



Black Hairy Tongue as a Side Effect of Immune Checkpoint Inhibition: A Case Report



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Background

Immune checkpoint inhibitors (ICIs), including PD-1 inhibitors like **pembrolizumab**, are widely used in melanoma, NSCLC, and HNSCC.

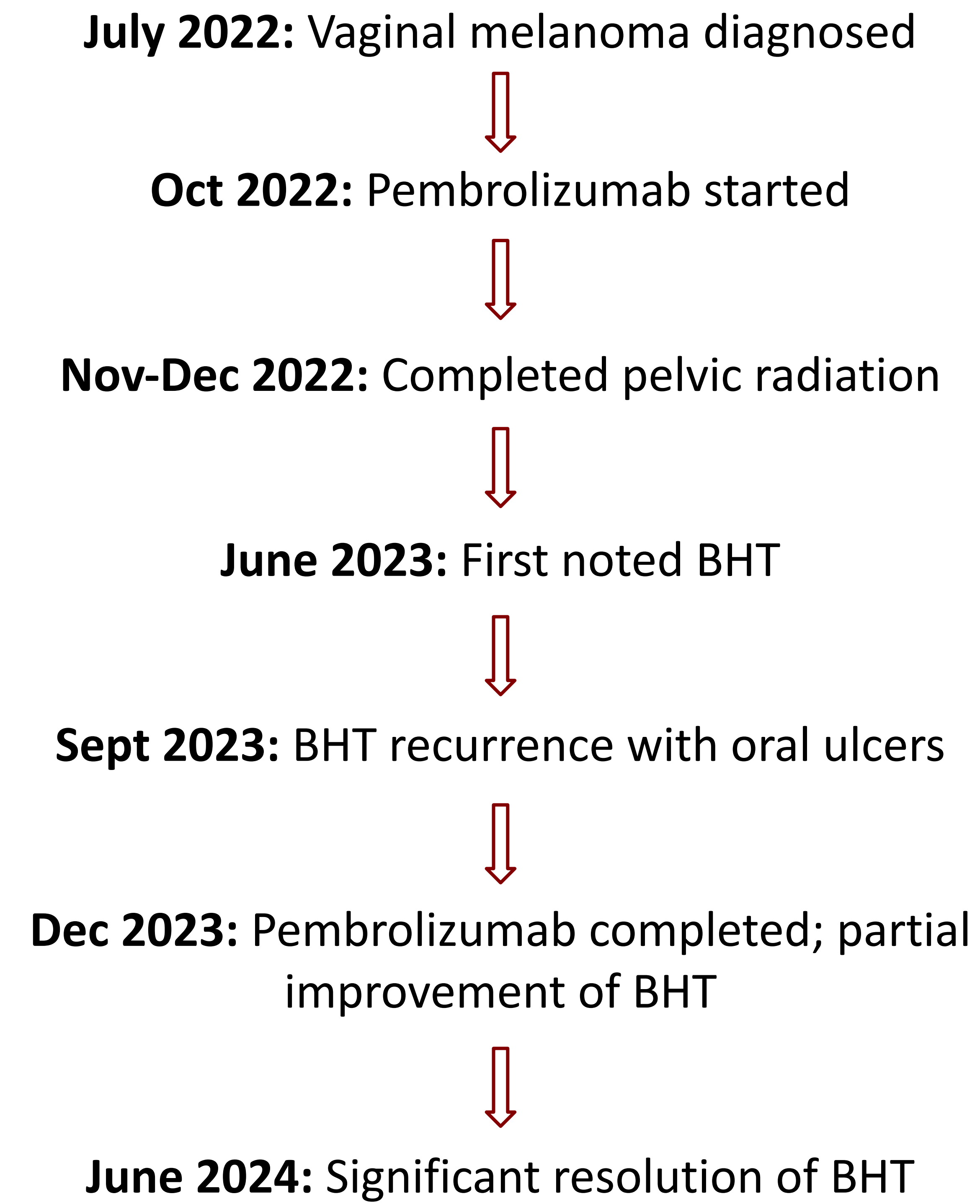
ICIs are associated with **immune-related adverse events** such as fatigue, rash, diarrhea, and endocrinopathies.

Oral side effects include xerostomia, gingival bleeding, oral ulcers, and stomatitis.

Black hairy tongue (BHT), or lingua villosa nigra, is a rare, benign condition caused by hypertrophy of the filiform papillae.

Only **one other case** of pembrolizumab-associated BHT has been reported.

Case Timeline



Case Summary

82F with vaginal mucosal melanoma **on pembrolizumab**.

No risk factors for BHT (non-smoker, good hygiene, no antibiotics).

June 2023: PCP noted **black discoloration of tongue**, asymptomatic.

Improved with chlorhexidine rinses but recurred in Sept 2023 with **migrating ulcers and gingival bleeding** (*Figure 1*).

Dec 2023: **Pembrolizumab completed**; partial resolution (*Figure 2*).

June 2024: **Marked improvement** with supportive care alone (*Figure 3*).

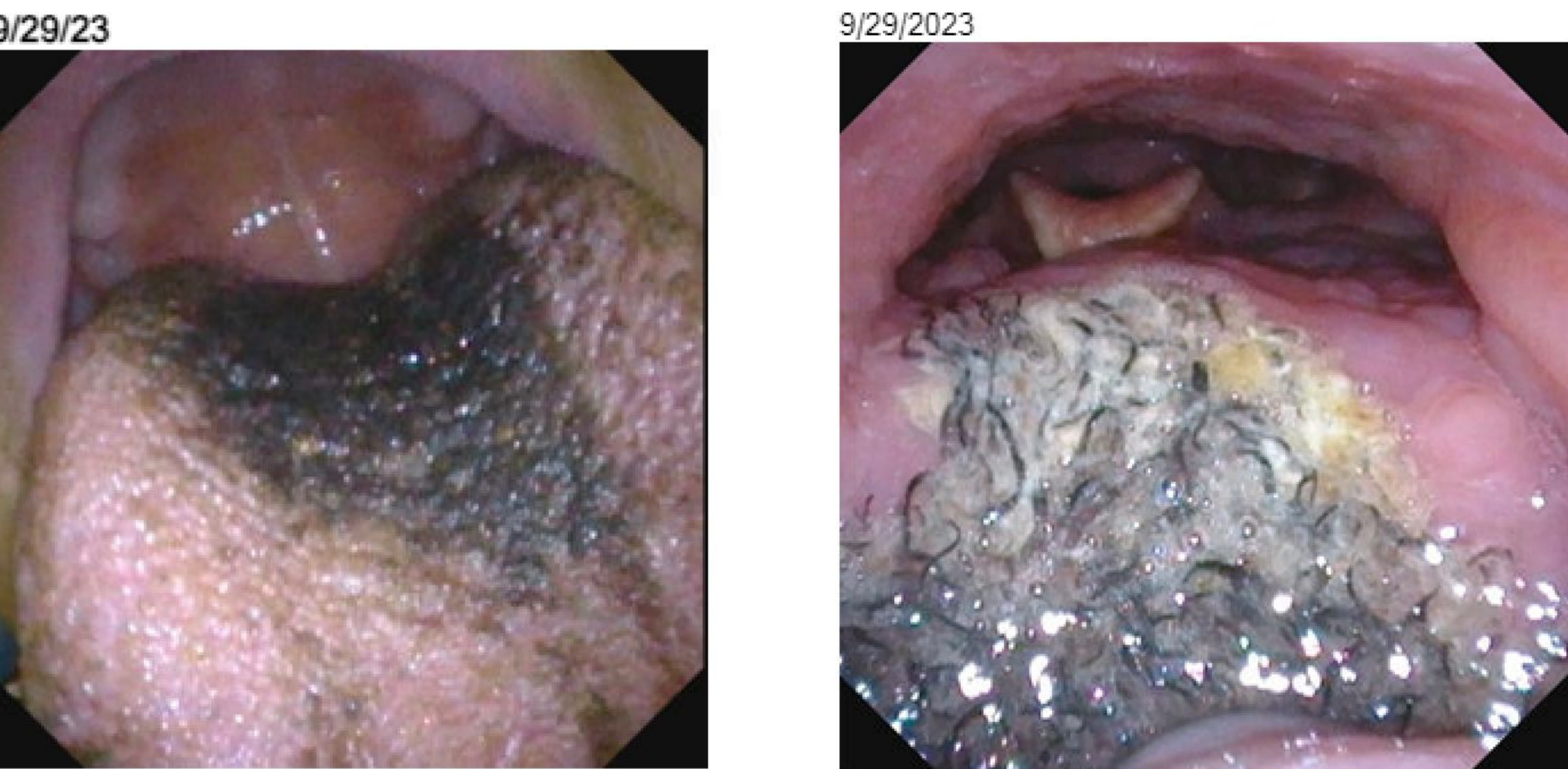


Figure 1. Dorsal surface (left) and base (right) of tongue in Sept 2023.

