

CLINICAL
SECTION

How to ... take a wax bite for a Twin Block appliance

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The Twin Block appliance is the most commonly used functional appliance in the UK. It is very important to take a satisfactory wax bite, as it not only helps the technician to make an accurate appliance but it is essential for the successful use of this appliance. In this article, we suggest the appropriate clinical technique for taking an effective wax bite for the Twin Block appliance.

Key words: Twin Blocks, wax bite, bite registration, functional appliance

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Introduction

The Twin Block appliance is the most commonly used functional appliance in the UK for the treatment of skeletal II malocclusions in growing patients.¹ In the UK, it was first described by William Clark.² To enable ideal construction of a Twin Block appliance great care must be taken with the wax bite which records the desired jaw relationship.

It is of utmost importance to take as good a wax bite as possible, because it will have consequences not only for the accurate construction of the Twin Block appliance but also for the effectiveness or otherwise of this stage of treatment.

In this article, we describe a method of taking a wax bite used in the construction of Twin Block appliance which we consider most effective.

Technique

We recommend a sufficient amount of softened wax (usually at least a full strip of wax), formed to be wide enough to cover the whole of the upper arch from the upper incisors to at least the first permanent molars on both sides of the arch. There should be at least 8–10 mm thickness of the wax covering the teeth (Figure 1).

The wax is softened with hot water and then it is moulded up into the palate and also pushed against the upper teeth to ensure there are sufficient indentation marks in the wax from upper incisors to the molar region which will allow the technician to accurately locate the study models (Figure 2).

At the start of the wax bite process the patient should have been instructed how to bite in the anticipated

‘advanced position of the mandible’. In most cases, we ask for about 70–80% overjet reduction with the first wax registration. Check that the patient is comfortable maintaining this position with the actual wax bite in place before sending for processing.

In mild Class II division 1 cases where the overjet is small, or with Class II division 2 cases³ the protrusive activation may be beyond an edge to edge incisor position to achieve sufficient muscle activity to correct the Class II buccal segment relationship.

If there is an upper or lower dental centreline discrepancy then the aetiology of this discrepancy must be established. If there is a dental discrepancy to be corrected later during the fixed appliance phase then this discrepancy should be reproduced in the wax bite. If on the other hand the discrepancy seen is due to a premature contact resulting in a mandibular displacement then the wax bite should be taken in the non-displaced position if at all possible. If the centrelines are coincident in centric relation, this must be reproduced in the wax bite (Figure 3). Registration of correct centre lines can be assisted by giving the patient a mirror, especially if the procedure is rehearsed before applying the softened wax bite.

The patient is now asked to close in the ‘postured forward’ position, but to do this very slowly so that any necessary instructions to alter the mandibular position can be given to the patients and responded to, as they close their teeth.

The wax registration is then removed from the mouth and using scissors or a wax knife, it is cut half way across the occlusal surfaces of the posterior teeth and around the incisal tips of the anterior teeth (Figure 4).

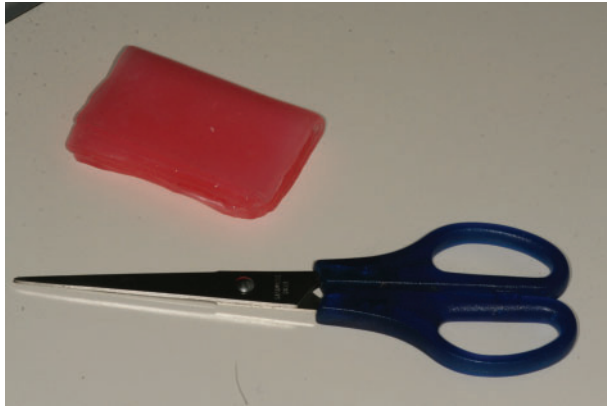


Figure 1 Wax has been folded to provide the required thickness

It is important at this stage to make sure that the margins of the wax bite are resting on the occlusal surfaces of teeth. Once trimming of the wax bite is carried out it must be re-checked in the patient's mouth to ensure that the desired antero-posterior (AP), lateral and vertical positions of the mandible have been achieved.

The ideal wax bite should be at least 7–8 mm thick in the premolar region. The reason why the patient is asked to close slowly is so that they can be asked to stop, when this 8 mm position has been reached (Figure 5a,b).

At this stage, if recent study models are available, the wax bite can be checked again for sufficient indentations of the premolars and molars. It is only sent to the lab when accurate model location can be achieved (Figure 6a–e). If the AP correction is not absolutely perfect, due to the patient having trouble achieving the desired position, the Twin Block appliance can still go for construction. It is a very simple matter to reactivate the appliance in an AP direction if this is found to be necessary.

The reason for insisting the wax bite height is at least 7–8 mm in the premolar region is that this thickness encourages the patient to bite in the desired 'postured



Figure 2 Wax is being moulded against the upper teeth and palate



Figure 3 Wax bite in place, centrelines are coincident, reproducing centrelines when in centric relation

forward' position. Conversely adequate height discourages the patient biting on the blocks in the 'retruded contact' position which would necessitate opening 16 mm in the buccal segments and even more anteriorly. This is much more uncomfortable for the patient than posturing forward with 7 mm opening in the premolar region therefore they 'choose' to bite correctly.

The >7–8 mm rule is ideal for average or low angled cases. It should be born in mind, however, that in very high angled patients it may not be possible to achieve the 7–8 mm vertical opening because this will result in an excessive opening at the front of the mouth, which may not be at all comfortable for the patient. In these cases the height of wax bite can be reduced slightly to the maximum amount the patient can tolerate comfortably.

