

The Wobbly Hedgehog Syndrome – a clinical entity with variable CNS lesions

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Introduction

Wobbly Hedgehog Syndrome (WHS) is a neurological disease of African pygmy hedgehogs (*Atelerix albiventris*) resulting in progressive paralysis. The average life span of pygmy hedgehogs is 3-5 years. Of the 64 pygmy hedgehogs necropsied in our unit during the years 2003-2011, 12 had typical clinical neurological symptoms. Symptoms reported varied from random monoparesis, ataxia and anorexia to falling over, tremors and tetraplegia of 2-18 weeks duration. The age of the affected animals ranged from 11 months to 3 years. 10 animals were euthanased, 1 died spontaneously and one animals' data was incomplete. Of the 12 animals 3 had relatives with confirmed WHS diagnosis.

Hedgehog #	Age in months	Duration of CNS signs in weeks	White matter vacuolation	Wallerian Degeneration	Grey matter necrosis
1	36	4	X	X	
2	18	8	X		
3	22	2	X		
4	27	4	X		
5	30	8	X		
6	29	8	X		X
7	36	?	X	X	
8	26	8	X	X	X
9	19	?	X		
10	11	12	X		
11	21	6	X		X
12	11	18	X		X

Discussion

All the 12 hedgehogs had variable vacuolation of the white matter in the cervical spinal cord sometimes extending to the gray matter. 11 animals of 12 had vacuolar lesions in the brain, commonly in the corona radiata of the cerebrum, the brain stem and the cerebellum. In three animals Wallerian degeneration was observed in random location in the spinal cord. In some animals there was multifocal necrosis of the grey matter of the caudal brain stem and randomly in the spinal cord.

Our findings support the variability of CNS lesions reported in Wobbly Hedgehog Syndrome (Graesser et al. 2006). Rather than having two or more overlapping pathological events in the same animal, it is likely, that all the lesions are a result of the same phenomenon and may represent progression or variability in the severity of the disease. Ischemia, caused by i.e. vasculopathy, could be responsible for all the lesions described in our material. It is likely, but not proven, that WHS is an inherited disease.

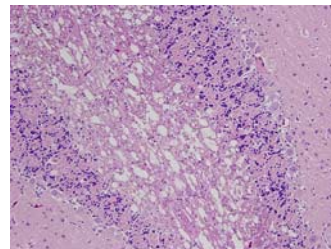


Figure 1. Folia of cerebellum showing severe diffuse vacuolation of the white matter. (HE stain, X100)

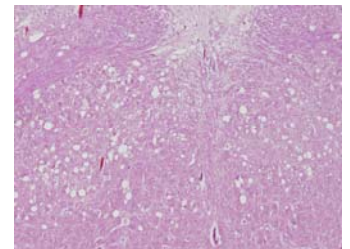


Figure 2. Brain stem (medulla oblongata, formatio reticularis) There is marked bilateral vacuolation. (HE stain, X40)

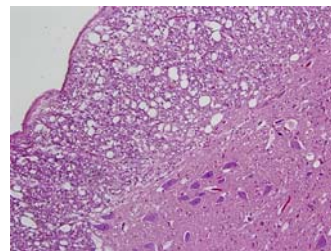


Figure 3. Transverse section of the cervical spinal cord. In the dorsolateral funiculus there is marked diffuse vacuolation of the white matter. (HE stain, X100)

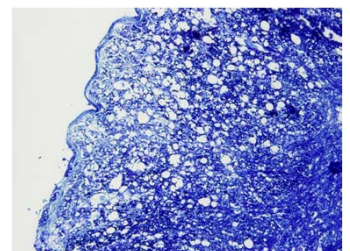


Figure 4. Same area than in figure 3. There is normal myelination in the vacuolated area. (Luxol Fast Blue stain for myelin, X100)

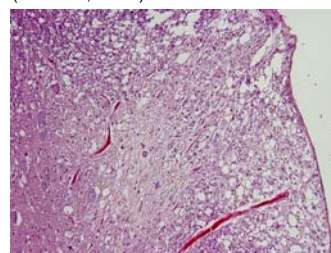


Figure 5. Transverse section of the cervical spinal cord. There is focal necrosis of grey matter and Wallerian degeneration dorsolaterally. (HE stain, X100)

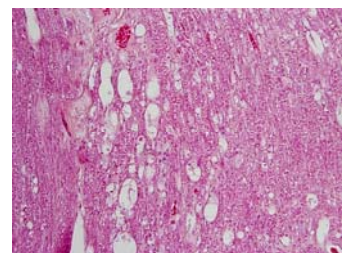


Figure 6. Sagittal section of the cervical spinal cord. There is Wallerian degeneration with spheroids, vacuolation of the myelin sheath and phagocytic macrophages within the sheaths. (HE stain, X100)



Photo courtesy of Wikimedia Commons.

Reference

Graesser D, Spraker TR, Dressen P, Garner MM, Raymond JT, Terwilliger G, Kim J, Madri JA. Wobbly hedgehog syndrome in African pygmy hedgehogs (*Atelerix* spp.). Journal of Exotic Pet Medicine. 2006;15:59-65.