

# Wobbly Hedgehog Syndrome: A Neurodegenerative Disease of African and European Hedgehogs

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## Introduction

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Hedgehogs are popular pets in the United States and occasionally are used as experimental animals.<sup>1</sup> Wobbly hedgehog syndrome (WHS, degenerative myelopathy, spongiform leukoencephalopathy, progressive paralysis) is a neurodegenerative disease affect the brain and spinal cord of African pygmy (*Atelerix* sp) and European (*Erinaceus europaeus*) hedgehogs.<sup>2-5</sup> The prevalence of this disease in pet African hedgehogs in the United States approaches 10%. Cluster patterns in defined family lineages are apparent, suggesting this is a heritable disease. Reported age range for onset of clinical signs is 1–36 months, and average age is 18 months, with no gender bias. Most cases become immobile within 18 months of onset. All treatments have been unsuccessful in reversing this disease or slowing the onset of signs. In an owner survey, no dietary correlation was noted for affected animals.<sup>2-5</sup>

## Clinical Signs

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Hedgehogs with WHS have clinical signs that may include falling consistently to one side, tremors, exophthalmos, scoliosis, seizures, muscle atrophy, dysphagia, wasting, ascending paresis or tetraparesis, and rarely self-mutilation. These signs are not specific and differentials should include other common hedgehog diseases such degenerative disc disease, brain tumor, or septic meningoencephalitis.

## Gross Lesions

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Gross findings include emaciation, generalized muscle atrophy, scoliosis, abrasions on the dorsal aspect of the feet, and large pale liver. No gross lesions are observed in the central nervous system.

## Histopathology

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Microscopic lesions include spongiform change in the white matter of the cerebrum, cerebellum, and brain stem, and in the white matter tracts of the spinal cord at all levels. Demyelination, axon degeneration, and occasional neuronal necrosis are also seen, the latter especially in the ventral horns of the spinal cord, with axonal changes

also occurring in the ventral nerve rootlets. Gliosis accompanies chronic lesions, but no inflammation is seen. Clear inclusions are seen routinely in the renal tubular epithelial cells of affected animals, and the significance of these relative to the CNS lesions is being investigated.

## Conclusion

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Wobbly hedgehog syndrome is an idiopathic neurodegenerative disease. Cluster patterns in family lineages are apparent, but the occurrence of the disease in different species of hedgehogs suggests that heritability may be influenced by dietary or environmental factors or infectious agents.

## References

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