Localized inversion of the cortical mantle due to a chronic subdural hematoma: complication of ventricular shunting.

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Letters

Localized Inversion of the Cortical Mantle Due to a Chronic Subdural Hematoma: Complication of Ventricular Shunting

Chronic subdural hematomas are well recognized complications of the ventricular shunts. To the best of our knowledge, there are only a few reports [1, 2] on the inversion of the cortical mantle associated with the chronic subdural hematoma after insertion of shunts.

A femal infant was born with a lumbosacral meningomyelocele which was repaired shortly after birth. At age 3 months, she had a ventriculo-peritoneal shunt inserted for hydrocephalus. She was hospitalized 4½ years later for a localized subcutaneous swelling around the abdominal tube and for lethargy. Computed tomography (CT) disclosed moderate ventricular dilatation, particularly of the left occipital horn. The shunt was revised and the patient recovered and was discharged.

Two months later, she began to complain of headache, nausea, and vomiting. CT (fig. 1) showed a localized and extreme inversion of the cortical mantle toward the left occipital horn. The subdural space between this inverted brain surface and the cranium appeared as a low-density area, bordered by an enhanced ringlike density. The subdural hematoma was evacuated. The hematoma consisted of coffeelike fluid with solid clots compatible with a chronic subdural hematoma. A thick outer membrane and a thin inner membrane were found. Histology of the inner membrane was characterized by neovascularization on the most medial surface.

Subdural hematomas due to the ventricular shunting operation are well known as a complication of shunting. The usual subdural hematoma is relatively diffuse and nonloculated. In 1965, Emery [1] described infoldings of the cerebral cortex in patients who had been shunted for hydrocephalus and postulated that this might be due to overrapid collapse of the ventricles.

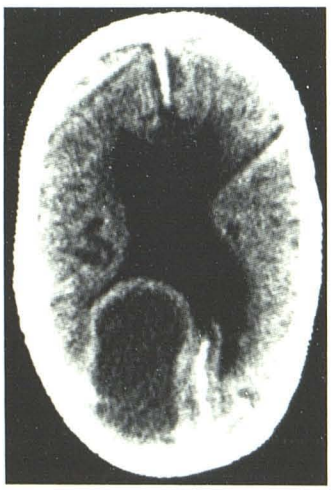

Fig. 1.—Enhanced CT scan, 2 months after revision of ventriculo-peritoneal shunt. Large low-density area with ringlike margin indents left occipital horn.

Steinbok and Berry [2] also reported a case of inversion of the cerebral mantle as a complication of a ventricular shunting operation. In their report, the authors suspected that the inversion of the cortical mantle into the lateral ventricle was caused by a combination of the rapid ventricular decompression and external pressure from the subdural hematoma. We believe serial CT scans on shunted children will lead to early recognition of this complication.

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REFERENCES

1. Emery JL. Intracranial effects of longstanding decompression of the brain in children with hydrocephalus and meningomyelocele. *Dev Med Child Neurol* **1965**;7:302–309
2. Steinbok P, Berry K. Inversion of the cerebral mantle as a complication of ventricular shunting. *J Neurosurg* **1978**;49:129–131

Attenuation Values of Serum Differ in Dense Cystic Lesion Study

Braun et al. [1], in the Discussion section of their paper in the March/April issue of *AJNR*, made reference to a study by New and Aronow [2]. They stated our work indicated that human serum yields a computed tomographic (CT) attenuation value of 16 Hounsfield units (H) and that a protein concentration of 15.2 g/dl corresponds approximately to a measured attenuation value of 36 H. In fact, our work indicated that human serum—assuming a total protein level of 7 g/dl—gives an attenuation value of 24 H; at 15.2 g/dl, the value is about 42 H assuming a conversion factor of ×2 from EMI units to Hounsfield units. The stated attenuation values for calcium and iron were correct. I wish to compliment the authors on this very useful contribution to the diagnosis of craniopharyngiomas.

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REFERENCES

1. Braun IF, Pinto RS, Epstein F. Dense cystic craniopharyngiomas. *AJNR* **1982**;3:139–141
2. New PFJ, Aronow S. Attenuation measurements of whole blood and blood fractions in computed tomography. *Radiology* **1976**;121:635–640