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Benign Mixed Glial-Mesenchymal Tumour ("Glio-Fibroma") of the Spinal Cord

By

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With 2 Figures

Summary

An intramedullary tumour of the cervical spinal cord, occurring in a female aged 45, was found to be composed of an isomorphous astrocytoma densely intermingled with desmoid tumour tissue.

Such a benign mixed glial-mesenchymal tumour or "gliofibroma", has not been previously reported.

Keywords: Spinal cord tumour; mixed tumour; astrocytoma; fibroma; desmoid tumour.

Malignant mixed glial-mesenchymal tumours are a well-established CNS tumour entity 10, although their pathogenesis and mutual influences of the component tissues are poorly understood. Development of a sarcoma within a glioblastoma has been estimated to take place in about 2 percent of gliomas 7. Still much rarer seems to be the benign variant of mixed tumours; to the best of our knowledge, a benign example of a mixed glial-mesenchymal tumour has not been previously reported. To add some aspects on pathology of glial and mesenchymal CNS tumours, we present an example of an intramedullary cervical cord tumour which showed dense intermingling of benign astrocytoma and desmoid tumour.

Case Report

L. E., a female aged 45 years (No. 17.771, N 133-79), had no preceding neurological illness. After 18 months of recurring cervicobrachialgia on the right side, myelography was negative at C5 and 6 levels; but discography showed signs of disc herniation at C5/6, but an intact disc at C4/5. She underwent operation on...
8 May 1978 from a ventral approach; numerous sequestrated disc parts were removed from the intervertebral space C 5/6 and the adjacent root canal on the right side; the vertebral bodies C 5 and C 6 were fused. Postoperatively, pain subsided, but pareses of right deltoid and biceps muscles remained unchanged. From January 1979 a slowly progressing spastic paraparesis developed, accentuated on the right side; the paresis of the right upper arm was stationary. Myelography showed compression of the contrast medium column from the right side at C 4/5 and, more prominently, at C 5/6. Laminectomy on 11 April 1979 showed spinal cord segments C 5 and 6 swollen by an intramedullary tumour of cartilage-like consistency, which was located in the posterior and right lateral columns and infiltrated both anterior and posterior C 5 and C 6 roots on the right side. The tumour parts that were situated in the posterior column and in the C 6 posterior root were resected by microsurgery.

All tissue specimens (approximately 1 cm in diameter) were embedded in paraffin, serially cut, and stained by routine methods (HE, Gomori, PTAH, van Gieson, Bodian, Luxol fast blue). Histologically, the tumour showed a marmoreal intermingling of fibrous and glial tissues (Fig. 1). The fibrous components were densely interwoven collagen strands without definite whorling or storiform patterns; only a few cells with elongated nuclei were distributed in the mostly hyalinized matrix (Fig. 2). The glial component consisted of a moderately cellular isomorphic protoplasmic astrocytoma without mitotic activity or cellular pleomorphism (Fig. 2); there were few Rosenthal fibers. Normal CNS tissue, myelin sheaths, and axons were absent in the slides. A diagnosis of a benign glial-mesenchymal mixed tumour of the cervical cord was made.

Postoperatively, the condition of the patient was not changed. Control examination one year after the operation showed no progression of neurological deficits; the patient is still able to walk.

Discussion

Fibrous tissue in or adjacent to a glioma usually originates from meninges invaded by tumour, scar tissue as result of extensive necrosis, vascular proliferations, or florid sarcomatous transformation, leading to the final picture of a mixed fibrosarcoma and malignant glioma or “gliosarcoma”. The tumour in our case shows a strikingly marmoreal pattern of glial and fibrous tissues different from meningeal invasion, scar formation, or vascular proliferations but identical to that of mixed glioblastoma and fibrosarcoma, although histological features of the tissue components are entirely benign. In analogy to “gliosarcoma”, this tumour might be termed “gliofibroma”. As in the malignant counterpart, a mutual proliferative stimulus of both tissue components might be suspected but cannot be substantiated by a strictly morphological study.

Mesenchymal tissues like cartilage and bone are rarely encountered in gliomas and were considered to originate from misplaced or trapped mesenchymal cells in a manner similar to the origin of “lipomatous hamartomas” where a mixture of glial and mesenchymal elements is regularly found; our case, however, did not show any