

iSmile Clear Aligner Case Study

The Use of iSmile Clear Aligners in the Restoration of Anterior Open Bite and Minor Lower Arch Crowding

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In open bite case treatment planning, proper diagnostic differentiation is essential to determine the necessary corrective procedures. While skeletal open bites require both orthodontic and orthognathic treatment modalities, dentoalveolar open bites readily respond to orthodontic treatment alone.

Removable clear aligners have recently gained popularity in the treatment of complex orthodontic cases including open bite malocclusions. Not only do they offer shorter treatment periods than the conventional fixed appliance orthodontic treatment, but they also present improved esthetics, greater comfort, ease of use and better hygiene.

In this case study, we demonstrate how anterior open bite can be successfully corrected using iSmile® clear aligners without the need for fixed orthodontic appliances or surgical intervention.

Case Presentation and Administration:

A 39-year-old female came to the practice with concerns about the appearance of her smile. Her primary concern was the alignment of her maxillary incisors. Upon examination, it appeared that she presented with anterior open bite along with spacing between the anterior teeth and minor crowding in the lower arch (Figure 1).



Figure 1: Clinical pictures showing anterior open bite along with spacing in the anterior teeth (1A) and minor crowding in the lower arch (1B).

Case Planning:

The treatment objectives using iSmile® clear aligners were to correct the alignment of her anterior teeth through closing the spaces present in the maxillary arch, relieving the crowding in the mandibular arch and fixing the anterior open bite. Regarding the patient's occlusion, treatment objectives included improving the overbite and overjet relationship.

Regarding the upper arch, extrusion of the anterior segment was performed to close the open bite, achieve positive overbite and improve the midline shift (Figure 2A).

Mandibular arch crowding was corrected in the lower arch over 2 stages. The first stage was for expansion of the arch. Meanwhile, the second stage was for properly aligning the teeth.

The correction of the upper and lower arches eventually led to optimization of the occlusal relationships and correction of the malocclusion (Figure 2B).

Attachments were placed on several teeth in order to achieve more predictable tooth movement.

The patient was instructed to wear the aligner full time for a treatment period of 21 months. Overall, iSmile® clear aligner treatment involved 42 upper aligners, 19 lower aligners, 2 templates and 2 retainers.



A **B**
Figure 2: Clinical pictures showing gradual closure of both the open bite and spacing in the anterior teeth (2A), eventually leading to optimization of the occlusal relationships between the upper and lower arches (2B).

Final Result:

After the treatment period ended, the patient's dentition showed reduction of overjet and positive overbite in the anterior region. In the lower arch, lower canine rotations were improved, which relieved lower arch crowding. Overall, she showed improved occlusion and enhanced arch form (Figure 3A,3B).

After the treatment period was completed, the patient was placed on a retainer regimen to prevent relapse.



A

B

Figure 3: Clinical pictures showing the final clinical result (A,B).



Figure 4: Patient before and after photos.

Conclusion:

Anterior open bite cases can be successfully treated using iSmile® clear aligners. This is due to the thickness of the aligner material, which creates proper forces on the teeth and hence helps with the correction of the open bite. Aligners are also able to create a barrier between the teeth and the tongue to prevent any tongue thrusting that may possibly interfere with closure. Indeed, aligners are a valuable tool in the correction of anterior open bite cases.