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COMMENTARY

Editorial comment for "Neuropsychological improvement after posterior fossa arachnoid cyst drainage(CNSY-D-16-00311)

Knut Wester[1]

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The authors have shunted two young brothers with what they believe was a retrocerebellar arachnoid cyst, and they describe an improvement in visual-motor skills and behaviour in addition to improved cognition at 1-year follow-up and after 3 years. This sounds interesting, but I am not convinced that the two brothers presented in this case report in fact had a retrocerebellar arachnoid cyst. This applies above all to the second brother (patient # 2), where I have problems seeing any radiological signs suggestive of a retrocerebellar cyst. There is no flattening of the cerebellar cortical relief or the cerebellum itself, there is no compression of the fourth ventricle and there is, in my opinion, no convincing cyst wall separating the alleged cyst cavity from the subarachnoid space. The thick black structure seen in the sagittal MRI (figure d) is much thicker than one usually sees in a cyst wall and it is not bulging. Upon request, the authors have supplied a total of 6 additional sagittal MRI scans on either side of the scan in figure d (not appearing in the article). In one of these, the fluid cavity appears to be in complete communication with the subarachnoid space without any visible structure that could be a membrane between the two fluid compartments. Moreover, the upper part of the fluid cavity does not seem expansive at all on the preoperative axial-T2 weighted MRI (figure e). In conclusion, I find it more likely that the fluid compartment seen behind the cerebellum in patient # 2 is a megacisterna magna and not an arachnoid cyst.

The first brother (patient # 1) had a certain flattening of the cerebellar surface and a smaller fourth ventricle than his brother. Thus, it is possible that he in fact had a cyst. However, he showed improvement of only 4 out of 29 possible cognitive subtests after 1 year, a result not far from being "statistically significant by chance". That two brothers of this young age, in their most active cognitive development, improve their cognition after one and 3 years, might well have other causes than the shunt procedure.

Thus, there are too many uncertainties in the present case report to accept is as scientific evidence of a causal relationship between the decompression of arachnoid cysts in the posterior fossa and a subsequent cognitive improvement.

✉ Knut Wester
kgwe@helse-bergen.no

[1] Universitetet i Bergen, Bergen, Norway