Foramen magnum syndrome caused by a giant aneurysm of the posterior inferior cerebral artery

Case report

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The authors present a case of giant aneurysm of the posterior inferior cerebellar artery. It was successfully excised with reversal of neurological deficits.

KEY WORDS • giant intracranial aneurysm • foramen magnum syndrome • cerebellar artery aneurysm

G IANT intracranial aneurysms are not uncommon, accounting for about 5% of all intracranial aneurysms; however, giant aneurysms of the posterior inferior cerebellar artery are quite rare. We have found only two cases reported in English. The following is a third case that presented the syndrome of a foramen magnum mass.

Case Report

This 70-year-old woman had a 7-month history of suboccipital headaches beginning after an automobile accident. The headache gradually worsened and was aggravated when she lay down. She next noticed a numbness and burning sensation in both hands, followed soon by weakness in both hands and arms. This progressed to the point that she could not feed herself without assistance. Just before examination, numbness and progressive weakness in both legs had developed. She required assistance to walk and had fallen several times. She retained bowel and bladder control.

Examination. On admission the patient was alert but agitated. She was oriented but had poor recent memory and was easily confused. She was weak in all four extremities; the arms were weaker than the legs, and the right side weaker than the left. She was diffusely hyperreflexic with unsustained clonus in both ankles. Pinprick sensation was present throughout with hyperalgesia in both hands. Vibratory sensation was absent in both hands and below the sternum. Position sensation was absent in both hands and impaired in both feet. Her gait was broad-based and spastic; she required a walker to ambulate. She demonstrated very poor finger-to-nose and toe-tapping tests bilaterally. She had bilateral Babinski signs.

Routine blood and urine studies were considered normal. Plain skull, cervical spine, and chest films were read as normal. Computed tomography of the head revealed no abnormality. A myelogram revealed a large mass in the foramen magnum that appeared to arise from the left, posteriorly. Cerebrospinal fluid (CSF) pressure and manometrics
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FIG. 1. Operative photograph showing giant aneurysm about 4 cm in diameter arising from the left posterior inferior cerebellar artery.

Vertebral angiography revealed a small blush in the area of the foramen magnum. A diagnosis of a foramen magnum mass was made and surgical treatment was instituted.

Operation. A round, smooth, bluish mass was seen displacing the cerebellum and the brain stem to the right and forward. Inspection and palpation revealed it to be a giant aneurysm, about 4 cm in diameter, arising from the left posterior inferior cerebellar artery (Fig. 1). By needle decompression and dissection around the aneurysm, we were able to place a Heifetz clip across the neck and then excise the aneurysm. After excision, the aneurysm was found to contain a large thrombus.

The patient improved remarkably. Within a week she was able to walk with a cane, and upon release 2 weeks after operation, she was feeding herself without difficulty. Three months following operation all neurological signs and symptoms had cleared.

Discussion

Giant intracranial aneurysms by definition are those that are greater than 2.5 cm in diameter. They most often present symptoms of mass lesions1,2 as compared to smaller aneurysms that present symptoms of acute subarachnoid hemorrhage. Figure 2 illustrates the location of the giant aneurysms found in the literature.1-7

The clinical presentation of giant aneurysm is quite varied and seldom leads to the diagnosis. The commonest symptom is headache,1,2,4,6 and the commonest sign is cranial nerve palsy.1,3,4,6,7 However, giant aneurysms can produce a varied neurological picture.

In the diagnosis of giant aneurysms, plain films are helpful in from 36%7 to 45%8 of cases, showing skull erosion, calcification, or both. Pneumoencephalography is beneficial in about 50% of the cases in which it is performed.1,7 Air studies with planigrams tend to
Giant aneurysm of the PICA

localize the lesions and give a more accurate idea of their true size. Positive contrast studies may be helpful with posterior fossa and foramen magnum lesions, as they were with our patient. Computerized tomography has proven to be of benefit in some instances, but was not helpful in our case.

Contrast angiography is considered the diagnostic procedure of choice. It will lead to the correct diagnosis in the majority of cases, but care must be taken in the interpretation of these studies because giant aneurysms frequently contain large mural clots and may fill very poorly. In our case, the angiogram was interpreted as a possible hemangioblastoma with an associated cyst.

The often stated rule that giant aneurysms do not bleed is not true, as demonstrated in the larger series of cases. An average of 30% of patients will present symptoms and signs of subarachnoid hemorrhage or give a history consistent with a previous hemorrhage. The treatment of choice for giant aneurysm is surgical ligation and excision, if technically feasible. Other successful forms of therapy have been ligation with and without decompression of the aneurysmal sac, thrombosis, and simple decompression by craniectomy with or without resection of silent areas of adjacent brain.

References