OrthoPulse uses safe, low intensity near infra-red light (850 nm wavelength) to facilitate bone remodelling on a molecular level without any adverse effects. This is the only device of its kind cleared by the US FDA for use with both fixed appliances or clear aligners.

Case presentation

Patient diagnosis
A 24-year-old female presented with Class I occlusion, a deep bite, and crowding along with a narrow maxillary and mandibular arch form (Fig. 1). Her right muscles of mastication, including the lateral pterygoid, were tender upon palpation. Incisors were asymmetrical due to bruxism.

Treatment goal
The patient was prescribed with Invisalign treatment to align teeth, broaden both arch forms to fill buccal corridors and improve upper cuspid torque. Aesthetic enameloplasty was also proposed to conceal bruxism wear.

OrthoPulse is a clinically proven device that uses low levels of light energy to stimulate the periodontium and alveolar bone surrounding the roots of the teeth and facilitate tooth movement which may reduce treatment time.

Fig. 1: A panoramic X-ray of the initial situation.

Fig. 2: A cephalometric X-ray of the initial situation.

Fig. 3: Initial situation.
Adjunctive OrthoPulse treatment of 5 minutes per arch daily was implemented to accelerate aligner progression, which occurred based on self-assessment. In a daily questionnaire, the patient was asked to report the following:

1. pain, a common side effect of orthodontic treatment due to applied forces,
2. air gaps, to monitor fit between orthodontic appointments and
3. pressure, as an indicator of orthodontic force magnitude.

When pressure was given the lowest rating, the patient would switch to her next aligner. The orthodontist, as expected, was in charge of the entire course of the treatment and verified tracking of the teeth in aligners during regular appointments.

**Analysis of results achieved**

Treatment using OrthoPulse progressed well. Archform development and tooth alignment were achieved in a time period of less than four months. The patient was changing Invisalign aligners every 5.5 days during her OrthoPulse active study phase. An interesting finding was that she was able to change aligners during her refinement/finetuning phase at the rate of every 4 days using OrthoPulse. Overall treatment time was less than one year, but it is important to note that several of the 12 months included non-OrthoPulse periods during the study and waiting for additional aligners during the refinement phase.

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**Fig. 4:** Final result on a panoramic X-ray.

**Fig. 5:** Final cephalometric X-ray.

**Fig. 6:** Final result.