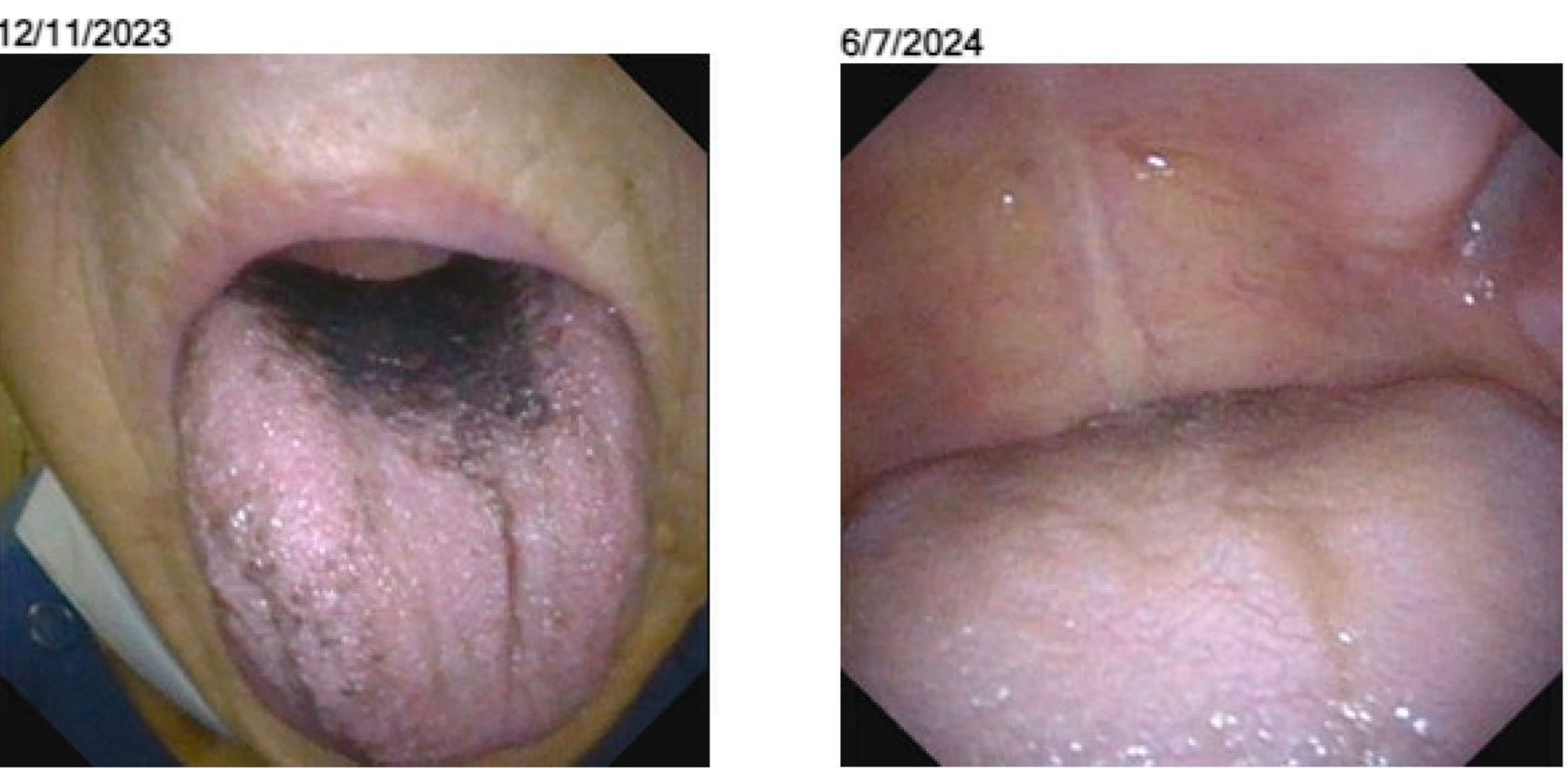


Figure 2. Dorsal surface of tongue in Dec 2023.

