CASE REPORTS

A CASE REPORT AND SURVEY OF BRAIN TUMORS DURING THE NEONATAL PERIOD

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Brain tumors during the neonatal period are rare and usually are not recognized during life. We have recently encountered a cavernous hemangioma in the lateral ventricle of a 3-day-old infant.

This has led us to review the subject of brain tumors during this period.

CASE REPORT

W. D., a 2-day-old male, was admitted to the University of California Hospital because of regurgitation of food since birth. The referring physician had placed some lipiodol into the esophagus and established the fact that this pathway was not patent. The fact that part of the radiopaque material was found in the respiratory tract led to the further assumption of a tracheo-esophageal fistula.

The child had 2 siblings living and well. The mother was 29 years old, the father 49. There was no family history of any disease. The pregnancy had not been unusual, and no difficulties had been encountered during delivery.

**Examination.** The infant weighed 2,580 gm., was 43 cm. in height, and had a head circumference of 34 cm. He was not dehydrated and appeared to be in a fairly satisfactory state of nutrition. His cry was somewhat hoarse, but the rest of the examination was not remarkable except for some mucoid discharge and droplets of lipiodol in the upper respiratory tract. The abdomen was moderately tympanic. The fundi were not seen.

Routine laboratory studies were not remarkable. X-ray examination confirmed the entry diagnosis of atresia of the esophagus with a tracheo-esophageal fistula. Hemivertebra and other anomalies of structure at T7 and T8 were noted. There was partial fusion of T10-11, as well as L1-2-3.

**Operation.** On the day after admission, a retropleural exposure of the esophagus was carried out by Dr. H. B. Stephens. The proximal and distal portions were found to be separated by a distance of 5 cm. and sufficient mobilization could not be achieved to perform a direct anastomosis. The fistula between the trachea and distal portions of the esophagus was repaired and a gastrotomy was performed. The patient withstood the procedure fairly well.

**Course.** The patient’s immediate postoperative course was smooth, although there was some edema of the lower portion of his body. Late in the 2nd day after surgery, his extremities suddenly became somewhat cyanotic, and respiration rather rapidly became stertorous and irregular. He expired quickly without responding to any further treatment.

**Autopsy.** Examination confirmed the operative observation of atresia of the esophagus with marked separation of the two segments. The tracheo-esophageal fistula had been successfully ligated, but there was some mediastinitis near the operative area. Multiple other anomalies were noted. There was a marked hypoplasia of the right kidney with a levoposition, and an anomalous right ureter. There was a Meckel’s diverticulum, and an ectopic pancreas was attached to the pyloric ring. Bicuspid aortic and pulmonic valves were noted. There was also a large cavernous hemangioma of the choroid plexus in the right lateral ventricle with evidence of recent and “significant” hemorrhage (Fig. 1).
Brain tumors during the neonatal period (birth to 60 days) are sufficiently rare and difficult to diagnose that they are almost invariably autopsy findings. In no case that we have been able to find was the diagnosis of tumor definitely established during life, although in 1 case (Cushing) intracranial calcifications were noted, and in 1 case there was a herniation of cerebral mass through the ruptured scalp. The possibility that certain cases of neonatal death may result from unsuspected intracranial neoplasm led us to review the literature.

We were able to find 13 recorded cases of intracranial tumors occurring during

![Image of choroid plexus angioma in a 3-day-old infant. Hematoxylin and eosin stain.](image)

this period of life. There were, in addition, 3 cases of tumors that became manifest shortly after the neonatal period and which probably were present though not recognized earlier. Reviewing these lesions reported in the literature brings out several aspects in which they differ from the general run of tumors in childhood, and they consequently warrant special attention. The reported cases are listed in Table 1.

The varying terminology used by different authors makes comparison of pathological types somewhat difficult, though it would appear that about half of these lesions were gliomas. Contrary to the situation that prevails with the general run of tumors in childhood, most of the tumors in the neonatal period were supratentorial. It will be noted in Table 1 that there were 3 below and 9 above the tentorium, the location being undetermined in 1 case.

Unfortunately, a review of the available information with reference to these lesions does not yield any valuable clues for recognizing them more easily. Hydro-