

## Acute Angioedema Following Immunization Against Parvovirus in a German Shepherd Dog and Clinical Remission With Treatment \*

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In the present article the authors described a 9 weeks old German shepherd dog suffered an episode of angioedema affecting face, eyelids and the head shortly after vaccination against parvovirus. No pathological condition was detected to cause angioedema attack except vaccination mentioned at clinical evaluation and laboratory examinations. Therapy included cetirizine 1 mg/kg once a day perorally and dexhamethasone 0.15 mg/kg intravenous q 12 hours, for 2 consecutive days. After 5 hours of initiating therapy, angioedema regressed, after 9 hours oedema on periorbital area and face was subsided at 75% and 24 hours later angioedema was successfully controlled and disappeared.

**Key Words:** Angioedema, parvovirus, cetirizine

### Bir Alman Çoban Köpeğinde Parvovirusa Karşı Aşılınmayı Takiben Gelişen Akut Anjiyoödem ve Sağaltım İle Klinik İyileşme

Bu makalede yazarlar 9 haftalık Alman çoban köpeği yavrusunda parvovirusa karşı aşılınmayı takiben kısa sürede yüzde, gözkapaklarında ve başta gelişen anjiyoödem atağını tanımlamaktadırlar. Klinik değerlendirmede ve laboratuvar muayenelerinde anamnezde belirtilen aşılama dışında anjiyoödem atağına yol açabilecek başka herhangi bir patoloji saptanamadı. Sağaltımda setirizin 1 mg/kg peroz günde bir kez ve deksametazon 0.15 mg/kg intravenöz olarak 12 saatte bir 2 gün kullanıldı. Hastada sağaltım başladıktan 5 saat sonra anjiyoödem geriledi, 9 saat sonra göz kapakları ve yüzdeki ödem % 75 oranında azaldı ve 24 saat sonra anjiyoödem başarıyla kontrol altına alındı ve ortadan kalktı.

**Anahtar Kelimeler:** Anjiyoödem, parvovirus, setirizin.

### Introduction

Angioedema, is a classic type 1 hypersensitivity disorder (1), usually localized to the head within asymmetrical swelling of the skin and mucous membranes (2). Clinical signs usually accompany acute onset within large edematous swellings (1). Although the cause of angioedema often remains unclear, the presumed causes may include post-vaccinal complications, various drugs, immune-mediated disorders, neoplasia, infections, food allergy, physical reactions and insect bites (1, 3, 4).

Post-vaccinal side effects comprising dogs have previously been reported within various studies (5-8). Adverse reactions to distemper, infectious hepatitis and parvovirus vaccines (8), and leishmune vaccine against canine leishmaniasis (9) included angioedema confined to the nose, ears and eyes (8) and face (9).

The purpose of this study was to investigate the clinical formation of angioedema and the efficacy of therapy with cetirizine and dexamethasone in controlling the clinical signs in a German shepherd puppy dog affected with angioedema.

### Case Report

A 9 weeks old German Shepherd puppy was referred because of acute onset of swelling located at the face, eyelids and head. The puppy had a history of vaccination against Parvovirus (Nobivac Parvo c, Intervet®; modified live vaccine including C154 strain) 2 hours prior to the onset of clinical dermatologic problems. At physical

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examination acute swelling was markedly noticed, especially around the eyes and the muzzle with no accompanying urticaria, and the dog was otherwise healthy. The dog was unable to control its head and to open eyes. The owner denied previous administration of any drug or vaccination. The owner had never experienced any similar symptoms related to the allergy for her dog. She also had avoided dietary changes. Other possible circumstances responsible for the reactions, such as physical exercise, simultaneous administration of other drugs, or infections were ruled out by the owner's history on her dog. The dog was fed with a commercially available dog food suitable for puppies. The dog was usually kept indoors but allowed to access outdoor for a short time interval every other day. However there was no history of any contact with a chemical offending substance, foreign body or any other dog for the last 1 week.

Complete physical examination including rectal temperature, heart rate and evaluation of gastrointestinal, respiratory and dermatologic system did not reveal any abnormalities other than the swelling on the head. Based on the admittedly informative history and physical examination and excluding some of the presumed causes the dog was diagnosed to have acute angioedema. At clinical evaluation and laboratory examinations including complete blood counts, serum biochemical analysis (urea, creatinine, ALT, AST) and urinalysis no pathological condition was detected to cause angioedema attack other than vaccination.

Therapy included cetirizine (Hitrizin 10 mg. tablet, Deva Holding A.S.) 1 mg/kg once a day perorally and dexamethasone (Deksavet %0.4 inj. sol., Interhas A.S.) 0.15 mg/kg intravenously q 12 hours for 2 consecutive days. After 5 hours of starting treatment angioedema regressed. On hour 9 of starting treatment oedema on periorbital area and face was subsided at 75% and 24 hours later angioedema was successfully controlled and disappeared. After 6 months of therapy, the owner of the dog was interviewed in an attempt to get information about any remaining or new complaints related to this condition, who informed that the dog was healthy.

## Discussion

Immunization, so called vaccination, are performed to stimulate the immune system in an attempt to protect the animal against the infectious agent. In fact, this kind of stimulation may result with some minor symptoms such as soreness at the site of injection, mild fever and allergic reactions (10).

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Adverse reactions in association with animal vaccination has been studied over the past years. Suspected adverse reactions against vaccines have been recognized as inflammatory, allergic, autoimmune or neoplastic diseases (11). Vaccine related side effects including angioedema in dogs have previously been discussed by several studies (5-8). Adverse toxic reactions to parvovirus vaccines (8) included angioedema of the nose, ears and eyes (8). Allergic reactions occurring against vaccines frequently constitutes the skin, and systemic symptoms such as urticaria/ angioedema, serum sickness and eczema or localized site reactions may be noticed (12). In a previous case series angioedema and urticaria was reported in two Great dane dogs following inactive vaccination against *M. canis* (13). In line with previous reports the present puppy was diagnosed to have an angioedema attack following parvoviral vaccination, by possible excluding of all other unremarkable differentials.

The diagnostic strategy involved in this clinical case was the combination of detailed history taking and limited laboratory investigations. Immunological analysis was discussed with the owner, who declined further analysis. Therefore the results of a limited set of laboratory tests (determination of complete blood counts and serum biochemical analysis) were available.

In allergic reactions including urticaria and angioedema, histamines play an important role as by causing vasodilatation and increased vascular permeability (4). Therefore the primary indication for antihistamine therapy in angioedema must be the treatment of dermal edema, that is clinically presented as swelling (4, 14). In addition due to the risk and side effects of prolonged use of glucocorticoid therapy, antihistamines are preferred by veterinarians in an attempt to avoid or reduce the necessary doses of glucocorticoids (15). The development of a group of second generation antihistamines, with non-sedative effects, has aroused interest in the application of those drugs for treatment of various human disorders (16) and for dogs with atopic dermatitis (17). Cetirizine has been effectively used in a human angioedema case (18). In agreement with previous reports, in the present case cetirizine was effective and clinical remission was achieved with a short term usage. Although only 1 case was presented in this article and it is unwise to draw conclusions, the present authors suggest that cetirizine in conjunction with dexamethasone was completely effective for relieving acute angioedema.

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