

# When is Magnetic Resonance Imaging most beneficial in olfactory dysfunction? A retrospective review of a tertiary referral smell and taste clinic

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## Abstract

**Background** Olfactory dysfunction (OD) is a common but underreported problem that can significantly impact a patient's quality of life. Dysfunction is prevalent in over 5% of the adult population and can be broadly categorised into conductive and sensorineural causes. Magnetic Resonance Imaging (MRI) can form part of the diagnostic work up, although its exact role is often debated. **Objectives** The aim of this study was to evaluate the value of MRI in managing patients with OD. **Design/Method** A retrospective analysis of the records of patients presenting to national smell and taste clinic over a five-year period was performed. Variables included demographics, endoscopic findings, final diagnosis, psychophysical smell test and MRI results. **Results** A total of 409 patients underwent clinical assessment and smell testing for OD, of which 172 patients (42%) had MRI scans performed. The age range of patients was 10 to 93 years. Imaging in younger age-groups was associated with a higher rate of positive findings, however identifiable causes for OD were recorded across the range. MRI provided both diagnostic and prognostic information in those with idiopathic, traumatic, and congenital causes of OD. For example, MRI provided information on the extent or absence of traumatic gliosis in those with a head trauma history allowing further treatment and prognosis. **Conclusion** We recommend the adjunct use of MRI in patients with a clear history and examination findings of head injury, congenital cases and in apparent idiopathic cases. MRI should be requested to compliment clinical findings with a view to aiding decision-making on treatment and prognosis independent of patient's age.

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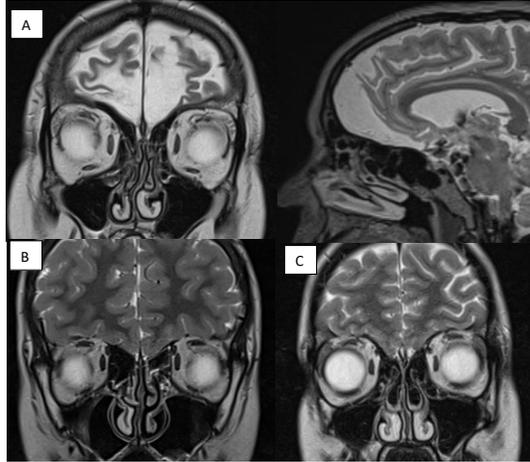


Fig 1. A) Coronal and sagittal T2 weighted MR imaging demonstrating extensive gliosis in an anosmic patient who had sustaining a significant head injury the previous year. B) Coronal T2 weighted MR imaging demonstrating hypoplastic olfactory bulbs in a child with congenital anosmia. C) Coronal T2 MR images demonstrating OCS secondary to an anatomical narrowing with a medialised middle turbinate and concha bullosa. OCS can be clearly demonstrated on both CT or MR imaging and within our cohort was highlighted in some patients during their initial workup for idiopathic anosmia.

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