VITAMIN C in treatment of canine and feline distemper complex

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ED. NOTE: While rapid gains have been made in immunization against canine distemper, the practitioner is still plagued by the age-old problem of what to do with the dog that is already sick with distemper. Through the years so many quack cures and remedies have been touted that any new suggestion or proposal is viewed with great suspicion. Editors in particular are inclined to view this subject as a hot potato and to apply themselves to less controversial matters. However, the thoughts of several clinicians on the subject of distemper treatment have come to our attention recently, and they're too intriguing to pass without comment.

With reference to letters in the *J.A.V.M.A.* regarding the sensitivity of the canine distemper virus to ether *(J.A.V.M.A. 149*:480, Sept. 1, 1966), and an observation made some 28 years ago that a distemper-sick dog anesthetized with ether usually recovered from distemper *(J.A.V.M.A. 149*: 1142, Nov. 1, 1966), Dr. Conrad A. Donovan, Latrobe, Pennsylvania, reports that during the past few months he has used ether inhalation to treat 7 advanced, classical cases of canine distemper. All of the dogs made an uneventful recovery. Ether-soaked cotton was placed in an ether cone and the dog's nose was held in the cone for 15 minutes. This procedure was repeated in 48 hours. At no time was the dog beyond stage-one anesthesia. Dr. Donovan suggests that this observation merits critical evaluation.

Dr. Belfield presents an entirely different approach to treatment of the distemper complex in both the dog and cat. He employs ascorbic acid as the basic therapeutic agent and reports excellent results in 12 cases.

We can almost hear the chuckles of our friends in research as they read these words. But, gentlemen, the problem of distemper is with us daily. Before branding the editors of *VM/SAC* as "cracked" and the reporting clinicians as "quacks", wouldn't a little investigation be in order? Isn't there a possibility that technical talents in immunology and pharmacology could be combined to shed some new light on what we should not be attempting in management of patients with distemper? Professionally, there is little to lose and much to be gained. The fate of the unattended distemper-sick dog is well known, and euthanasia just doesn't carry the professional dignity it did 25 years ago. Any help or information will be welcomed by veterinary practitioners all over the world.

THE AUTHOR recently attempted a therapeutic program employing ascorbic acid injection as the basic agent in the treatment of the canine and feline distemper complex. Results were excellent in the 12 cases treated.

The product used in all cases was Scorbate (H. C. Burns Pharmaceuticals). Except where otherwise noted, the dosage for dogs was three 2,000-mg. intravenous injections given at 24-hour intervals. The treatment for cats and toy breeds of dogs consisted of three 1,000-mg. doses administered via the same route and at the same interval as for dogs.

Case No. 1

A 1-year-old female Miniature Poodle with signs of distemper (temperature of 103.5 F., listlessness of 3-day duration, anorexia, conjunctivitis, and diarrhea) was presented for diagnosis and treatment. There was no history of vaccination.

Each dose of ascorbic acid for this animal was 2,000 mg. administered as previously described. Twelve hours after the first injection, the dog showed increased activity, however the other signs persisted. Twelve hours after the second injection, the temperature was reduced to within normal range (102.2 F.), the conjunctivitis was improved, activity of the dog had greatly increased and its appetite had returned. The day after the third injection, the animal appeared normal except for a slight diarrhea which was corrected within 24 hours following standard therapy.

At post-treatment examination 2 weeks later, the dog was in good condition except for a slight nervous spasticity in the upper right eyelid.

Case No. 2

An unvaccinated 9-month-old female Cocker Spaniel cross showed signs of bronchitis, acute conjunctivitis with lacrimation, listlessness, and a temperature of 104.5 F. When the dog's condition failed to improve following a week of broad-spectrum antibiotic therapy for treatment of bronchitis, distemper was tentatively diagnosed and the series of ascorbic acid injections was administered. After the third injection, temperature returned to within normal range (101.5 F.) and the dog appeared to be asymptomatic except for a slight cough which ceased after 1 week.

Case No. 3

A 14-month-old male German Shepherd had classic signs of distemper (temperature 104 F., purulent ocular and nasal discharges, fetid diarrhea, anorexia and listlessness). The owner had been told by another veterinarian that there was no hope for the dog's recovery. Following the 3 intravenous injections of ascorbic acid there was a complete remission of signs.

