

# A rare case of a T2D patient with hemitongue atrophy

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## Background/Introduction

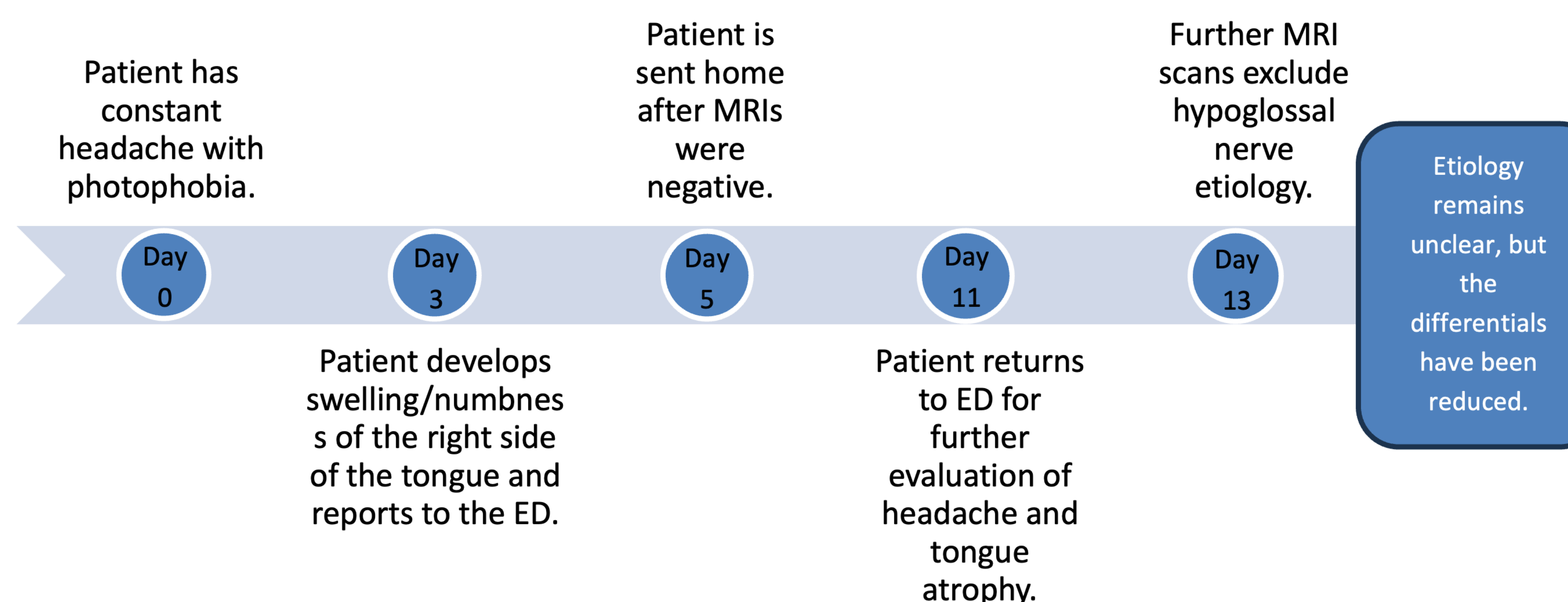
### Objectives

The exposition of uncommon tongue pathologies hemitongue atrophy (HT) and atrophic glossitis (AG) in the context of an idiopathic case study of a 72-year-old patient with type-2 diabetes and fibromyalgia. After considering the pathophysiology of HT and AG, multiple potential differentials are discussed and evaluated in the case to demonstrate the important diagnostic processes, current treatment recommendations, and outcomes associated with tongue atrophies.

## Case Presentation

- A 72-year-old diabetic & hypertriglycemic female entered ED with a persistent, throbbing headache in forehead and right temple and swelling/numbness on the right side of her tongue.
- Rx → metformin, semaglutide for diabetes; rosuvastatin for high triglycerides; sumatriptan and acyclovir for headache & other symptoms (no lasting relief)
- Labs (Figure 1) unremarkable; Brain MRI (Figure 2) showed only minimal periventricular and subcortical microvascular ischemic white matter change.
- Admitted & released after two days
- Went to another ED two weeks later when conditions persisted.
  - Tongue atrophy had progressed to cause dysphagia, loss of taste, and speech apraxia, and aspiration precautions were implemented.

## Hospital Course



## Diagnostics & Imaging

| Observations   | Patient (in ED)   | Normal Ranges                                      |
|----------------|---|--|
| Blood Pressure | <b>180/76 mmHg</b>  | <120/80 mmHg<br>Patient Daily Checks: 140-150/80s  |
| Lipid Panel    | TC: 110<br><b>HDL: 35</b><br><b>LDL: 55</b><br><b>TG: 228</b> | TC: <200<br>HDL: 60-150<br>LDL: 100-129<br>TG:<150 |
| HbA1c          | <b>6.5%</b>   | <6%  |
| TTE            | Good systolic & diastolic function<br>RSVP: 34 mmHg           | RSVP: 20-30 mmHg                                   |

