

Horner's syndrome

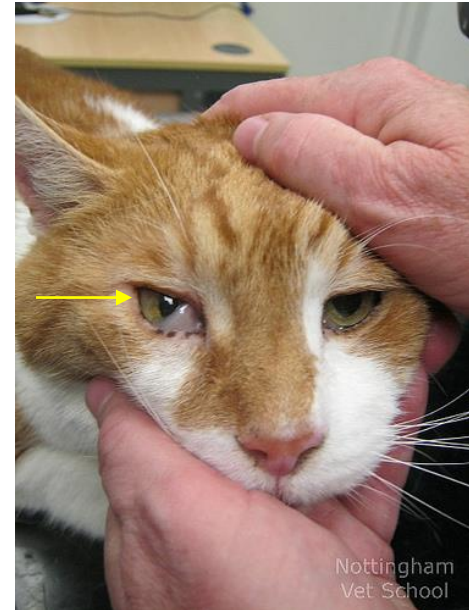
Extended Version

Classic case: Miosis, Enophthalmos, Ptosis, Protruding 3rd eyelid

Presentation: "My Third Sunken Toe"

1. **Miosis** (will not dilate fully in dark),
2. **Prolapse of nictitating membrane** (3rd lid)
3. **Enophthalmos** (**sunken** eye)
4. **Ptosis** ("**toe**")

- Horses – **Ipsilateral prominent sweating** at base of ear and neck or face, hyperthermia of skin
 - Cattle – **Ipsilateral LACK of sweat** on face and muzzle
 - Male Golden Retrievers are overrepresented
 - **Most common causes**
 - **Idiopathic** (50% canine cases)
 - **Otitis media / interna** (small animals)
 - **Brachial plexus avulsion** (trauma, esp. hit-by-car (HBC))
 - **Perivascular jugular injection** (too near sympathetic trunk)
 - **Other symptoms present may help to localize** the site of the lesion
 - Monoparesis of thoracic limb (brachial plexus avulsion, nerve root tumor)
 - Head tilt, nystagmus, facial nerve paralysis (otitis media/interna – small animals only)
 - Respiratory distress (thoracic mass)
 - Tetraparesis, altered mentation (central lesion)
- 3 locations of lesions – other associated symptoms
- **Central**
(First order) – brainstem or C₁-T₃ spinal cord
 - Altered consciousness, cranial nerve deficits
 - Tetraparesis, hemiparesis, ± LMN signs (flaccid, weak withdrawal) in ipsilateral thoracic limb(s)
 - Horses will sweat over trunk, neck and head
 - **Preganglionic**
(2nd order) – **brachial plexus**, cranial thoracic sympathetic trunk, cervical sympathetic trunk
 - Brachial plexus paresis/paralysis of ipsilateral limb
 - Respiratory distress from intrathoracic mass
 - Horses will sweat over head and neck, ipsilateral
 - **Postganglionic**
(3rd order) – **Middle ear** (small animals only), **guttural pouch**, cavernous sinus, orbital disease
 - Head tilt, nystagmus, ± facial nerve paralysis
 - Ophthalmoplegia
 - Exophthalmos, discomfort, optic nerve or oculomotor deficits
 - Horses will have ipsilateral head sweating



Horner's syndrome in a cat, right side.

Image courtesy
[Nottingham Veterinary School](#)

Horner's syndrome

Extended Version

DDX: Conjunctivitis, uveitis, ocular trauma, phthisis bulbi, hypothyroidism, equine dysautonomia

Test(s) of choice:

- **Pharmacological localization** – not always practical or reliable

Active substance	Central	Preganglionic	Postganglionic
Cocaine 6%	Slight mydriasis	No dilation	No dilation
Phenylephrine 10%	No dilation	No dilation	Normal mydriasis
Hydroxyamphetamine 1%	Normal mydriasis	Normal mydriasis	No or incomplete mydriasis

- **Serum glucose** – Diabetes mellitus occasionally associated with Horner's syndrome
- **Thyroid testing** – hypothyroidism occasionally assoc. w/ Horner's
- **Thoracic radiographs** – Thoracic mass (preganglionic)
- **Electromyography** – In case of monoparesis/monoplegia - determine extent of denervation of closely associated motor nerves (preganglionic)
- **Cervical spinal radiography/myelography** – Cervical spinal tumors, ruptured disc (central dz)
- **MRI of brain and C₁-T₃** – brainstem mass, cervical spinal tumors, ruptured disc (central dz), brachial plexus tumors (preganglionic)
- **CT of skull** (or MRI) – otitis media/interna, retrobulbar disease, postganglionic



Horner's syndrome in a dog, left side.

Image courtesy [Joel Mills](#)

Rx of choice:

- **NO treatment necessary** for the Horner's itself
- Treat underlying cause + supportive.
- **Brachial plexus avulsion**
 - Treat for trauma/shock
 - **Prevent self-mutilation**/damage to affected limb- protective booties, E-collar,
 - **+/- neuropathic analgesia** (ie: Gabapentin) may prevent paresthesia, self-mutilation

Prognosis:

- Depends on underlying cause
- **Brachial plexus avulsion**
 - Loss of deep pain sensation= **Grave** Px for return to function
 - Preservation of deep pain sensation= **Guarded to good** Px for return to function (wks-months)
 - **LACK** of neurologic improvement over a 4-week period suggests permanent deficit



Horner's syndrome

Extended Version

Prevention: Use well-trained personnel for jugular blood draws

Pearls: Approximately 50% of cases in dogs are idiopathic

Images and links worth a look

[Cat with Horner's syndrome](#). [Lisacat](#) on Flickr

[Feline nasopharyngeal polyp surgical complication](#). Vet Surgery Central

[Ipsilateral left facial sweating in horse](#) with Horner's syndrome, following inadvertent perivascular jugular injection. Note smaller angle of eyelashes on the left side.

from: Hahn, [Miscellaneous Disorders of the Equine Nervous System](#): Horner's Syndrome and Polyneuritis Equi, Clin. Techniques in Eq Practice, Vol 5, Issue 1, Mar 2006, pp. 43–48

Video clips of animals with Horner's syndrome: [Holstein](#), [Irish Setter](#), [Cat #1](#), [Cat #2](#)

from, [Veterinary Neuroanatomy & Clinical Neurology](#), de Lahunta & Glass, Cornell University

Refs: Cote's Clinical Vet Advisor, 2nd ed. pp. 149-50 (brachial plexus avulsion), 543-5 (Horner's); A Practical Guide to Canine and Feline Neurology, Dewey, 2nd ed. p 37, 270, 324, 442, 446; Vet Neuroanatomy and Clinical Neurology, de Lahunta and Glass, 3rd ed. p 174-179, 287-288; Small Animal Neurology, Jaggy. p 421-422; Large Animal Neurology, Mayhew, 2nd ed. p24-25, 96-100, 173-175; and Merck Manual, 10th ed (online): [Limb paralysis](#), [Otitis media/interna](#),

My Notes: