Intracerebellar "fibroma"

Case report

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The authors report a unique case of intracerebellar fibroma; the tumor was well circumscribed and was treated by complete excision.

KEY WORDS • cerebellum • benign tumor • fibroma

Benign tumors essentially composed of fibroblastic elements are extremely rare within the brain parenchyma. This is not surprising since paucity of connective tissue is a well-known feature of the brain. As far as we are aware, only 11 cases of benign fibrous tumors of the brain have been reported. All were located in the cerebrum. Recently, we came across a benign fibrous tumor in the cerebellum. It was totally excised and showed certain interesting histological features which have not previously been described.

Case Report

This 19-year-old man was admitted on June 14, 1974, because of headaches dating back to the fall of the preceding year. For a month prior to admission, he had had difficulty in focusing his eyes and his gait had become unsteady. More recently, he had vomited and experienced double vision.

Examination. He had papilledema and a somewhat broad-based gait. X-ray films of the skull revealed pronounced erosion of the sella turcica. A radioactive brain scan demonstrated an area of increased uptake in the posterior fossa on the left side. A right brachial arteriogram showed evidence of hydrocephalus. In addition, the basilar artery was pushed forward against the clivus, and abnormal vascularity was noted in the region of the left cerebellar hemisphere. The posterior inferior cerebellar artery appeared to be displaced medially and superiorly. Ventriculography confirmed the diagnosis of a left cerebellar tumor. The lateral and third ventricles and aqueduct were considerably dilated and the aqueduct and fourth ventricle were displaced anteriorly and to the right of the midline.

Operation. A suboccipital craniotomy was performed on June 18, 1974, with the patient in the upright position. Immediately beneath the surface of the left cerebellar hemisphere, an avascular, solid, firm, encapsulated, grayish-yellow tumor, about the size of a golf ball, was present. Nowhere did it appear to be attached to dura. It was totally removed after
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Fig. 1. Gross appearance of the cut surface of the tumor with ill-defined nodular pattern. Note the presence of thin capsule (arrows).

Pathological Examination. The specimen was a 5 × 4 × 4-cm firm, ovoid, pink-tan mass encapsulated by thin fibrous tissue. Cut surfaces (Fig. 1) were bulging and irregularly nodular, with whorled gray-white and smooth pale yellow areas. Multiple tissue blocks were embedded in paraffin, sectioned and stained with hematoxylin and eosin (H & E), Wilder reticulin, Masson trichrome, phosphotungstic acid hematoxylin (PTAH), elastic van Gieson, Bielschowsky, Alcian blue, periodic acid-Schiff, and mucicarmine stains. Frozen sections were stained with oil red "O" for fat.

Microscopically, the lesion showed variously-sized lobules (Fig. 2) composed of spindle and stellate cells with myxoid and reticular matrices separated by irregular bands of collagenous tissue. It had moderate vascularity consisting mainly of capillaries and a few venous structures. A striking feature was a moderate amount of chronic inflammatory cell infiltrate, mostly plasma cells and lymphocytes, scattered throughout the lesion and remarkably dense at the periphery. In several areas, a "storiform" pattern of spindle cells associated with abundant intercellular reticulin was prominent (Fig. 3). Areas resembling granulation tissue were present in some lobules (Fig. 4). Mitotic figures were rare and not atypical. A few benign multinucleated cells were scattered throughout the lesion but no Touton-type giant cells were present. A few lipid-
containing macrophages were present around the capillaries. Whorl formation, psammoma bodies and nuclear palisades were not noted and no glial or other neural element was identified within or around the lesion.

On the basis of its gross and histological features, the lesion was considered to be a benign mesenchymal tumor of fibroblastic origin.

Discussion

To date, 11 cases of benign fibrous tumors have been reported.\textsuperscript{1-4,6,8,12} Eight of these were described as fibroblastic in nature, intracerebral in location, and without dural attachment; most were firm and well circumscribed with the common histological feature of interlacing pattern of fibroblasts.\textsuperscript{1-4,8,9,12} Three other cases diagnosed as fibrous xanthomas, with two characteristic histological features, namely, the “storiform” pattern of the spindle cells and the presence of a variable number of Touton-type giant cells, were recently reported by Kepes, \textit{et al.}\textsuperscript{6}

In the present case, the gross appearance of the lesion was essentially similar to most of the 11 reported cases. However, in addition to the basic histological pattern of interlacing bundles of spindle cells, there was a prominent chronic inflammatory cell infiltrate along with areas resembling granulation tissue. It should be noted that although a “storiform” pattern was present in many areas, Touton-type giant cells, which are characteristic of fibrous xanthomas, were absent. It seems to us, therefore, that the lesion in the present case is not exactly similar to any of the 11 cases mentioned above.

In our opinion, the histological features in the present case have some resemblance to those of a lesion known to occur in the extracranial soft tissues, namely, nodular fasciitis.\textsuperscript{5,7,10,11} The latter is characterized by lobules of fibroblasts with numerous blood vessels, chronic inflammatory cell infiltrate, many areas resembling granulation tissue, and a variable number of multinucleated giant cells.\textsuperscript{10,11} It is generally believed to be reactive in nature.\textsuperscript{11} On the other hand, most of the histological features of our case, especially the “storiform” pattern, can also be observed in another soft tissue lesion described as fibrous histiocytoma and believed to be a true neoplasm.\textsuperscript{11} Therefore, it is difficult to classify this lesion precisely, but we believe it was a benign mesenchymal tumor of fibroblastic origin with an unusually prominent chronic inflammatory cell infiltration. In the absence of a better terminology, this tumor is deemed to be a “fibroma” although we are aware of the general reluctance by pathologists to use this term for tumors other than the “congenital malformation composed of the normal fibrous elements of the corium covered by epidermis.”\textsuperscript{11} To our knowledge, this is the first such lesion reported occurring in the cerebellum.

References

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