

ABSOLUTE INDICATIONS FOR THE REMOVAL OF AN EYE*

By K. H. Lim

SYNOPSIS

"You may remove an eye when the eye is blind and painful, or blind and irritable, or blind and ugly. You may remove an eye which is not blind but dangerous when the eye harbours a malignant tumour or is the seat of sympathetic ophthalmia."

Yet when all the possible indications for the removal of an eye are listed and considered and when progress and new thinking enable us to exclude the less definite, there remain only a few that are justifiable and valid.

For amputation surgery is no credit to the surgeon, less so to its advocates.

The author presents his reflections on this simple but far from trivial procedure and concludes by discussing his own cases of the past 8 years.

One of the first procedures that a new-comer to ocular surgery may be called upon to perform is the removal of an eye, for the operation is relatively simple and no further harm can be done to sight, although with the introduction of improved prostheses the procedure has become more exacting. Whether the procedure involves enucleation or evisceration the result is the same physical loss of an eye.

We have, therefore, to be absolutely clear and definite when advocating such a procedure; the younger surgeon in addition to explaining the operation and obtaining consent from the patient and parents will do well to safe-guard himself if he also obtains consent from his chief or senior colleague. I know of some patients who have asked for corneal grafting after their diseased eyes had been enucleated.

INDICATIONS

When I first joined the Ophthalmic Unit of the General Hospital, Singapore the indications for the removal of an eye, mentioned by Arruga (Arruga, 1952) were embellished by my chief (Loh, 1963) in his enunciative fashion (Table I):

"You may remove an eye when the eye is blind and painful, or blind and irritable, or blind and ugly. You may remove an eye which is not

blind but dangerous when the eye harbours a malignant tumour or is the seat of sympathetic ophthalmia."

For me, however, amputation of an eye is no different from amputation of an organ elsewhere in the body, be it breast or lung or limb, for it is an admission of defeat in that we are unable to treat the patient by any other means. More so, perhaps, I am more conservative than the rest and a poor advocate, as such, for cutting.

We know from workmen's compensation that the loss of one eye is reckoned at 30 percent of total body disability but, do we know that loss of two eyes is reckoned at 150 percent, a fate worse than death?

ABSOLUTE INDICATIONS

Thus, I worked out a set of absolute indications for myself, as follows (Table II):

"You may remove an eye when the eye is irreversibly blind and the blindness is qualified by an additional factor, i.e. when the eye is blind and painful, or blind and irritable, or blind and cosmetically unsightly. You may consider removing an eye which is not blind but dangerous when the eye harbours a malignant primary tumour or is the seat of sympathetic ophthalmia. You may not remove an eye otherwise and, you must not remove an eye at the time of its injury."

More words, you may say, in this version, but it means less to do. Less, because having said that, we can commence dismantling the indications, starting at the bottom of the list.

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TABLE I
INDICATIONS FOR THE REMOVAL OF
AN EYE

| | |
|-------------------------|----------------------------------|
| BLIND and | painful irritable ugly |
| Not BLIND but DANGEROUS | Tumour Sympathetic ophthalmia |

TABLE II
ABSOLUTE INDICATIONS FOR THE
REMOVAL OF AN EYE

| | |
|-------------------------|---|
| IRREVERSIBLY BLIND and | painful irritable ugly |
| Not Blind but DANGEROUS | ? malignant primary tumour ?? sympathetic ophthalmia |
| NEVER during injury | |

INDICATIONS DISMANTLED

The Injured Eye

Sound the commence.

A 24 year old Chinese girl suffered a head injury in a road traffic accident. Her right eye-ball was ruptured and soft due to loss of vitreous. Hyphaema prevented a view of the pupil. Before the surgeon embarked on craniotomy, I inserted thick silk sutures into the scleral wound. Two weeks later the patient recovered, could discern hand movements, and removal of that eye was avoided.

