Postured Bite

Clinical assessment and stages for recording the postured protrusive bite.

This is a critically important step in the management of the Somnowell mandibular advancement appliance on which your success will depend.

Consider the movement in three planes of space, i.e. antero posterior, transverse and vertical.

The aim is to record a symmetrical advancement of the jaw without introducing or maintaining a transverse jaw displacement. Also to introduce minimal vertical opening sufficient to accommodate the thin device, whilst gaining significant forward posturing so that the soft tissues below the jaw as well as the tongue are held forward.

Throughout the procedure, continually ask the patient for their feelings and impressions as this will give a valuable clinical guide.

Objectives

Antero posterior: The advancement needs to be comfortable and tolerable usually 4–5 mm but will differ between patients. A useful guide is to have the jaw postured to the maximum, record this movement and plan to drop the jaw back by 2–3 mm. With patient and soft tissue adaptation, the amount of forward movement required may alter with time, in which case further advancement of the mandible may be required and is very easily achieved by adjusting the protrusion nuts.

Vertical opening: The Somnowell employs a 'fixed linkage' mechanism which holds the jaw forward. Excess vertical opening introduces an unwanted backward rotational jaw movement and may reduce patient comfort and compliance, and aggravate lip incompetence and mouth breathing. The vertical opening needs to be sufficient to disclude the teeth and give sufficient space to accommodate the tooth cover of the Somnowell. You should avoid exceeding the patient's "free way space". A Willis bite gauge may be useful to measure this.

3–4 thicknesses of modelling wax are usually sufficient giving an opening of 3–4 mm.

Transverse: Discluding the jaw and advancing it symmetrically without introducing or maintaining a jaw displacement will help with patient comfort, may help to capture the disc in the TM Joint and may help in the management of TMJ pain dysfunction. However if a lateral displacement is maintained or introduced, this may result in discomfort for the patient, possible TMD symptoms, poor patient compliance, displacement of the Somnowell, or fracture of the device.

Clinical Stages

1. Set up:

Modelling wax or rapid set silicone, wax knife and wax heater or warm water.

2. Clinical assessment:

Seat the patient and recline the back rest sufficient to enable you to stand and view the face from in front, above and behind.

a. From the front of the patient: establish the patient's facial midline and this relation to the upper dental midline (in most cases these are coincident).
b. Record the intercuspal jaw relations i.e. incisor relationship, overjet and overbite. Record the centreline relations in the intercuspal position.
c. Recording the non-displaced position:

Move to the back of the patient:

Lift the upper lip and locate the patient's upper dental midline in relation to the mid-facial plane. If the teeth have tilted across the midline or migrated then record this and make an allowance for this.

Ask the patient to open the jaws 4–5 mm so that the teeth are discluded. Visually locate the lower dental centre line and its relative position to the upper dental midline assuming this aligns with the mid-facial plane. If there is a missing incisor, the teeth are tilted or have migrated laterally then record this.

In most instances with the teeth apart, the centre lines will be coincident with the mid-facial plane.

This non-occluded jaw relation is in most instances the non displaced jaw relation. As the teeth come into occlusal contact, the proprio-receptor mechanisms come into play and the jaw displaces to avoid premature contacts and a bite of convenience is adopted.

With the patient at rest with jaws slightly apart, ask the patient for their impression with special reference to the TM Joints and associated muscles.

3. Test run:

Having established the non-laterally displaced comfortable jaw position, guide the jaw forward to its comfortable limit whilst maintaining the non-displaced transverse jaw relation. Measure the reverse overjet with a ruler. This is the patient's maximum postured jaw position at this point in time.

Ask the patient to hold the forward posture and try slight vertical opening and closing and see which the patient feels is more comfortable.

These two measures will give you an idea of the range of jaw movement that can be achieved.

In practice you are aiming for a 4-5 mm jaw advancement and 3-4 mm vertical opening.

4. Taking the bite:

a. Seat the softened wax on the upper teeth and mark the dental upper centre line and facial midline with a spatula or wax knife.
b. Advance the lower jaw guiding the patient into the wax.
c. Place your fingers on the canines so that the coincident centre lines are maintained with the jaw postured forward.
d. Close the jaw sufficient to mark the wax but do not allow the lower teeth to touch the upper.
e. Mark the lower centre line in the wax.
f. Before removing the wax, check the centre lines and their relation to the mid-facial plane, ask the patient if the TM Joints feel comfortable. Even ask them to try snoring and if it is any easier for them to breath, i.e. less posterior pharyngeal airway resistance.