

OLIVER (C.A.)

CLINICAL HISTORY
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Sarcoma of the Choroid,

WITH A STUDY OF THE MICROSCOPIC CON-
DITION OF THE GROWTH.

BY CHARLES A. OLIVER, M.D., OF PHILADELPHIA, PA.

[*Reprinted from Proceedings American Ophthalmological Society, 1893.*]



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CLINICAL HISTORY

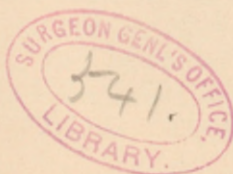
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CELLED SARCOMA OF THE CHOROID, WITH
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By CHARLES A. OLIVER, M.D.,

OF PHILADELPHIA, PA.

X. Y. Z. of Indian Territory, an active, energetic, and well-known business man of thirty-four years of age, consulted the writer for advice in reference to his left eye. He stated that five years previously he suddenly noticed that objects situated to the right side became dimmed when he attempted to look at them with his left eye. This dimness gradually and painlessly crept over the whole field of vision until in little more than three years' time the eye became blind.

In October of 1889, he consulted Dr. J. H. Thompson of Kansas City, who, finding that he complained of dimness of vision in the left eye, — 20/xl brought to 20/xxx by minus cylinder O 50 D, axis 60°; the vitreous about the disk being clouded.

As he gave Dr. Thompson the history of primary syphilis six years previously, he was placed on tri-daily doses of thirty grains of iodide of potassium. Under this treatment the patient did reasonably well. At this time, however, as Dr. Thompson informs the writer, the patient had some trouble with his liver.

He was seen again in June of 1890, when a tumor of the choroid beneath a detachment of the retina was noticed, which Dr. Thompson — although afraid of sarcoma — upon account of the diminished tension and irregularity of the blood-vessels, — was inclined to believe was a detachment of the choroid. Thinking

that it might be syphilitic, he renewed the treatment, and in another month's time was enabled to make the diagnosis of sarcoma, begging the patient to have the growth removed.

Since that time he has had a number of varying diagnoses, such as retinal detachment, possible tumor, syphilitic gumma, etc., given to him. In spite of the fact that he was placed almost constantly under some form of alterative treatment, the tumor-growth gradually increased in size.

In the early spring of 1892, exacerbations of intense temporal neuralgia more marked on the left side, supervened, lasting several hours at a time and rendering the patient irritable, morose, and unmanageable at times. At the same time, the left eye began to recurrently diverge until in a period of a few weeks it became fixed outwardly. It was then noticed that he several times lost the power of counting money, making change, and performing any arithmetical problem.

When first seen by the writer, on the seventh of June, 1892, a large yellowish-red and quite vascular growth was apparent in the upper outer part of the globe, just posterior to the crystalline lens. The broad, mushroom-like head of the tumor, which was separated from the body of the mass by a ring-like constriction, curved sufficiently forwards, inwards, and downwards, to hide the upper outer portion of the optic disk. The entire bulk of the tumor seemed to be enveloped in a membranous bag, which sharply curved around it in a fluid vitreous.

Although studied by strong illumination and highly-magnifying convex lenses, the mass did not appear to move with any motion given to the eyeball. The pupil, which was irregularly round, dilated to about four millimeters upon monocular exposure, and failed to present any apparent synechia. Tension was normal, and no ciliary tenderness could be elicited upon the most pronounced palpation. Vision was absolutely lost, and the iris failed to respond to the strongest light-stimulus from every meridian. Although there was a marked divergence of the left eye, and an inability for the internal rectus muscle of the same eye to act during attempts at convergence of the right eye upon a fine fixation object situated a short distance along the median line, yet the same muscle acted promptly in

association with the right external rectus muscle in right lateral deviation.

Ophthalmoscopic examination without the use of a mydriatic, showed the optic nerve-head dimly through numerous vitreous opacities. The upper nerve distribution of the central retinal veins, which were all that could be plainly recognized, seemed somewhat enlarged and tortuous. Dilatation of the pupil to six millimeters in all meridians by cocaine, allowed the fundus to be fairly well seen. The optic disk was seven by eight in apparent size with its long axis at 120° . The scleral ring was visible all around. The central retinal vessels were everywhere tortuous, the inferior nasal branches being quite large. The growth, which was now certain, sprang from the upper outer portion of the choroid and extended forwards, downwards, and inwards to a point immediately behind the lens. Its periphery, which projected directly out into the vitreous chamber, could be recognized throughout its entire extent. The deeper-lying vessels of the growth itself could be seen underlying in many places those of the superimposed retina.

The right eye, which was functioning properly in every particular, was entirely free from any evidences of the disease.

The diagnosis being certain, an immediate enucleation was advised and accepted.

Careful physical examination failed to reveal any evidences of organic disease. The lungs were capacious, gave good resonance throughout, and were free from râles. The heart was large for a man of his size, but not pathologically so. There were no murmurs and no evidence of any cardiac disease. Both the spleen and the liver were slightly, though insignificantly, enlarged. No enlargement of the superficial lymphatics could be recognized, and no lesions indicative of syphilis could be found. The urine, which was normal in appearance, had a specific gravity of 1015, and was free from albumin and sugar.

With the assistance of Dr. Daniel Longaker, enucleation was done on the following day under ether, there being but little hemorrhage. The external surface of the globe was carefully examined and found to be entirely free from any nodules and maculae. The proximal end of the optic nerve was re-ex-

cised far back, and the orbital tissues were painstakingly, though (happily) unsuccessfully searched for any indications of extension. The socket healed firmly with but little apparent conjunctival scar. In a month's time, after having him placed under carefully gauged anti-syphilitic treatment, an artificial eye was ordered and the patient allowed to return to his home.

