LETTER TO THE EDITOR

RT-PCR DETECTION OF CYTOKINE TRANSCRIPTS IN A SERIES OF CULTURED HUMAN MENINGIOMAS

In a recent issue of the *Journal of Pathology* (Vol. 178, pp. 442–446, 1996), Boyle-Walsh *et al*. suggest that there are distinct patterns of cytokine mRNA expression linked to specific histological subtypes of meningioma.[1] They base this on an examination of 11 tumours, nine of which are described as classical and two atypical.

They suggest that meningiomas are classified into three main groups: classic, angioblastic, and malignant. This was the case according to the 1979 WHO classification,[2] but an extensive revision was introduced in 1993.[3] The current classification recognizes benign, atypical, and malignant tumours, the most common benign subtypes being meningotheliomatous, transitional, and fibroblastic. It is now recognized that the angioblastic subtype is not a meningioma.

The current AFIP Central Nervous System Tumour Fascicle, published in 1993, suggests that meningotheliomatous, transitional, and fibroblastic meningiomas are a continuum rather than distinct entities,[4] and this would probably reflect the experience of most neuropathologists. Given this, it is surprising that different results were obtained for the different subtypes of tumour examined.

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REFERENCES

1. Boyle-Walsh E, Birch M, Gallagher JA, *et al*. RT-PCR detection of cytokine transcripts in a series of cultured human meningiomas. *J Pathol* 1996; **178:** 442–446.
2. Zülch KJ. Histological Typing of Tumours of the Central Nervous System. Geneva: World Health Organization, 1979.
3. Kleihaus P, Burger PC, Scheithauer BW. Histological Typing of Tumours of the Central Nervous System. 2nd edn. Berlin: Springer-Verlag, 1993.
4. Burger PC, Scheithauer BW. Tumors of the Central Nervous System. 3rd Series, Fascicle 10. Washington: Armed Forces Institute of Pathology, 1993.

AUTHORS' REPLY

We thank Drs Robinson and Geddes for their interest and comments on our paper which detected different patterns of cytokine mRNA expression in histological subtypes of meningioma.[1] Their comments regarding classification of meningiomas reflect the recent changes which occurred during the time that our studies were performed.

Meningiomas were kindly supplied to us by several neurosurgeons throughout the United Kingdom during 1991–1994 and the classification of the meningiomas was performed by the local neuropathologists. Since the majority of the specimens were obtained prior to publication of the 1993 WHO classification,[2] they were classified according to the 1979 WHO guidelines.[3] As a result, the majority of meningiomas were either fibroblastic, syncytial, or transitional, and a smaller number were atypical. Although the new classification and the AFIP Central Nervous System Fascicle[4] suggest that a continuum exists between the various meningiomas, the neuropathologists who reviewed the sections obviously recognized features that allowed them to subtype tumours according to the old WHO guidelines.

Extraction and analysis of the mRNA were performed separately from the classification of the tumours and the results were matched up by an independent observer prior to final review. It is therefore very interesting, rather than surprising, that we have observed subtle differences in cytokine mRNA in those meningiomas with features that allowed neuropathologists to classify them as syncytial, transitional, and fibroblastic. Perhaps those same histological features allowing the older classification are reflected in the altered cytokine profile observed.

We have observed other differences in staining patterns and cytokine excretion in cultured meningiomas that have been classified by the older guidelines (submitted for publication), which may also help to subclassify these benign tumours.

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REFERENCES

1. Boyle-Walsh E, Birch M, Gallagher JA, *et al*. RT-PCR detection of cytokine transcripts in a series of cultured human meningiomas. *J Pathol* 1996; **178:** 442–446.
2. Kleihaus P, Burger PC, Scheithauer BW. Histological Typing of Tumours of the Central Nervous System. 2nd edn. Berlin: Springer-Verlag, 1993.
3. Zülch KJ. Histological Typing of Tumours of the Central Nervous System. Geneva: World Health Organization, 1979.
4. Burger PC, Scheithauer BW. Tumours of the Central Nervous System. 3rd Series, Fascicle 10. Washington: Armed Forces Institute of Pathology, 1993.