The oligodendrocyte was recognized by Robertson in 1900 and named by Hortega in 1921. In 1924 it was suggested that such cells form part of certain intracerebral gliomas, and tumors composed entirely of oligodendrocytes were defined in 1926.

Such tumors are relatively rare intracranial neoplasms and in Cushing's series of 2035 verified cases there were 27 (1.3 per cent). Their incidence in the gloma group is also relatively rare. Cushing found that 3.1 per cent of his gliomas were oligodendrogliomas; Zülch found 3.1 per cent; Courville 7.1 per cent; Lüwenberg and Waggone 5.7 per cent and Reymond and Ringertz 6.7 per cent.

While multiple oligodendrogliomas have been reported they occurred in the cerebral hemispheres. Both extracranial metastases and dissemination within the nervous system have been reported in the glioma group. Search of the literature, however, failed to reveal any case of oligodendroglioma that had metastasized or disseminated to the spinal axis and there produced a tumor of sufficient size and activity to necessitate surgical removal.

CASE REPORT

A 30-year-old bank clerk was admitted in August 1955. At the age of 10 he had poliomyelitis following weakness of the right leg and foot and left-sided facial paresis persisted as residuals. The present illness began in May 1955 with the appearance of double vision, of daily occurrence and most pronounced on looking to the right. In July there was onset of rather severe generalized headaches which occurred almost daily in the early morning and were associated with nausea and vomiting. The complaints progressed steadily until the time of admission. For several months he had also complained of spots in front of the eyes.

Examination. Blood pressure was 130/85. Positive neurological findings were paresis of the right 6th nerve, peripheral paralysis of the left 7th nerve and muscular atrophy of the right leg and foot resulting from his earlier illness. Superficial and deep sensation were also decreased in the right leg and foot. Reflexes: Upper +/+, abdominal +/+, knee +/+, ankle −/+. Plantar responses were normal. Vision was 1.0/1.0.

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Laboratory studies: Erythrocyte sedimentation rate 3 mm. Blood urea nitrogen 35 mg. per cent. Wassermann reaction negative. Hemoglobin 92 per cent. Red blood cells 4,700,000. White blood cells 10,000. Urinalysis was normal.

Roentgenograms of the skull showed decalcification with partial destruction of the dorsum sellae secondary to increased intracranial pressure. In the right frontal area, 3 cm. from the midline, there was a pea-sized area of calcification. Arteriography gave evidence of a right frontotemporal vascular tumor, probably a glioma.

1st Operation. Right frontal craniotomy was performed. The dura mater was under considerable pressure and anteriorly was attached to the surface of the tumor. The tumor presenting at the surface measured approximately 2 cm. in diameter. It was very vascular, dark red in color, and the surrounding cortical vessels simulated an arteriovenous aneurysm. Beneath the cortex the tumor infiltrated the white substance with no clear zone of demarcation. The tumor was removed by means of a frontal-lobe resection, the plane of which lay well behind the posterior macroscopic limits of the growth.

Pathology. The tumor was a moderately malignant oligodendroglioma with many mitotic figures and areas of cellular polymorphism. Calcium was present in relation to the blood vessels (Fig. 1).

2nd Admission. Blood pressure was 150/90. Previous changes associated with his earlier illness were present in the right leg and foot. There was weakness of the left foot with absence of the left ankle reflex. There were no objective sensory changes on the left.

Myelography disclosed complete block to the passage of gas (cisternal puncture) at the level of the 4th lumbar vertebral body.

2nd Operation. Laminectomy of L3 and L4 was carried out. The spinal dura mater was under considerable pressure and no pulsations were visible. The dura mater was opened, disclosing a dark red mass of tumor involving the roots of the cauda equina. Because of the downward extension of the neoplasm, laminectomy was performed.
extended to include L5. The tumor was very vascular and a subtotal removal was performed as it was also growing diffusely within the sacral canal.

Pathology. Grossly the caudal tumor was of the same dark red color and possessed the same degree of markedly increased vascularity as the previously removed intracerebral tumor. Microscopically the tumor was polymorphic and a moderate number of mitoses was noted. Several parts of the tumor presented typical areas of oligodendroglioma while other parts closely simulated the areas of moderate malignancy seen in the cerebral tumor. Connective tissue was relatively abundant and the vascular pattern was richly developed but no calcification was observed. Papillary ependymoma-like tissue was also noted in several regions of the tumor (Fig. 2).

Course. The patient was paretic postoperatively but on discharge was gradually regaining use of the legs. Death occurred elsewhere 1 year later and no autopsy was obtained.

DISCUSSION

Invasion of the subarachnoid space by an oligodendroglioma was first reported by Kwan and Alpers in 1951. Since then dissemination of the oligodendroglioma has been well documented. Series of cases in which no dissemination or seeding has been noted are possibly the result of incomplete autopsy examinations. Blumenfeld and Gardner regarded the oligodendroglioma as second only to the medulloblastoma in its propensity...