

# PROTOZOAL INFECTIONS

- **Equine protozoal myeloencephalitis**
- **Neosporosis**
- **Toxoplasmosis**
- *Sarcocystis canis* encephalitis
- **Sarcocystis-Like ovine encephalomyelitis**
- **Sarcocystis-Like bovine encephalitis**
- *Encephalitozoonosis*

# NEOSPOROSIS

*Neospora caninum* is an apicomplexan coccidian parasite.

➤ In cattle it causes abortion

Extraneural lesions in bovine fetuses include *hepatitis, pancarditis or myocarditis, myositis, and placentitis.*

The most frequent and almost pathognomonic CNS lesion in *bovine fetuses* is the presence of ***multifocal discrete foci of necrosis*** particularly in the brain and to a lesser extent in the cord.

- Neosporosis is a multisystemic infection in the dog
- Infection in adult dogs is usually subclinical.
- Infection in young dogs is severe and characterized pathologically by **encephalomyelitis** and **myositis/polyradiculoneuritis** and clinically by **hindlimb paresis** that is followed by **paralysis**.

CNS lesions are those of *necrotizing granulomatous, lymphoplasmacytic, and occasionally eosinophilic meningoencephalomyelitis* with diffuse gliosis, occasional axonal swelling, digestion chamber formation, and intralésional *N. caninum* tachyzoites and cysts.

# TOXOPLASMOSIS

*Toxoplasmosis is one of the most common protozoal diseases affecting humans and animals and is caused by **Toxoplasma gondii**.*

- Very similar in clinical presentation and pathology to Neosporosis

- Felids are the only definitive host and they also can act as an intermediate host. Other intermediate hosts include humans and other mammals.

**Felids** become infected by ingestion of tissues contaminated with tissue cysts, and shed oocysts in their feces.

**Human and other intermediate hosts**, including felids, can become infected by ingesting sporulated oocyst-contaminated food, water, or soil.

**Transplacental transmission** is important in cats, goats, and sheep

- Nervous system lesions including polyradiculoneuritis, are identical to those described for neosporosis; however, the tissue cyst has a **thinner Wall** ( $<0.5 \mu\text{m}$ ), is  $5-70 \mu\text{m}$  in size, and contains **several bradyzoites**  $0.7-1.5 \mu\text{m}$ . Tachyzoites are  $2-6 \mu\text{m}$  in size.
- The encephalitic form of toxoplasmosis is most likely to occur in immunosuppressed dog and cats or kittens..

# NEOPLASTIC DISEASES OF THE NERVOUS SYSTEM

## ➤ Tumors of the meninges

- Meningiomas

Meningotheliomatous or epithelioid meningioma

Psammomatous meningioma

Fibroblastic meningioma

Angiomatous or angioblastic meningiomas

Microcystic meningioma

Chordoid meningioma

Papillary meningiomas

Anaplastic (malignant) meningiomas

Granular cell meningiomas

- Meningeal sarcomatosis

# NEOPLASTIC DISEASES OF THE NERVOUS SYSTEM

➤ Tumors of neuroepithelial tissue

Astrocytoma

Oligodendroglioma

Oligoastrocytoma (mixed glial tumor)

Ependymoma

Choroid plexus tumors

Neuronal and mixed neuronal-glial tumors

Embryonal tumors

Pineal tumors

# NEOPLASTIC DISEASES OF THE NERVOUS SYSTEM

- Hematopoietic tumors
- Tumors of the sellar region
- Metastatic tumors
- Tumors of the peripheral nervous system

Peripheral nerve sheath tumors

Peripheral neuroblastic tumors

Paraganglioma

## REFERENCES

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