Approach and Differential Diagnosis of Head Tilt and Vestibular Signs

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Outline

- Review of vestibular signs
- Diagnostic approach
- Differentiate central from peripheral signs
- Differential diagnoses
- Diagnosis and treatment common causes

Vestibular signs

- Head tilt
- Vestibular Ataxia
- Strabismus
- Nystagmus
- Circling
- Veering, Leaning
- Falling, Rolling

How do we approach these cases?

- Establish whether signs are caused by a peripheral or central lesion
- List differential diagnoses
- Most likely first
- Select ancillary tests
- According to lesion localization & differentials
- Blood work, otoscopy, rads, CSF, CT, MRI
- Treat according to definitive diagnosis

Differentiating Central from Peripheral Vestibular signs

CENTRAL Vestibular Signs

- Changes in Mental Status – somnolence
- Deficits in postural reactions – proprioception
- Cerebellar Signs
- Vertical or Positional Nystagmus
- Involvement of other cranial nerves – V, VI, VII

Peripheral Vestibular Signs

- NO somnolence or proprioceptive deficits

- Head tilt – towards side of lesion
- Nystagmus
  - Fast phase away from side of lesion
  - Horizontal or rotational
  - NOT vertical or positional
- Strabismus – usually ventral
- Vestibular Ataxia
- Leaning, falling, rolling
- ± Horner's syndrome & Facial paralysis

Differentials – VITAMIN - D Peripheral Vestibular Disease

- V -
- I - Idiopathic vestibular disease
- T – Trauma, Aminoglycoside toxicity
- A – Congenital vestibular disease
- M – Hypothyroidism
- I – Inflammatory – Otitis, Polyps
- N – Ear tumors
- D -

Neoplasia

- Most commonly older animals
- Bony tumors – may have oral or neck pain
- Lymphoma, squamous cell carcinoma, ceruminous gland adenocarcinoma
- Imaging
- Lytic or proliferative regions on radiographs
- Much easier to visualize with CT or MRI
- Disease can progress and involve CNS
- Biopsy – Key to select specific treatment

Idiopathic Vestibular Disease

- Geriatric dogs (?), cats any age
- Peracute onset vestibular signs
- Signs remain severe for 24-48 hours
- DO NOT HAVE Horner's or facial paralysis
- Ancillary tests all normal (CT, CSF, MRI)
- Unknown cause
- Improve & start to compensate in 5 days
- Meclizine (Antivert) or Cerenia (higher dose)
- Head tilt may remain for a long time

Idiopathic Vestibular disease is ALWAYS peripheral. There is NO Idiopathic Central Vestibular disease.

Otitis Media-Interna

- Usually history of chronic otitis externa
- ± Horner's syndrome and facial paralysis
- Otoscopy – cytology, culture and sensitivity
- Radiographs – can see chronic changes
- CT or MRI - superior
- Treatment – Systemic antibiotics min 6 wks
- Guided by CS, clavamox, enrofloxacin initially
- Myringotomy and ear flush
- Surgery – VBO - Cats
- Good prognosis – if treated well and early

Differentials – VITAMIN - D Central Vestibular Disease

- V – Cerebellar infarct
- I - Encephalitides
- T – Trauma, Metronidazole toxicity
- A –
- M – Hypothyroidism
- I – Encephalitides
- N – Neoplasia, Thiamine deficiency
- D -

Encephalitides

- ANY CAUSE
- Granulomatous meningoencephalitis - GME
- Young adult dogs, small breeds - Poodles, Terriers
- Focal or multifocal – cerebello-medullo-pontine area
- Necrotizing Encephalitis
- Yorkshire, Maltese, Shi-Tzu, Chihuahua, (Pugs)
- Diagnosis
- CSF, MRI, serology, (CT)
- Treatment
- Prednisone 0.5-1.0 mg/kg q12h, q24h, q48h
- Azathioprine 2 mg/kg q24h – later EOD with pred
- Cytosar 200 mg/m2 IV infusion every 3 weeks

Neoplasia

- Meningiomas, choroid plexus papiloma
- Central signs – somnolence, proprioceptive deficits, cranial nerve deficits V, VII, IX, X
- Diagnosis
- MRI (best), CT, CSF analysis, biopsy
- Treatment
- Prednisone 0.5-1.0 mg/kg q12h, q24h, q48h
- Radiation therapy
- Chemotherapy – questionable benefit
- Surgery

- PROGNOSIS – VARIABLE

HYPOTHYROIDISM

- VESTIBULAR SIGNS USUALLY WITHOUT SYSTEMIC SIGNS (70%)
- MEDIAN AGE – 7 YEARS (5-10)
- EITHER CENTRAL OR PERIPHERAL DISEASE
- ACUTE OR PROGRESSIVE PRESENTATIONS
- HIGH CHOLESTEROL – ONLY CONSISTENT FINDING
- CONSISTENTLY LOW TT4 AND FT4
- IMPROVEMENT WITH LEVOTHYROXINE – USUALLY IN 4 DAYS

SUMMARY

THE KEY POINT WHEN PRESENTED WITH A PATIENT WITH VESTIBULAR SIGNS IS TO FIND OUT WHETHER THE LESION IS CENTRAL OR PERIPHERAL

MAIN CAUSES OF VESTIBULAR SIGNS ARE:

PERIPHERAL – IDIOPATHIC AND OTITIS M-INTERNA

CENTRAL – ENCEPHALITIS AND NEOPLASIA

PERIPHERAL VESTIBULAR DISEASE USUALLY CARRIES A BETTER PROGNOSIS