Sympathetic Ophthalmia

Sympathetic ophthalmia is no more an indication for enucleation. It had never been an absolute indication because surgeons of old were aware that in the end the exciting eye had better vision than the fellow sympathising eye. The advent of corticosteroids and of cytotoxic drugs (Wong, 1968) has eliminated the dangers of sympathetic ophthalmia, even when the condition is rare in the

Asian eye although by no means never seen for I can report a case:

During Chinese New Year of 1964, a 22 year old Chinese girl ruptured her right eye-ball in a road traffic accident (Case No. V 36087). Four weeks after repair the eye was still irritable and had only vague perception of light. I would have left her at that but, she was soon following her R.A.F. fiancée to marry in Scotland and not knowing how the climate would influence the onset of ophthalmia, prompted even more by thoughts of her convalescence and travel, enucleation was advised. Histological examination showed sympathetic ophthalmia, this being the first report in Singapore (Report No. B 1713).

Malignant Primary Tumours

RETINOBLASTOMA is the commonest malignant ocular tumour in the child and is bilateral in some 25 to 40 per cent. The old teaching was: "enucleate the first eye and irradiate the second eye," the thinking being "Life-saving versus Sight-saving", and radiation was offered to the second eye because the tumour could be detected early and preservation of the remaining eye and of sight justified radiotherapy.

In the bilateral case today enucleation is still advised when the tumour is advanced in the first eye and radiation or chemotherapy is offered for the second eye. But, in the unilateral case when the tumour can be detected early, is less than 10 disc diameters and situated behind the equator, conservative treatment has been advocated. (Ellsworth, 1968).

CHOROIDAL MALIGNANT MELANOMA is seen in the adult and is by no means rare in the Asian eye. The Singapore Cancer Registry has a record of 9 cases, (Tables III and IV). Alternative methods of treatment with light coagulation (Francois, 1968) or irradiation (Bedford, 1968) has been reported for early cases.

THE IRREVERSIBLY BLIND EYE

Thus, having considered the indications for an eye that is not blind, we come now to consider the irreversibly blind eye.

Blind Ugly Eye

This may be a cosmetically unsightly eye but it is still the patient's own eye. Such an eye may be phthisical and the cornea insensitive so that it may be possible to fit a haptic or scleral cosmetic contact lens over it rather than have its removal. The only fear of not removing such an eye is late onset of sympathetic ophthalmia, but if there had been previous infection ophthalmia is unusual.

TABLE III*

CANCER OF THE "EYE" (HISTOLOGICALLY DIAGNOSED ONLY)

| Diagnosis | 1950-54 | | 1955-59 | | 1960-64 | | 1965-67 | | 1950-67 |
|-----------------|---------|---|---------|----|---------|---|---------|---|---------|
| | M | F | M | F | M | F | M | F | M + F |
| Retinoblastoma | 4 | 9 | 8 | 10 | 11 | 4 | 6 | 2 | 54 |
| Malig. Melanoma | 1 | 1 | — | 1 | 2 | 1 | 2 | 1 | 9 |
| Glioma | 1 | — | — | — | 1 | — | — | — | 2 |
| Sq. cell Ca. | 3 | — | 3 | 1 | 2 | — | — | — | 9 |

*From the Singapore Cancer Registry.

TABLE IV*

MALIGNANT MELANOMA OF THE "EYE"

| R a c e | 1950-54 | | 1955-59 | | 1960-64 | | 1965-67 | | 1950-67 |
|---------|---------|---|---------|---|---------|---|---------|---|---------|
| | M | F | M | F | M | F | M | F | M + F |
| Chinese | 1 | 1 | — | 1 | 1 | 1 | 2 | 1 | 8 |
| Malay | — | — | — | — | — | — | — | — | — |
| Indian | — | — | — | — | 1 | — | — | — | 1 |
| TOTAL | 1 | 1 | — | 1 | 2 | 1 | 2 | 1 | 9 |

*From the Singapore Cancer Registry.

