CASE NOTES

MALIGNANT MELANOMA OCCURRING AFTER EVISCERATION*

BY

B. A. BEMBRIDGE AND J. McMILLAN

From the Nuffield Laboratory of Ophthalmology and Oxford Eye Hospital, Oxford

WE report a case in which a malignant melanoma was found in the orbit 16 years after evisceration of the eye. The report seems justified as an illustration of the peculiarities of orbital swellings in general and because of the rarity of such a case.

Clinical History

1931: The patient (male, aged 53) attended hospital complaining of pain in the left eye. The eye had been practically useless since a cataract had developed after it had been struck by a hockey ball in his youth. The right eye was normal. On examination the left eye showed only poor projection of light, an anterior chamber occupied by the lens, and what appeared to be exudate lying behind this in the vitreous. No note was made of the intra-ocular tension. Kaolin poultices relieved the pain, and the patient was advised that the eye should be enucleated within a month or two; but he did not attend again for 5 years.

1936: He suffered another acute attack of pain in the left eye. On examination, gross oedema of the cornea and chemosis hid the details of the anterior chamber; evisceration was performed.

The operation note states that evisceration was difficult because of much fibrosis and profuse bleeding; it included "removal of the sclerotic, except for a cuff round the optic nerve". The socket healed satisfactorily and the patient was discharged.

1943: He attended again with the left socket swollen and inflamed and examination revealed "conjunctiva of socket swollen and with a dark central patch, like uveal pigment". Heat again relieved the pain and lateral tarsorrhaphy was performed for ectropion.

1952: In January the artificial eye fell out and broke and 3 months later he came to hospital for a new one. Examination showed a large mass in the left orbit which was causing some bulging of both lids, and greatly reducing the cavity of the socket so that a normal-sized prosthesis could no longer be retained. He had noticed a progressive swelling in the orbit since the glass eye had fallen out. Inspection of the upper and lower fornices revealed a dark mass beneath the conjunctiva. On palpation this was firm and appeared to fill the orbital opening almost completely. The dark mass was thought to be neoplastic. No suspicious cervical glands were palpable and a general medical history and examination revealed no evidence of a primary growth; a prostatectomy had been carried out in January, 1950 and the sections pronounced benign. X ray of the chest did reveal lesions at the right base compatible with early metastases, though inflammation could not be ruled out.

Exenteration of the left orbit was performed and the clinical findings confirmed. The

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mass extended back to the apex of the orbit and was attached firmly to the roof and lateral wall. It was particularly difficult to separate it from the roof, and when this had been achieved as completely as possible, the orbital plate of the frontal bone was seen to be considerably eroded. It was thought that intracranial extension must inevitably have occurred. The orbit began to heal remarkably well and 3 weeks later was packed with radium needles in Perspex beads to give a dose at the surface of the orbit of 6,000 r in 4 days. A rather profuse discharge has now cleared up, and epithelium completely lines the orbit.

The right eye is normal for his age (74 years), with uncorrected visual acuity of 6/9 and full peripheral field.

Pathology

Macroscopic.—No scleral remains could be recognized in the orbital contents, which contained numerous pigmented and non-pigmented nodules varying in size up to 2.5 cm. diameter. Some necrosis had occurred in the largest nodule. The nodules were apparently not muscular in nature, nor fibrous, for fibrous tissue separated the individual nodules. It could not be said, however, that there was an encapsulated tumour present in the orbital contents. The tissue from which the nodules originated could not be identified. Blocks were taken from different parts of the growth to try to discover its origin.

Microscopic.—The predominant cell of the nodules was spindle-shaped, with pale cytoplasm but with the nucleus staining more densely (Fig. 1). There was considerable variation in the cell type. The amount of pigment also varied; it was found both intra- and extra-cellularly, but large areas were completely without pigment. The cells were densely packed, except at the edge of some of the nodules where they were separated by collagen fibres, as shown by the van Gieson stain. In some areas the cells were arranged in whorls. Occasional multinucleate forms (Fig. 3) were seen. Mitotic figures were infrequent; one is seen in Fig. 1. In spite of the extent of the tumour, necrosis was slight. The reticulin content varied; a moderately reticulated area is shown in Fig. 2. The histological picture was that of a scantily pigmented malignant melanoma of mixed cell type. The optic nerve could not be identified, so that it was not possible to say if there was any likelihood of extension retro-orbitally.

