



A Rare Combined Trigeminal Neuralgia with Hemifacial Spasm in a 78-Year-Old Male Patient



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ABSTRACT

Background: Combined trigeminal neuralgia (TN) with hemifacial spasm (HFS) is a rare pathological condition. Microvascular decompression (MVD) can be used to treat combined TN and HFS in a single procedure with good outcome, mild complication, and low recurrence rate.

Case Presentation: A 78-year-old male patient has presented with stabbing-like pain over the right side forehead and upper cheek since 2014. He also presented with twitching on the right eyelid and forehead since 2016. He already taken a medication with anticonvulsant but the pain does not decrease at all. Physical examination revealed an increasing pain to light touch over the ophthalmic and maxillary distribution of right trigeminal nerve (N.V). No abnormalities found in the facial nerve (N.VII). Magnetic resonance examination (MRI) examination revealed compression of right N.V by right superior cerebellar artery (SCA) and no compression found in the N.VII. This patient is treated with MVD and we found out a compression of right N.V by right SCA and N.VII from right anterior inferior cerebellar artery (AICA). Postoperatively, the symptoms resolved with a transient hypoesthesia and no recurrence after 1 year follow up.

Conclusion: Combined TN and HFS is a rare finding and seldom addressed. This pathological condition is found to be caused by progressive atherosclerotic changes in elderly populations that lead to elongation of blood vessels and contact the nearby nerve structure. MVD can be done safely in elderly patients with a good outcome and a mild transient complication such as hypoesthesia and low recurrence rate of symptoms.

Keywords: hemifacial spasm, microvascular decompression, trigeminal neuralgia

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INTRODUCTION

Combined trigeminal neuralgia (TN) with hemifacial spasm (HFS) is a rare pathological condition and could be caused by compression of the cranial nerves by adjacent vascular structures. This condition is also called combined hyperactive dysfunction syndrome (HDS). Combined HDS comprised only 3% of all patients with HDS, with combined TN with HFS only account for 7.3% (3 of 41 combined HDS cases), 13.5% (5 of 37 combined HDS cases), 27.4% (14 of 51 combined HDS cases), and 31.8% (14 of 44 combined HDS cases) of all patients with combined HDS in a reported studies. (1-4) We report a case of 78-year-old male patient that suffered from combined TN with HFS in whom a T1 and T2 magnetic

resonance imaging (MRI) showed a neurovascular contact of the right superior cerebellar artery SCA with the right trigeminal nerve (N.V) root entry zone. This patient treated with microvascular decompression (MVD). This operation produce a good postoperative outcome with no recurrence of symptoms after 1 year follow up.

CASE PRESENTATION

History

A 78-year-old male patient presented with a primary chief complaint of pain over the right half of his face, especially the right forehead and upper cheek since 2014. The pain was triggered when the patient wraps his right face, exposed to the gusts of wind, eating, and also triggered simultaneously

when the patient does nothing. This pain has a characteristic of stabbing-like pain that last about 1 minutes, which occur for about three times a day with a frequency of more or less than 6 days a week. He already takes a combination of anticonvulsant for about 5 years but the pain does not decrease at all. The patient also complains a twitching over the right eyelid and forehead a three years prior. For a month, the frequency is about seven times a week. The patient and his family had noticed that the twitching on the right eyelid and forehead still persist even when he fell asleep. The patient does not complaint a weakness on the right side face, decrease in hearing, dizziness or loss of balance. The family history did not suggest the presence of any familial

disease, multiple sclerosis, and specifically neither TN nor HFS had been reported in any relative.

Examination

The patient visual analog scale (VAS) is eight, the Barrow Neurological Institute (BNI) Pain Intensity Scale is 4, and the physical examination had revealed an increased sensitivity to light touch over the right side face innervated by ophthalmic and maxillary distribution of the N.V. No abnormalities found over the mandibular distribution of the right N.V. There are no asymmetry and abnormalities in the muscle innervated by both facial nerve (N.VII). The examination of both vestibulocochlear nerve (N.VIII) includes bing, Rinne's, Schwabach's, Weber's, and Romberg's test found no abnormalities over the distribution of this nerve. There are no abnormalities on other cranial nerves.

Radiology Studies

The non-contrast T1 and T2 MRI showed a neurovascular contact of the right SCA with the right N.V root entry zone (Figure. 1). There are no compression found over the N.VII structure.

Operation

The patient was placed in left lateral decubitus position. The operation was done in a retrosigmoid approach that bordered by transverse sinus superiorly and the sigmoid sinus laterally. The cerebellar hemisphere is retracted and the arachnoid membrane is dissected. The N.VII & N.VIII complex are encountered from the root entry zone until the distal part enter the meatus. This structure is compressed by AICA along the lateral side of N.VII/VIII complex (Figure. 2A). A shredded teflon implant is interposed between the anterior inferior cerebellar artery (AICA) and VII/VIII complex (Figure. 2B). The operation moved into the right N.V structure. Adjacent vascular and arachnoid membrane is dissected off and the N.V is seen clearly from the root entry zone to the distal part. The SCA is seen and compress the axillar side of the N.V (Figure. 2C). The shredded Teflon implant is interposed between the N.V and SCA complex (Figure. 2D).

