



ZOOBIQUITY

# ZOOBIQUITY: A New Case Series

Physicians and veterinarians have much to learn from each other, but minimal opportunities exist for collaborative scientific publication. The new Zoobiquity column in *Clinician's Brief* will bring together experts in human and veterinary medicine to share insights into the overlapping conditions of different species. This interdisciplinary approach will expand clinicians' understanding of conditions from cancer, diabetes, heart disease, and arthritis to behavioral conditions such as anxiety, compulsions, self-injury, and eating disorders. It is our hope that the exchanges serve as a model for similar conversations among animal and human doctors caring for the broadest range of conditions and species. Through such exchanges and collaborations, we believe the health of all the patients on the planet can be improved.

—**Barbara Natterson-Horowitz**  
**Author of *Zoobiquity***

This column co-presents clinical cases in a side-by-side format, with the patient—human or veterinary—as the primary variable. It is the hope of the *Clinician's Brief* team that readers will see the inherent commonalities in managing cases of similar diseases, regardless of species.

# PHOBIAS



## ANIMAL HEALTH

### Noise & Storm Phobia in a Labrador Retriever

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A 5-year-old spayed Labrador retriever was presented for fear of electronic sounds and storms.

#### HISTORY

At 2 years of age, the patient was adopted by a family with 2 adults and 2 elderly small-breed dogs (both with a history of thunderstorm and firework phobia). The family was her sixth home, as she had been returned to the shelter several times for various reasons (ie, too much energy, difficulty with another dog in the household, too many dogs in the household).

The patient was up-to-date on all vaccinations and heartworm, flea, and tick prevention and had no significant medical history. CBC, serum chemistry profile, total T<sub>4</sub> levels, and urinalysis were normal before presentation. Tick titers were not performed. She had no significant medical considerations, had high energy levels, and was exercised by leash walks 3 times daily.

She began showing signs of panic when presented with electronic sounds and thunderstorms 1 year before presentation. Fear and panic occurred secondary to a variety of sounds (eg, nail clippers, finger

snapping) but primarily resulted from electronic sounds (eg, oven, security alarm pad, washing machine, beeping sounds from television commercials or cell phones, high-pitched continuous sounds) and thunder. She also showed fear in response to predictive stimuli (eg, oven use, rain clouds).

To alleviate the signs of fear, the family unplugged appliances, gave food rewards and attention, avoided triggering stimuli, and placed the patient in the bathroom with a food toy. Obedience training, food toys in a sound-protected area, Thunder-Shirt (thundershirt.com) use, and

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## HUMAN HEALTH

# Emetophobia in a Female Adolescent

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A 16-year-old female adolescent was admitted to an inpatient eating disorder program after inability to gain weight or manage her emetophobia (ie, severe anxiety about vomiting) symptoms in a residential treatment setting.

### HISTORY

The patient had a long history (ie, since early childhood) of anxiety with fears of darkness and separation from her parents. She had no history of difficulty eating or maintaining an appropriate weight until 4 months before admission. The patient had no prior history of medical issues except amenorrhea 3 months before admission. Development until onset of illness appeared normal.

At the time of admission, the patient's parents had traveled out of town and left her home with a caregiver and younger sibling. She had

an episode of abdominal pain and nausea, which caused an intense fear that she would vomit, although no emesis occurred. The patient was afebrile with no other symptoms.

She was taken by her caretaker to an emergency room, where she was evaluated and found to have no medical cause for the abdominal pain and nausea. She was treated with ondansetron and released.

The pain and nausea did not return, but due to a new onset of anxiety that she would vomit if she ate, the patient started to fear eating. She avoided all food except

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loud music were attempted. These interventions resulted in some reduction in panic during storms but no alteration in clinical signs secondary to electronic sounds. Clomipramine (1.1 mg/kg PO q12h) and alprazolam (0.013 mg/kg PO 1 hour before storms [never to exceed q8h]) were initiated 11 months before presentation; clomipramine resulted in a calming effect without changes in intensity or frequency of clinical signs, and alprazolam resulted in a more rapid clinical recovery.

### CLINICAL SIGNS

The client described the following body language on patient exposure to an electronic sound or thunder:

- Ears back
- Fidgeting
- Height seeking
- Escape attempts
- Pacing
- Panting
- Hypersalivating
- Seeking out family
- Running to the closet

Recovery times varied for storms and electronic sounds; recovery could take up to 2 hours with exposure to electronic sound, whereas post-thunderstorm recovery could be within minutes with bathroom isolation, loud music, and a toy.

