INJURIES TO THE EYES OF CHILDREN

BY

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WHILST injuries to the eyes of children do not differ greatly from those of adults, they are of special importance from more than one point of view.

The increasing frequency of such injuries, as seen in this hospital at all events, shows that the subject must be of interest both in the practical and in the economic aspect. The statistics in the following table form the foundation of this paper.

TABLE I.

CASES.	1917.	1918.	1919.
New cases	26,937	26,126	25,562
Eyes excised on account of injury	102	86	112
Children's eyes excised on account of injury ...	14	22	25
Proportion of children's eyes to total new cases ...	1 in 1,945	1 in 1,187	1 in 1,022

TABLE II.

Causes of injury to children's eyes necessitating removal, three years, 1917-18-19.

*Stones (thrown)	21
Glass (thrown)	10
Exploding cartridges and caps	5
Iron wire	5
Tin cans	5
Pen knives	4
Fork (loosening a boot lace)	2
Scissors	2
Kick of a horse	1
Door key	1
Button hook	1
Thorn	1
Airgun pellet	1
Steel spring	1
Pencil (in school)... ..	1
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Total	61
Of these, primary excision in	42
„ attempt to save in	19

* In only two cases was an eye lost as the result of an injury by glass from broken spectacles, and, as these were both caused by a direct blow from a stone, the eye would certainly have been destroyed even if spectacles had not been worn.

As will be seen from the statement of causes of injury, the majority are preventible. They are only too frequently the result of a display of temper, or of carelessness in playing or being permitted to play with dangerous articles.

If it be accepted that only 50 per cent. of seriously injured eyes are excised, we have before us the loss of probably 120 eyes for the period under review, or 40 per annum. This surely equals and may even exceed the loss of eyes resulting from ophthalmia neonatorum.

Probably some may say that as these children are collected from a population of nearly two millions, the annual proportion (1 in 50,000) is not excessive, but as the vast majority of such accidents are the result of lack of proper controlling influence, and also, as they nearly all occur in families of persons engaged in industrial pursuits, the loss is far too great and is of economic importance. It is probable that the proportion of children's accidents quoted above is not much different in Glasgow from that found in other large cities, and in this event there is a distinct call for greater parental and even police supervision.

Results of injuries

Of this there is not much to say. The great majority of the eyes excised have been so hopelessly damaged that excision has been primary, i.e., within a week.

Nearly all the injuries by stones and glass thrown have been what may be described as smashes of the eye. The cornea and sclera have been cut open, forming a very extensive wound, in some cases as much as 35 mm. in total (stretched out) extent. In such cases the iris, lens, vitreous, and even the retina, have been extruded.

In many cases the lids have been cut and deep cicatrices formed, which give rise to difficult prothesis.

In two cases the orbital margin was broken, once by a stone and once by a kick from a horse.

Amongst the injuries of less severity, there is frequently a penetrating wound, as by a piece of iron wire, a pen-knife or a fork, which results in cyclitis of quiet type. These are the most difficult cases to deal with as the eye often does well for a month or two, and then sympathetic ophthalmitis steals on one unawares when the child has left the hospital.

Parsons has drawn attention to the fact that young children are fully as liable to sympathetic ophthalmitis as are adults (*Trans. Ophth. Soc.*, 1916, p. 77), and even states that they are much more liable, and I entirely agree with his conclusion.

Generally speaking, it is much wiser to err on the safe side and remove any child's eye which is injured in the ciliary region

than to try to save it and so risk the onset of sympathetic ophthalmitis. If the cornea only be cut, even though the iris be involved in the wound, it may be possible to save the eye, sightless it may be, but if the wound be continued into the ciliary region to any extent, the result is nearly always disappointing.

Injuries by glass are always more serious than they appear to be, and if the globe be penetrated by glass, it is practically always lost.

Such injuries as result from penetration by the prong of a fork, by a pen-knife, by a thorn, etc., are almost certain to result in sympathetic ophthalmitis if excision be not carried out promptly.

I agree with Parsons (*loc. cit.*, p. 76) that injuries to the lens in children give rise, in many cases, to more serious results than do similar injuries in adults. Cyclitis more frequently supervenes, and it is possible that the greater activity of the tissues may account for this fact. When the lens swells and presses forwards into the anterior chamber all may go well, but in many cases the lens tissue seems to become the seat of a low form of inflammatory action which leads to iridocyclitis.

Several years ago, I drew attention to the occurrence of optic papillitis in cases of penetrating injuries (*Internat. Cong. of Ophth.*, 1904, p. B 21), and it is to be noted that this is quite as frequently seen in the case of children as it is in adults. It may be that the condition is merely an oedema in consequence of prolonged low tension, but more probably it is due to the presence in the vitreous body of a toxin, possibly a cytotoxin.