Figure 1: Lab results

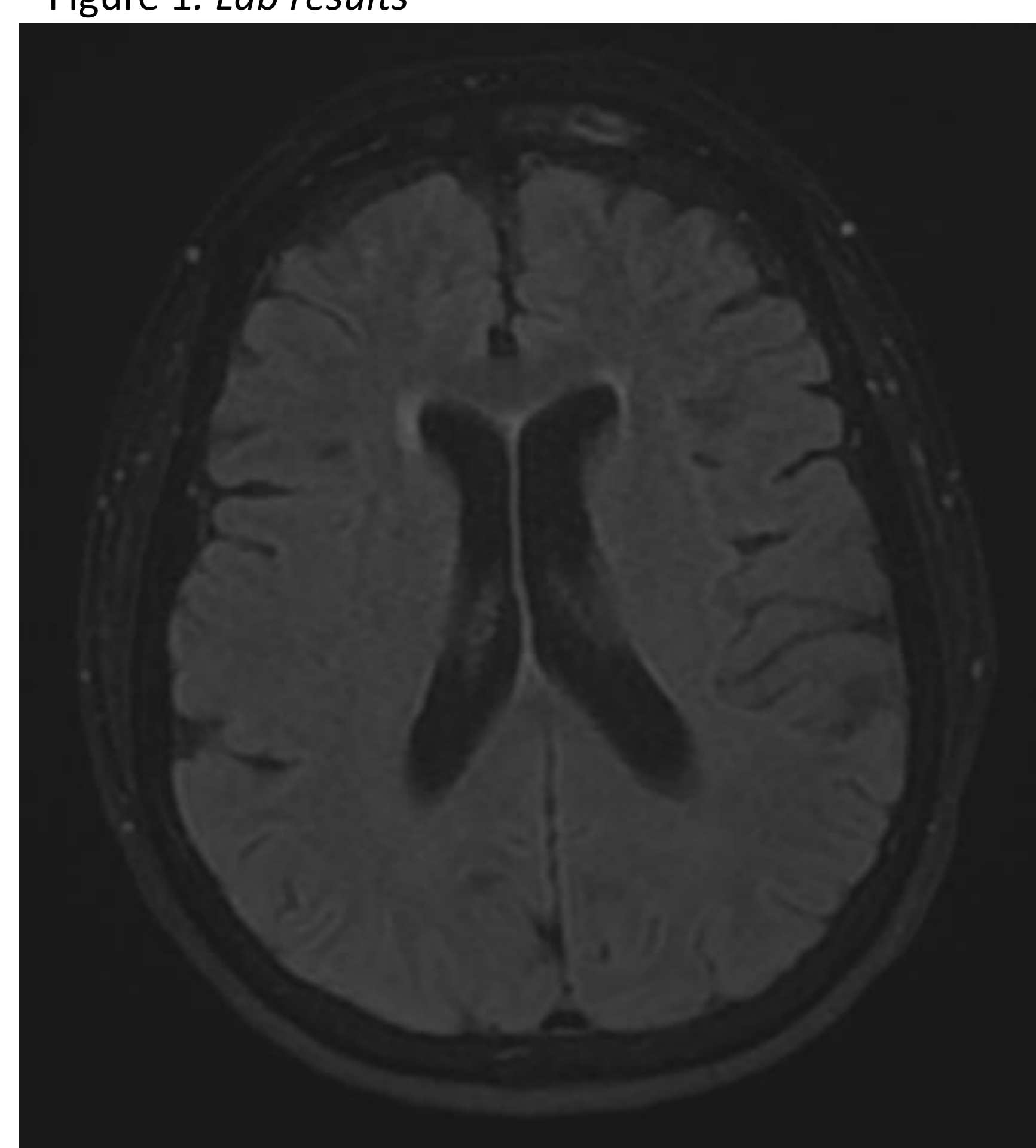


Figure 2. MRI Brain Scan from first ED visit showing no acute processes.



Figure 3. Gaillard F, Schwannoma of the hypoglossal nerve. Case study, 31 Mar 2023

## Discussion

### Possible Causes

#### T2D:

- HT/AG has been observed to have a higher prevalence among diabetic individuals

#### Fibromyalgia:

- Individuals with Fibromyalgia have been found to have impairments in the 12<sup>th</sup> cranial nerve, inducing tongue atrophy.

#### Pharmacological:

- Rosuvastatin lowers cholesterol levels, a trend found among AG presentations.
- Statins have also been associated with oral dysesthesia, which is another symptom of HT/AG.

Other: Hypoglossal nerve involvement, autoimmune disorders, some radiation therapy, nutritional deficiencies, autoimmune disorders

Diagnosis: Imaging for hypoglossal nerve involvement. Speech evaluation for dysarthria and dysphagia, physical examination

#### Exclusions in this case

- Hypoglossal nerve, autoimmune disorders

## Conclusion

This was an idiopathic case of tongue atrophy. While the etiology remained unclear, neurological causes were excluded. The patient's history reveals multiple avenues for HT/AG onset, thus showing a neurological issue is not always the source of concern.

## References

- Roy B, Bakradze E, Ollenschleger M, Felice K. Isolated Tongue Hemi-Atrophy from Hypoglossal-Vertebral Entrapment Syndrome (P3. 377). AAN Enterprises; 2016.
- Chiang C-P, Chang JY-F, Wang Y-P, Wu Y-H, Wu Y-C, Sun A. Atrophic glossitis: Etiology, serum autoantibodies, anemia, hematinic deficiencies, hyperhomocysteinemia, and management. Journal of the Formosan medical association. 2020;119(4):774-780.
- Erriu M, Pili FM, Cadoni S, Garau V. Diagnosis of Lingual Atrophic Conditions: Associations with Local and Systemic Factors. A Descriptive Review. Open Dent J. 2016;10:619-635. doi:10.2174/1874210601610010619
- Lin HC, Barkhaus PE. Cranial nerve XII: the hypoglossal nerve. © Thieme Medical Publishers; 2009:045-052.