Oligodendrogliomas of the fourth ventricle: report of two cases

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Oligodendrogliomas comprise approximately 4% of the total of brain tumours, and of this group only 7% are found in the posterior fossa, including 2% in the fourth ventricle. Oligodendrogliomas of the fourth ventricle therefore comprise less than one case in 1,000 to 1,500 brain tumours (0-08%). One cannot expect to encounter much more than one in a lifetime even in a large neurosurgical experience.

In 1928 Van Bogaert and Martin reported an oligodendrogloma filling the fourth ventricle. In 1950 Earnest, Kernohan, and Craig in a review of 200 oligodendrogliomas found 14 to be in the posterior fossa, four of which were in the fourth ventricle. Additional literature from 1928 to 1950 reported oligodendrogliomas of the posterior fossa (Banus and Bueno, 1929; Agostini, 1933; Garkavi, 1936; Wycis, 1948), two of which were in the fourth ventricle, (Banus and Bueno, 1929; Garkavi, 1936). Thus, of a total of 25 posterior fossa tumours, seven were in the fourth ventricle, indicating that approximately 25% of the posterior fossa oligodendrogliomas were in the fourth ventricle. Another interesting fact noted by Kruger and Krupp (1952) in age distribution of posterior fossa oligodendrogliomas was that they usually made themselves known before the age of 21, while supratentorial involvement usually became evident between 35 to 45 years of age. This would not necessarily indicate that the tumours began at an earlier age in the posterior fossa, but that perhaps symptoms began earlier since the room for expansion was more limited. The same may well be true of cerebellar astrocytomas.

CASE REPORTS

CASE 1 M.F., a white woman aged 27, was admitted to the Johns Hopkins Hospital, 6 February 1947, with the chief complaint of headache and blurring of vision, which had begun one year before her admission and had progressed in severity until she had continuous headache...
uncontrolled nausea had begun in February, several months before her hospital admission. This became progressively worse until she had had two 'blackout' attacks, the second of which resulted in a deep sleep or unconsciousness over a period of approximately 48 hours. Laboratory tests were negative, but routine skull films disclosed an abnormal calcification in the posterior fossa. Neurological examination at this time, approximately two months before her Methodist Hospital admission, showed a slight unsteadiness in gait and a tendency to deviate to either side. Co-ordination in the use of the hands was exceedingly poor and additional history indicated that there was a period of unconsciousness of approximately 24 hours in 1962. There was some limitation of upward gaze and equivocal Babinski sign was present on the left. Careful ophthalmological examination showed very marked lack of convergence, but diplopia was reported to be greater at a distance than at close range. The left field was normal but there was some enlargement of the blind spot on the right. There was no papilloedema and at no time was there any history of significant headache.

Neurological examination showed fairly full range of extraocular motor function and there was no diplopia, but a definite limitation of upward gaze was noted. She exhibited a mild ataxia when walking and was unable to stand or hop on either foot.

Skull films and laminograms of the posterior fossa showed a pyriform, densely calcified mass—$3\frac{1}{2}$ cm in length, 2 cm AP dimension, and $2\frac{1}{2}$ cm maximum width—present within the mid-portion of the posterior cranial fossa; it was thought to represent a densely calcified cast of the fourth ventricle produced by a slowly growing intraventricular neoplasm, most likely an oligodendroglioma (Figs 2 and 3). There was marked erosion of the dorsum sellae.

Ventriculography on 13 October 1965 showed moder-
The need for recording surgical indications for rare tumours in rare locations is outlined and the incidence of oligodendroglomas of the fourth ventricle, 0·08% in the literature, is cited (less than 1:100 of brain tumours). While radical brain tumour surgery often carries a lower mortality, less post-operative disability, and higher overall success, there are certain instances when a more conservative approach must be considered.

Two cases of oligodendrogloma of the fourth ventricle are presented. The first case, treated by simple decompression, is largely symptom-free 20 years after onset of symptoms. The second case, treated radically because of the evidence that most of the tumour lay free in the fourth ventricle, still has moderate difficulty in ambulation and vision two and a half years after removal of three-fourths to seven-eights of her tumour.

CONCLUSIONS

Oligodendrogloma of the fourth ventricle is a rare, very benign lesion, particularly when symptoms appear after 21 years of age.

Response to conservative surgery, such as simple decompression and shunt, may be excellent.

Radical, partial removal may be relatively easy, but total removal in this area is probably impossible and can be followed by secondary changes in adjacent neurological structures which may be disabling and only slowly recovered from.
Radical measures in certain specific brain tumours should not be used until conservative measures have been tried and proved ineffective.

REFERENCES
