COARCTATION OF THE WALLS OF THE LATERAL ANGLES OF THE LATERAL CEREBRAL VENTRICLES

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For many years my late colleague, Cornelius Dyke, and I have been intrigued by the asymmetrical appearance of the lateral ventricles of the brain in the anteroposterior encephalograms in a considerable number of cases (Fig. 1). The ventricles in these instances were usually normal in size and position, and no explanation in the clinical picture existed to account for the asymmetry. We decided, therefore, to watch the appearance of the corresponding portions of the ventricles in postmortem specimens, through the cooperation of Dr. Abner Wolf. Before anything could be done, Dr. Dyke's untimely death occurred, and the present writer undertook to make the investigation at the Jewish Hospital of Brooklyn. With the cooperation of Dr. Bernard Epstein of the Radiographic Department and Drs. Max Lederer and David Grayzel of the Pathological Department of that institution, about 64 brains, taken routinely from cases without brain tumor, and usually without any other known neurological disease, were studied.

MATERIAL AND METHOD

The brains were removed fresh and suspended in a 4 per cent formaldehyde solution in ample crockery jars, by passing a string through the basilar artery and tying the string to the lid, in order to avoid flattening or other distortion of the specimens. After a week of suspension, the specimens were removed and the fluid was allowed to drain off, after which anteroposterior roentgenograms were taken of the specimens. In many instances reasonably good pneumoventriculograms were obtained in this way. The brains were then sectioned coronally and the ventricles examined. Where asymmetry was found, sections were made for histological examination from the site where any abnormality was seen.

For the sake of objectivity, the roentgenographic and pathological studies were conducted quite independently. The result has been, however, that some of the specimens with positive roentgen evidence, if the brains were sectioned in the absence of the author, were not carefully observed, and contrariwise, some of the specimens that showed asymmetry of the ventricles on section had not had preliminary roentgen studies. Moreover, a number of the roentgen examinations were unsatisfactory in that the ventricles were inadequately visualized.

We thus ended up by having 6 cases with asymmetry of the ventricles as seen on the postmortem pneumoventriculograms, 10 cases in which devia-
tions of a similar nature were seen in the brain specimens on coronal sections; and 4 cases in which both positive roentgenographic changes and demonstrable, corresponding pathological changes were evident.

RESULTS

The Roentgenograms. The reason leading to this study was the observation that in certain clinical cases in which pneumoencephalography is done for various reasons, such as epilepsy or post-traumatic headache, the roentgenograms reveal an asymmetry of the two lateral ventricles. This consists of a normal looking “butterfly wing” pattern of the ventricle on one side, and a truncated one on the other side (Fig. 1). Since, usually, the “normal” side is normal also in size, the asymmetry obviously could not be explained on the basis of unilateral dilatation of this side, and the obvious conclusion had to be reached that the smaller ventricle was the anomalous one. The possible causes for this appearance we believed could be: (1) inadequate filling of the ventricle with gas; (2) a filling defect produced by a tumor mass; (3) adhesions resulting from a healed inflammatory process; or (4) a congenital anomaly.

Fig. 1. Anteroposterior encephalogram showing truncated lateral angle of right lateral ventricle in an otherwise normal ventricular system.