Discussion

The histological sections do not show from what structure the neoplasm originated, so discussion of the case can only summarize its possible origins. If the possibility is discounted that the tumour was a secondary deposit from a distant primary, the other possibilities to be considered are that it was a primary orbital melanoma, or had extended into the orbit from uveal cells remaining after the evisceration.

Malignant melanomata can originate in the orbit, but they are rare (Parsons, 1905; Offret, 1951). There were none in the series of 31 orbital tumours reported by Dandy (1941), and one of a series of 251 primary orbital tumours described by Reese (1951a) is described as a malignant schwannoma. Jackson (1951) says that melanoma can be found within the muscle cone, and he includes the condition in his tabular analysis of the pathology of 125 cases of orbital tumours. Rottino and Kelly (1942) reported one case of

FIG. 1.—Predominant cell type. Mitotic figure in centre of field. Haematoxylin and eosin. $\times 680$

FIG. 2.—Reticulin. Gomori. $\times 580$

FIG. 3.—Multinucleate cell at edge of a necrotic area. Haematoxylin and eosin. $\times 680$.

primary orbital melanoma, and after an extensive review of the literature as far back as 1838, they summarized eleven cases, but histological details were not complete in all of them. Foster (1944) reported a case of encapsulated orbital melanoma, but there was some doubt as to whether it was a malignant growth. Single cases have also been reported by Offret (1951) and Bonnet (1951).

FIG. 4.—Tumour cells to left and centre of field, approaching epithelial surface below and to the right. Haematoxylin and eosin. $\times 90$.

FIG. 5.—Higher-power view of the inset of Fig. 4. Haematoxylin and eosin. $\times 380$.

In our case, section through the lid (Figs 4 and 5) showed the tumour infiltrating close to the epithelium, but no evidence of its origin from a conjunctival naevus could be found. Similar proximity of part of the tumour to nerve fibres (Fig. 6, opposite) is also insufficient evidence that the tumour originated from Schwann cells.

It seems more likely that the tumour arose from uveal cells left behind at the time of operation. Speculation whether these cells were already

FIG. 6.—Infiltration of the tumour close to nerve fibres. Haematoxylin and eosin. $\times 90$.

neoplastic, about the part played by the original injury and subsequent inflammation, and about the possibility of a benign lesion becoming malignant, is profitless. The most likely explanation may be that there was already a neoplasm present at the time of operation in 1936, but it still remains an interesting case as an example of extensive local recurrence. Terry and Johns (1935) observed that although malignant cells are frequently left in the orbit after enucleation for a malignant melanoma, orbital recurrence is seldom seen and this opinion seems to be that generally held. Davenport (1927) examined the records of 35 cases of sarcoma of the uveal tract and could find no evidence of orbital recurrence in the 22 cases he traced. Newton (1938) reported one case, and Reese (1951b) has seen eight such cases. Cairns (1922) reported metastasis to the scapula 18 years after enucleation of the eye for malignant melanoma, and clinical examination indicated the probability of local recurrence also. Further case reports may help to elucidate why the orbit seems to be an unfavourable site for the continued growth of malignant cells after the removal of a uveal tumour.

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REFERENCES

- BONNET, P. (1951). *Arch. Ophthal.*, n.s. **11**, 329.
 CAIRNS, F. D. (1922). *Brit. J. Surg.*, **10**, 290.
 DANDY, W. E. (1941). "Orbital Tumors", p. 143. Lewis, London.
 DAVENPORT, R. C. (1927). *British Journal of Ophthalmology*, **11**, 609.
 FOSTER, J. (1944). *Ibid.*, **28**, 293.
 JACKSON, H. (1951). *Ann. roy. Coll. Surg. Engl.*, **9**, 123.
 NEWTON, F. H. (1938). *Amer. J. Ophthal.*, **21**, 668.
 OFFRET, G. (1951). "Les Tumeurs Primitives de l'Orbite", p. 411. Masson, Paris.
 PARSONS, J. H. (1905). "The Pathology of the Eye", vol. 2, p. 741. Hodder and Stoughton, London.
 REESE, A. B. (1951a). "Tumors of the Eye", p. 519. Hoeber, New York.
 — (1951b). *Ibid.*, p. 229.
 ROTTINO, A., and KELLY, A. S. (1942). *Arch. Ophthal.*, Chicago, **27**, 934.
 TERRY, T. L., and JOHNS, J. P. (1935). *Amer. J. Ophthal.*, **18**, 903.