

Abstract

Introduction: Anosmia is a common presenting complaint of patients presenting with olfactory groove meningioma. However, with the emergence of COVID-19, anosmia became widely recognised as a viral symptom, which may have led to this symptom being overlooked either by the patient themselves or by their physicians in the time since the 2020 global pandemic. This study aims to determine if there has been a difference in time from symptom onset and presentation to medical attention and/or diagnosis in those patients with olfactory groove meningioma who presented prior to the pandemic and those since.

Methods: A retrospective cohort study was performed at a single tertiary care center. Patients presenting with anosmia between 2015 and 2020 (pre-COVID cohort) were compared to those presenting between 2020 and 2025 (post-COVID cohort). Consideration was made to patients presenting in the years from 2020-2022 when social and healthcare policy may have caused additional delays in presentation. Demographic and clinical characteristics were collected from patient records. Time from first reported symptom to definitive diagnosis was calculated. Comparative analyses were planned to assess whether diagnostic timelines differed between cohorts.

Results: All patients referred to a tertiary surgical centre with an olfactory groove meningioma between 2015 and 2025 were reviewed. Preliminary review revealed observable differences in diagnostic intervals between pre- and post-COVID cohorts, suggesting there has been a difference in patient and physician perception of anosmia as a presenting symptom.

Conclusion: This study highlights the influence of the COVID-19 pandemic on diagnostic timelines in patients experiencing anosmia from an olfactory groove meningioma due to heightened association between anosmia and viral illness. Understanding shifts in both patient and physician practice are important for optimizing diagnostic pathways and ensuring timely identification of the underlying pathology.

Introduction

Olfactory groove meningioma represents between 4-13% of all intracranial meningioma. Due to its definitionally intimate relationship with the neural structures involved with olfaction, patients often present with anosmia. Other presenting symptoms may include visual changes, frontal lobe dysfunction, headache, or other symptoms related to increased intracranial pressure. Indications for surgical intervention include intractable or intolerable symptoms, growth on serial imaging, or significant cerebral edema causing increased intracranial pressure.

With the emergence of COVID-19, new-onset anosmia became widely known as a characteristic viral symptom. Even after the resolution of acute COVID-19 viral infections, anosmia has been reported to persist for extensive periods. Given this increased awareness of anosmia as a COVID-19-related symptom, it is possible that patients or physicians have overlooked this in the context of undiagnosed olfactory groove meningioma.

The aim of the current study was to identify a cohort of patients with olfactory groove meningioma and compare those who presented prior to the start COVID-19 pandemic with those who presented after. We aimed to compare diagnostic timelines, with the hypothesis that anosmia may have been unduly disregarded as a concerning symptom following the start of COVID-19.

Methods

A retrospective chart review was performed, including all documented cases of patients who underwent surgery for olfactory groove meningioma between 2015 and 2025 at our center. Electronic medical records were used to gather patient data. Patient cohorts were divided into those who presented between January 2015 and March 2020 (pre-covid) and those who presented between April 2020 and December 2025 (post-covid). For each cohort, descriptive statistics were provided. Comparative analysis was performed using R version 4.5.2

Results

A total of 19 patients were initially identified. Three patients presented prior to the predetermined period of interest, leaving a total of 16 patients included in analysis. Five patients were in the pre-covid cohort and 11 in the post-covid cohort. Mean age in the pre- and post-covid cohorts were 56.8 years and 59.1 years, respectively. In the pre-covid cohort, there were 4 female patients (80%). In the post-covid cohort, there were 7 female patients (64%).

Selected tumor and patient characteristics are presented in Table 1. No differences between groups demonstrated statistical significance, set at a p-value of 0.05.

	Pre-Covid Cohort	Post-Covid Cohort
n	5	11
Females	4	7
Age, mean	56.8	59.1
Greatest tumor dimension, mean	4.46cm	4.61cm
Presenting Symptom		
Anosmia, prolonged	0 (0%)	3 (27.3%)
Visual disturbance	3 (60%)	4 (36.3%)
Cognitive decline	1 (20%)	5 (45.4%)

Table 1. Baseline characteristics and presenting symptoms of those with olfactory groove meningioma in our pre-covid and post-covid cohorts.

Discussion

Overall, there were small differences observed between our two cohorts. The post-covid cohort was slightly older by about 2 years. While this may represent a delay in diagnosis, the small samples observed in each cohort limits the certainty that can be ascribed to any causal inference. Additionally, the slightly older age at diagnosis in the post-covid group could be attributed to the effects of COVID-19 on health care processes generally, and not directly associated with one symptom or sign.

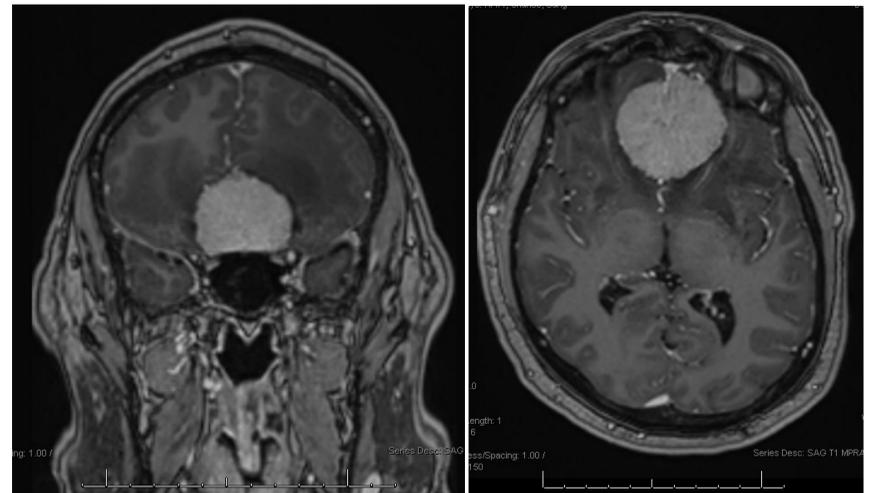


Figure 1. T1 Post-gadolinium sequences, coronal and axial, demonstrating an olfactory groove meningioma in a patient who presented with acute cognitive changes and functional decline on a background of prolonged anosmia.

Despite the small sample sizes, we highlight that cognitive decline was a more frequent presenting symptom in the post-covid cohort (45.4% versus 20%). This may represent a more advanced stage of disease, suggesting that in the 'post-covid era', patients are presenting later with more severe symptoms.

Conclusion

This retrospective cohort study describes the patient characteristics and presenting symptoms of patients with olfactory groove meningiomas in a pre-covid and post-covid cohort. We highlight that after covid, patients more commonly presented with a prolonged history of anosmia, which may represent a delay in diagnosis. Similarly, we emphasize the increased prevalence of cognitive decline and older age in the post-covid cohort. However, due to the small study size and infrequent outcomes, statistical significance was not observed between the two groups.

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