By taking the wax bite as described above, the technician will have absolutely no reason to make the Twin Block appliance incorrectly. Simply articulating the study models in a hinge articulator, using the wax bite should eliminate any potential problems and should also remove the need for any guesswork by the technician.



Figure 4 Final wax bite in the patient's mouth which covers half of the occlusal surface of upper teeth

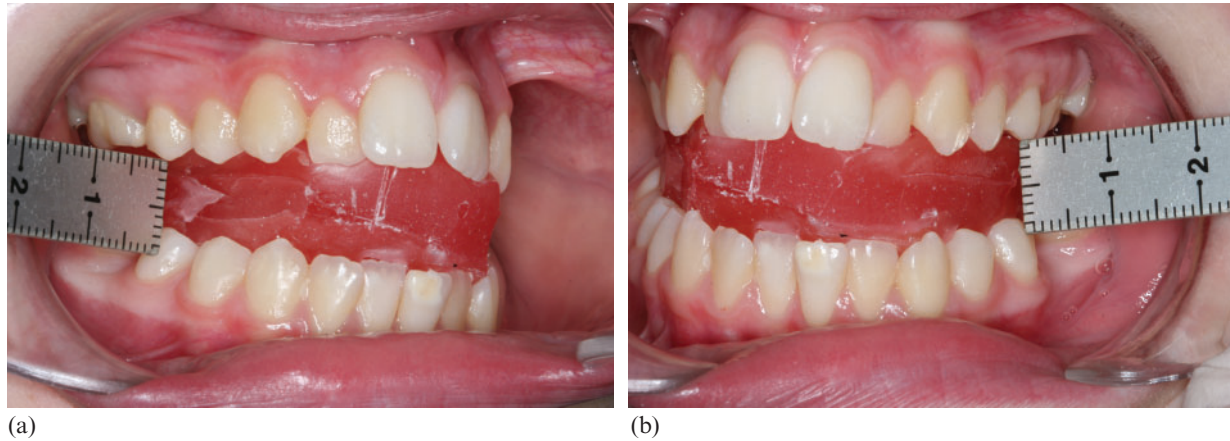


Figure 5 Wax bite showing thickness of (a) 7 mm and (b) 8 mm

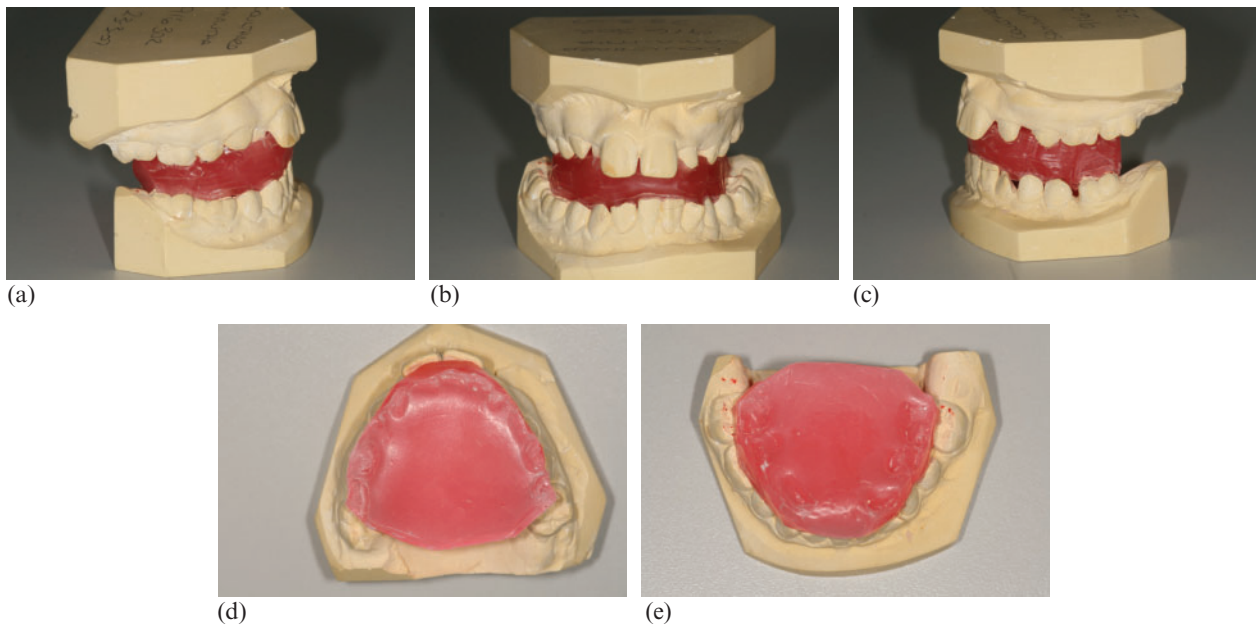


Figure 6 (a–e) Sufficient indentations allow accurate model location in the wax bite

This technique should make the Twin Block appliance comfortable for the patient and will also have sufficient opening to almost guarantee a result, if worn as directed.

The clinician should also insist that all wax bites are returned with the appliances so that the jaw position on the finished Twin Block appliance can be compared with that indicated by the wax bite, to ensure no inaccuracies have occurred during construction.

Conclusion

In this article, we have described a procedure of taking a wax bite which should allow the technician to make

efficient and effective Twin Block appliances which exactly reflect the jaw position obtained in the clinic.

References

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