Postoperative Course

This patient is observed overnight in the intensive care unit (ICU) and given intravenous (IV) ceftriaxone 2x1 gr; IV omeprazole 2x40 mg; IV ketorolac 2x30

mg; IV plasminex 3x500 mg; IV vitamin K 3x40 mcg; and IV dexamethasone 3x5 mg. He does not complained any pain and spasm after the operation, so the post-operative BNI Pain Intensity Scale

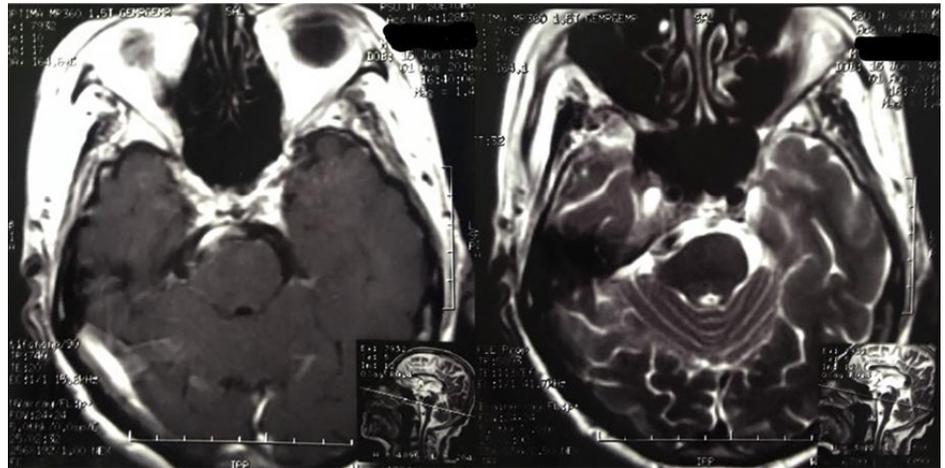


Figure 1. Non-contrast T1 and T2 MRI

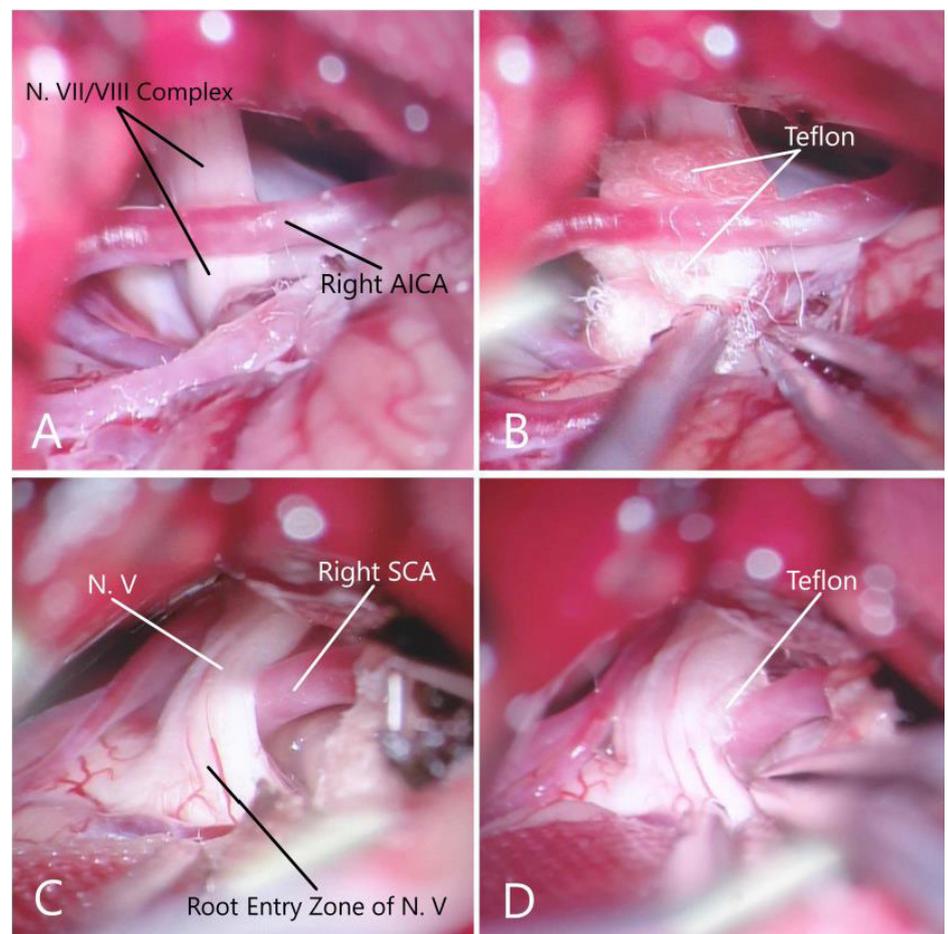


Figure 2. Intraoperative approach to the neurovascular contact site. A: N.VII/VIII complex compression by right AICA. B: Decompression with Teflon implant. C: N.V compression by right SCA and D: Decompression with Teflon implant. Abbreviations: N, nerve; V, trigeminal; VII, facial; VIII, vestibulocochlear; SCA, superior cerebellar artery; AICA, anterior inferior cerebellar artery.

