

Running a post-COVID smell clinic

BY NUR WAHIDAH WAHID AND LISHA MCCLELLAND

Over the past year, much of our effort as a speciality has been directed towards crisis management and keeping services afloat. Our practice has changed in untold ways, but unprecedented numbers of patients with smell disorders will increasingly require our attention, so here's **Wahidah Wahid** and **Lisha McClelland** with some invaluable suggestions on how to forge a smooth clinical pathway.

C COVID anosmia' - the loss of sense of smell as a result of COVID-19, is the newfound term that has gained significant spotlight since the beginning of the pandemic. Loss of smell (LOS) and taste was found to be the most prevalent symptom of COVID-19. Whilst most recover within a few weeks, 10% of patients continue to suffer with persistent anosmia. Given the high prevalence of COVID-19 infection in the general population, it is expected that we will see a surge in patients referred with persistent smell loss when elective service resumes. We are also faced with the huge task of clearing the backlogs, whilst still ensuring safe practice in the post-COVID era. It is therefore vital that we consider effective ways of running our specialist smell clinic.

Pre-COVID: a typical day in the smell clinic

At the Queen Elizabeth Hospital Birmingham, we run a weekly smell clinic with referrals from the local catchment, out-of-area GP referrals and tertiary referrals. Eight patients are seen over a four-hour clinic session with a mixture of new and follow-up. Trained nurses carry out the Sniffin' Sticks smell test before the patient sees the ENT consultant for history taking, examination, investigations, and treatment.

Post-COVID: factors to consider in setting up the smell clinic

Triaging

Referrals should be risk-stratified and directed to either initial advice and guidance, teleconsultations or face-to-face consultations. Red flag symptoms should be considered for urgent two-week-wait clinics.

Primary care: anosmia management

Primary care physicians play an important role in the initial management of anosmia and can be signposted to the primary care British Rhinological Society (BRS)

guidance published in the British Medical Journal (BMJ) [1]. Most patients will improve spontaneously. It is recommended to offer smell training, anosmia advice and signpost to support groups e.g., Fifth Sense. For post-viral rhinosinusitis, therapies such as intranasal corticosteroids, decongestants and saline spray or rinses can be trialled [2]. Ideally the criteria for referral are those with smell and taste symptoms persisting more than three months.

Teleconsultations and early instigation of treatment

Remote teleconsultation has been the 'new normal' and it remains a good place to start. Depending on the likely differential diagnosis, investigation and treatment could be instigated earlier on in the pathway. Many will still require a second appointment for formal examination, including nasendoscopy and smell test.

It is important to remember that there is a wide-ranging differential diagnosis for LOS. In the pre-COVID era, the majority of patients seen had a conductive olfactory problem such as chronic rhinosinusitis. Post-viral olfactory loss (PVOL) is the second most common cause, followed by post-traumatic olfactory loss (PTOL). Other less common causes include neurological disease, congenital, and a proportion of patients have an undetermined cause. A thorough history should include duration, concomitant sinonasal symptoms, possible fluctuation, distortions and events preceding the olfactory deficit.

For those with persistent symptoms (>3months) and obvious history of isolated LOS following upper respiratory tract infection (URTI) e.g., COVID infection, a trial of high dose oral steroids (+/- shielding) and/or Omega-3 supplements can be considered at the initial teleconsultation. For those with additional nasal symptoms, a trial of intranasal corticosteroids should be instigated. Vitamin A intranasal drops

in addition to smell training have been trialled with good outcomes [3], although it comes with side-effects of local irritation. In majority of PVOL imaging is not required.

In PTOL, clinicians can consider the use of zinc in addition to oral steroids, though the evidence is weak [4]. Qualitative smell disorders, such as phantosmia and parosmia, need to be addressed. Parosmia, which is the distortion of smell triggered by an odour source, seems to be prevalent in patients with COVID-19. Conservative management includes valsalva manoeuvre, distraction technique, and trigeminal nerve stimulants. When appropriate, imaging and blood tests can be organised prior to the consultation.

Smell clinic: face-to-face consultation

Prior teleconsultation improves clinic flow as patients are attending for a follow-up with smell or taste testing and nasendoscopy. We envisage they would have started smell training, have been offered support, received initial treatment or have had basic investigations. Patients can explore possible treatment options and be counselled on the prognosis and consequences of their disorder. The infographic outlines the suggested clinic pathway template along with suggested investigations and treatments.

Challenges and considerations in the smell clinic

There are several considerations and precautions that will need to be taken into account to ensure we provide a safe and efficient service.

Which smell test?

Several smell tests exist (Table 1). The Sniffin' Sticks dispense odours through pen-like devices and assess threshold, identification and discrimination, and are validated for use in the UK. The Connecticut Chemosensory Clinical Research Center

Table 1: Non-exhaustive comparison of commonly used psychophysical smell test.

