

Immune-Mediated Encephalitis

Disease	Granulomatous Meningoencephalitis	Necrotizing Meningoencephalitis	Necrotizing Leukoencephalitis
CNS Affected	Brainstem Cervical Spinal Cord Cerebellum Cerebrum	Cerebrum Meninges	Deep white matter encephalitis
Clinical Signs	Vestibular Long-track signs (postural reaction deficits, paresis) Cerebellar CN deficits Seizures	Cerebral signs Seizures Mentation changes Behavioral changes Compulsive pacing Circling	
Signalment “Poster Child”	Small Breed Female > Male Middle-aged (3-7 years)	Young (median age 18 months) Small breeds Females > Males Originally “Pug Dog encephalitis” Chihuahua, Maltese, Pekingese	Young to middle-aged (median is 4.5 years) Small breeds Originally “Yorkie Encephalitis” French Bulldog, Pomeranian No sex predilection
Clinical Diagnosis	MRI and Pathology *MRI can be normal CSF: Pleocytosis with elevated protein *Rule out relevant infectious disease	MRI and Pathology Necrosis and cavitation CSF: Pleocytosis with elevated protein *Rule out relevant infectious disease	MRI and Pathology CSF: Pleocytosis with elevated protein *Rule out relevant infectious disease
Treatment Approaches	Corticosteroids Adjunctive immunomodulatory therapies to reduce corticosteroid use and increase treatment efficacy Initiate anti-epileptic meds if seizures are present Corticosteroids and radiation therapy	Corticosteroids Adjunctive immunomodulatory therapies to reduce corticosteroid use and increase treatment efficacy Initiate anti-epileptic meds if seizures are present Corticosteroids and radiation therapy	Corticosteroids Adjunctive immunomodulatory therapies to reduce corticosteroid use and increase treatment efficacy Initiate anti-epileptic meds if seizures are present Corticosteroids and radiation therapy
Additional Info	Three clinical forms Ocular Focal Multifocal	Pugs have a high-risk haplotype DLA class II genes: DRB1, DQA1, DQB1 11% of pugs carry the markers and homozygous carriers have 1:8 risk of NME	

Prognosis: Positive prognostic indicators: Younger at diagnosis, focal disease, referral within 7 days of onset of clinical signs

Negative prognostic indicators: Seizures and altered mentation, mass effect, brain herniation on MRI

Brain Tumors

Disease	Meningioma	Glioma	Choroid Plexus Tumors	Ependymoma
Signalment	<p>Median age Dog: 10-11 years Cats: 12 years</p> <p>Breeds: Golden Retrievers, Boxers, Miniature Schnauzer Cats: Domestic Shorthair</p>	<p>Median Age Dog: 8 years old *can be young Cat: 11 years</p> <p>Breed Dog: Boxer, Boston Terrier, Bulldog, Pitbulls Cat: Domestic shorthair</p>	<p>Median Age 5-7 Years</p> <p>Breed Golden Retriever, English Setters</p>	<p>Median Age 8 Years</p> <p>Breed Domestic Short Hair</p>
Clinical Signs	<p>Reflect location and mass size Behavioral changes Seizures Altered mentation Circling Head tilt Ataxia Lethargy/anorexia</p>	<p>Reflect location and mass size Behavioral changes Seizures Altered mentation Circling Head tilt Ataxia Lethargy/anorexia</p>		
Treatment Approach	<p>Palliative Care MST: ~75 days Surgery alone MST: 313 days Radiation alone MST: 355 days Surgery and RT MST: 698 days</p>	<p>Palliative Care MST: 69 Days Surgery Alone MST: ~ 1 year Radiation alone MST: ~ 1.5 years Surgery and RT MST: ?</p>		
Features	<p>Extra-axial tumor Surface oriented (outside the brain)</p>	<p>Intra-axial From within the brain parenchyma</p>		
Anatomic Distribution	<p>60% Supratentorial 40% Infratentorial</p>	<p>94% Supratentorial 6% Infratentorial</p>	<p>Commonly metastasize within ventricular system</p>	<p>3rd ventricle is the most common location</p>
CSF	<p>Normal cell count with increased protein Albuminocytologic dissociation *Histiocytic Sarcoma = Very inflammatory</p>	<p>Normal cell count with increased protein Albuminocytologic dissociation *Histiocytic Sarcoma = Very inflammatory</p>		
Additional Info	<p>Most common primary tumor in dogs and cats *Cats like to get multiple!</p>	<p>Second most common primary tumor in dogs, rare in cats Origin: Astrocytes and Oligodendrocytes</p>	<p>3rd most common primary brain tumor in dogs, very rare in cats</p>	

