TREATMENT

As soon as the diagnosis has been established the eye containing the growth should be enucleated without delay.

Most intra-ocular growths are situated posteriorly within the globe, and extension of malignant cells, if such be present, is commonest along the posterior ciliary vessels and nerves and along the optic nerve.

For this reason it is important to sever these vessels and nerves as far back as possible, leaving the tissues covering the back of the globe intact, they then being removed as one with the globe.

From the statistics it appears that extra-ocular extension of the growth is the exception and not the rule, only twenty-nine or 11.03 per cent. of such cases occurring in the present series. Byers and MacMillan found one hundred and thirteen cases out of three hundred and ninety-two or 28.83 per cent., that showed extra-ocular spread on investigating six series of intra-ocular sarcoma in the literature.

If extra-ocular spread has occurred, either exenteration of the orbit should be performed or radio-therapeutic measures employed. Orbital exenteration is an extremely mutilating procedure, leaving a bad cosmetic appearance and resulting in a discharging cavity unless a skin graft is subsequently employed. In addition to these disadvantages the psychological effect on the individual is often adverse.

The prognosis of cases with extra-ocular extension is relatively bad whatever method of treatment is employed, 50 per cent. cases dying within three years and 69.2 per cent. within five years; moreover, of the five cases that had exenteration of the orbit, four died within five years and one died within fourteen years from sarcoma, and of the nine cases of extra-ocular spread without exenteration, six died within five years and three survived for more than five years, one dying after seven years, another after ten years from sarcoma, and one being alive after eleven years.

These figures tempt one to assume that exenteration of the orbit does not increase the chance of survival of these unfortunate people, radium or deep X-rays probably being as effective.

Occasionally a sarcomatous growth on the iris may offer a considerable problem to the surgeon as to the line of treatment to be employed.

If there is no doubt as to the diagnosis and useful vision in the eye is lost, the treatment is clear, namely, immediate enucleation, as in the case of choroidal sarcomata. If, however, the neoplasm is small and situated at the pupillary border of the iris, the vision in the eye is good and the fundus normal, as examined with a fully
dilated pupil, then local removal of the growth by an iridectomy may be considered.

Fuchs stated that an iris growth might be excised by iridectomy if small enough to be entirely removed. Wood and Pusey, however, advocated removal of the globe in all cases of iris sarcoma, for they found in forty-one cases out of one hundred and eight, other parts of the uvea involved, which could not have been removed by iridectomy.

The problem is a very real one, for on the one hand there is the chance of preserving the eye by removal of the growth by iridectomy, and on the other, the possibility of endangering the life of the individual by failure to remove the eye.

Local excision by iridectomy even if successful, involves an indefinite "follow up" of the patient subsequently, and this is always difficult. I think therefore that the safest line of treatment to follow is enucleation of the globe in every case, where ever the growth be situated and whatever the vision be, the exception to this rule being the case of the monocular individual.

Very occasionally it happens that the growth occurs in the one remaining eye, or in both eyes, or the patient refuses to have the eye removed; in these extremely uncommon cases, the insertion of radon seeds into the growth, as advocated by Foster Moore, may be carried out, after fully explaining the state of affairs to the patient or relatives.

**BIBLIOGRAPHY**


**SUMMARY**

Two hundred and sixty-three cases have been investigated from the clinical, pathological and prognostic points of view.

Intra-ocular sarcoma is a rare disease, less than 0.1 per cent. of eye patients suffering from it.

The male and female appear to be more or less equally affected; the average age of the patients in the series investigated was about fifty-two, with one and a half years and eighty-seven years as the extremes.

The sixth decade is the most prone to develop the disease.

The average duration of symptoms in sarcoma of the uveal tract is lengthy, about nineteen months.

Aetiological factors are few, as far as present knowledge goes,
previous trauma being, in my opinion, a very doubtful predisposing cause, although there are many cases in the present series with a previous history of trauma.

