Differentiation of Epithelial Cysts

To The Editor: I read with interest the recent article by Leung, et al. (Leung SY, Ng THK, Fung CF, et al: An epithelial cyst in the cerebellopontine angle. Case report. J Neurosurg 74:278-282, February, 1991). There has been a confusing taxonomy relating to thin-walled cysts in the central nervous system, which have been described under a variety of names, reflecting their hypothetical or demonstrated nature. They may be divided into three types based on their presumed pathogenesis: those of epithelial origin, those of mesenchymal origin, and those of teratomatous origin. Cysts of epithelial origin may be further divided into those of endodermal origin and those of neuroectodermal origin including choroid plexus, ependyma, and paralysis.

Leung, et al., described a case in which the cyst lining was composed of a double layer of cuboidal epithelium abutting on a continuous basement membrane, and they demonstrated mucin gobules that were positive for alcian blue, periodic acid-Schiff, and carcinoembryonic antigen (CEA). Immunohistochemically, the epithelium was positive for cytokeratin but not for S-100 protein, neurofilament, or glial fibrillar acidic protein. These findings indicate a cyst of endodermal origin, especially in view of the CEA findings. The presence of fine reticular material coating the microvilli and of the well-developed desmosomes on electron microscopic examination is also a feature of endodermal origin, as the authors stated.

I wonder why Leung, et al., use the vague term "epithelial cyst" in the title of their paper in spite of their belief that the cyst was a histological variant of a neurenteric cyst with an endodermal origin. It is just like saying an apple is a "fruit." It is preferable to use the term "neurenteric," "enterogenous," or "endodermal" cyst as being more specific than "epithelial" cyst in an effort to better understand the pathogenesis and to avoid further confusion.

Tatsuo Morimura, M.D.
Hyogo College of Medicine
Hyogo, Japan

References


RESPONSE: We thank Dr. Morimura for his interesting comments regarding terminology in the title of our paper. We do believe that the cyst we reported was an epithelial cyst with endodermal differentiation. However, the relationship between histogenesis and differentiation is complicated, as what we see is differentiation which, in any given cell type, is defined by the subsets of genes that the cell is capable of transcribing. Histogenesis, however, implies the putative cell of origin.

The endodermal origin of intraspinal neurenteric cysts, as we mentioned in our paper, is better defined because of its common association with anomalies such as partial defects or fusion of the vertebrae. The problem with similar cysts in the posterior cranial fossa is more difficult. Although the proximity of the notochord to both the nasopharynx and the base of the brain during embryogenesis may cause a nasopharyngeal diverticulum to be misplaced along the notochord, such a diverticulum has not to our knowledge been reported, nor was a skeletal defect found at the base of the skull in our case. Schelper, et al., reported a pontomedullary cyst, the lining of which showed transition from arachnoid-like cells to respiratory epithelium. They raised the possibility of metaplasia of arachnoid cells into respiratory epithelium. The metaplastic potential of arachnoid cells is further supported by the existence of secretory types of meningioma.

In conclusion, the question whether the diversity of differentiation of posterior cranial fossa cysts reflects the metaplastic potential of neuroepithelial and neural crest cells or represents cysts of different histogenetic origins remains obscure. This problem is unlikely to be settled by a change in terminology alone.

Suet Y. Leung, M.B., B.S. (HK)
Thomas H. K. Ng, MRCPATH, F.R.C.P.A.
University of Hong Kong
Hong Kong

References


Fusiform Aneurysm After Surgery for Craniohypophysectomy

To The Editor: We read with interest the recent paper by Sutton, et al. (Sutton LN, Gusnard D, Bruce DA, et al: Fusiform dilatations of the carotid artery following radical surgery of childhood craniohypophysectomy. J Neurosurg 74:695-700, May, 1991). In their report of 31 cases, nine children developed fusiform dilatation of the ipsilateral supraclinoid internal carotid artery (ICA) after surgery. Of these nine patients, three