Thoracic Extramedullary Astrocytoma
Case Report

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Extradurally, intradural gliomas are seen with relative frequency in the region of the cauda equina, where they are almost exclusively ependymomas, but are exceedingly rare at other locations along the spinal neuraxis. When found in the upper lumbar, thoracic, and cervical regions, extramedullary intradural tumors nearly always prove to be meningiomas or neurofibromas. Although rare occurrences of gliomas in these locations have been well documented, we are aware of only 11 cases, seven astrocytomas and four ependymomas. We are reporting the diagnosis and excision of an extradural, intradural astrocytoma of the thoracic region, the early symptoms of which were initially mistaken for gall bladder disease.

Case Report

This 36-year-old white woman was admitted to the General Surgery Service at the Boston City Hospital on February 12, 1945, “for surgical observation.” The patient had noted pain in the left shoulder and epigastrium 1 year earlier, followed 6 months later by subjective “numbness and coldness” below the knees, associated with mild “stiffness” of the legs and a change in gait. Gall stones had been demonstrated radiographically 1 month before and an exploratory laparotomy and cholecystectomy had been performed at another hospital. Postoperatively she was unable to walk, later developing incontinence of urine and stool.

First Examination. Three days after admission to the Boston City Hospital she was transferred to the Neurological Unit. Examination revealed a stiff neck, pain in the mid-back on neck flexion, and intercapsular tenderness. There was dense hypalgesia and hypesthesia of both lower extremities, fading over the trunk to an upper border in the mid-thoracic region. There was spastic paraplegia, involving abdominal muscles as well. The anal sphincter was patulous. Sweating was absent below the inguinal region bilaterally.

X-rays showed a slight increase in interpedicular width with thinning of the pedicles at T-6 and T-7. Lumbar puncture demonstrated a complete subarachnoid block; 5 cc of clear and colorless cerebrospinal fluid were removed and promptly clotted in the tube. The CSF protein content was 1,000 mg%. Over the next few days the patient’s condition deteriorated.

First Operation. On February 21, laminectomy from T-4 through T-7 was performed. A large gray subdural tumor 2 cm in diameter extended from beneath T-4 to the edge of the lamina of T-8, compressing the spinal cord (Fig. 1 left). The tumor was not connected to the dura, but seemed to have a separate layer of meninges over it. Incising this layer released several cubic centimeters of spinal fluid which resembled that removed previously by lumbar puncture. No definite point of origin for the tumor could be found, although it was rather tightly adherent to exuberant blood vessels underneath. As the tumor was removed, there appeared to be a layer of arachnoid between the tumor and the cord; this filled with fluid and pulsations could be seen running from top to bottom throughout the length of the operative exposure.

Because of the friability of the tumor and its tight adherence to the underlying blood vessels, we could not be sure that all of it had been removed, although our impression was that it had. Histologic examination showed it to be an astrocytoma (Fig. 2 left).

Postoperative Course. The patient received 600 r of x-ray to the operative site, but further radiation therapy was terminated when her condition deteriorated. She then rapidly improved. On discharge 1 month later, the patient was walking, although she showed decreased vibratory perception and slight weakness of both legs, as well as impairment of light touch below the nipple line.

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FIG. 1. Left: Diagram of findings at first operation (1946), with intradural, extramedullary tumor (stippled) separated from spinal cord by an intact layer of arachnoid. Right: Diagram of findings at second operation (1959), with intramedullary astrocytoma (2) lying on opposite side of cord from small extramedullary tumor (1).

FIG. 2. Left: Photomicrograph of extramedullary tumor removed at first operation, showing dense astrocytic proliferation. (H&E; ×350.) Right: Photomicrograph of extramedullary tumor removed at second operation, again showing dense astrocytic proliferation. (H&E; ×350.)