Matters arising

Aqueduct stenosis and schizophrenia

The following letter was inadvertently omitted from *J Neurol Neurosurg Psychiatry* 1983;46:1158. Part of the reply by Reveley and Reveley is reprinted.

Sir: Reveley and Reveley, in their recent paper in this Journal[1] state that "we could find no reports linking schizophrenia specifically with hydrocephalus." In fact Lying-Tunnell[2] reported two cases of normal pressure hydrocephalus that had presented for decades as schizophrenia. Remarkably, both patients' psychosis was permanently alleviated by shunting. Price and Tucker,[3] in a review of the psychiatric manifestations of normal pressure hydrocephalus, reported psychotic symptoms with fluctuating cognitive deficits as characteristic clinical features.

Reveley and Reveley also state that typically, hydrocephalic patients show better verbal performance than expected and that these patients may also be excessively talkative and emotionally labile ("the cocktail party syndrome"). It may be useful to add that normal pressure hydrocephalus is usually marked by impaired verbal memory[4] and frank apathy.[5] And finally, the authors suggest that in "some cases the ventricular enlargement seen in schizophrenia differs from hydrocephalus only in degree." Nyback *et al*[6] have also postulated a similar, normal pressure hydrocephalus-like CSF disturbance in schizophrenics. However, the available evidence argues against these hypotheses. Hydrocephalus is almost always a progressive disease process.[7] Weinberger and Wyatt[8] found that the ventriculomegaly in schizophrenia was non-progressive, had a normal CSF pressure, and showed no evidence of a flow disturbance on isotope cysternography.

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Reveley and Reveley reply

We are grateful to Dewan and Bick for bringing the reports of Lying-Tunell[1] and Price and Tucker[2] to our attention. In the light of these reports, we should revise our statement to say "we could find no reports linking schizophrenia specifically with aqueduct stenosis and hydrocephalus." For it is clear from the radiological and clinical description that Lying-Tunell does not report cases of aqueduct stenosis, just as we do not report cases of normal pressure hydrocephalus (NPH). For example, Case 1 of Lying-Tunell actually had "marked *dilatation* of Sylvian aqueduct" on pneumoencephalogram, while Case 2 had a "highly dilated ventricular system". Price and Tucker gave no details of the pneumoencephalogram, other than to say that it is "diagnostic for NPH". The size of the fourth ventricle was not specifically noted.

NPH characteristically develops in adulthood[3] and is associated with dementia, ataxia, and incontinence, as well as other symptoms less characteristic, as noted in the cases of Lying-Tunell and Price and Tucker. In contrast our cases 2 and 3 had onset of hydrocephalus in *infancy*, within a few weeks of birth, and developed skull enlargement. Case 1 had onset in adolescence, but did not develop any clinical signs of NPH. She had a difficult forceps delivery, which may have contributed to the development of aqueduct stenosis.

The questions of CSF flow disturbance and progression of ventricular enlargement in schizophrenia have yet to be fully explored. Weinberger and Wyatt's[4] finding of non-progression was based on only five cases after 2–3 year follow up. Disturbances in CSF flow in schizophrenics have been found by Sedvall and associates[5] using isotope cisternography.

Hydrocephalus is a condition with multiple aetiologies. It is unknown if any of these processes are linked to the ventricular enlargement occasionally occurring in functional psychoses, and this should be the subject of further research.

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