

# Cervicogenic Headache and Migraine in a Patient with Arnold-Chiari Syndrome Type I: Case Report

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## OBJECTIVE:

To describe the case of a patient with cervicogenic headache associated (CH) with Arnold Chiari Syndrome Type 1 (CM-I) co-existing with chronic migraine (CM), and to discuss the applicability of botulinum toxin in this context.

## METHODS:

A 59-year-old female referred to our headache clinic complaining of daily headache attacks characterized by severe pulsatile pain diffusely distributed on the scalp and associated with nausea. She also reported continuous neck pain and postural imbalance. The patient had a previous diagnosis of CM-I associated with cervical syringomyelia, platybasia and an arachnoid cyst in the posterior fossa. Despite decompression surgery in 2004, the patient persisted with hypotrophy of left hemitongue (figure 1), left sternocleidomastoid atrophy (figure 2B), right laterocollis associated with torticollis (figure 3), dysmetria and gait ataxia. There were also compensatory hypertrophy of the right levator scapulae and splenius capitis. After the diagnosis of CM and CH, multiple botulinum toxin type A (BTA) applications in cervical muscles and migraine prophylaxis with venlafaxine 150mg/day and propranolol 80mg/day were performed, with complete remission of headache attacks after 6 months of follow-up.

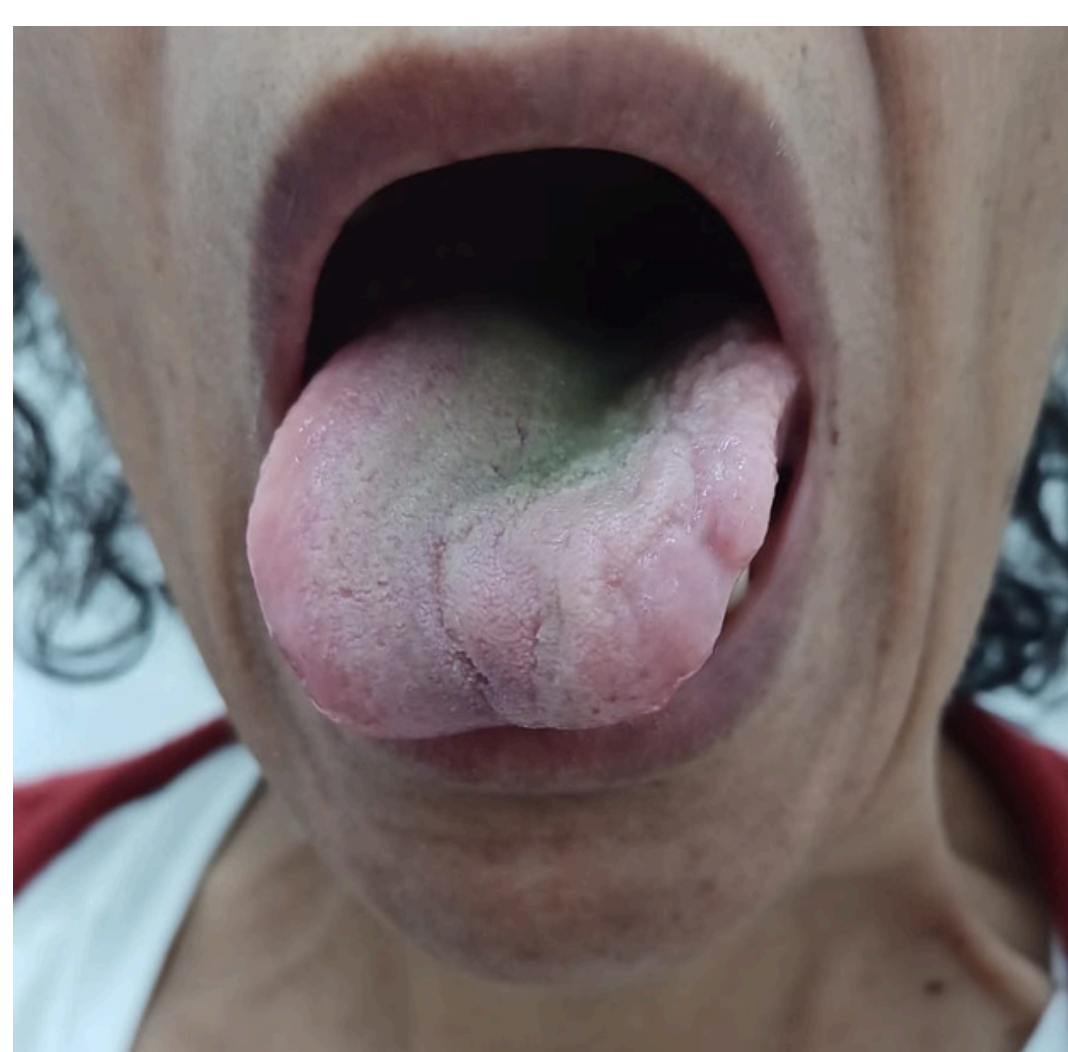