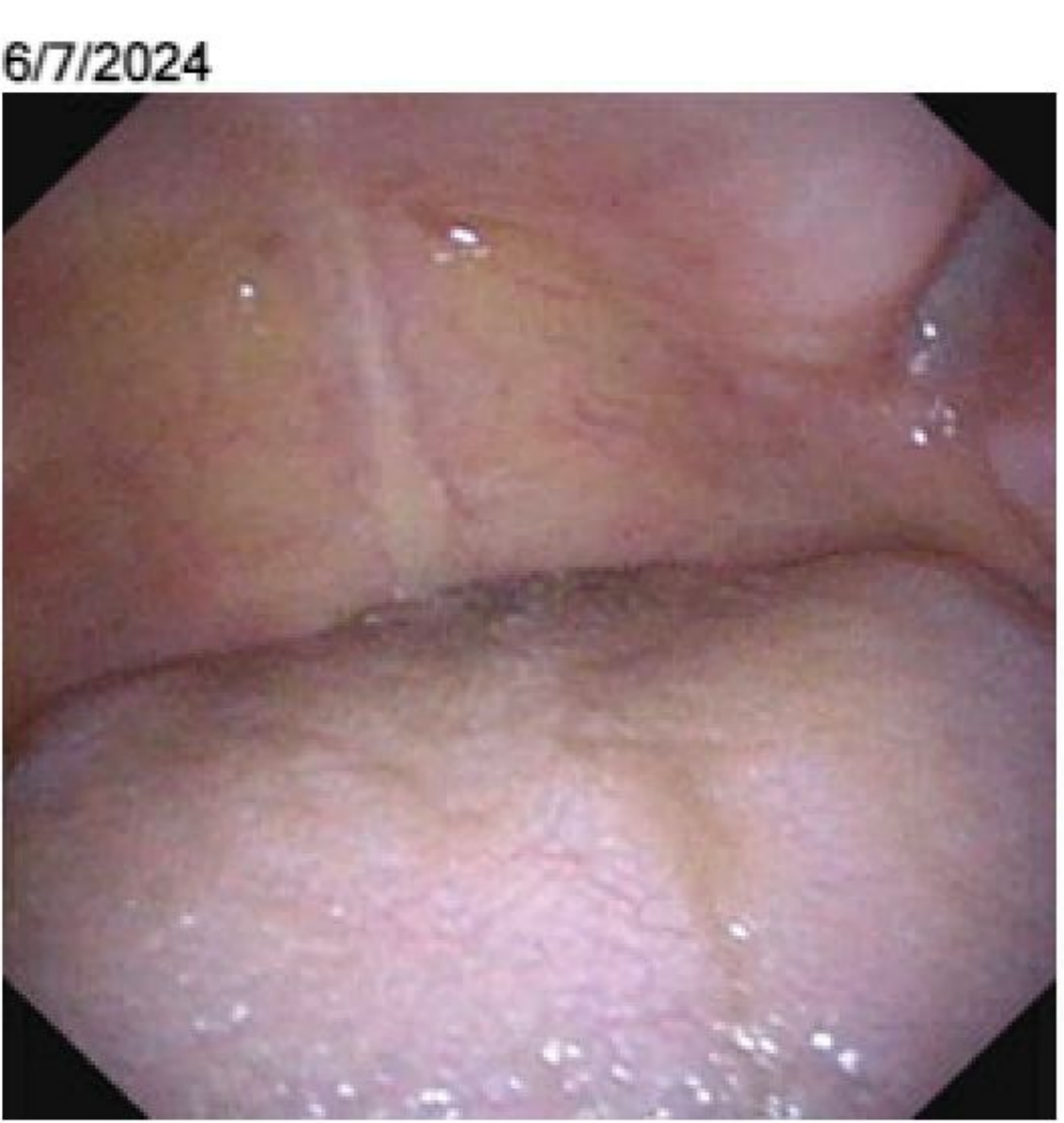


Figure 3. Dorsal surface of tongue in June 2024.

Discussion

Black hairy tongue (BHT):

- Caused by hypertrophy and elongation of filiform papillae
- Associated with poor oral hygiene, smoking, xerostomia, and antibiotics
- Benign, self-limited, but may cause concern for malignancy in oncology patients

ICI-related BHT:

- Extremely rare; only 2nd reported case with pembrolizumab
- Likely mechanism: immune modulation altering oral flora and mucosal turnover
- In this case, BHT recurred but resolved gradually with supportive care (oral rinses, salt water) after ICI completion

Clinical relevance:

- Recognition prevents unnecessary workup or interventions
- Important for oncologists, otolaryngologists, and dentists to be aware of rare ICI oral side effects

Conclusions

Pembrolizumab, in rare cases, **can cause black hairy tongue** (BHT).

Only the **second reported case** in the literature.

Condition is **benign, self-resolving** with supportive care.

Awareness is essential for oncologists, ENT providers, and dental professionals **as ICI use expands**.

Multidisciplinary vigilance for both common and rare ICI side effects **improves patient care** and **reduces unnecessary interventions**.

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