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Technical note

New, easier, effective, and stable splinting technique for maxillofacial osteotomy

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Traditionally, surgical splints have been used to reposition the jaw.[1] Poor stability and adaptation of the splint for various reasons has meant that proper intraoperative positioning has been a challenge to even the most experienced maxillofacial surgeon. Most orthognathic procedures involving the maxilla and mandible require occlusal splints to facilitate efficiency, accuracy, and stability of the jaws.[2] The complications of improper fixation have far-reaching and deleterious effects on the temporomandibular joint, and are not always immediately apparent.[3,4]

We use model surgery to achieve the best occlusion. We plan the changes on a bone model, then use self-congealable plastic or acrylic on the lower dental arch to record the occlusal bite and form the plastic dental splint. The thinnest practical splint has to be made using 1-2 mm of material between the teeth, which is the minimum necessary to keep it from breaking too easily during normal use.

After we have cured the splint, we make four holes in the premolar-molar region of the buccal ledge (one on each side, and bilaterally in the canine region) with a No. 2 round burr. (Figs. 1 and 2). We also provide additional crimpable hooks in the orthodontic arch bar for the elastic chain (Fig. 3), which we use to stabilise the splint during surgery. The chain is passed through the upper orthodontic arch wire, then looped around the lower arch hooks. Finally, it is tightened and held in position with adequate length left to affix to the arch bar attachment.

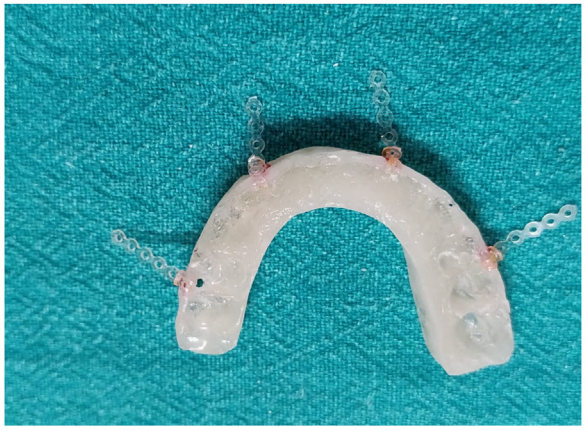

Fig. 1. Interocclusal splint with elastic chains.

We used this new technique of occlusal splint in a patient with a clear skeletal class III mandibular prognathism, who had bilateral sagittal split osteotomy. Eyelet wiring for intropperative stabilisation of osteotomised fragments was not used in this instance because we attached the elastic chains from the splint to the hooks on the arch bar for stable maxillomandibular fixation (Fig. 4).

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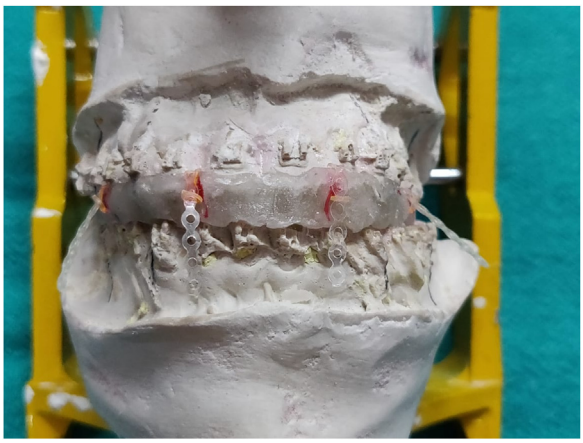

Fig. 2. Interocclusal splint with elastic chains bilaterally on the plaster cast model, which is mounted on an articulator.

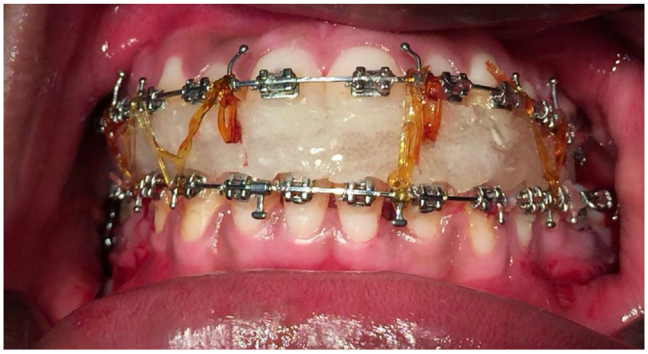

Fig. 3. Occlusal splint with elastic chains stabilised using the additional hooks on the arch wire during surgery.

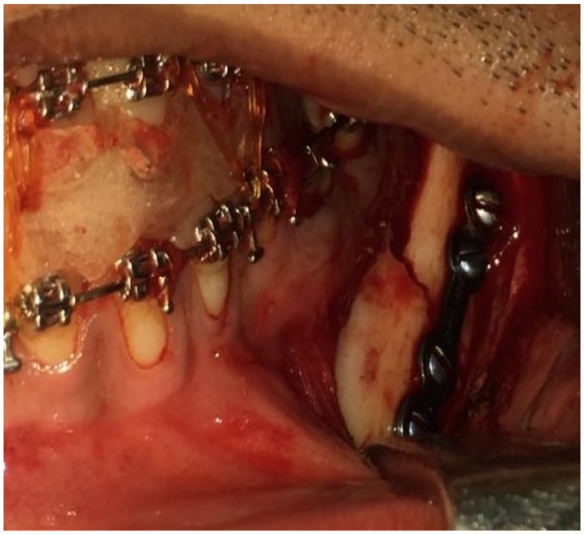

Fig. 4. Bilateral sagittal split osteotomy cut on the left side and fixation with four-hole 2 × 8 mm titanium plates and screws.

Ethics statement/confirmation of patient's permission

Ethics approval was not warranted. The patient gave us written consent to publish their photograph.

Conflict of interest

We have no conflicts of interest.

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