The processed serum from the donor dog is then administered to the Distemper patient.

NOTE: A donor dog may only be collected from ONCE.

The succeeding times that a donor dog becomes exposed to the NCD vaccine, the immune system response is no longer the same and the serum collected is virtually useless in treating Distemper.

The limitation of this procedure is that it is not known to cross the blood brain barrier, therefore, is ineffective against treating the neurologic phase of Distemper.

For more information on this procedure, check out *www.kindheartsinaction.com*

SEARS SERUM TREATMENT REGIMEN

3 subcutaneous injections within 36 hours, each given every 12 hours.

ADVANTAGES

- Regimen is more convenient, only lasts 36 hours
- Only 3 injections are necessary
- Less painful as injections are subcutaneous

DISADVANTAGES

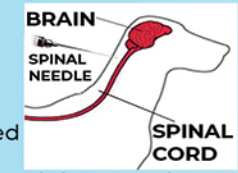
- Confinement is recommended since injections are given every 12 hours
- May be more costly due to confinement
- More difficult to find donor dogs per se
- More difficult to produce because donor dogs can only be exposed to the NCD vaccine and collected from once
- Ineffective against infection that has progressed to severe neurologic phase

Pendragon supply of Sears serum, if any, is limited and exclusively for their confined distemper patients.

3. **SPINAL TAP.** Also developed by Dr. Alson Sears, the procedure is actually considered as a last resort. This is the recommended treatment for patients who have progressed to the neurologic phase of distemper (muscle twitching, seizures, paralysis).

The first 2 treatment options are effective against systemic Distemper, however, it is ineffective against neurologic disease.

Because the blood brain barrier is a special structure that does not allow the crossing of most substance from the body to the brain, CANGLOB D and the SEARS SERUM BUT THERE IS HOPE even for severe cases with Spinal Tap.



Spinal Tap is done to directly introduce the New Castle Disease vaccine into the topmost portion of the spine giving way to an immune response that is created within the central nervous system. Therefore, the produced immune response that is able to kill the virus has direct access to the brain and destroys the virus found there. However, even when Spinal Tap is the recommended treatment, Sears serum treatment is still administered to help the patient's body deal with the systemic Distemper.

NOTE: Spinal Tap ***DOES NOT*** *treat any damage done to the nervous system.*

This treatment method is not without risks with 50% success rate. Again, one must note that the immune response from exposure to NCD vaccine that is capable of destroying Distemper happens only once. Therefore, patients that have been exposed to the NCD vaccine through IV injection or through intramuscular injection are not likely to produce the proper response to kill off the Distemper found in the brain.

This being the case, Pendragon vets DO NOT RECOMMEND using NCD vaccine IV or IM since this would eliminate the chance of full efficacy of a Spinal Tap should the pet owner need this procedure as a last recourse.

ADVANTAGES

- Able to treat neurologic phase of Distemper
- Method is relatively cheaper
- Only 1 single NCD vaccine Spinal Tap is needed

DISADVANTAGES

- Confinement is recommended since it is best to keep the patient under close observation following the Spinal Tap
- Procedure is high risk
- Patient needs to be sedated
- Vet must be adept in performing this procedure
- A severely debilitated patient will not produce the immune response

Remember a diagnosis of Canine Distemper is NOT a death sentence!
Nowadays there are treatment options available.

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CANINE DISTEMPER

Canine Distemper, also known as *"Old Dog Encephalitis"* or *"Hard Pad Disease"* is a highly contagious air-borne viral disease of the same family as what we would call measles in humans.

Although of the same virus family, the symptoms in dogs are rather different.

DISTEMPER is considered to have **2 phases.**
1st Phase consists of the following **SYMPTOMS:**

- biphasic fever (on and off fever, commonly occurring in the evenings)
- respiratory symptoms (coughing, sneezing, ocular and nasal discharge)
- and/or gastrointestinal disorders (diarrhea and vomiting)

During this phase, pet owners may often overlook the severity of the disease since symptoms often disappear on its own with or without treatment. However, it is not uncommon for **secondary bacterial infection** to set in when your pet is in an immuno-compromised state due to the distemper virus. During this condition, symptoms may seemingly resolve or improve with antibiotic therapy and supplements. This early stage of infection may last about a week or so. After which, the disease then goes into a **latent state** or a lull period. Because of this characteristic, some pet owners and vets tend to dismiss the illness as a simple respiratory infection or gastrointestinal disorder.

However, like a thief in the night, the virus attacks a second time after 3 to 4 weeks although in some cases, the virus has been known to strike even years after especially when the dog is old and weakened, thus the name *Old Dog Encephalitis.*

In the 2nd Phase, **NEUROLOGIC SYMPTOMS** become apparent such as

- involuntary muscle twitching
- difficulty in standing or walking
- "chewing gum" motions of the jaw
- paralysis

Along with the above symptoms, often noted but not necessarily in all cases, the pet's foot pad becomes very hard, hence the name *Hard Pad Disease*.

Ascending paralysis is commonly noted in Distemper patients, characterized by paralysis starting at the hind legs (may initially begin as just having difficulty in motion) then progressing towards the head, until full paralysis occurs and eventually, death.