in this patient is one and it is considered a satisfactory outcome. He had a mild complication such as hypoesthesia over the right-half face that resolved until post-operative day 3. The patient does not complained any dizziness, nausea, decreased in hearing, and paralyzed over the right half face. After the patient is stabilized and the hypoesthesia is resolved, the patient is discharge on post-operative day 4. There are no recurrence in pain and spasm after 1 year follow up in this patient.

DISCUSSION

Development of combined TN, HFS, and glossopharyngeal neuralgia that caused by vascular compression of the cranial nerve was defined HDS of the cranial nerve. Combined HDS is a rare cases and seldom addressed. It only comprised 3% of all HDS patients. Specifically, combined TN and HFS only range from 7.3% (3 of 41 combined HDS cases), 13.5% (5 of 37 combined HDS cases), 27.4% (14 of 51 combined HDS cases), and 31.8% (14 of 44 combined HDS cases).¹⁻⁴ This rare cases has been reported by several studies. Cao J et al series reported a combined HDS only comprised 44 (3.03%) of 1450 patients with HDS, including combined TN and HFS in 14 cases.¹ Kobata H et al also reported a combined HDS in 41 (2.8%) of total 1472 patients suffered from HDS and found out only 3 patients presented with TN and HFS.² Yang KH et al reported a series of combined HDS accounted for 51 (2.97%) of total 1720 HDS patients, with combined TN and HFS only represented in 14 cases.³ Zhang YQ et al reported in a total 1275 HDS patients, 37 (2.9%) of patients suffered combined HDS, included 5 patients with TN and HFS.⁴ Combined HDS has been reported to associated with aging, hypertension, and female gender. Progressive atherosclerotic vascular changes in a elderly patient have lead to elongation of the vessels and contact the nearby nerve structures. This condition can be developed more often if associated with hypertension.¹⁻⁴ This patient have an aging factor that have been associated with the risk factor to developed this condition.

The MRI examination in this patient show the N.V is compressed by adjacent vascular structure, but does not prove any

compression along the N.VII. In Geneidi et al series of 45 patients who suffer from TN, reported that the MRI could depict the etiology in 25 patients, but not in the other 20 patients.⁵ In Hitchon et al series of 51 patients with TN and 12 with HFS, the MRI shows a compressed nerve that was congruent with the operative findings in 84% of patients with TN and 75% in HFS.⁶ Thereby, the diagnostic of TN and HFS should be based on clinical diagnosis and not visualization of a compressing vessel by MRI. MRI should be viewed as supportive rather than diagnostic.^{5,6}

We considered to do a MVD procedure because of the better outcome in relieving the pain and spasm, have a lower complication rate and side effect, and it is suitable for elderly patient, especially without a comorbid condition, with an outcome could be the same as or better than younger patients.^{1,2,7-11} Most of reported cases performed a single surgery with satisfactory outcome, low complication, and low recurrence rate.^{1,2,4,12-14} Some complication from MVD have been reported in several studies and the most reported is transient hypoesthesia, followed by hearing loss, facial palsy, cerebellar hematoma, supratentorial subdural hemorrhage, CSF leak, and meningitis.¹⁵⁻¹⁸ This patient only suffers a transient postoperative hypoesthesia over the right half face and resolved in postoperative day 3. Taking all together, this procedure have been done with a good result in patient who suffer from combined TN and HFS, which had been supported by several reported studies and literatures.

CONCLUSIONS

Combined TN and HFS caused by a compression by vascular structure is a rare finding. The diagnosis is based on history and physical examination. MRI examination should be viewed as supportive rather than diagnostic. MVD is one of the accepted invasive procedures to treat TN and HFS in a single procedure. This procedure result a good outcome, mild transient complication such as hypoesthesia, and low recurrence rate of symptoms.

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Conflict of interest

There are no conflicts of interest

Ethical approval

No ethical approval is needed

Authors' contributions

1. Christopher Lauren : concepts; design; literature search; manuscript preparation; manuscript editing; manuscript review
2. Vito Masagus Junaidy : manuscript review
3. Yohanes Firmansyah : design; manuscript preparation; manuscript editing
4. Elric Brahm Malelak : concepts; design; manuscript preparation; manuscript review; guarantor
5. Donny Argie : concepts; design; manuscript preparation; manuscript review; guarantor

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