Figure 1: hypotrophy of left hemitongue

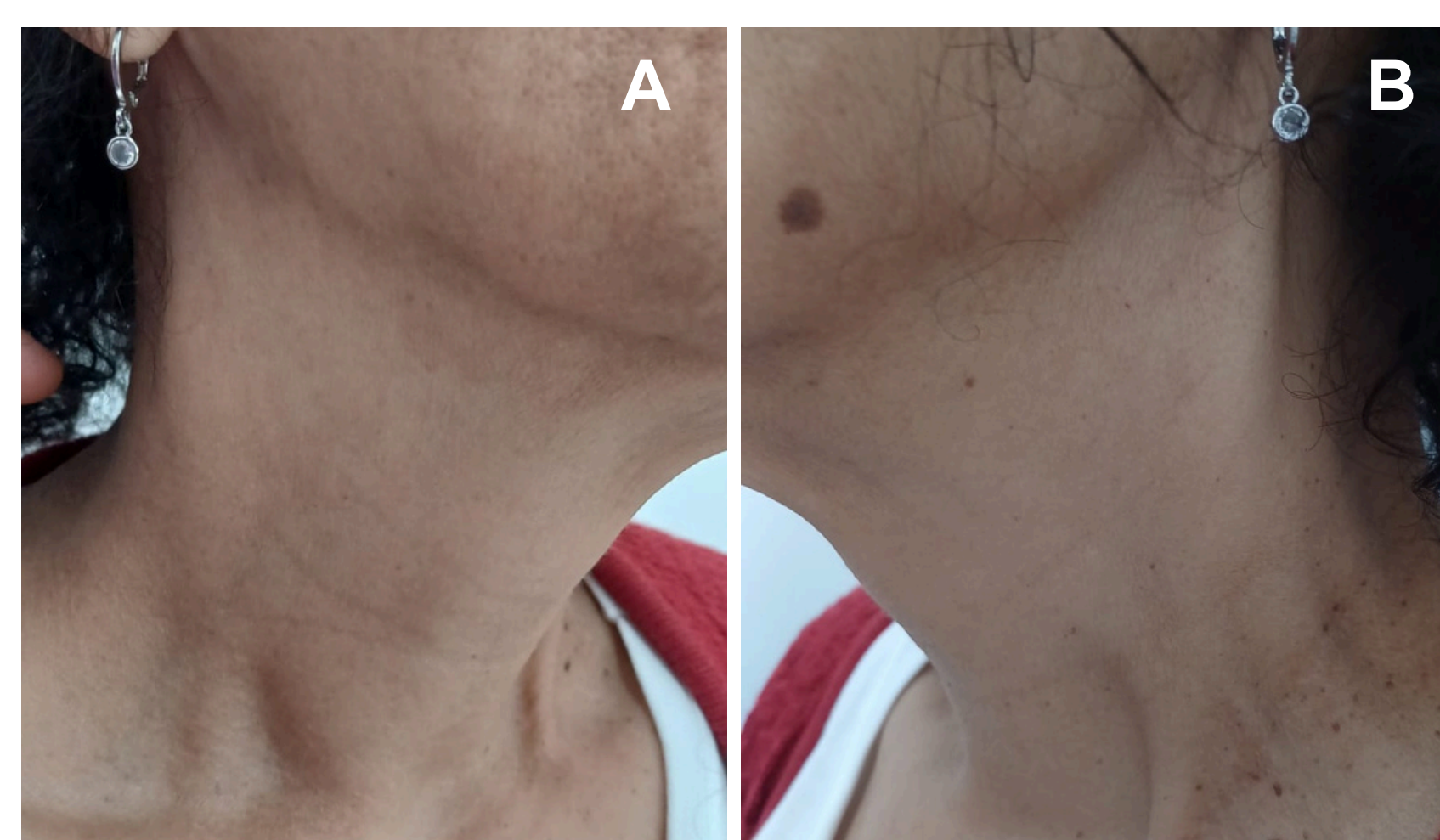


Figure 2: A- normal right side  
B- left sternocleidomastoid atrophy



Figure 3: Right laterocollis associated with torticollis, with the chin pointing to the left

## RESULTS:

Migraine is a characteristic headache whose pathophysiology involves trigeminovascular system hyperactivation<sup>1</sup>. However, in some cases, headache attacks may have mixed features when associated with musculoskeletal or craniocervical causes. The CM-I is a congenital malformation characterized by cerebellar tonsil descent through the foramen magnum<sup>2</sup>, causing dysmetria and gait ataxia. However, it may also affect cranial nerves and CH. In the present case, we postulate that CH may have triggered migraine headaches or contributed to transforming episodic into CM. Indeed, the trigeminal-cervical complex is where sensory fibers of the trigeminal nerve and upper cervical roots (C1-C3) converge, which explains the relationship between cervicogenic headache and migraine<sup>3</sup>. The BTA use might promote cervical postural correction by muscle activity reduction and help control pain by influencing central desensitization<sup>4-5</sup>.

## CONCLUSION:

This report broadens the understanding of the pathophysiology of mixed CH and migraine and highlights the value of BTA in treating such cases.

## REFERENCES:

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