Case No. 4

A stray 6-month-old female Dachshund cross (vaccination status unknown) had been in a new home for only 3 or 4 days before becoming listless and refusing food. Distemper had been diagnosed by another veterinarian who recommended euthanasia. When presented, the dog had a temperature of 103.8 F. and purulent conjunctivitis. Within 4 days after initiation of the ascorbic acid treatment regimen, the dog appeared normal in all respects.

Case No. 5

A 6-year-old female Terrier cross had classic signs of distemper (fever, purulent nasal discharge, slight diarrhea, anorexia, and listlessness). There was no history of vaccination. The course of ascorbic acid injections was given, and after the third injection, the patient returned to normal.

Case No. 6

A 6-month-old German Shepherd, vaccinated for distemper at 3 months of age, had signs of distemper (ocular and nasal purulent discharges, temperature 103.5 F., fetid diarrhea, anorexia and severe weight loss).

Because this dog was in a more weakened condition than any of the others treated, it was necessary to administer supportive therapy in addition to the ascorbic

acid. Daily supportive therapy consisted of intravenous administration of 200 cc. of amino acids plus multiple vitamins, Proteplex (H. C. Burns Pharmaceuticals), and 250 cc. 5% dextrose-fructose with electrolytes.

At the end of the 3-day treatment period, the dog was clinically normal except for a slight diarrhea which was corrected within 24 hours following standard therapy.

Case No. 7

A 7-month-old female Terrier cross with no history of distemper vaccination had a temperature of 103.6 F., slight conjunctivitis, and tonsilitis. Although there was some doubt that the condition was actually canine distemper, the dog responded favorably to the course of ascorbic acid injections.

Case No. 8

A 9-month-old male Beagle had a temperature of 103.8 F., slight mucopurulent ocular and nasal discharges, poor appetite, and listlessness. There was no history of distemper vaccination. This animal had been exposed to distemper 2 weeks prior to presentation. Within 1 day following completion of the course of ascorbic acid injections, the dog's condition was normal.

Case No. 9

A female Toy Terrier had a temperature of 103.5 F., mucopurulent ocular and nasal discharges, anorexia, listlessness, bronchitis, and chorea of the left hind limb. Twenty-four hours after the first injection of ascorbic acid, the temperature returned to within normal range, and the dog's activity increased. After the second treatment, the dog's appetite returned. The third injection returned the patient to a near normal state; however, the bronchitis persisted.

The bronchitis was then treated as a separate entity; 1.5 cc. of Azimycin (Schering) was injected intramuscularly, and within 12 hours there was notable improvement. The dog was released with instructions to the owner that oral tetracycline (250 mg.) was to be given twice daily for 6 days.

Case No. 10

A 9-week-old female Chihuahua was presented with a history of persistent vomiting. Clinical signs included bilateral corneal opacity, temperature of 104.2 F., anorexia, listlessness, and manifestation of pain in the upper abdominal region suggestive of infectious canine hepatitis.

Because of the small size of this dog, the dosage of ascorbic acid was reduced to 1,000 mg. (10 cc.) per injection. There was an anaphylactic reaction to the first injection, which lasted about 15 minutes. Twelve hours after the injection, the dog was able to drink without vomiting and had become more active. Twelve hours after the second injection, temperature was within normal range (102.3 F.), the corneal opacity had improved, and the appetite had improved.

Because there had been another anaphylactic reaction to the second injection, no third injection was given this animal; however, a week after the second injection, the corneal opacities had cleared and the dog appeared to be normal.

Case No. 11

An unvaccinated 1-year-old male cat showed signs of feline distemper (persistent vomiting, diarrhea, listlessness, temperature of 104 F., and anorexia). To control the vomiting, 0.25 grains of phenobarbital was given orally twice a day during the treatment period. The cat became asymptomatic after the third ascorbic acid injection had been given.

Case No. 12

An unvaccinated 6-month-old female cat was presented with signs of distemper (temperature of 104.2 F., diarrhea, persistent vomiting, cachexia, and anorexia). How long the condition had been present was unknown because the cat had been away from home for a week.

Because signs of dehydration were present, it was necessary to administer supportive therapy (intravenous amino acids and B complex, 100 cc. daily; intravenous 5% dextrose-fructose-electrolytes,

100 cc. twice daily) along with the three injections of ascorbic acid. The cat's condition was considered normal by the end of the 3-day treatment period.