Immediately after the enucleation, in presence of the patient's wife, who would be thus made witness of the correctness of the diagnosis, the eyeball was opened by a series of circum-linear incisions extending half way around the lower border of the optic-nerve entrance, and continued forward by two long longitudinal cuts in such a direction as to avoid touching the tumor-mass.

It is interesting to note that on the sixteenth of August, 1893, the writer received the following note: "The operation has astonished the natives here. Most of them doubt my having a glass eye, and my only way of convincing them is to put my fingers against it." In November of the same year he wrote: "I am pleased to be able to report to you a decided improvement in my health, and I have gained seventeen pounds since coming home. My appetite is excellent, and I do not suffer from my old ailments. My headaches have left me entirely, and I trust that they and I have parted friendship forever."

The patient has been seen by the writer within a few days. He has gained in weight, is sanguine, happy, and full of life and energy. The socket is clean, well-shaped, and free from

any irritation, nodules, or maculations. No metastases in any available situation could be determined after the most careful physical examination.



The accompanying reproduction of a photograph, which was kindly taken for the writer by Dr. Henry W. Cattell, Demonstrator of Mor-

bid Anatomy in the University of Pennsylvania, shows the exact size and position of the tumor-mass. The inferior wall of the globe (seen at the top) is turned back upon itself

so as to expose the interior of the eye. The eye is resting partly upon its corneal surface, and the superior wall is everted by a couple of pins so as to bring the growth and its attachment more prominently into view. The eversion of the wall of the globe by the pins in the photograph, causes the summit of the tumor to appear to point more posteriorly than it did when the globe was in its proper shape and form.

After the growth had been properly hardened in Müller's fluid, and had been placed in equal parts of this fluid and alcohol, the following measurements were made by Dr. Cattell: From the inside center of the tumor to inside center of the crystalline lens, the distance was eight millimeters. From the base of the tumor to the top of the growth, the distance was nine and a half millimeters. The greatest length of the mass was in the longitudinal direction of the eye: this situation—slightly beneath the top, measured one centimeter from side to side. The vertical diameter at this point measured one-fourth of a millimeter less. The pedicle varied from nine to nine and a half millimeters across, at different points. The mass again slightly broadened as it reached its base. The tumor pointed from the concavity of the eye towards the crystalline lens in such a way as to make its convex top visible during life to the ophthalmoscope.

The specimen was submitted to Dr. Joseph McFarland, Demonstrator of Pathological Histology in the University of Pennsylvania, to whom the writer is indebted for a careful microscopic examination and the accompanying drawings.

As can be seen in Figures 3 and 4, the neoplastic formation proved to be a spindle-celled sarcoma. Figure 1 shows how it sprang from the external layers of the choroid, projected into the sclerotic tissue, and extended extensively into the vitreous chamber. The overlying retina was elevated by the mass, dissected loose in places, and so torn at many points as to frequently render the tumor devoid of any internal covering. The spindle cells, which are small, quite uniform in size, and contain oval vesicular nuclei, run in irregular bundles. Throughout the growth numerous cavernous vascular spaces or sinuses could be recognized. In Figure 2 three of them are visible, each containing

red blood-corpuscles, and, in Figure 3, one can be noticed that is partly surrounded by an imperfect fibrous wall. As pointed out by Dr. McFarland, a second variety of sinuses could be found. These are shown in Figure 3. To use the language of his report, he says: "A second variety of sinuses exists similar to, but different from the blood channels, and seemingly having no connection with them. In these, too, a second cellular element is present, viz.: large, round, pigmented cells. These are almost constantly found in these open spaces, while but rarely seen in the blood channels. They are very probably leucocytes loaded with pigment granules which have been picked up in the interstices of the tissue. Just what these second series of channels represent is questionable. At first one would suspect them of being patches of degenerated tissue, but after careful study we have been led to conclude that they are cavernous lymph spaces. If this be correct, we can account for the many pigmented cells which they contain, by supposing that leucocytes (which we find sparingly in the tissue), having picked up loads of pigment granules from the interstices of the tissue, are now returning through the lymph channels. Except for these pigmented cells, a little fibrin, and occasionally a little molecular matter, the channels were continually empty."

The case is of the utmost interest, not only upon account of the recognition of the growth very early in the non-irritative stage of the disease, the comparative youth of the patient, the relative infrequency of the variety of the neoplasm, as well as the promptness in removing the tumor and its limiting nidus at the commencement of the second stage, and the rapid disappearance of the curious, though interesting cerebral symptoms after the enucleation and during the employment of the medicinal agents, but is of value where, by careful and painstaking analysis of the *post mortem* findings, it was distinctly proved that the neoplastic cells had extended at their utmost point to about four-fifths the lateral extent of the most resistant (and yet the most important for the life of the patient) of the ocular tissues. Fortunately, the position of the growth allowed its early recognition, and the late and sudden development of the incipient secondary stage, gave sufficient time and enough pain

for prompt radical action to be taken both upon the part of the patient and his medical advisor. The rather large, diffusely-placed and slowly-growing cells, the abundance of intercellular material, and the point of origin of the growth in the outer layer of the choroid (thus confirming Knapp's statement to this effect), are all of interest; while the scarcity of pigmentation in the youngest cells, the characteristic parallel tracks of the cellular elements, their uniformity in size, their typical oval vesicular nuclei, and the imperfectly walled vascular sinuses, crowded in places with red-blood corpuscles, teach much as to the etiology of the mechanism of the formation of the neoplasm; and lastly, the peculiar, though probable cavernous lymph spaces containing the pigment-laden leucocytes, gives a new point for reflection and study to the scientific student and educated physician.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

