Hypersensitivity Intradermal Testing in a Female Baboon (*Papio anubis*)

Cathy A. Johnson-Delaney, DVM, Dip. ABVP (Avian),
Robert Needleman, BS

Abstract

This case report demonstrates the application of an allergy test to an adult female olive baboon with presumed environmental allergies, most likely to cedar and/or pine. Although antihistamine therapy adequately controlled symptoms, allergy testing was desired as the first step toward possible hyposensitivity therapy and the ability to discontinue daily administration of medications. Copyright 2007 Elsevier Inc. All rights reserved.

Key words: **allergy; allergy testing; baboon; hypersensitivity; *Papio anubis***

A 14-year-old intact female olive baboon (*Papio anubis*) was housed at the Oregon Tiger Sanctuary, Eagle Point, Oregon, since 1997 after being transferred from a rescue facility in Mississippi. She had been raised with a male Japanese macaque (*Macaca fuscata*), but the owner had released the animals. There was no previous medical history available for this animal. It had been noted by the rescue facility that she exhibited self-mutilating behaviors including severe biting of her arms.

Housing consisted of a 30 ft × 40 ft × 40 ft habitat constructed of stainless steel, chain link fencing, and wood. The animal's habitat had both a heated indoor portion containing a climbing apparatus and blankets with cement flooring, and an outdoor portion with natural trees, soil, and grass (Fig 1). The baboon was in visual contact with a Celebes black macaque (*Macaca nigra*), a vervet monkey (*Chlorocebus aethiops*), and 3 spider monkeys (*Ateles geoffroyi*). Attempts to acquire another *Papio anubis* have not been successful, although this option is continually explored. Diet, which was considered excellent, is listed in Table 1. Portions are controlled to keep her weight controlled. A summary of her viral and bacterial testing is provided in Table 2. Before the author's (C. J. D.) involvement with the sanctuary in 2000 and construction of a restraint cage, regular physical examination and diagnostic testing were not performed. The author now visits the sanctuary 1 to 2 times per year.

In early 2001, the baboon's self-mutilation and "panic-like" behaviors increased, and attempts at enrichment, social interactions, and training programs were augmented with an antianxiety medication, beginning with oral alprazolam (0.5 mg every 12 hours, Xanax; Pfizer, Morris Plains, NJ USA). Dosage was reduced to 0.25 mg twice daily in 2002 with concurrent administration of fluoxetine hydrochloride (20 mg by mouth once daily in the morning, Prozac; Pfizer, Morris Plains, NJ USA). Medications were administered in food or treats, and compliance (acceptance and actual consumption of medicated treats) was judged to be fair to good. Because self-mutilation subsided and there were fewer episodes

From the Eastside Avian & Exotic Animal Medical Center, Kirkland, WA USA, and Oregon Tiger Sanctuary, Eagle Point, OR USA.

Address correspondence to: Cathy Johnson-Delaney, DVM, Dip. ABVP (Avian), Eastside Avian & Exotic Animal Medical Center, 13603 100th Ave NE, Kirkland, WA 98034. E-mail: cajddvm@hotmail.com

1557-5063/07/1604-$30.00
doi:10.1053/j.jepm.2007.09.004

Figure 1. Outdoor portion of the habitat of a female olive baboon (*Papio anubis*) housed at the Oregon Tiger Sanctuary.

of "panic," the alprazolam dosage was decreased to single nighttime administration with full discontinuance in December of 2002. The baboon currently remains only on fluoxetine with no more episodes of self-mutilation behavior. She also has become less hostile, aggressive, and agitated. She now exhibits "normal" baboon vocalizations, postures, and behaviors.

In the fall of 2001, the baboon presented with bilateral conjunctivitis, ocular discharge, nasal discharge, severe palpebral edema, and occasional sneezing. In previous years, a few mild episodes of conjunctivitis had been noted, but these had resolved with no medical intervention. The staff, under a local veterinarian's consultation, sedated her for physical examination, blood collection, and chest auscultation. Diagnosis was determined to be a bacterial or viral respiratory tract infection and she was started on azithromycin (10 mg/kg orally twice daily for 5 days, Zithromax; Pfizer) and diphenhydramine hydrochloride (25 mg twice daily, Benadryl; Pfizer). No respiratory culture was taken at that time. The veterinarian was not on the premises and the medical regimen was established based on observations and communications with the sanctuary staff. The baboon's symptoms returned when diphenhydramine was discontinued, and she improved when it was resumed. She remained on antihistamine therapy through March 2002. In January of 2003, she again presented with severe conjunctivitis and respiratory sounds (described by staff as "congested breathing"). A local veterinarian visited the facility and diagnosed bilateral corneal ulceration based on the results of a visual examination. Because it was not possible to administer topical ophthalmic medication to this animal while it was awake, she was again placed on azithromycin (dosage above) for 5 days, and diphenhydramine (dosage above) and ibuprofen (generic, various brands) at 100 mg orally twice daily for 7 days. Ocular signs returned 2 weeks after the azithromycin was discontinued. A second 14-day regimen of azithromycin was administered. Signs resolved, and staff members continued to administer diphenhydramine as needed for "hay fever symptoms" that continued periodically throughout the rest of the spring. In January of 2004, she again had severe "hay fever" symptoms with ocular discharge. Medical treatment again included azithromycin, ibuprofen as needed, and diphenhydramine. Signs resolved as before, although keepers observed that she now appeared to require diphenhydramine as frequently as several times a week to minimize symptoms. It was also noted that she exhibited more symptoms on windy days and on days that "clouds" of yellow pollen were blown in from the surrounding forest. Because her caretakers noted that the increased dosing of diphenhydramine seemed to be making her drowsy, an alternate antihistamine was prescribed. Clemastine fumarate (10 mg orally once daily, Tavist; Novartis Pharmaceutical Corp., East Hanover, NJ USA) alleviated her symptoms and did not seem to make her drowsy. This was continued daily throughout the year. In December 2004, she had a recurrence of the palpebral edema, ocular discharge, and respiratory congestion, concurrent with a heavy pollen season. Five days of azithromycin (dosage above) was administered. Since then, she has had no further severe manifestations but continues to receive antihistamine daily. Although the current medication controls the most severe symptoms, it was decided the goal of management would be to reduce her dependence on symptomatic antihistaminic treatment and subsequently the need for additional treatment for secondary infections and respiratory secretions, especially because the baboon did not always accept and consume the medicated treats.

Because the history of symptoms was closely associated with the conifer pollen season (fall, winter) but could not be separated from wet and windy weather patterns, environmental allergens were investigated. The most prevalent tree in the immediate vicinity of her cage, as well as throughout the sanctuary, was determined to be the Western red cedar (*Thuja plicata*) (Fig 2). In addition, the heavily wooded area contained Douglas fir (*Pseudotsuga menziesii menziesii*), Western hemlock (*Tsuga heterophylla*), Western white pine (*Pinus monticola*), ponderosa pine (*Pinus ponderosa*), and noble fir (*Abies procera*).