A CASE OF METASTATIC OSTEOSARCOMA IN THE CHOROID*

BY

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BLACKPOOL

The occurrence of metastatic sarcoma in the eye is an event of such rarity, to judge from the few cases reported in ophthalmic literature, as to indicate the publication of a case which came to my attention whilst on active service recently.

To the best of my belief this case is the only recorded instance of an osteosarcoma in the eye.

In 1888 Meigs and de Schweinitz described a case with metastases in the 2nd and 3rd nerves in the cranium, and in the 2nd nerve and in the muscles within the orbit. Both eyes were affected by deposits in the choroid.

The primary growth was a round cell sarcoma in the chest. The spread of metastases was presumed to be from an erosion of the carotid artery found at post-mortem examination.

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A similar case was found by Weiner and described in 1902, and yet another by Ballantyne in 1905, in which the primary sarcoma was in the chest and caused metastases in the suprarenal gland and brain, with deposits in the optic nerve spreading from the disc to the retina.

Heine in 1899 described a metastatic sarcoma confined to the optic papilla.

Schiess Gemuseus and Roth in 1879 attributed a pigmented tumour of the disc to spread from a malignant melanoma of the skin.

In 1907 Neese reported a choroidal tumour derived from sarcoma of the breast, and more recently Elschnig, 1926, reported a tumour of the iris of spindle cell type originating from a primary lesion of the ovary.

The case which I now describe, starting as it did with a sarcoma of the knee, has the characteristic bone cytology so well marked in the ocular deposit as to prove its origin without any doubt.

Another interesting feature in this case was that it was possible to examine the tumour in vivo by means of the slit-lamp microscope, though with the magnification available no point of special importance was brought to view by this means.

I saw the patient in May, 1946, at No. 19 General Hospital in the Middle East.

About one year previously the patient injured his knee and developed a sarcoma at the site of injury.

In spite of amputation of the leg, metastases appeared in his chest later in the year.

Two months before consulting me, the patient noticed a vague visual defect in his right eye, which progressed to almost complete loss of vision by the time his eye was examined.

On examination a patch of scleral hyperaemia was present in the lower nasal area.

The anterior chamber was shallow, the pupil dilated and unresponsive to direct light but reacting consensually with the opposite eye. Ocular movement was full and free.

The fundus showed a detachment of the retina present, separable into two parts contrasting in appearance, and caused by a tumour with serous detachments above and below.

The tumour was double, both parts being in the lower nasal quadrant and appearing to be the result of an embolus of tumour cells lodging possibly in a ciliary vessel.

One nodule extended from the disc to about the equator and the other from the equator forwards. In colour they were pink with rounded hemispherical surfaces elevating the retina.
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The anterior nodule was clearly seen with the slit-lamp and microscope and appeared to have a loosely fibrillar structure on the surface. No pigmentation was visible.

Transillumination clearly demonstrated the solid nature of the nodules.

Examination showed nothing abnormal in the patient's left eye, nor was any C.N.S. lesion demonstrable.

The patient experienced no pain during the period of observation.

Later the detachment became total and the tumour not visible as a result.

Enucleation was not contemplated as there was no pain to justify such procedure.

Owing to my return home from active service I was unable to follow up the case, but Lt.-Col. J. Anderson, R.A.M.C., kindly obtained post-mortem sections of the eye for me.

These have been examined by Prof. Baker of Manchester University Pathology Department who reports:

"The sections show an osteo-sarcoma forming irregular trabeculae of osteoid tissue. The centres of a few of these trabeculae show calcification, but the bulk of the tissue is non-calcified. The tumour cells show rounded or oval nuclei, and there are some irregular larger types showing the cytology of malignancy. The tumour is a sarcoma of bone origin."

We have therefore in this case an indisputable chain of evidence to prove the diagnosis.

It commences with a known source of bone sarcoma in the patient's knee, which spreads to the mediastinum, and from the

Fig. 1. X20
mediastinum to the eye, probably by vessel erosion such as was found by Meigs and de Schweinitz in their case of metastatic intra-ocular sarcoma.

The occurrence of a double tumour in the eye indicates firmly that this growth is of metastatic origin, and pathological examination of sections of the ocular deposits shows such a distinctive cell pattern, that from this alone it is possible to diagnose bone sarcoma without reference to the previous history.

Fig. 2. $\times 200$

Reproductions of photomicrographs of the ocular tumour are published herewith, and show the trabeculae of osteoid tissue with the tumour cells in the interstices.

The dense black areas represent the calcified portions of the tumour.

The sections were stained with haematoxylin and eosin.

I wish to thank Professor Baker for his kindness in examining and reporting upon the tumour sections and for supplying the photomicrographs. I also desire to express my appreciation to Lt.-Col. J. Anderson, R.A.M.C., for his invaluable help in securing the sections of the tumour and forwarding these to me from the Middle East.

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