	Sniffin' sticks	Connecticut Chemosensory Clinical Research Center orthonasal olfaction test (CCRCT)	University of Pennsylvania Smell Identification Test (UPSIT)	Brief Smell Identification Test (BSIT)
Type of test	Threshold, Identification, Discrimination	Threshold, Identification	Identification	Identification
No of Odours Assessed	12	1 Threshold, 10 Identification	40	12
Reliability	I:0.73, T: 0.54, Comb: 0.72	0.87	0.94	0.73
Delivery method	Operator-administered	Operator-administered	Self-administered	Self-administered
Test Duration	45-60 min	30 min	10-15 min	<5 min
Test Origin	Germany	USA	USA	USA
Commercial availability	Yes	No	Yes	Yes
Cost	£700 initial kit £320 replacement (6-12 months)	Negligible	£30 per booklet	£15 per booklet £15 initial manual
Re-usability	Reusable	Reusable	Single-use	Single-use
Theoretical risk of contamination	Yes	Yes	No	No

(CCRCT) uses bottled fragrances and assesses threshold and identification. This test is not commercially available and is usually devised by the hospital lab for clinical use, making it an inexpensive option. The reusable testing does have limitations, including its considerable testing time, the need for personnel resources and the potential risk of microbial contamination, due to the close proximity of pen tip or bottled fragrances to the nose or lips. One precautionary measure is mandatory pre-clinic COVID test and self-isolation three days prior to the clinic attendance, similar to preoperative measures. In order to avoid contact of Sniffin' Sticks, the German Society for Otolaryngology recommends using single-use cellulose paper strips, appropriate for identification and discrimination tests.

The UPSIT and BSIT test uses 'scratch and sniff' that contain microcapsule fragrances, but only assesses identification and have not been validated in the UK. These tests can be self-administered, are single-use and have high reliability. Some departments may opt to post single-use smell test to patients prior to their smell clinic, eliminating the need for outpatient smell testing and pre-clinic COVID screening.

Nasal endoscopy

Most patients will require nasal endoscopy to rule out contributing pathology such as mucosal congestion, infection, polyps, neoplasms, and anatomical anomalies. Nasal endoscopy should be performed with appropriate personal protective equipment. Clinic timings may be impacted by

conversion to potentially aerosol-generating procedure following a sneeze, and therefore additional rooms should be considered to ensure smooth clinic flow.

Follow-up

Teleconsultation follow-up may help reduce the pressure on clinic room availability and travel for patients.

Financial burden and limited resources

The expected increased referral numbers, along with the costs associated with resources, such as personnel, test kit, and the extra precautions needed to make the smell clinic safe, mean the ENT department is likely to have financial constraints that will need to be addressed. The clinic flow may also take much longer than it did pre-COVID, so realistic goals about the number of consultations per session needs to be agreed.

Conclusion

Returning to the 'old normal' is likely to be a slow and difficult process. We are experiencing increasing demand whilst having reduced face-to-face clinic capacity. We should be proactive in applying the knowledge we have gained over the past 12 months regarding triaging and telephone clinics to augment the traditional pathway for patients. Specific considerations need to be made to ensure the smooth and safe running of a much-needed smell service in the post-COVID era.

References

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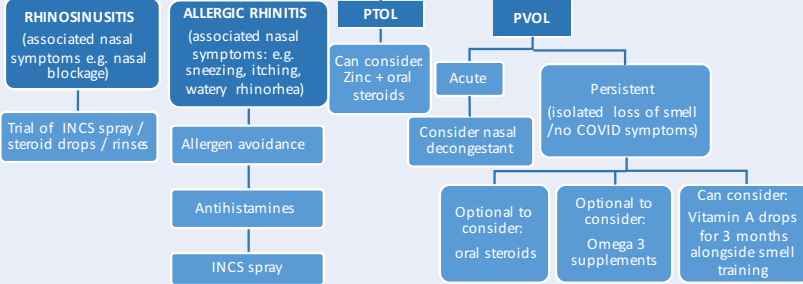
Post-COVID Smell Clinic

Primary care considerations

INITIAL MANAGEMENT

Treat according to suspected aetiology

PTOL = Post-traumatic olfactory loss
PVOL = Post-viral olfactory loss
INCS = Intranasal corticosteroid