KEY POINTS IN DETECTING DISTEMPER

- **UNVACCINATED.** A dog must be vaccinated for Distemper yearly. The vaccines given during puppyhood is not enough to protect them their whole lives.
- **HISTORY OF RESPIRATORY OR GASTROINTESTINAL SYMPTOMS** 3-4 WEEKS PRIOR.
- **SEVERE NASAL AND/OR OCULAR DISCHARGE.** Often yellow or yellowish green in color.
- **INVOLUNTARY MUSCLE TWITCHING.** Abrupt or jerky movement not just the usual twitching the owner notices when the dog is asleep or dreaming.
- **CHOREA.** Involuntary chewing motion of the jaw as if chewing an invisible gum.

- **FEVER.** Body temperature beyond 40°C and are difficult to bring down despite anti-piuretics.
- **HARD PADS.** Different from the normal toughening of pads from walking on the ground.
- **SEIZURES.** May be violent with high muscle involvement or may be mild with minimal visible signs.
- **PARALYSIS.** Whether initial difficulty in moving legs or full paralysis of the body.

HOW IS DISTEMPER DIAGNOSED?

Commonly available TEST KITS are:

RAPID TEST– detects antigens or the actual virus (looks similar to pregnancy tests) Samples that may be used are: blood/serum, feces, nasal or ocular swabs, spinal fluids.

ELISA (Enzyme Linked Immunosorbent Assay) TEST– detects distemper antibodies Samples used for this is blood/serum.

Not widely used in Philippine Veterinary Practice but Pendragon has this.

PCRUN TEST – PCRun goes through two basic procedures which includes the extraction of Distemper RNA from the sample collected. Then the test proceeds to detection of the presence of the RNA. If no RNA is found, then the test is negative for Distemper.
Samples that may be used are: blood/serum, feces, nasal or ocular swabs, spinal fluids

At Pendragon Veterinary Clinic, the preferred diagnostic test is ELISA. This test has proven to be more sensitive in our practice. There have been many instances where patients brought in exhibiting textbook symptoms of Distemper were found negative on rapid antigen test kits while it indicated as positive on ELISA.

However, the limitation of the ELISA test is when a patient does not mount a proper immune response to the disease or when the disease is in the early stages. **False Negative** results may occur in the ELISA test when exposure to the disease is only a few days old since the immune system generally takes 2 weeks to produce the antibodies for a specific infection.

Not to say that Pendragon does not use the rapid test kits. There have been occasions when lateral rapid tests have been preferred. For example, a patient that does not create immune response and is negative on ELISA, could come out positive on the lateral flow test kits. Therefore, both vets and pet owners should have an open mind to do a re-testing when necessary.

Vaccines against Distemper may cause reactions to the laboratory tests. In the event that a pet has been recently vaccinated, both rapid and ELISA test kits may indicate **False Positive** results. However, ELISA test has allowed the Pendragon vets to differentiate between antibodies caused by an infection exposed to protective antibodies through 2 types of ELISA tests.

ELISA test for Distemper Immunoglobulin M (IgM) antibodies

These are the first antibodies produced when an infections sets in or when an animal is exposed to a specific virus.

ELISA test for Distemper Immunoglobulin G (IgG) antibodies

These antibodies are considered to give a pet immunity against a disease and production of such usually take 3-4 weeks.

Because IgM is produced when a virus invades an animal, this response happens when an actual infection sets in or when a vaccine is given. Should a pet have been recently vaccinated and showing signs of distemper, diagnosis may be difficult, take longer and more expensive due to recommended multiple or serial testing but not impossible.

WHAT ARE MY TREATMENT OPTIONS?

For the longest time, distemper has been a dreaded disease because of its high mortality rate and very few treatment options. Very often, vets will simply advise clients to save their pet from the pain they would have to endure through the disease and to have their dog "put to sleep" or euthanized.

Today, however, recent developments in distemper treatment leave owners with some options.

1. **CANGLOB D.** Because Distemper is a viral infection, the most conventional mode of treatment for viruses (even in humans) is through administration of an Immunoglobulin specific to the virus being treated. Immunoglobulin are pretty much like a "soldiers" of the body's immune system and are manufactured as a response of the immune system to an "invader" which may be an actual infection or a vaccine.

When the immune system becomes overwhelmed fighting the infection, the body becomes sick and needs "reinforcements". These reinforcements could come in the form of administered immunoglobulin specific to Distemper to help the body fight off the infection.

The Distemper-specific immunoglobulin available in the Philippines is CANGLOB D although this treatment option is not popularly used in 1st world countries such as the U.S. and very little research is done on it.

CANGLOB D TREATMENT REGIMEN

Daily intramuscular injections for 7 to 10 days while 3 injections every 3 days are given as prophylaxis.

ADVANTAGES

- Confinement not necessary
- More readily available at any clinic
- Easily accessible through purchase from a veterinary supplier
- May be less costly
- May be used as prophylaxis option

DISADVANTAGES

- Less convenient due to daily trips required for the injections
- May be costly if confinement is opted (assuming clinic has special confinement facility for distemper patients)
- More painful injections due to daily intramuscular injections
- Ineffective against infection that has progressed to severe neurologic phase

2. **SEARS SERUM.** This treatment is considered unconventional. Discovered by Dr. Alson Sears, the method entails finding a donor dog and vaccinating this dog against New Castle disease virus, a highly contagious disease associated with local poultry and other bird species.

11 to 12 hours after the NCD vaccine is administered to a donor dog, the body creates an immune response that has been known to destroy the Distemper virus. Thus, 11 to 12 hours after NCD vaccine administration, blood is collected from the donor dog and the serum (clear portion of the blood) is processed.