POSTERIOR FOSSA MENINGIOMAS*

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While tumors of dural origin are rather common in the cerebral envelope, the reverse is said to be true of the posterior fossa. Cushing and Eisenhardt recorded 27 instances among 295 cases, an incidence of 13.4 per cent. Dandy in his large experience wrote that (in 1927) he had encountered but 5 such tumors. Horrax found but 4 among 60 cases.

Schreiber reported 4 cases, de Martel and Guillaume, 1 Voss 4 and André-Thomas, 1 Michon and Rousseaux, Gardner and Turner, Cohen, Freiman and Ficarra and Ecker each. Globus et al. described 2 cases of multiple meningioma with clearly established malignant characteristics, in each of which there were one or more tumors in the posterior fossa. In a recent discussion of meningiomas arising from the tentorium and the transverse sinus, Arnvig reported 1 case in which the tumor was purely subtentorial and 2 cases in which it lay both above and below the tentorium. In his discussion he referred to 1 case reported by Tönnis and 4 by Lysholm, which reports were not available to us.

We have had the fortune, or in some instances the misfortune, to encounter 9 in a relatively small series of 25 cases of intracranial meningioma at the Albany Hospital. It is to record this experience and to point out certain diagnostic features apparently peculiar to these lesions, that this paper is written.

Clinical classification has been most conveniently made according to location within the posterior fossa. Exclusive of tumors that lay at or within the foramen magnum, our cases fell into two main groups: (1) those that arose from the under surface of the tentorium, the lateral recesses and the convexity; and (2) those that took origin above the clivus or in the cerebello-pontine angles. In the first group, symptoms and signs were not unlike those of many neoplasms of cerebellar origin. Save for the rather long history in Case 2 and the tell-tale calcification in Case 3, there was no evidence upon which to predict the type of tumor. On the other hand, meningiomas of the clivus and cerebello-pontine angle involved cranial nerves early, grew relatively slowly, eroded underlying bone deeply, involved brain stem structures much less quickly than gliomas that arose within it, and in short, produced a clinical picture which, while not diagnostic in every case, might at least make one strongly suspicious of the nature of the tumor before operation.

The first group included 3 tumors that arose from the under surface of the tentorium, 1 from the lateral recess, and 1 from the convexity. All oc-

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curred in adults ranging in age from 24 to 67 years. While from their histological appearance it seemed likely that they were slow-growing tumors (with the exception of the malignant neoplasm in Case 5), a review of the histories revealed that the preoperative duration of symptoms was comparable with that of many cerebellar tumors, having been 2 years, "several" years, 2 months, 2 years and 1 year respectively.

A.B. (Case 2) is an interesting and perhaps important exception in that she had complained of diplopia for several years. In general neither the symptomatology nor (save for Case 4) the neurological picture was remarkable. Headache, vertigo, nausea and vomiting were experienced by those with increased intracranial pressure. Ataxia and visual disturbances were present in 4. One patient had experienced a single "seizure" in which she lost consciousness, became rigid and bit her lip. Another had a mandibular branch tic douloureux syndrome which was quite typical save for a single bout of pain in the mastoid region 2 years previously and the fact that a thorough injection of the mandibular nerve at the foramen ovale failed to stop the tic pain. Seventh and/or 8th nerve palsies appeared in the late stages in 3 cases.

Thus one is not able (save possibly by vertebral arteriography) to predict the type of neoplasm in these parts of the posterior fossa, nor indeed is such preoperative pathological diagnosis necessary; it will ordinarily suffice to localize and then expose the tumor by the suboccipital approach.

In one patient (Case 3), the tumor had bulged so far upward that it was thought to be supratentorial, and was removed from above. While a supratentorial attack on an infratentorial tumor has many advantages, it is very likely to entail injury or sacrifice of a portion of the adjacent occipital lobe. Both the bone and the soft tissues were quite vascular in all but two patients (Cases 4 and 5), as might be expected with this type of neoplasm.

Case 1 is illustrative of the group as a whole and the favorable outcome is in keeping with that which should be obtained in the majority.

*Case 1.* A.H. #85582. E.F., a 45-year-old white housewife, was admitted Aug. 10, 1941 because of headache and vomiting. She had been well until 2 years previously when she began to fatigue readily. During the last 6 months her vision had become blurred. She had had bitemporal and occipital headache for 2 years and projectile vomiting for 4 days.

*Examination.* She was a very drowsy but fairly well oriented woman in a good state of nutrition. Temperature, pulse, respirations and blood pressure were normal. There was moderate nuchal rigidity and photophobia. The pupils were dilated, fixed to light and on accommodation. There was horizontal nystagmus to the left on lateral gaza. Both fundi showed papilloedema, more marked on left. There was some weakness of left arm and leg. Biceps and ankle jerks were slightly hyperactive on the left; abdominal reflexes were absent bilaterally. There was past-pointing and adiadochokinesia on the left. Romberg could not be tested because of patient's weakness. Neurological examination was otherwise negative. Laboratory studies showed no significant findings. Stereoscopic roentgenograms of the skull were normal. Clinical diagnosis: Cerebellar tumor, left.

*Operation.* On Aug. 14, 1941 ventriculography disclosed dilated ventricular system back to, though not including the aqueduct. She was operated upon the same day through a bilateral suboccipital approach under avertin-ether anesthesia (E. C.). Both scalp and bone were