Interdisciplinary Neurosurgery: Advanced Techniques and Case Management 3 (2016) 1–2

Contents lists available at ScienceDirect

Interdisciplinary Neurosurgery: Advanced Techniques and Case Management

journal homepage: www.inat-journal.com

Case Report & Case Series (CRP)

Chronic subdural hematoma with persistent hiccups: A case report

Yushin Takemoto [a,*], Akihito Hashiguchi [b], Koichi Moroki [b], Hajime Tokuda [b], Junichi Kuratsu [c]

[a] Department of Neurosurgery, Kumamoto City Hospital, Kumamoto City, Kumamoto, Japan
[b] Department of Neurosurgery, Tokuda Neurosurgical Hospital, Kanoya City, Kagoshima, Japan
[c] Department of Neurosurgery, Kumamoto University, Kumamoto City, Kumamoto, Japan

ARTICLE INFO

Article history:
Received 13 October 2015
Accepted 25 October 2015

ABSTRACT

Supratentorial hiccup is a rare condition and no patients with persistent hiccups and chronic subdural hematoma have been reported. A 38-year-old man with intractable hiccups, headache, and nausea was admitted to our hospital. Computed tomography revealed a supratentorial chronic subdural hematoma on the left side. After burr hole surgery to remove the hematoma his hiccups disappeared immediately and he was discharged home on the 3rd postoperative day with no neurological deficits. Although the role of the supratentorial nervous system in hiccups is not clearly understood, supratentorial areas play an important role in the stimulation or suppression of the hiccup centers. Chronic hiccups may be a presenting symptom of chronic subdural hematoma attending headache with nausea if it has no gastrointestinal abnormality.

1. Introduction

A hiccup is a myoclonic jerk of the diaphragm due to spasmodic contraction of the inspiratory muscles [1]. Most hiccups are transient; in rare cases their duration can be long. Hiccups that last for more than 48 hours are categorized as persistent- and those continuing for more than 2 months as intractable hiccups. Collectively they are designated chronic hiccups [1].

Although hiccups may be attributable to gastrointestinal- they can be due to intracranial diseases [2,3]. Most intracranial lesions that elicit hiccups are located in the brain stem and hiccups attributable to supratentorial lesions are rare [2,3].

We report a very rare patient with persistent hiccups and a chronic subdural hematoma (CSDH) and present a literature review.

2. Case report

A 38-year-old man with a 5-day history of persistent hiccups, headache, and nausea visited our neurosurgical department. He had no relevant past medical history, no gastrointestinal diseases, and he did not recollect head trauma.

Other than persistent hiccups, physical examination disclosed no neurological deficits. Computed tomography (CT) showed a supratentorial CSDH on the left side (Fig. 1a). Magnetic resonance imaging (MRI) and angiography revealed no other intracranial abnormalities and he underwent burr hole surgery with simple drainage under local anesthesia.

Postoperatively his hiccups ceased immediately. CT showed disappearance of the CSDH on the 1st postoperative day (Fig. 1b) and he was discharged home on the 3rd day. At the last follow-up, 3 months after the operation, there was neither recurrence of the CSDH nor hiccups.

3. Discussion

Transient hiccups are not rare. Most are due to overdistension of the stomach from overeating, eating too fast, alcohol ingestion, tobacco use, or sudden changes in the gastrointestinal temperature [3]. Chronic hiccups, on the other hand, are uncommon and may be elicited by serious diseases. Gastrointestinal diseases tend to be responsible for chronic hiccups and approximately two-thirds of patients suffer gastroesophageal reflux [3].

Intracranial lesions due to trauma, tumor, stroke, degeneration, inflammation, and infection [1–4] may elicit chronic hiccups [1–4]. In a series of 50 patients, 5 of 9 with chronic hiccups and no clinical or gastroesophageal abnormalities manifested abnormalities on brain- and upper cervical cord MRI studies [3].

The hiccup reflex arc includes afferent inputs mainly from the diaphragm, stomach, esophagus, and the ear and nose. The main routes are the phrenic and vagus nerves and sympathetic nerve fibers (T-6 to T-12). The hiccup centers are thought to be located either in the brain stem close to the inspiratory centers or in the cervical cord between C-3 and C-5. The phrenic and vagus nerves constitute the main efferent path [3] and while most of the reported intracranial lesions were in the posterior fossa, some patients with chronic hiccups harbored supratentorial lesions [2,3].

