer as a constitutional disease *ab initio*, there are some so strongly prejudiced against removing the eye for it, that they neither do it at any time, nor sanction it. I am so firmly convinced that it is initially a local malady, that I hold enucleation for intraocular cancer to be not merely permissible, but a proceeding that the surgeon should urge upon his patient. (Even when a cancerous growth has broken through the coats of the eyeball and filled the orbit, the case is not always beyond aid; for a thorough extirpation of the whole contents of this cavity, and the free application of the chloride of zinc to its walls, has been followed by entire relief from present suffering and long immunity from recurrence.) I purposely use the word cancer in a wide sense, and not in a restricted sense, including all new growths characterised by infectiousness and extension, irrespective of the kind of tissue invaded. For examples, I would refer to a series of cases which I published in the third and fourth volumes of the *Royal London Ophthalmic Hospital Reports*.

6. Most of the cases falling under the sixth and last indication are blind shrunken globes too tender to bear the contact of an artificial eye, or staphylo-matous globes too large to allow one to be adapted. Some of the latter may be reduced by abscission of the front. Where the enlargement is restricted to the front and the ciliary region, this is often a good proceeding; but, where the back of the eyeball is un-sound, I prefer enucleation, because, in such cases, intraocular hæmorrhage sometimes occurs between the choroid and sclerotic, and also in the choroid and retina; and the reduced globe often suppurates and remains painful.

Not unfrequently a girl comes to the hospital unable to enter domestic service in consequence of the disfigurement caused by an anterior staphyloma resulting from sloughing of the cornea in purulent

ophthalmia in infancy. Behind the ciliary region, all the tissues are sound. In such a case, I abscise the front of the eye, get a good stump for an artificial eye to rest upon, and the obstacle to service is removed.

In other cases, where there has been choroido-iritis, the staphyloma is not restricted to the front, but the whole eye is enlarged in all its dimensions. Here I enucleate, for the reasons already stated. The enlargement of the eyeball has produced wasting of the orbital cellular tissue; and the cushion for the artificial eye is too scanty to give the same prominence and mobility as after abscission. Still this is less inconvenient than a fuller stump, which is occasionally painful, and which sometimes in after years is so troublesome that enucleation becomes imperative. The fact, too, that a large proportion of cases of melanotic and medullary cancer in mid life and in elderly persons occurs in shrunken globes, is not without significance.

CENTRAL LONDON OPHTHALMIC HOSPITAL.

BLACK CATARACT.

Under the care of HAYNES WALTON, Esq., Surgeon to the Hospital; and to St. Mary's Hospital, Paddington.

A FEW years ago, Mr. Walton brought the subject of black cataract before the profession, in a paper which he read at the Royal Medical and Chirurgical Society. It was by the aid of the ophthalmoscope that the cataract was discovered. Neither Mr. Walton nor any of the other surgeons who had seen the patient, could tell by a naked-eye examination what caused the blindness; for the pupil seemed black and natural. When the front of the cataract was illuminated, however, a very deep colour was observed. No operation was performed, on account of objections on the part of the gentleman. Since then, Mr. Walton has met with a few parallel examples; and others have been noticed and described by other men. Whenever the cataract has been extracted in any of these instances, it has been of the deepest brown colour.

But an actual black cataract has been lately removed by Mr. Walton, of which we shall give the particulars, as there are some points of physiological and pathological interest connected with it.

A man, 65 years of age, was sent to Mr. Walton by Mr. Philbrick of Colchester, because of his blindness. In both eyes there was the congenital defect, coloboma iridis, or deficiency of a segment of the iris, in a marked degree. His sight was so little affected by it, that he worked successfully as a gardener, and his employers never knew that he had any defect.

The coloboma is sometimes accompanied with a split or fissure in the retina. It is impossible to say whether this existed; probably not, because of the quality of the sight.

Except that there were a few minute dots of grey in the pupil of the left eye, nothing could be recognised there, as all else was black. Even when the light of the ophthalmoscope was concentrated on it, nothing more could be seen; but as the interior of the eye could not be illuminated, sufficient light not entering for the purpose, it was evident that there was some black body that intercepted the rays. There was scarcely any sight in the eye, only the mere perception of light from darkness.

Mr. Walton operated by extraction, and made the lower section of the cornea, because the iris was cleft