



HICCUPS AS MENIFESTATION OF PARTIAL SEIZURE: A CASE REPORT.

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Conflicts of Interest: Nil

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Abstract:

Persistent hiccup is a rare condition, occasionally caused by central nervous system abnormalities. We report a 55 year old patient with daily hiccup events. A EEG recording showed sharp and slow activity over bilateral occipital region with generalization. This is the description of an epileptic patient with hiccups as the main seizure manifestation. The electrophysiological findings suggest a complex form of epilepsy and polysynaptic impulse transmission.

Keywords: hiccup, seizure, impulse, occipital, EEG.

Introduction

Persistent hiccups are infrequently described as manifestation of complex partial seizure, although they manifest with diverse ictal behaviours and phenomenon. Chronic hiccups represents a rare and potentially debilitating condition occasionally caused by central nervous system abnormalities (Loft and Ward, 1992).¹ Epilepsy has only rarely been suspected or described to be related to hiccups (Lin et al., 1998, Fogarasi et al., 2006; Ponnusamy et al., 2008)^{2,3,4}. We report, a patient with epilepsy and hiccup as the main seizure manifestation with concordant EEG findings, in whom hiccups occur towards the end of seizures.

Case Report:

A 55 year old female attended the Medicine OPD at GNRC MEDICAL with history of recurrent hiccups since 15 days. There was no similar episode in the past. There was no history of fever, cough, epigastric discomfort, headache or loss of consciousness. She was non diabetic and non hypertensive. The onset of hiccups was not

related to food nor there was any diurnal variation. It occurs around 5-6 times a day and last for around 1 to 2 hours. During the period she experiences dizziness and paresthesia all over the body. On examination, her neurological status was normal. The family and the patient's history were uneventful. Routine blood investigations were normal. A chest xray and upper GI endoscopy was done which revealed no abnormality. To rule out central cause, a routine video-EEG was done which showed low amplitude excess of beta background activity with sharp and slow activity over bilateral occipital region with generalisation (left>right). Additional investigations including high-resolution brain MRI gave normal results. The patient became seizure free with carbamazepine 600mg and lacosamide 100 mg.



Figure 1: Video EEG showing sharp and slow activity over bilateral occipital region with generalisation.

DISCUSSION:

The hiccup reflex consists of an afferent portion (vagus nerve, phrenic nerve, and sympathetic chain T6-T12), an efferent pathway (phrenic nerve), and a less well defined central part (Loft and Ward, 1992).¹ A putative primary hiccup centre has been localised in the medulla oblongata, but persistent singultus caused by brain pathology in the hypothalamus, reticular activating system, and temporal lobe demonstrates additional modulation by supratentorial structures (Loft and Ward, 1992; Ponnusamy *et al.*, 2008).^{1,4} This shows that activation or irritation of the reflex arc may occur at different levels in the CNS. Ponnusamy *et al.* (2008) hypothesized that ictal hiccups in their case were caused by abnormal thalamocortical excitation underlying absence seizures⁴. Fogarasi and co-workers (2006) briefly mentioned hiccups as an autonomic symptom in a child with temporal lobe epilepsy, yet the patient's complete seizure symptomatology was not given³. Hiccup has only rarely been reported as a seizure symptom (Lin *et al.*, 1998; Fogarasi *et al.*, 2006; Ponnusamy *et al.*, 2008).^{2,3,4} Lin *et al.* (1998) noticed brief expiratory vocalisations during seizures in six children with benign myoclonic epilepsy of infancy and speculated that

contractions of the diaphragm contributed to these noises, however, since the diaphragm functions purely during inspiration (Demoule *et al.*, 2003), this seems implausible.⁵ Fogarasi and co-workers (2006) briefly mentioned hiccups as an autonomic symptom in a child with temporal lobe epilepsy, yet the patient's complete seizure symptomatology was not given.³ Recently, Ponnusamy *et al.* (2008) reported on a girl with absence epilepsy who had hiccups during one of her absences.⁴ Our case differs from those reported by Fogarasi *et al.* (2006) and Ponnusamy *et al.* (2008), since hiccups constituted the major seizure symptom. Abnormal EEG findings together with normal development prior to epilepsy, normal neurological status, and absence of structural brain pathology are features of a primary generalised form of idiopathic epilepsy.

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