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Functional Neuroanatomy of the Domestic Rabbit
(*Oryctolagus cuniculus*) 713
 Anna Osofsky, Richard A. LeCouteur, and Karen M. Vernau

This article reviews clinically relevant neuroanatomy of the central nervous system of the domestic rabbit (*Oryctolagus cuniculus*) that will help guide veterinarians in localizing neurological disease in this species. Although the vertebral column, spinal cord and brain of rabbits are similar to those of other mammals, features unique to the rabbit are emphasized where they exist.

The Neurological Examination and Lesion Localization in
the Companion Rabbit (*Oryctolagus cuniculus*) 731
 Karen M. Vernau, Anna Osofsky, and Richard A. LeCouteur

Completion of a thorough neurological examination of a rabbit is essential for clinicians to determine the location of a neurological problem. Determination of the location of a lesion (whether solitary or multifocal/diffuse) enables a clinician to list the most likely causes of the problem. This article presents the neurological examination of the rabbit, followed by a practical guide to lesion localization in this species.

Clinical Neurology of Ferrets 759
 Orlando Diaz-Figueroa and Mary O. Smith

Neurology represents an important specialty within ferret clinical medicine. Veterinarians should become familiar with the unique anatomic and physiologic differences between ferrets to improve their management of these cases. In addition, veterinarians should

use available diagnostic tests to confirm the presence of neurologic diseases. Recent advances in ferret medicine and veterinary neurology offer new capabilities to investigate and treat neurological disease in ferrets.

Avian Neuroanatomy Revisited: From Clinical Principles to Avian Cognition

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Susan E. Orosz and G.A. Bradshaw

Several significant advances in understanding brain-behavior development have made a critical contribution to clinical assessment of companion birds. First, psychobiological health and its dysfunctions now are understood as the product of nature and nurture and therefore exquisitely sensitive to stressors effected by altered socioecological conditions within and across generations. Second, discoveries associated with avian brain evolution and ethology show that emotional and cognitive capacities of birds are comparable to mammals. This article presents an overview of these new perspectives and, following, discusses specific, clinically relevant anatomy of the avian central nervous system. By understanding the location of these tracts and their function and the location of the cranial nerves and their nuclei in the brain stem, the clinician can understand and perform the neurological examination, better interpret findings, and localize lesions.

The Avian Neurologic Examination and Ancillary Neurodiagnostic Techniques: A Review Update

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Tracy L. Clippinger, R. Avery Bennett and Simon R. Platt

The purpose of this article is to guide the avian clinician in the assessment of neurologic function in birds. Physical and neurologic examinations that evaluate cranial nerves, postural reactions, and spinal reflexes identify neurologic dysfunction and the corresponding anatomic location of the lesion. Ancillary diagnostic tests, such as cerebrospinal fluid analysis, diagnostic imaging, muscle and nerve histology, and electrodiagnostics, are tools to confirm and clarify conclusions from the neurologic examination and to identify the cause of disease. Once the disease location and pathologic process have been identified, appropriate treatment and prognosis may be provided.

Reptilian Neurology: Anatomy and Function

837

Jeanette Wyneken

The reptilian nervous system is relatively simple in structure yet is characterized by great functional diversity. This article describes the reptilian nervous system, highlighting the similarities and differences among species in structures and functions.

The Neurologic Examination and Neurodiagnostic Techniques for Reptiles

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Christopher L. Mariani

This article will focus on specifics of performing the neurologic examination and neurodiagnostic testing in reptiles, and how these examinations differ from those performed in more conventional species. Physical examination and history are discussed, as well as invasive and noninvasive testing modalities.

Principles of Neurological Imaging of Exotic Animal Species

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Marguerite F. Knipe

Because the central nervous system (CNS) is encased almost entirely in bone, the means by which the clinician can evaluate it are limited. Additionally, the small size of many exotic companion animals further complicates diagnostic evaluation of the brain and spinal cord. Knowledge of the advantages and limitations of different imaging modalities, along with the neuroanatomical localization and assessment of likely causes of disease, will permit the clinician to choose the most appropriate imaging method for the patient. This article discusses the basic imaging principles of radiology, myelography, CT, and MRI of the nervous system of companion exotic animals to aid exotic animal clinicians in selecting imaging modalities and interpreting the results.

Basic Magnetic Resonance Imaging Principles Used for Evaluating Animal Patients with Neurologic Disease

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Seth Wallack

The use of MRI in veterinary medicine is growing, because it provides excellent anatomic and pathologic detail. Acquiring a useful MRI study depends upon understanding basic MRI principles and choosing the correct pulse sequences. This article introduces the reader to principles of MRI, image contrast, and appropriate pulse sequence selection for imaging. Lastly, the article briefly describes diffusion imaging, magnetic resonance angiography, and chemical shift artifact. The fundamental topics addressed in this article are items that exotic animal practitioners using MRI should know and be able to put to immediate use.

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