



ACUTE IDIOPATHIC POLYRADICULONEURITIS

What is polyradiculoneuritis?

Polyradiculoneuritis represents the inflammation of the several motor nerve roots and subsequent peripheral nerves. Acute Idiopathic Polyradiculoneuritis (AIP) is the most common acute polyneuropathy in dogs and, less commonly, in cats. In some countries, it is also called "coonhound paralysis. This disease is also remarkably similar to Guillain-Barré syndrome in humans.

What causes acute idiopathic polyradiculoneuritis?

It happens due to an immune-mediated reaction to the axons and myelin sheaths, more intense at the level of the motor (ventral) nerve roots of the spinal cord. Generally, a cause for this inflammation is not found, however there has been the potential correlation of acute idiopathic polyradiculoneuritis related to a bite or scratch by a racoon (hence the coonhound paralysis), related with gastrointestinal infection with *Campylobacter jejuni* (associated with eating raw chicken) or even after vaccination (extremely rare). However, most dogs will develop clinical signs without exposure to any of these factors.

What are the clinical signs?

The hallmark clinical signs include an ascending flaccid weakness, that progresses to paralysis (absent movement in the affected limbs), typically starting in the hindlimbs and progressing towards the forelimbs. It may or may not also involve the cranial nerves (e.g. dysphonia and facial paralysis). Typically, sensation, autonomic systems (urination/defecation) and motor function of the tail are preserved. Very severe cases may progress to suffer respiratory failure, which will require ICU hospitalisation.

How do we investigate it?

This is typically diagnosed by history, progression, and signs compatible with polyneuropathy. It is important to rule out other potential causes of polyneuropathy. Investigations may include blood tests (including infectious diseases, antibody levels and metabolic function), imaging of the chest, electrodiagnostic testing and spinal fluid collection. Ultimately, nerve and muscle biopsy may also be recommended.

At Southfields we can provide all these tests and we have the experience to interpret them. Polyradiculoneuritis might present alike other neuromuscular disease therefore advanced testing by an experienced neurologist will be required.

What treatment is required?

There is no specific treatment for acute idiopathic polyradiculoneuritis. Despite having an immune-mediated basis, corticosteroid treatment has not been shown to be beneficial. There are some recent publications discussing treatment with plasmapheresis or human IV immunoglobulin, but further research is needed to support these options as beneficial to the patients.

Current therapeutic options are limited to supportive care and physiotherapy. Supportive care includes providing a well-padded and clean bed, regular turning (if the patient is unable to do it independently), provide easy access to food and water, while making sure that the meal is provided with the patient in an upright position. Pain-relief medication may be added to supportive as some patients may show signs of discomfort; this is thought to be related with the healing of the nerve.

Most cases will require close monitoring to assess for any worsening, particularly to monitor if the lungs are working adequately. Southfields provides 24-hour ICU care for monitoring and the possibility of mechanical ventilation, which may be required in the more severe cases.

What is the prognosis?

On average, pets show deterioration up to 10 days after the start of clinical signs, but this deterioration could be severe. Pets that develop a weak lung function may require mechanical ventilation and may be more susceptible to complications. If the lung function remains stable, then most animals will show a slow but progressive improvement over the following one to two months. Additionally, recurrence of the clinical signs may occur in the future, requiring a similar set of investigations and treatment protocol.

Polyradiculoneuritis might have overall a good prognosis, but we must insist that correct diagnosis could be difficult if the disease progresses rapidly, and advanced ICU care might be required in the presence of complications.

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