Visual Perception in Mood and Behavior- Diagnosis and Intervention

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1.Normal canine vision - poorer distance vision than people (20/85), better lateral vision, better low light vision, blue/ yellow color vision

1.1. Vision important in signaling

Body language signals given by whole body postures at a distance- is it safe?

More subtle, confirmatory information given with head and face- closer for more specific messaging

Eye contact- stare is threat, avert gaze is appeasement/ deference

2. Why do owners always think their dog with behavior problems has a vision impairment

They startle, then recognize the trigger for what it is → this is generally due to fear and anxiety related disorders. (The dog sees something on horizon- what is it? If they are anxious, they react in a manner to keep themselves safe until they determine what it is.)

2.1. When we talk about perception and mood, we can consider affective states on emotional perception and how dogs with negative bias (pessimism) respond to an ambivalent stimulus as compared to a dog with positive bias (optimism). If offered an ambivalent option for a food treat-the pessimist assumes no food, and moves slower. Whereas the optimist assumes food, and moves faster.

3. When there is true vision loss

Acute vs gradual

3.1. Gradual- adaptation, they use alternate senses to compensate, such as smell, hearing, sensation

3.1.1. Environmental management

Don’t move the furniture so the patient is able to navigate relatively normally, as they did prior to the sensory loss

However, these animals might have increased startle response.

3.1.2. Tools

Owner/ handler will need to use auditory cues instead of hand signals.

(I always end up teaching my dogs both -preparing for sensory loss [hearing or vision] and also my own voice loss.

Halos?

3.2. Acute- more difficulty initially

3.2.1. Same environmental management-

Move things to give clearer pathway, block off areas might get stuck

Use auditory cues to help navigate

Confine when alone for safety

Will adapt and compensate, usually ~ 1 month

Halos?

4. Truly ‘seeing’ things that are not there

Fly snapping, star gazing, light or shadow chasing, pouncing scratching at floor or wall, aggression with no identifiable target or trigger.

Ddx: GI discomfort (food sensitivity, IBD, pancreatitis, partial foreign body, parasites, etc.), orthopedic pain (neck, shoulder thoracic back), neuropathic pain (neck, spine, root signature, syringomyelia), dental pain, ocular floater (pigmentary keratitis, cataracts, iridial cysts, lipid deposits), atypical seizure (hallucinatory- occipital lobe), compulsive disorder.

Case examples

5. How do we diagnose these cases that come to us when the owner thinks that the behavior is due to vision impairment?

5.1. Behavior history - this usually gives us a lot of information about the rest of the behavior sequence (antecedents, behavior, consequence) and can get a bigger picture rather than hyperfocus on the vision, which owners often do.

5.2. Are they visual?

Do they have ophthalmologic abnormalities? [Reference other Beh/Ophtho Talk]

5.3. Treat what we have in front of us.

5.3.1. Environment

Antecedent arrangement, management for safety, prevention, avoidance

5.3.2. Relationship building

Discontinue punishment and aversives, consistent predictable and safe interaction patterns

5.3.3. Tools

Barriers, floor layout adjustments, appropriate walking equipment (consider the eyes), treats,

Eye protection? Halos?

Calming Cap?

5.3.4. Behavior modification

Counter conditioning, Response substitution, DSCC

5.3.5. Medications

Ophthalmologic- topical and oral

Behavioral - oral, OTM

Trazodone, Gabapentin, Clonidine, Sileo (dexmedetomidine)

Karagiannis CI, Burman OH, Mills DS. Dogs with separation-related problems show a "less pessimistic" cognitive bias during treatment with fluoxetine (reconcile) and a behaviour modification plan. BMC Vet Res. 2015;11:80