49th ANNUAL DIAGNOSTIC SLIDE SESSION, 2008
DIAGNOSES AND REFERENCES

MODERATOR: Anthony T. Yachnis, M.D.

EDITOR: Leroy R. Sharer, M.D.

Case 2008-5

Submitted by: Lili-Naz Hazrati(1), B.K. Kleinschmidt-DeMasters(2,3), Michael H. Handler(3), Shelly Weiss(4), Cynthia E. Hawkins(1), Divisions of Pathology(1), and Neurology(4), The Hospital for Sick Children, Toronto, CANADA; and Divisions of Pathology(2) and Neurosurgery(3), University of Colorado School of Medicine, Aurora, CO

Diagnosis: Seizure disorder with filamin-positive cytoplasmic astrocytic inclusions ("astrocytopathy" or "filaminopathy").

Comment: Many of the specimens were lobectomies, rather than hemispherectomies. There were eosinophilic inclusions in the astrocytes, and these were negative with various stains, including Von Kossa and Ziehl-Neelsen. The inclusions were also negative for alpha-B crystallin, ubiquitin and GFAP, although the cells containing the crystals were GFAP-positive. The inclusions were granular on electron microscopy. Dr. Hedley-Whyte reported that she had presented a similar case in 1989, Diagnostic Slide Session Case 1989-2, which she had termed glial cytopathy or astrocytopathy, with an appearance similar to Rosenthal fibers. The Presenter reported that these inclusions were positive for filamin A, allowing the term "filaminopathy" to be used for them. Similar inclusions can also be seen in Aicardi syndrome. Dr. Kleinschmidt-DeMasters reported that she had attended a meeting of the Canadian Association of Neuropathologists where one of these cases was presented, and it reminded her of cases that she had seen. She initiated the collaboration, and she stated that this disorder may be more common than generally recognized and that the clinical and pathologic spectrum of this disorder needs to be further characterized.

References:

Hazrati L-N, Kleinschmidt-DeMasters BK, Handler MH, Smith ML, Ochi A, Otsubo H, Rutka JT, Go C, Weiss S, Hawkins CE : Astrocytic inclusions in epilepsy: expanding the spectrum of filaminopathies. J Neuropathol Exp Neurol, in press.

Horoupian, DS, Hattab EM, Heit G: Astrocytic cytoplasmic inclusions within an epileptic focus in an otherwise neurologically intact patient. Hum Pathol 2003; 34:714-716.

Kato S, Hirano A, Umahara T, Herz F, Shioda K, Minagawa M: Immunohistochemical studies on the new type astrocytic inclusions identified in a patient with brain malformation. Acta Neuropathol 1992; 84:449-452.

Minagawa M, Shioda K, Shimizu Y, Isshiki T: Inclusion bodies in cerebral cortical astrocytes: a new change of astrocytes. Acta Neuropathol 1992; 84:113-116.

Van den Veyver IB, Panichkul PP, Antalffy BA, Sun Y, Hunter JV, Armstrong DD: Presence of filamin in the astrocytic inclusions of Aicardi syndrome. Pediatr Neurol 2004; 30:7-15.