On examination, the patient was bright, alert, and responsive, with relaxed and friendly body language

(ie, tail at back, wagging softly, ears forward, mouth hanging open). She ate treats out of a food toy, played with a plush toy, and eventually fell asleep during the appointment. The physical examination was within normal limits.

### DIAGNOSIS

The patient showed signs of panic when the sky turned dark (ie, predicting a storm) and not exclusively when she heard thunder. She was diagnosed with storm phobia.

In addition, she did not show fear between bouts, with the exception of when she heard electronic sounds. Because the patient showed signs of panic when presented with certain sounds but demonstrated no fear outside of those circumstances except during storms, she was likewise diagnosed with noise phobia.

A phobia is a disorder leading to persistent, excessive fear and physiologic responses to a stimulus. In the case of storm phobia, the reaction is to the phenomena associated with storms (eg, thunder, rain, dark clouds, change in barometric pressure, wind).<sup>1</sup> Dogs diagnosed with storm phobia may initially have only noise phobia. As patients become classically conditioned to react to the stimuli that indicate an impending storm, they are candidates for a storm phobia diagnosis. In the case of noise phobia, the phobic reaction occurs with exposure to sounds.

### TREATMENT

Treatment consisted of behavioral therapies, environmental management, and medical treatment. At the assessment, the owners were instructed to avoid triggers whenever possible.<sup>2</sup> Whenever the patient heard an electronic sound, the owners were to show excitement, call the dog to them, and start playing with a toy or give her treats.

They were also instructed to set up a sanctuary room using the closet that the patient retreated to when she panicked.<sup>3</sup> Conditioning included using white noise and food toys in that space once daily. To decrease the likelihood of the white noise becoming a predictive stimulus for the storm and causing panic, it was used for all conditioning sessions. When the patient was conditioned to appreciate the sanctuary (as evidenced by her seeking that space), the owners were to direct her there during a storm, turn on the white noise, and give her a food toy. The owners wanted to use as little medication as possible, so the patient was weaned from clomipramine due to lack of efficacy.

To reduce fear and panic on a daily basis, the owners were instructed to administer alprazolam (0.5 mg PO q8h) no more than q6h (0.013 mg/kg). Alprazolam has been shown to be effective in treating storm phobia along with behavior modification.<sup>1</sup> The owners were informed of potential side effects and extralabel use.

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crackers, cereal, and bread and, in a 3-month span, lost 30 lb (25% of body weight). She was treated with ondansetron and mirtazapine; there was no change in anxiety or food avoidance.

After a fainting episode at school, the patient was admitted to a residential eating disorder program. Despite intensive treatment, she was unable to gain weight, and her anxiety was increasing. She refused intake of significant calories and displayed agitated pacing, stating, “I can’t eat anything.” After 2 weeks, she was transferred to an inpatient adolescent psychiatric unit.

### CLINICAL SIGNS

The patient, who appeared her stated age, presented to the hospital as thin and anxious. Her weight was 94 lb, height was 65 in, and BMI was 15.7. There was no evidence of a mood, psychotic, or substance-use disorder or neurodevelopmental disability. Cognitive function was not formally tested but appeared above average. The patient appeared extremely anxious (eg, constant worrying about vomiting, pacing, preoccupied about nausea leading to vomiting). She worried that leaving the hospital would improve her symptoms but was unable to articulate a reason. She continued to state avoidance of eating and fear of emesis if she ate.

The physical examination was normal, including a normal neurologic

examination except for a BMI of 15.7. Vital signs and laboratory values, including thyroid functions, were normal.

### DIAGNOSIS

A semistructured psychiatric diagnostic interview resulted in a diagnosis of eating disorder not otherwise specified, generalized anxiety disorder, and emetophobia. Specifically, the patient recognized that she was too thin but exhibited no perception of a distorted body image and denied having mood or psychotic symptoms.

### TREATMENT

The patient was presented with meals 3 times a day with liquid food replacement if meals were not completed. This caused a significant increase in anxiety and fear of emesis even with liquid replacement. Mirtazapine was tapered and discontinued due to lack of efficacy; fluoxetine and lorazepam were pre-

scribed to address anxiety. Cognitive strategies to reduce anxiety were also employed. Cognitive behavioral therapy was employed with gradual exposure to increased amount of food to ingest.

The patient continued to resist eating and required nasogastric tube feedings for multiple meals. Exposure to a complete meal with nasogastric tube feedings and no subsequent emesis helped decrease anxiety and increase cooperation in the refeeding program.

