NEUROLOGICAL PICTURE

Recurrent episodes of sudden tetraplegia caused by an anterior cervical arachnoid cyst

In 1972, a 12-year-old girl experienced intense cervical pain followed by sudden tetraplegia; the motor deficit slowly improved until the patient was in complete remission 1 month later. Another similar episode, followed by clinical remission, occurred 5 years later. An x ray of the spine was normal, but myelography and CT were not carried out. The clinical diagnosis was myelitis. Then, the patient was symptom free, except for occasional episodes of pain in the neck and shoulders, which lasted for 27 years. In June 2004, when she was 43 years old, she presented with sudden weakness in both arms and legs and became tetraplegic within a few hours. In another neurological service, she was treated by corticosteroid drugs, which resulted in only slight improvement of the motor deficit. MRI of the brain and spine (fig 1) showed a large arachnoid cyst of the cervical spinal canal, located anterior to the spinal cord and extending from about 2 cm above the foramen magnum to the C7 level. The cervical spinal cord was thin and markedly compressed and displaced posteriorly. Neurological examination, 2 weeks after the episode, showed severe spastic tetraparesis and bladder retention. At operation, through a C5-T1 laminectomy, the dura mater was found to be thin because of the chronic compression. The inferior wall of the arachnoid cyst was opened and resected to allow free communication between the cyst and the subarachnoid spaces. A rapid and marked improvement of the motor and bladder function occurred within 10 days.

Spinal cervical arachnoid cysts located anterior to the spinal cord are rare, with only 12 reported cases (table 1)¹⁻⁹ and only three affecting almost the entire length of the cervical canal.^{3,6} They present with slowly progressive tetraparesis or neck pain. Our patient had a long clinical history (32 years) characterised by episodes of sudden tetraplegia followed by complete remission within 3-4 weeks. This anomalous clinical course may be explained by two different mechanisms. A sudden increase in the amount of

CSF and pressure within the cyst owing to a valve mechanism may result in stretching of the spinal cord, mainly when the patient stands up. Alternatively, compression or stretching by the cyst on the anterior arterial branches feeding the spinal cord may cause a sudden decrease of the blood flow and transient ischaemia.

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Table 1 Data on reported cases of cervical intradural arachnoid cysts located anterior to the spinal cord

Authors/year	Age (years)	sex	Level	Preoperative symptoms	Surgery	Outcome
Palmer/1974	19	F	C1-C3	Progressive tetraparesis	Complete resection	Improved
Palmer/1974	3	M	C2-C4	Progressive tetraparesis	Needle aspirations	Death
Herskowitz et al/1978	28	F	C6-C7	Progressive tetraparesis	Subtotal resection	Improved
Chan et al/1985	37	M	Entire length of the spinal canal	Progressive upper extremity weakness	Cyst-peritoneal shunt	Improved
Rabb et al/1992	2	F	C6-C7	Progressive tetraparesis	Fenestration, cyst-pleural shunt	Improved
Chen and Chen/1996	18	M	C3-C5	Progressive left hemiparesis	Cyst incision	Improved
Jean et al/1998	14	F	Cervico-medullary junction-C6	Chronic headaches, vertigo	Cyst-peritoneal shunt	Improved
Jean et al/1998	9	M	Medulla-C5	Neck pain, progressive tetraparesis	Cyst fenestration	Unchanged
Kazan et al/1999	18	M	C6-C7	Progressive tetraparesis	Partial resection	Improved
Kazan et al/1999	15	M	C2-C3	Progressive tetraparesis	Partial resection	Improved
Takahashi et al/2003	13	M	C1-C3	Severe occipital pain	MR-guided percutaneous aspiration and fenestration	Improved
Banczerowski et al/2003	Unknown		Unknown	Progressive tetraparesis	Anterior cervical corpectomy, cyst resection	Improved
Maiuri et al/present report	43	F	Medulla-C7	Recurrent episodes of sudden tetraplegia	Partial resection	Improved

MR, magnetic resonance.

Figure 1 MRI of the craniocervical junction and cervical spine, T1—sagittal (A) and axial (B) images and T2—sagittal image (C) large intradural extramedullary CSF cyst of the cervical spinal canal, located anterior to the spinal cord and extending from about 2 cm above the foramen magnum to C7; the cervical spinal cord is thin and markedly compressed and displaced posteriorly.

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