CERVICAL ARACHNOIDAL CYST

REPORT OF A 6-YEAR-OLD NEGRO MALE WITH RECOVERY FROM QUADRIPLEGIA

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The case to be reported is of interest because of the rarity of the lesion, its complete removal, and the early functional recovery that followed.

CASE REPORT

#53047M. J.F., a 6-year-old Negro male, was admitted to the Pediatric Service on Nov. 7, 1957, with the chief complaints of shortness of breath and inability to use his hands and feet.

Past History. The patient was said to have resisted motion of the neck ever since birth. He sat at the age of 1 year. He stood alone at the age of 15 months. He had always had a slow shuffling gait, dragging the left leg, and was unable to run with the other children. He had been “rawbones” all his life.

Present Illness. One year prior to admission he was taken to a physician for treatment of pain in the neck associated with a tilt of the neck to the left; treatment was said to have been unsuccessful. On July 4, 1957 he was hospitalized for several days because of weakness of all limbs; recovery never was complete. On Oct. 30, 1957 he was thought to have onset of influenza. The next day he complained bitterly of a “biting feeling in the legs,” cough, trembling all over and of a running nose. On Nov. 1, 1957, complaints of headache were followed in several hours by a feeling of general weakness, pain in the left upper extremity, and inability to kick the left leg. On Nov. 5, 1957 he was hospitalized at Tyler, Texas by Dr. M. H. Moore and a lumbar puncture was recorded as showing a normal pressure, no cells and a protein of 95 mg. per cent. On Nov. 6, 1957 intercostal breathing was markedly diminished, general weakness being present. On November 7 the patient was referred to John Sealy Hospital with a tentative diagnosis of Guillain-Barré syndrome. On lumbar puncture initial cerebrospinal fluid pressure was 180 mm., with a rise on Queckenstedt’s test to 200 mm. and a rapid fall. Protein was 105 mg. per cent.

Examination. Blood pressure was 104/80, pulse rate 80, and respiratory rate was 16. Weight was 32 1/2 lbs., height 113 cm., and circumference of head was 47 1/2 cm. The cranial nerves were intact. Motor use was limited to weak shoulder-girdle movement andadduction of the upper extremities. Deep tendon reflexes were absent in the lower extremities with absent cremasteric and superficial abdominal reflexes. Reflexes in the upper extremities were normal. He had bilateral extensor plantar (Babinski) response, and clonus of both ankles. There was generalized wasting and attempts to move the neck met with mild resistance. Breathing was recorded as using only the diaphragm and accessory muscles of respiration.

On Nov. 9, 1957, at time of neurosurgical consultation, the patient exhibited flaccid quadriplegia, absent deep tendon reflexes, ability to protrude the tongue, marked nuchal rigidity, loss of all sensory modalities below C5 dermatome, and breathing was accomplished by the accessory muscles and diaphragm. Following a tracheostomy, myelography revealed complete obstruction at the level of C3 lamina (Fig. 1).

Operation. At cervical laminectomy, on opening the dura mater, the spinal cord was noted to be displaced posteriorly and to the left, being flattened in the anteroposterior diameter. Anterior to the cord was a cystic mass restrained by the dentate ligament (Fig. 2). After aspiration of about 8 cc. of clear colorless fluid the entire cyst was removed by gentle separation from the arachnoid and spinal cord.

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Postoperative Course. On awakening from anesthesia the patient had pin-point appreciation all over. By No. 10, 1957 he was able to move weakly all his extremities. Intercostal breathing had again been noted. There was no motion of the fingers. By November 12 both ankle jerks were elicited and the following day the tracheostomy was occluded. By November 15 the indwelling catheter was removed permanently. On November 28 the patient was able to walk with a wide-base gait, supporting himself by grasping nearby objects. The plantar response was flexor by Dec. 4, 1957. At discharge on Dec. 12, 1957 the patient was able to run but was still somewhat ataxic. Grips were improving. His weight was 35 1/2 lbs.

The patient was last seen on April 6, 1958. He had been doing satisfactorily in the 1st grade, and had no complaints. Neurological examination revealed equal normal deep tendon reflexes and normal sensory appreciation. Fine movements of the fingers were recorded as well performed and Romberg's sign was negative.

Pathological Report (Dr. K. M. Earle). Specimen consists of a thin-walled, translucent cyst of the arachnoid measuring 2.5×2×2 cm. in the partially collapsed state (suspended in water). Microscopic sections reveal a benign cyst lined along one margin by meningothelial cells of low cuboidal type which are abutted upon a thin layer of fibrous tissue. In focal areas low cuboidal cells are noted lining projections of villus type. The general consensus of opinion is that this represents an arachnoidal cyst of developmental origin (Figs. 3 and 4).

REVIEW OF THE LITERATURE

In 1915, Skoog\(^6\) brought the total of simple, uncomplicated cases of leptomeningeal cyst to 6 cases, all in women. He pointed out that the exceedingly delicate walls of the cyst did not readily permit the operative excision of even a portion for microscopic examination.

In 1927, Stookey\(^6\) reaffirmed the rarity of arachnoidal cysts and knew of no reported case that had histologic verification. He further pointed out that the terms "arachnoid cyst" and "adhesive arachnoiditis" in many instances had been used interchangeably.

In 1941, Elsberg\(^2\) mentioned 1 case of cyst lying outside the arachnoid membrane and firmly attached to the dura mater near the opening for a nerve root.

Ingraham and Matson\(^4\) listed no case of arachnoidal cyst in their series of spinal cord tumor in children. Svien et al.,\(^8\) reported on 41 cases of intraspinal tumors in children below the age of 15 years in the period from 1930 through 1949. They had 2 cases of intradural extramedullary arachnoidal cyst, the signs and symptoms being indistinguishable from those of true tumor of the spinal cord.

Grant and Austin\(^1\) reviewed 409 spinal cord tumors occurring over a period of 25 years, 30 of which were in children below the age of 15 years. In these 30 cases there was 1 case of an intradural extramedullary cystic tumor. Of the children's

Fig. 1. Myelogram showing total block at C3 lamina.