Intracerebral cyst due to ectopic choroid plexus

Case report

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A case of supratentorial intracerebral cyst, containing ectopic choroid plexus, is discussed. The cyst had no communication with the ventricular system or subarachnoid space. The cyst wall was lined in part by flattened or cuboidal epithelium and in part by glia. Fronds of choroid plexus protruded into the cavity of the cyst in one part. The preoperative and postoperative computerized tomography scans are presented and the operative findings are discussed. The management of such cases is reviewed.

KEY WORDS . ependymal cyst . primary ectopia . ectopic choroid plexus . intracerebral cyst

SUPRATENTORIAL intracerebral cysts lined by choroidal epithelium have been reported in the neurosurgical literature since 1929; however, cysts lined by ependymal epithelium that do not communicate with either the ventricular system or the subarachnoid space were not described until 1958, when Starkman, et al, clearly differentiated them from the various types of arachnoidal cysts. The following case report describes an intracerebral ependymal cyst which contained ectopic choroid plexus.

Case Report

This 32-year-old right-handed housewife presented with a 2-year history of temporal lobe epilepsy. The frequency of the episodes gradually increased and two major nocturnal seizures occurred during the 6 months prior to admission.

Examination. The neurological examination was quite unremarkable. The fundi and visual fields were normal. Plain radiograph of the skull showed asymmetry of the squamous temporal bones with some expansion of the right middle cranial fossa. A computerized tomography (CT) scan (Fig. 1 left and center) showed a low-density area in the right frontotemporal region which did not change in appearance following the injection of sodium iothalamate (Conray 420). There was no compression or displacement of the ventricular system (Fig. 1 right).

Operation. A right frontotemporal osteoplastic flap was turned. The dura was not unduly tense, and it was opened to expose the Sylvian fissure and adjacent temporal and frontal lobes. The temporal gyri looked slightly flattened. A brain cannula was inserted into the temporal lobe, and at a depth of 3 mm it entered a cyst containing clear, colorless fluid. The cyst was then opened through a small cortical incision. There were two convolutions on the lateral aspect of the cyst wall which looked like mural nodules. Lying on the posterior wall of the cyst were what appeared to be tufts of choroid plexus. There was no communication between the cyst and the ventricular cavity or the subarachnoid space. A partial temporal lobectomy was performed, including the cyst.

Pathological Examination. The clear cyst fluid contained 440 red blood cells/cu mm, less than 1 white cell/cu mm, and a protein level of less than 10 mg%. Microscopic examination of the specimen confirmed that the vascular structure removed from the wall of the cyst was choroid plexus (Fig. 2 left). The cyst was lined in part by a thin band of poorly myelinated white matter, and in part by flattened or cuboidal
epithelium (Fig. 2 right). Some of the neurons in the surrounding gray matter showed ischemic changes.

Postoperative Course. The patient made an uneventful recovery, except for developing a left upper quadrantic visual field defect which recovered later. Her postoperative CT scan (13 months later) is shown in Fig. 3.

Discussion

In most of the reported cases of ependymal cysts, the cysts have been lined by a continuous layer of cuboidal or columnar epithelium, whether ciliated or nonciliated.\textsuperscript{4,7,9} In our case, some of the epithelium was missing, presumably due to pressure atrophy.

Ependymal cysts presumably have a developmental etiology, resulting in either segregation of ependymal tissue during the developmental stage of the brain (secondary ectopia\textsuperscript{1,4,8}) or the presence outside the ventricular system of primitive ectopic secretory choroid plexus within the brain substance (primary ectopia\textsuperscript{3}). Using these criteria, the ependymal cysts may be sharply demarcated from all those other cysts not lined by ependymal epithelium, in the development of which trauma, ischemia, or inflammation played a part.

Jakubiak, \textit{et al.},\textsuperscript{4} and Tandon, \textit{et al.},\textsuperscript{7} reported three cases of ependymal cysts containing fluid with protein levels of 280 mg\%, 580 mg\%, and 108 mg\%, respectively. They considered this excessive amount of pro-
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FIG. 3. Computerized tomography scan 13 months after excision of the lesion.

tein to be a contributory factor in the formation of the cysts. In our case, the protein content of the fluid was only 10 mg%. A review of the neurosurgical literature revealed only one case similar to ours, with well formed choroid plexus in its cavity. However, the protein content of the fluid in that case was 95 mg%.

As for the diagnosis of such cysts, CT scanning has now superceded other roentgenographic tests. Although asymptomatic ependymal cysts do not require surgical interference, three lines of surgical treatment have been adopted for the treatment of the symptomatic lesions, and each has its own advocates. Repeated aspiration has been reported in the literature, but the possibility of infection and the lack of a long-lasting curative effect limit its appeal. Craniotomy may be combined with excision of the cyst or with a procedure causing it to communicate with the subarachnoid space or the ventricular system. These operations have stood the test of time and have proved effective in most cases. Recently, draining the cyst cavity into the peritoneal space using a nonvalvular plastic chamber and a plain tube has been used successfully.

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References


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