Supratentorial areas, e.g. the hypothalamus, temporal areas, and the reticular activating substance, may play a role in the pathogenesis of

* Corresponding author at: Department of Neurosurgery, Kumamoto City Hospital, 1-1-60, Koto, Higashi-ku, Kumamoto City, Kumamoto, 862-8505, Japan. Tel.: +81 96 365 1711; fax: +81 96 365 1712.
E-mail address: yushintakemoto0129@gmail.com (Y. Takemoto).

http://dx.doi.org/10.1016/j.inat.2015.10.004

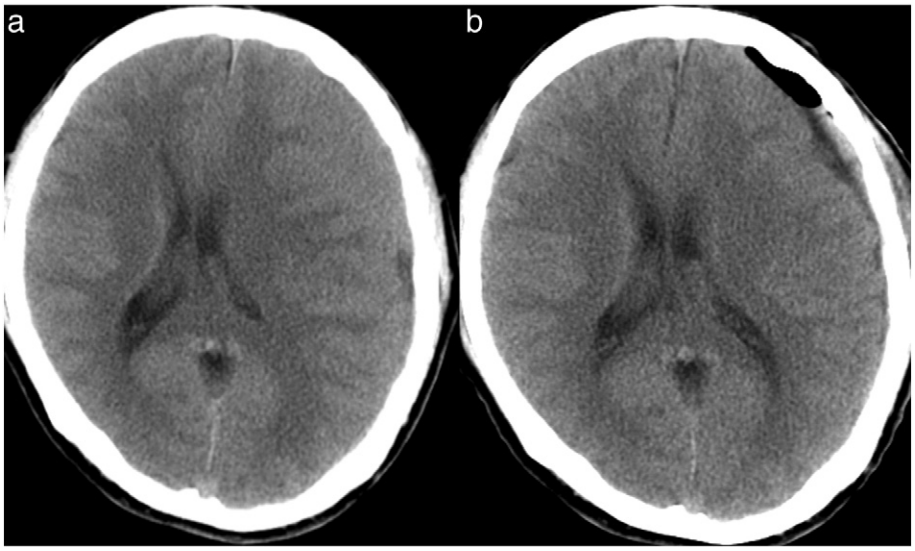

Fig. 1. Pre-operative CT scan showing a supratentorial CSDH and compression of the left hemisphere. a. CT scan obtained on the 1st postoperative day. Most of the CSDH had disappeared. Note recovery of the midline shift (b).

hiccups upon stimulation of the reflex arc or a decrease in the normal inhibition of hiccup neurons [2,3]. Consequently, abnormality in the course of the reflex arc may induce hiccups. In patients with chronic hiccups underlying diseases must be treated first. If their treatment fails to eliminate hiccups, pharmacological means, e.g. chlorpromazine, gabapentin, baclofen, serotonergic agonists, prokinetics, and lidocaine [1,4] and non-pharmacological means, e.g. nerve blocking, pacing, acupuncture, and breath-holding, are available [4].

We think that in our patient, compression by the left supratentorial CSDH, especially by the temporal lesion, led to the inhibition of the normal inhibitory hiccup neurons. His hiccups appeared with a headache approximately at the same time. Removal of the CSDH resulting in decompression and the restoration of the hiccup inhibitory system produced immediate disappearance of the hiccups. We never performed the drug treatment to him.

4. Conclusion

Ours is the first report of a CSDH patient with chronic hiccups. Although rarely, chronic hiccups may be a presenting symptom of CSDH attending headache with nausea if it has no gastrointestinal abnormality.

Conflict of Interest

None.

Consent

Informed consent was obtained for experimentation with human subjects.

Acknowledgements

There were no sources of funding. We thank Dr.Koichi Moroki for his full clinical support and professional advice.

References

[1] A. Naro, P. Bramanti, R.S. Calabrò, Successful use of tetrabenazine in a patient with intractable hiccups after stroke, Pharmacotherapy 34 (2014) e345–e348.
[2] C.M. van Durme, R.N. Idema, C. van Guldener, Two rare complications of glioblastoma multiforme: Persistent hiccup and acquired haemophilia A, Neth J Med 66 (2008) 286–288.
[3] K. Marsot-Dupuch, V. Bousson, J. Cabane, J.M. Tubiana, Intractable hiccups: The role of cerebral MR in cases without systemic cause, AJNR Am J Neuroradiol 16 (1995) 2093–2100.
[4] F.Y. Chang, C.L. Lu, Hiccup: Mystery, nature and treatment, J Neurogastroenterol Motil 18 (2012) 123–130.