Discussion

In Topley and Wilson, *Principles of Bacteriology and Immunity,* it is stated that ascorbic acid acts as a detoxifying agent *in vivo* and also stimulates the adrenal cortex, thus increasing the production of cortisone. These two phenomena could possibly account for certain clinical responses to ascorbic acid; however, they do not account for the action of ascorbic acid, if any, on viruses.

Sollman's *Manual of Pharmacology* states that during fever there is a decrease of ascorbic acid in the body. Vitamin C is an important constituent in cellular functions; without it there is cellular breakdown. The author hypothesizes that massive doses of ascorbic acid have an inhibiting effect on viruses by rebuilding body cells and tissues, thus enhancing resistance to viral invasion.

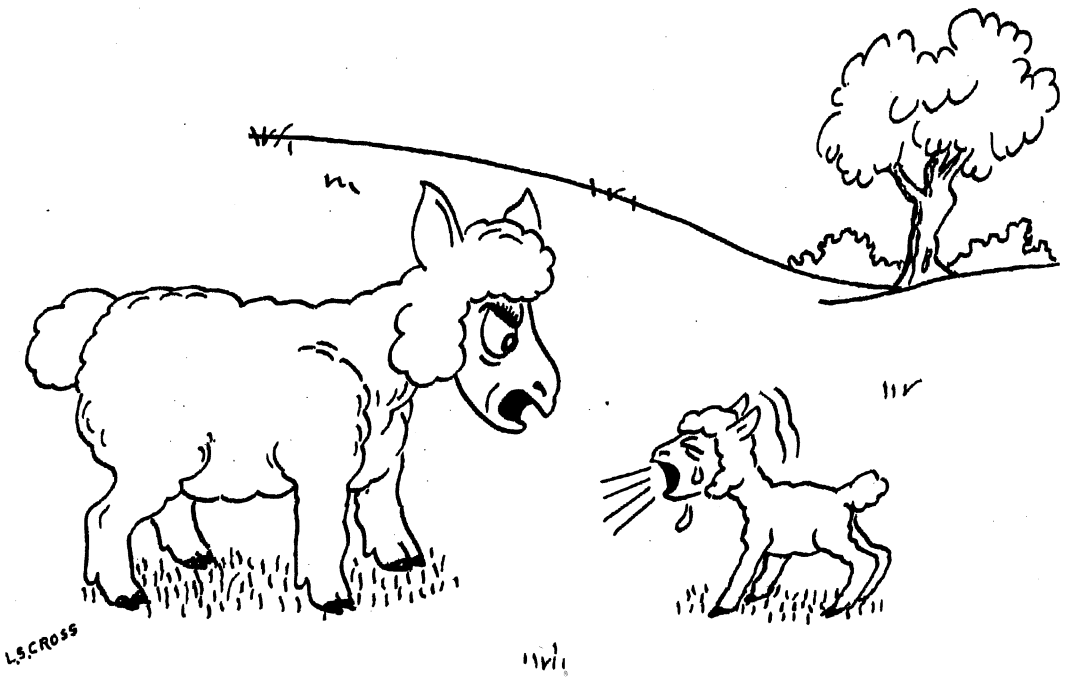
The author recommends that when vitamin C is used in the treatment of the distemper complex:

1) the animal be treated prior to the onset of nervous signs; however, such signs were already present in 1 of the 12 animals successfuly treated by the author;
2) supportive therapy (dextrose, amino acids, multiple vitamins, etc.) be given to debilitated animals, and broad-spectrum antibiotics be used in cases where there is persistent bronchitis and/or mucopurulent lacrimal and nasal discharges;
3) the animal be vaccinated within 30 days after treatment, since it is not known whether the animal carries any immunity following recovery.

Conclusion

Obviously, the excellent results reported here cannot be considered conclusive since only 12 animals were treated. It is also obvious that more research is necessary to define the action of vitamin C on viruses.

The author hopes that this report will encourage large-scale controlled investigation of the use of vitamin C in the treatment of the distemper complex under varied geographic and climatic conditions.



"So! Hundreds and hundreds of allergies, and you had to be allergic to wool!"