Sometimes, fortunately, quite astonishing results are obtained in cases of injury by sharp instruments (when clean), and it is a fairly safe rule that the surgeon may leave an eye alone, even if the cornea is extensively injured, provided the anterior chamber is re-formed in twenty-four hours.

Economic results

If the loss of the eye of an adult may be said to be loss of value of approximately £200, then the loss of a child's eye must surely be greater, as the handicap is to be of longer duration.

Whilst, as against this, it may be said that the child who loses an eye learns more quickly than does the adult to minimize the loss, by adapting himself to the defect, there are some ways in which the child is always at a disadvantage. The sense of space is never the same, and certain types of work are practically impossible for a one-eyed individual, because an adult who has lost an eye has his previous experience to aid him in correctly judging spacial dimensions, whereas a child has not.

Again, a very important point, a child who loses an eye has only one eye with which to encounter, thenceforward, the difficulties

and dangers of life, and a very simple accident may place this individual in permanent darkness at a very youthful age.

Thus, although it may not be possible to estimate the loss to the State involved in the three years' record before us, the figure must be very considerable.

Lastly, it may be noted that the loss of an eye in a child involves a considerable amount of expense in providing artificial eyes.

Cosmetic results

The removal of an eye of a young child is a very serious and unpleasant undertaking for a surgeon. In a girl, especially, it is to be regretted as the deformity which results is a consideration of some importance. About 20 per cent. of the eyes removed have been from girls.

Ernest Thomson has shown, by his experiments on rabbits (*Trans. Ophthal. Soc.*, Vol. XXI, p. 258), that the size of the orbit depends on the growth of its contents. There is no doubt that the removal of the eye of a young child gives rise to considerable deformity of the osseous framework of the face.

Treatment

In very severe cases where the eye is manifestly hopelessly destroyed, there is usually no difficulty in knowing what it is best to do. It is in the cases where an attempt may be made to save the eye that difficulties arise.

Generally speaking, the less the eye is touched the better.

If the wound is of less than six hours' duration and the anterior chamber is still open, prolapsed iris may be trimmed away, lens matter may be drawn off, etc., but if the anterior chamber be closed, to cut away a prolapse of iris may expose the eye to a second risk of infection, by allowing a portion of infected tissue to return into the eye.

A well applied compress and a bandage covering both eyes, so as to ensure complete rest, will usually do all that can safely be done in the first instance.

The value of the proceeding known as the "conjunctival flap" is open to doubt from the point of view of asepsis. As the flap cannot be sealed down all round, since it will not adhere to the corneal surface, a pocket is formed which may be a safe harbour for organisms which would have been washed away by tear formation under other circumstances. In the case of purely scleral wounds, of course, the proceeding is quite sound.

After considerable experience, I have come to the conclusion that the use of sub-conjunctival injections of bichloride of mercury, etc., is of little avail and am convinced that the results are as good without as with them.

Atropin or eserine may be used as the requirements of the case

indicate, but if the anterior chamber is closed and a prolapse of iris exists, there is but small hope of drawing the iris away from the cornea.

I must confess that I have a strong preference for the use of atropin in all cases and often make use of solutions of 2 per cent. strength.

In later stages of a case, if the lens be pressing forwards and giving rise to hypertony, the question of surgical intervention must be considered, but usually, unless the eye remains fairly quiet, it is better not to draw off the lens, as if the eye is in a state of iridocyclitis, to open it is usually found to give rise to further irritation.

Such seriously injured eyes should be very carefully watched for at least three months and the first sign of reduced tension should be the signal for immediate excision.

In conclusion, I would express my conviction that a double bandage is of great importance both from the point of view of rest and in order to prevent the occurrence of squint at a later date.

RETINITIS PUNCTATA ALBESCENS

BY

DR. JAMES J. HEALY,

LLANELLY.

WHILE ophthalmic surgeon, I/C Army Ophthalmic Centre 79, I saw a case of this rare disease. The appended notes may be of interest.

July, 1918.—Driver H., A.S.C., aged 23 years, two years' service, was sent for examination owing to his inability to drive a motor vehicle at dusk.

Personal history.—From earliest recollections he had difficulty in seeing in a failing light, a disability which had increased since he joined the army. He also suffered from congenital deafness. On October 24, 1917, he contracted syphilis, and had a course of mercury and salvarsan, which finished December, 1917. Medical history sheet showed Wasserman reaction negative on June 13, 1918.

Family history.—His mother and a younger brother suffered from defective vision with symptoms similar to himself. These symptoms, he understood, were displayed by several other members of his mother's family. His father and several other brothers and sisters had very good vision.

Examination.—V.R. and V.L., 6/12. In a darkened room he frequently fell over obstacles, and found his way about by groping. Field of vision contracted in each eye, extending to 70° on temporal side and 30° on nasal side, contour regular. Fields of colour vision contracted and interlacing. There were no signs of