TABLE V

EYES REMOVED, OPHTHALMIC UNIT,
OUTRAM ROAD GENERAL HOSPITAL, 1963 - 1970

| Year | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 Oct. | 1963-1970 |
|--------------|------|------|------|------|------|------|------|--------------|-----------|
| Enucleation | 22 | 30 | 24 | 14 | 28 | 26 | 20 | 12 | 176 |
| Evisceration | 14 | 20 | 3 | 11 | 18 | 17 | 14 | 9 | 106 |
| TOTAL | 36 | 50 | 27 | 25 | 46 | 43 | 34 | 21 | 282 |

TABLE VI

EYES REMOVED BY THE AUTHOR

| Y e a r | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 Oct. | 1963-1970 |
|--------------|------|------|------|------|------|------|------|--------------|-----------|
| Enucleation | 5 | 4 | 1 | 2 | — | — | 4 | 1 | 17 |
| Evisceration | 1 | 3 | 3 | 1 | — | — | 4 | — | 12 |
| TOTAL | 6 | 7 | 4 | 3 | — | — | 8 | 1 | 29 |

In a growing child, consideration has to be given that the loss of an eye from its orbit may lead to facial asymmetry even when we can place a small glass-ball into the orbit without its extrusion.

Blind Irritable Eye

The irritation may be due to a number of factors. Treat the cause and the irritation will look after itself. Like the story of the Gordon Knot, untie it if you can, cut it if you must, if not do not despair for given time, the knot will rot.

Blind Painful Eye

The blind painful eye is a severe disability and often combines all the other indications for its removal to hasten as well the patient's convalescence and reduce morbidity. This combination is the major and valid indication today. Such an example may be seen in absolute glaucoma, when the eye is blind, painful, irritable and ugly. Another example may be seen in panophthalmitis, when the eye is a bag of pus and dangerous. Even so, pyocyanus of the fracture wards, beloved of orthopaedic surgeons, but the great bug-bear of intraocular surgery and of eye wounding can often today be contained by the more potent antibiotics, even when vision cannot be restored.

CONCLUSION

Thus, we have come around a full circle to the beginning. For myself, when confronted with a patient I tend not to think of the indications as such but to let the patient request for surgery, giving his own reasons which are more valid than our sweet words.

TABLE VII
ANALYSIS OF 29 EYE REMOVALS

| | | | | | | |
|---|---|---|---|---|---|----|
| Injury | - | - | - | - | - | 11 |
| Infection | | | | | | |
| (a) Following injury | - | - | - | - | - | 5 |
| (b) Following intraocular surgery | - | - | - | - | - | 3 |
| (c) Following exposure keratitis | - | - | - | - | - | 1 |
| Absolute glaucoma | - | - | - | - | - | 3 |
| Keratomalacia | - | - | - | - | - | 3 |
| Retinoblastoma | - | - | - | - | - | 2 |
| Squamous cell carcinoma (eyelid) invading eyeball | - | - | - | - | - | 1 |
| TOTAL | | | | | | 29 |

Concluding Tables VI and VII show my own cases of the past 8 years—infection and injury were the major causative factors.

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REFERENCES

1. Arruga, H.: "Ocular Surgery." 1st edition, 817, McGraw-Hill, New York, 1952.
2. Bedford, M. A.: "Personal communication." 1968.
3. Ellsworth, R. M.: "Treatment of Retinoblastoma." Amer J. Ophth., 66, 49, 1968.
4. Francois, J.: "Disappearance of pigment after Light Coagulation of Malignant Melanoma of the Choroid." Amer J. Ophth., 66, 443, 1968.
5. Loh, R. C. K.: "Personal communication." 1963.
6. Wong V. G., Hersch E. M. and McMaster, P. R. B.: "Treatment of a Presumed case of Sympathetic Ophthalmia with Methotrexate." Arch. Ophth., 76, 66, 1966.