

# Atypical Traumatic Trigeminal Neuritis in a Labrador Retriever Dog: A Case Report

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## Abstract

*Acute trigeminal neuritis of traumatic origin was diagnosed in a middle-aged Labrador retriever dog based on clinical signs, such as dropped jaw, loss of corneal reflex, drooling of saliva, etc. Certain symptoms, such as Horner's syndrome, masticatory muscle atrophy, etc., were absent, while intact swallowing reflex, partial paralysis of tongue with lateral deviation were the atypical clinical signs. Complete recovery was observed within 45 days with supportive therapy and management by the client.*

**Keywords:** Atypical trigeminal neuritis, dropped jaw, labrador

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## INTRODUCTION

Idiopathic trigeminal neuritis is the most common neurological cause of acute, flaccid mandibular paralysis or dropped jaw in dogs [1]. Trigeminal is the 5th cranial nerve and is mixed in nature. It has three roots viz., ophthalmic (sensory), superior maxillary (sensory) and inferior maxillary (mixed). The sensory nucleus and tract of 5th cranial nerve are quite extensive. Hence, symptoms exhibited are often dependent on the part involved. There were papers describing bone deformities, tumours, etc. causing this condition. However, it appears that, a very few authors reported trigeminal neuritis of traumatic origin. In this paper, trigeminal neuritis of traumatic origin with atypical clinical signs has been reported.

## HISTORY AND CLINICAL EXAMINATION

A six-year-old labrador retriever dog was presented to the clinics with a history of inability to take food and lap liquids for the past few days. Just prior to this episode, the owner of the animal tried to offer water to the animal by keeping a running water pipe in the mouth of this dog after forcibly separating the jaws. This was very soon followed by hanging jaw and groaning sounds.

Clinical examination revealed that, the animal was dull in its demeanour, the lower jaw was

dropped (Figure 1), and the tongue was kept a side. The motor control over the tongue appeared lost and there was partial glossoplegia (Figure 2) with drooling of saliva. The tongue was found deviated towards left (Figure 3). The dog was anxious to take water but was submerging its head unusually into the water bowl but could not lap water (Figure 4).



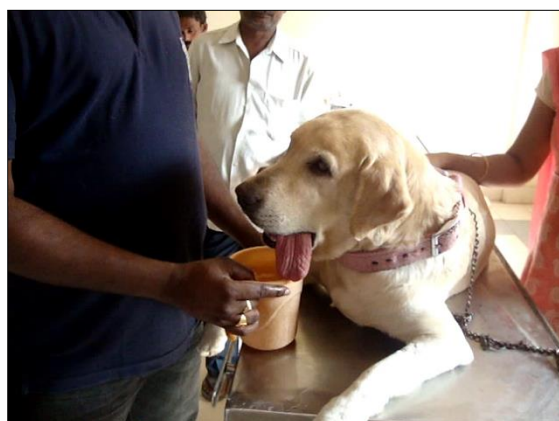
**Fig. 1:** Note Dropped Lower Jaw.

It was making futile attempts to bark. The movement of the eye ball was normal as observed during menace reflex. When the cornea was touched with a moistened cotton swab, no corneal reflex could be elicited. The left upper eyelid was drooping (Figure 5). The

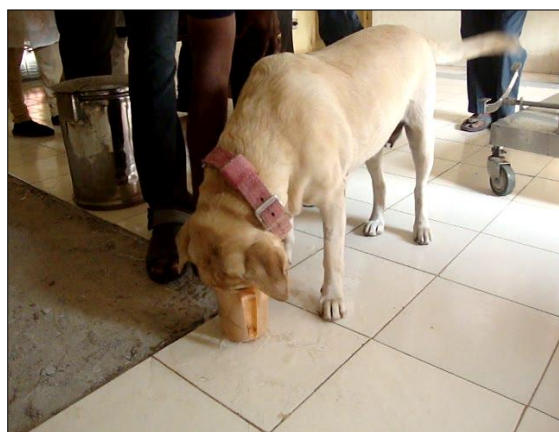
ears were drooping down and their movement was limited. It was able to respond to the commands of its owner by wagging its tail. The food was offered manually in the initial period of development of this condition. Gradually, swallowing was also found difficult. When manually fed, there was accumulation of food material between the teeth and cheeks.