After 10 weeks of inpatient treatment, the patient was able to restore her weight to her premorbid weight of 120 lb with reduced anxiety and control of her emetophobia. She was discharged on fluoxetine, chosen based on evidence-based support for its use in treating anxiety disorders in adolescents and the severity of this patient’s anxiety. No side effects were noted. ■

### Suggested Reading

- Fix RL, Proctor KB, Gray WN. Treating emetophobia and panic symptoms in an adolescent female: a case study. *Clin Case Stud*. 2016;15(4):1-13.
- Lipsitz JD, Fyer AJ, Paterniti A, Klein DF. Emetophobia: preliminary results of an internet survey. *Depress Anxiety*. 2001;14(2):149-152.

- Williams KE, Field DG, Riegel K, Paul C. Brief, intensive behavioral treatment of food refusal secondary to emetophobia. *Clin Case Stud*. 2011;10(4):1-8.

Treatment appointments every 2 weeks for the first 2 months with the veterinary behavior nurses were recommended. Behavioral therapies taught at those appointments consisted of relaxation<sup>4</sup> and desensitization and counterconditioning<sup>3,5</sup> exercises to electronic sounds.

Relaxation exercises are intended to classically condition a state of physiologic calmness when the patient lies on a particular mat. There are 4 stages of learning: drive to the mat, duration on the mat, body language reinforcement, and physiologic calm. In this case, this exercise was used during storms so the patient could be with the family instead of in the sanctuary room. In addition, it was used to recover her after exposure to an electronic sound.

Desensitization and counterconditioning exposes the patient to the fear-producing stimulus at levels at which she does not react while receiving a reward that causes a positive emotional state.<sup>2,5</sup> It is imperative that the stimuli that cause panic are avoided during this time and that every element of the stimulus is worked on separately. Because storms cannot be controlled nor avoided, it was not recommended that the owners attempt to desensitize and countercondition to storm sounds. Even outside of storm season, desensitization and counterconditioning is rarely successful in dogs that panic when exposed to predictive stimuli.

At the first treatment, the patient was taught drive to and duration on the mat using freeze-dried chicken. In addition, the owners were educated on the clinical signs of fear, anxiety, and stress in dogs and were taught how to desensitize and countercondition her to electronic sounds by starting at a very low volume while pairing the sounds with a calm emotional state and food. They were cautioned to repeat at the same volume for at least 3 successful, consecutive sessions before moving to the next volume and to immediately decrease the volume if they noted any signs of fear or anxiety.

At the second treatment, the patient was taught to achieve a calm emotional state on the mat. At this appointment, the owner reported that the patient was doing better. She no longer reacted to microwave sounds or television commercials. When she was startled by sounds, the owners called her and held up a finger. She focused on the finger and they gave her a treat. They reported that she recovered from panic in 2 to 3 minutes instead of hours. They were able to use her mat to help calm her when she was stressed. She could endure most electronic sounds during desensitization and counterconditioning at a volume between 2 and 3. Although her reactions had diminished in intensity, they had increased in frequency, and she still would not enter the kitchen.

Fluoxetine was prescribed (10 mg PO q24h for 7 days, then 20 mg PO q24h for 7 days, then 30 mg PO q24h [0.83 mg/kg PO q24h]). The owners were informed of potential side effects and extralabel use.

Fluoxetine is a selective serotonin reuptake inhibitor that has been shown to reduce noise phobias in dogs.<sup>2</sup> Fluoxetine can take up to 6 weeks to effect a change in clinical signs. For that reason, the alprazolam dosage was increased to 0.75 mg PO q8h (0.02 mg/kg), with the intent of decreasing or eliminating alprazolam in 6 to 8 weeks.

At the patient's next appointment, the family reported that the episodes of panic continued to decrease in frequency and intensity. ■

## References

1. Crowell-Davis SL, Seibert LM, Sung W, Parthasarathy V, Curtis TM. Use of clomipramine, alprazolam and behavior modification for treatment of storm phobia in dogs. *J Am Vet Med Assoc*. 2003;222(6):744-748.
2. Landsberg G, Hunthausen W, Ackerman L. Phobias. In: Landsberg G, Hunthausen W, Ackerman L, eds. *Behavior Problems of the Dog and Cat*. 3rd ed. Philadelphia, PA: Saunders Elsevier; 2013:199, 131.
3. Curtis TM. Canine anxiety. *Clinician's Brief*. 2013;11(11):25-26.
4. Mills MS. Training and learning protocols. In: Horwitz D, Mills D, eds. *BSAVA Manual of Canine and Feline Behavioural Medicine*. 2nd ed. Quedgeley, Gloucester, England: British Small Animal Veterinary Association; 2009:49-64.
5. Crowell-Davis SL. Understanding behavior: desensitization and counterconditioning: the details of success. *Compend Contin Educ Vet*. 2008;30(11):589-592, 594.