On the other hand previous choroidal haemorrhages, and old pigmentary changes in the fundus, are in some cases I think, predisposing factors to the development of a malignant growth. Abnormal aggregations of pigment, both in the choroid and iris, (melanomata), are liable to undergo malignant transformation; the tendency being much greater in the case of ir's melanomata than in the case of the choroidal variety. This statement may be misleading, for a melanoma on the iris is generally well known to the patient as having been present for some long time before malignancy occurs, whereas a choroidal melanoma is obviously hidden (unless observed by fundus examination previously), and choroidal sarcomata may possibly commence in these choroidal "moles" more often than is at present suspected.

The majority of patients present themselves for examination with vision reduced to no perception of light, five patients, however, had normal visual acuity (6/6).

Fifty per cent. of cases of intra-ocular sarcomata have an increased intra-ocular tension.

Retinal detachment was present in every case of choroidal growth, and no "hole" was observed in any of the cases.

A case of retinal detachment, without a hole, and showing increased intra-ocular tension is, in all probability, neoplastic.

The majority of choroidal growths occur in the posterior part of the globe. Bilateral choroidal sarcomata are extremely rare—a case is reported in the appendix.

Tumours composed of spindle cells are the commonest variety, epithelioid cell growths are uncommon.

Uveal sarcomata are mesodermal in origin.

If melanogen is present in the urine the case is quickly and invariably fatal.

Twenty-seven per cent. of patients die within three years of operation.

Thirty-six per cent. of patients die within five years of operation.

Fifty-six per cent. of patients die within ten years of operation, so that a five-year period of survival is not long enough to pronounce the case "cured."

If, however, the patient survives for ten years, the case can, in all probability, be regarded as a "cure."

The mixed cell type of growth is the most malignant.

The presence of malignant cells in the emissaria of the globe is not necessarily of bad prognostic import, fifty-eight per cent. of such cases surviving five years.

The prognosis of cases with extra-ocular extension is
comparatively bad, seventy per cent. of patients dying from the disease within five years.

Intra-cranial extension as a cause of death is rare.

Growths belonging to "Reticulin Group 3" have a better prognosis than growths falling into "Reticulin Groups 1 and 2."

The younger patients have a better prospect of survival from the disease than those of more advanced years.

Enucleation is the treatment of choice, both for choroidal and iris sarcomata; exenteration does not appear to increase the chance of survival in cases of extra-ocular extension.

CLINICAL NOTES ON SOME INTERESTING CASES OF CHOROIDAL SARCOMA

Mrs. F., aged 52 years. Past History. 1929 complained of a central blur in the right eye.

February, 1931. Right visual acuity was less than 6/60 and was not improved with correction. A flat area was present at the macula and was diagnosed as probably being an old inflammatory lesion.

April, 1933. There was definite swelling in the area previously noted, best seen with a +9.0 lens in the ophthalmoscope.

June, 1933. This swelling was punctured with a fine Graefe knife, and seen to be solid. The eye was enucleated and found to contain a spindle-celled sarcoma of the choroid, no invasion of the sclera being noted.

November, 1938. Patient was alive and there was no evidence of local or general recurrence.

Assuming the original diagnosis of an old inflammatory lesion at the macula in the right eye was correct, it would appear that the sarcoma arose from a pathological area present in 1929, which by April, 1933, had undergone malignant transformation.

It is possible, of course, that a sarcoma was present in this eye in 1929, and had grown very slowly during the four years before the eye was enucleated in June, 1933.


May, 1914. Left fundus was normal. Visual acuity 6/6.

February, 1922. Macular chorido-retinitis noted in the left eye, the vision at this time being 6/9 with correction.

March, 1928. A large vitreous haemorrhage was present in the left eye. The visual acuity was 6/24 with correction, intra-ocular tension being normal.

May, 1931. Pain complained of in left eye. No perception of light was present, and the intra-ocular tension was greatly