

# CANINE INTRACRANIAL LESIONS OF THE COMBINED GLOSSOPHARYNGEAL (IX), VAGUS (X) AND ACCESSORY (XI) NERVE ROOTS THROUGH THE JUGULAR FORAMEN DIAGNOSED WITH COMPUTED TOMOGRAPHY

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## 1. INTRODUCTION

Jugular Foramen Syndrome (JFS) or Vernet's Syndrome in humans is an uncommon condition causing clinical signs associated with combined paresis of the glossopharyngeal (IX), Vagus (X) and Accessory (XI) cranial nerves exiting the skull via the jugular foramen (JF)<sup>1</sup>. This case series illustrates the clinical presentations and primary and secondary CT findings of four dogs with intracranial lesions of this suspected nerve root bundle with distinct similarities to the condition seen in humans<sup>2,3</sup>.

Cranial nerve <sup>4</sup>	Motor function	Sensory function	Parasympathetic
Glossopharyngeal	Musculature of pharyngeal and palatine structures	Caudal 1/3 of tongue and pharyngeal mucosa (taste)	Salivary glands (parotid, zygomatic)
Vagus	Musculature of pharynx, larynx and esophagus	Pharynx, larynx, esophagus, thoracic and abdominal viscera	Thoracic and abdominal viscera (excluding pelvic region)
Accessory	M. Trapezius, M. Sternocephalicus and M. Cleidocephalicus	-	-



## 2. CLINICAL PRESENTATION

Four dogs presented with persistent coughing, gagging and/or retching that had non-specific mild changes on thoracic radiographs and were non-responsive to conservative management. No obvious neurological deficits were detected on routine physical examination. CT of the head, neck and thorax was performed as an appropriate next investigative step into their conditions.

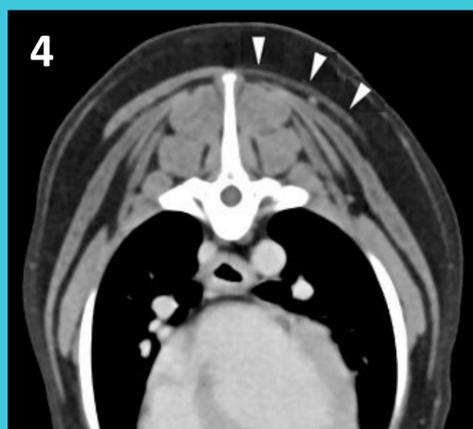
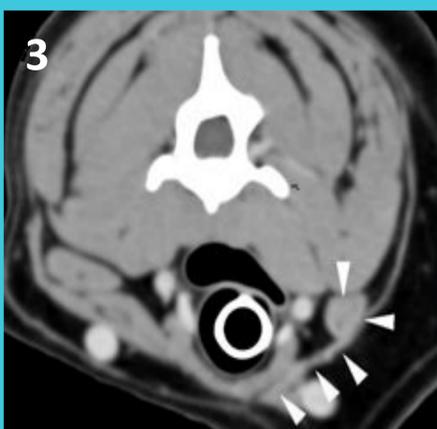


## 3. CT CHARACTERISTICS

Intracranial, extra-axial, soft-tissue attenuating strongly enhancing mass, centred on the cerebellomedullary angle, entering the JF (4/4). (Fig. 1)

Smooth widening of the bony JF (4/4). (Fig. 2)

Mild hyperostosis of the petrous temporal bone (3/4). (Fig. 2)



Isolated severe atrophy of the ipsilateral sternocephalic, cleidocephalic and trapezius muscles (4/4). (Fig. 3 and 4)

Ipsilateral ventrally positioned shoulder in sternal recumbency (random positional asymmetry is possible) (4/4).

Reduced ipsilateral laryngeal soft tissue volume due to suspected atrophy of the ipsilateral thyroarytenoideus and cricoarytenoideus muscles of the vocal fold (4/4).



## 4. DISCUSSION

This case series has identified an intracranial nerve root bundle lesion through the jugular foramen as a suspected rare, central cause of chronic coughing, retching and/or gagging. The primary and secondary CT characteristics are repeatable and specific in these 4 cases. The reported clinical signs and secondary CT features are consistent with those previously reported in human literature and reflect a unilateral paresis of the combined cranial nerves IX, X and XI. This uncommon diagnosis will be important for clinicians to recognise during their justified CT investigations of older dogs with chronic coughs, gags or retches that are unresponsive to conservative management.

### References:

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