Symptom of Hemifacial Spasm Is Not Affected By State of Consciousness: A Case Report

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Case report

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Abstract

Background: Hemifacial spasm is characterised by twitching of the muscles innervated by facial nerve. It is believed to result from hyperexcitability of the facial nerve nucleus or ephaptic transmission within the proximal facial nerve segment of the facial nerve nucleus. Often we observe spasm in an awakening situation. Actually contractions persist during sleep. To our knowledge, there were no reports on how it manifests under disturbance of consciousness. Herein we report a case whose symptoms sustained under coma status.

Case presentation: A 74-year-old female suffered from right side primary hemifacial spasm for 20 years and used to accept botulinum toxin injection in our clinic. Unfortunately she was carried to emergency department in our hospital after traumatic right pneumothorax by accident. During emergency rescue cardiac arrest and apnea happened. She was then hospitalized in emergency intensive care unit for further therapy. During hospitalization, she was under coma status. Vital signs were stable and symptoms of hemifacial spasm sustained. A multidisciplinary consultation was request to identify whether it was focal cortical seizures involving the right side facial muscles. Physical examination revealed brief involuntary clonic or tonic contractions accompanied with the 'Babinski-2' sign. Synthesize the relevant data including past history, clinical manifestation and negative head computed tomography scanning, diagnosis was made as hemifacial spasm. Herein symptoms of hemifacial spasm were not life threatening and anti-epileptic drug was not necessary.

Conclusions: It's better for nonspecialists to prompt diagnose instead of under or misdiagnose the symptoms as seizures as inappropriate diagnostic or therapeutic measures may be taken inadvertently.

Background

Hemifacial spasm (HFS) belongs to movement disorders duo to mechanical irritation of the facial nerve after its exit from the brainstem which is characterised by either brief or persistent twitching of the muscles innervated by the nerve. Although HFS is not dangerous, it often leads to social embarrassment and interference with vision from involuntary eye closure leading to functional disability [1–3]. The hallmark of the disease is involuntary clonic or tonic contractions of the muscles of facial expression, usually unilateral but rarely presents bilaterally, beginning in the periorbital musculature usually the low eyelid, and later on progressing to the perioral, platysma and other muscles of facial expression [4]. Symptoms of HFS present at rest, contractions of the muscles deteriorated under stress. Unlike other movement disorders, contractions persist in sleep which may add to the morbidity of the condition by predisposing the affected individual to disturbed sleep and insomnia. One recent research using facial electromyogram and electrocardiogram overnight indicated that wake or light sleep stages were more often accompanied by HFS [5]. The percentage of abnormal contraction of facial muscles in sleep was as high as 80% which influence sleep quality. To our knowledge, there were no reports on how HFS manifests under disturbance of consciousness. Herein we report a case of primary HFS whose symptoms sustained under coma status.

Case Presentation

A 74-year-old female suffered from right side primary HFS for 20 years and had no other illnesses used to accept botulinum toxin injection in our clinic. Unfortunately she was carried to emergency department in her right senses after traumatic right pneumothorax by accident. During emergency rescue cardiac arrest and apnea happened simultaneously and she lost consciousness. Cardiopulmonary resuscitation followed by tracheal intubation and closed drainage of pleural cavity were executed immediately by emergency physicians. Her heartbeat resumed about 3 minutes later. However, her consciousness did not return to normal. Then she was hospitalized in emergency intensive care unit for further therapy including tracheotomy afterwards. During hospitalization, the patient was under coma status. Vital signs were stable and symptoms of HFS sustained. A multidisciplinary consultation was request to identify whether it was focal cortical seizures involving the right facial muscles. Though she was under coma status and on a life-support machine, specialized neurological examination revealed right side facial musculature involved in involuntary movement. Brief involuntary clonic or tonic contractions were observed, especially deteriorated when medical operation such as dental assisting was carried out as kind of stimulation. Her orbicularis oculi and eyelids contracted, internal part of the frontalis contracted and ipsilateral eyebrow risen (supplemental figure/video). Synthesize the relevant data including past history, clinical manifestation and negative head computed tomography scanning, diagnosis was made definitely as right side HFS. Herein symptoms of HFS were not life threatening and anticonvulsants was not necessary. Essential therapy should be focused on life supporting and arousing.

Discussion And Conclusions

There was one significant diagnostic clue as orbicularis oculi and eyelids contracting, internal part of the frontalis contracted and ipsilateral eyebrow rising. So called the 'Babinski-2' sign, 'the other Babinski sign' or 'brow lift sign' and was firstly described by Babinski in 1905 [6–9]. It means the synchrony of the temporal and zygomatic branches of the facial nerve causing simultaneous contraction of the frontalis and orbicularis oculi muscles, which is missing from other facial spasm disorders, such as blepharospasm and hemifacial seizures. While the sensitivity is 86 %, the specificity is nearly 100 % for HFS, and among trained professionals, there is a high consensus in identification of this sign which cannot be voluntarily reproduced by an individual [10].

Most often we observe HFS in an awakening situation. Researches involving 16 and 12 patients respectively using polysomnography indicate that HFS do not disappear in sleep but may decrease in strength of muscle contraction significantly compared to the wakeful period [11–12]. Moreover in patient under disturbance of consciousness symptoms of HFS sustained as we reported.

Though HFS is a well-recognized disorder among movement disorder specialists, similar conditions can at times imitate its appearance such as partial motor seizures. It's better for nonspecialists to prompt diagnose instead of under or misdiagnose the symptoms as focal cortical seizures involving the facial muscles for example [13]. It is important to distinguish the two entities especially in emergency

department and intensive care unit, as seizures are common to handle with and misdiagnosis or inappropriate diagnostic or therapeutic measures may be taken inadvertently [14–15]. Once confused in diagnosis electroencephalogram and multidisciplinary consultation should be strongly considered in patients with isolated facial movements of unknown or unclear etiology [16]. However our patient was in a critical condition and on a life-support machine, it was unrealistic to execute electroencephalogram and facial electromyogram accompanied with abnormal muscle response. HFS may be treated surgically or with oral medications, such as benzodiazepines, baclofen, and anticonvulsants if possible, but botulinum toxin injections are generally considered to be the treatment of first choice [17]. Herein symptoms of HFS were not life threatening and anticonvulsants were not necessary [18].

In our case we demonstrated how HFS manifests under disturbance of consciousness and multidisciplinary consultation makes diagnosis and subsequent therapy proper.

Abbreviations

HFS, hemifacial spasm.

Declarations

- Ethics approval and consent to participate

The case report was approved by the First Affiliated Hospital of Dalian Medical University Ethics Committee.

- Consent for publication

We have obtained written informed consent for this publication from the patient's family.

- Availability of data and materials

Not applicable.

- Competing interests

The authors declare they have no competing interests.

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- Authors' contributions

TL: is the first author, and write the manuscript. ZF: work for treatment of the patient and draft preparation. CS: and ZL: work for review and critique the article. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

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Figures

Figure 1

The patient was under coma status tracheotomy on a life-support machine. Contractions of right side muscles of facial expression existed. She also presented with paradoxical rising of the eyebrow as the orbicularis oculi contracted.

Supplementary Files

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