**Fig. 2:** Note Partial Glossoplegia.



**Fig. 3:** Note Deviation of Tongue to Left Side.



**Fig. 4:** Note Abnormal Lapping Behaviour.



**Fig. 5:** Note Drooping of Left Upper Eyelid.

There was no history of dog bite and the temperature was normal. Deworming and vaccination schedules were promptly followed. The pulse and respiratory rates were also within physiological limits. Right and left lateral, dorsoventral and ventrodorsal views of skull were taken in order to rule out temporomandibular disarticulation. No skeletal abnormality could be identified, thus ruling out bilateral fracture or luxation of temporomandibular joints. Routine parameters of haematology and serum biochemistry were carried out, all of which were well within the reference ranges. Based on the history of known trauma, clinical signs such as acute onset of paralysis of jaw, dysphagia, loss of corneal reflex, etc., the condition were tentatively diagnosed as traumatic trigeminal nerve paralysis.

### TREATMENT AND DISCUSSION

An intravenous canula was fixed to the cephalic vein in order to aid in fluid therapy for a few days. Crystalloid solutions like, dextrose normal saline was administered at the rate of 80 ml/kg for the initial three days followed by 40 ml/kg for the next four days. A course of broad-spectrum antibiotics was started with ceftriaxone sodium at the rate of 25 mg/kg body weight IV. Injections of vitamin B<sub>1</sub>, B<sub>6</sub> and B<sub>12</sub> were given IM on alternate days for five occasions. Dexamethasone sodium phosphate injection was given at the rate of 0.5 mg/kg IM for three days consecutively and at the rate of 0.25 mg/kg for another three days thereafter.

The owner was advised to assist in feeding of the animal with syringes, etc. As the swallowing reflex was sluggish, mashed and

cooked apples along with honey were directly placed on the back of the tongue, at the palate-glossal arch, and both the jaws were held together with hands for a while and the head was raised at the time of swallowing. As the mouth was widely kept open due to paralysis of jaw, the task of feeding the animal became easier to the owner. Water was offered through baby feeding bottle by making a large bore at the tip of the nipple. Passive exercises like closing and opening the jaws for some time were advised to help restore the normal function.

Periodical reviews indicated slow, gradual and progressive response to the treatment. Initially, function of the tongue appeared to restore first followed by the slight movement of the jaws. The blinking reflex became functional. Assisted feeding was stopped after one week. Intravenous alimentation was stopped after one week. After one week, only physical therapy was followed besides oral supplementation of multivitamin and mineral drops. After 45 days, the dog resumed normal feeding habits.

Idiopathic trigeminal neuritis appears to occur in autumn with more common prevalence in middle-aged Golden retrievers [1]. In the present case, the aetiology appears to be traumatic as there was a clear history of traumatic insult, just prior to the exhibition of clinical signs and hence season appears to have no relevance in the current context. Trauma was also reported as one of the aetiological factors for trigeminal neuropathies in dogs [2]; while presence of effusion in the tympanic cavity was attributed to dysfunction of trigeminal nerve [3]. Lymphosarcoma, *Neospora caninum* infection and severe polyneuritis of unknown origin were thought to cause trigeminal neuropathy [4].

This was considered as atypical trigeminal neuritis as certain symptoms, such as Horner's syndrome, masticatory muscle atrophy etc., were not observed in the present case. As the disease was more acute in nature, paralysis of masticatory muscles could not be seen in the present case. Certain additional clinical signs like difficulty in deglutition, partial paralysis and deviation of tongue were also noted in the

present case. This could be due to direct trauma to the tongue at the time of offering water to the dog or involvement of lingual braches of mandibular nerve, as the latter terminates into lingual branches besides masseteric, deep temporal, pterygoid, superficial temporal, mandibular segments [5]. Contrary to the present observation, masticatory muscle atrophy and Horner's syndrome were diagnosed due to trigeminal and polyradiculoneuritis in a dog [6].

Diseases like luxation of temporomandibular joints were ruled out, as different views of skull radiographs depicted normal temporomandibular joints. Rabies was ruled out by the presence of normal demeanour, response to the commands of master, regular vaccination, absence of febrile episode, etc. Moreover, the clear history of forcible separation of jaws and violent way of offering water to the animal made the authors to diagnose the condition as traumatic trigeminal nerve paralysis. Advanced diagnostic modalities, such as histopathology at necropsy [6], magnetic resonance imaging [3, 7], computed tomography and electromyography [1], etc. were reported to be highly useful in establishing diagnosis.

Trigeminal neuritis is a self-limiting disease and there is no definitive treatment [8]. Hence in the present case, the client was oriented towards care of the patient besides supportive therapy. To relieve the severity of acute inflammatory sign, cortisones were tried with encouraging results. However, few authors [1] recommended not using cortisones. A large bore pharyngostomy tube was also recommended to ease alimentation [8]. As the swallowing reflex although sluggish, was intact in the present case, a stomach tube could not be tried and only fluid therapy was resorted to. The animal responded to the treatment in 45 days, and this finding was in agreement with those of several researchers [2, 8].

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