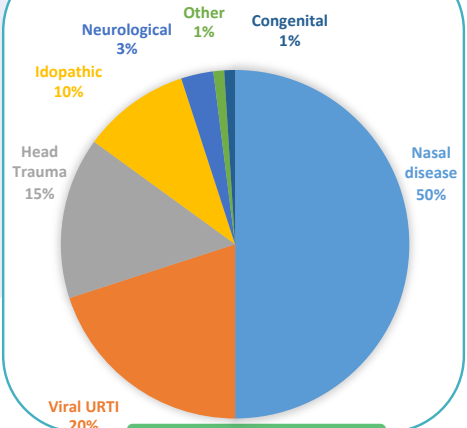
Encourage smell training | If no improvement: consider other options | If persistent loss of smell > 3 months: ENT Referral

Advise: Hazards of smell disturbances | Offer advice sheet | Support: Fifth Sense

HISTORY

- Duration
- concomitant sinonasal symptoms
- possible fluctuation
- distortion of smell
- preceding event e.g. trauma, URTI, COVID
- change in sense of taste
- Neurological symptoms: headaches, fits, faints, loss of consciousness, vomiting
- Red flags: epistaxis, unilateral nasal blockage

AETIOLOGY OF ALTERED SMELL



INVESTIGATIONS

Blood tests

FBC U&Es LFTs - screens for underlying disease

Vitamins and mineral deficiency

Vit A Vit B1 Vit B6 Vit B12 - if suspecting dietary deficiency
Calcium Folate Fe

Zn Mg Cu

Endocrine disorders

TFT - Hypothyroidism
HbA1c - Diabetes
9am cortisol - Addison's disease
24-hour urinary cortisol, Dexamethasone suppression test - Cushing's disease
serum testosterone, prolactin, FSH, LH, oestradiol - Hypogonadism

Vasculitis

Organise tests if evidence of nasal crusting or evidence of chronic inflammatory rhinitis
ANCA ACE VRDL - Syphilis

Allergic rhinitis

RAST test Ig E

Congenital conditions

Genetic screening MRI - in addition to endocrine tests for hypogonadism

Intracranial pathology

MRI - if negative endoscopy and unclear aetiology

Chronic Rhinosinusitis

CT - Useful pre-operative imaging

Triage / Teleconsultation

Anosmia referral	General management following initial triage or teleconsultation	Outcome
New onset anosmia <6 weeks	GP to provide initial management	Discharge back to GP; re-refer if not improving
Persistent anosmia (> 3 months)	Full history taking Treat according to suspected aetiology Arrange imaging if appropriate e.g. MRI in patients with additional neurological symptoms	F2F after initial teleconsultation
Persistent anosmia (> 3 months) following COVID-19	History taking Imaging is not required in confirmed COVID cases Commence management: • Smell training (Recommended) • Steroid nasal spray (if associated nasal symptoms) • Steroid drops or rinses (Optional) • Oral steroids (Optional) • Omega 3 supplements (Optional) • Vitamin A drops (No recommendations)	F2F after initial teleconsultation
Presence of red flag symptoms	Escalate to urgent 2-week wait referral	2-week wait pathway

Conservative measures for Parosmia / Phantosmia

- Valsalva manoeuvre
- Head movements
- Stimulating the nose with other smells, trigeminal nerve stimulants e.g menthol, horseradish, mustard, capsaicin (pepper) spray
- Nasal douching
- Stimulating the nose with deep breaths in through the nose
- Other medications e.g. Gabapentin

MANAGEMENT

Smell training

Advise to patients:



- Purchase oil of these odours: rose, clove, lemon, eucalyptus
- Slowly and gently, inhale naturally
- Repeat for 20-30 seconds
- Move on to the next smell and repeat as above

Smell training can be recommended in patients with olfactory loss of several aetiologies

Steroid spray/drops/rinse

Topical steroids should be prescribed in patients with olfactory dysfunction secondary to CRS and other inflammatory nasal conditions

Oral steroids

Oral steroids has shown to improve olfactory function including post-viral anosmia cases. Delay prescription after 2 weeks / no further COVID symptoms to reduce risks of developing long-term morbidity.

Supplements

Omega-3

Protective against olfactory loss during the recovery period after skull base surgery. May have a role in PVOL.

Zinc

In PTOL, Zinc and steroid showed significant improvement compared to no treatment (Jiang et. al)
* Weak level of evidence

Vitamin A drops

Intranasal vitamin A added to smell training resulted in greater rates of improvement compared with olfactory training alone (Hummel et al.)
Caution: Locally irritant to the nose
* Weak level of evidence

Secondary care considerations

F2F CONSULTATION

On arrival

CLINIC ROOM 1: SMELL TEST

Undergoes Sniffin' Sticks test (performed by specialist nurse)

CLINIC ROOM 2: ENT CONSULTATION

- History taking
- Nasal endoscopy
- Organise further tests
- Initiate management

CLINIC ROOM 3: Additional clinic room to aid clinic flow

FOLLOW-UP

Review of investigations / initial treatment