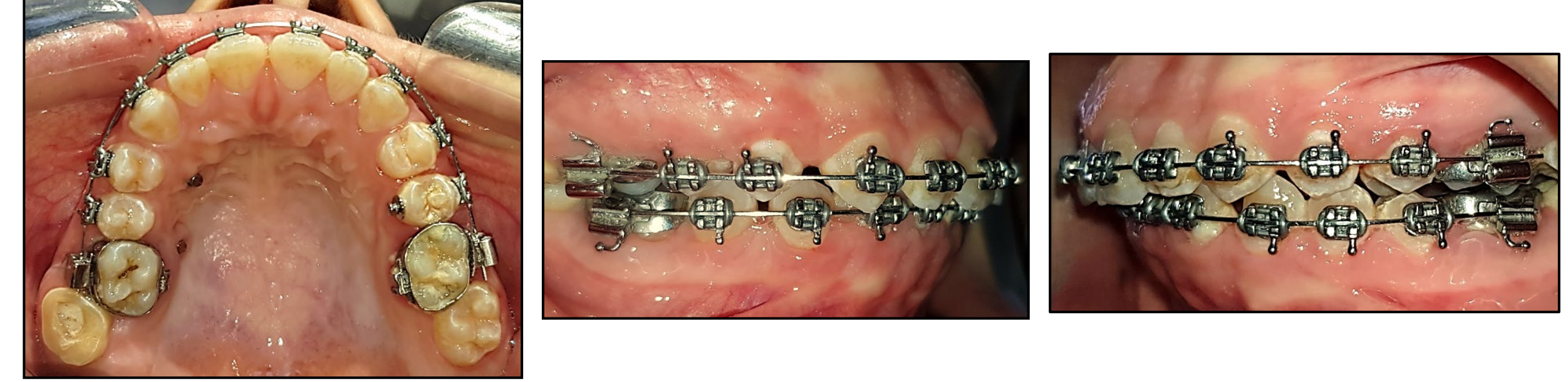


INTRODUCTION

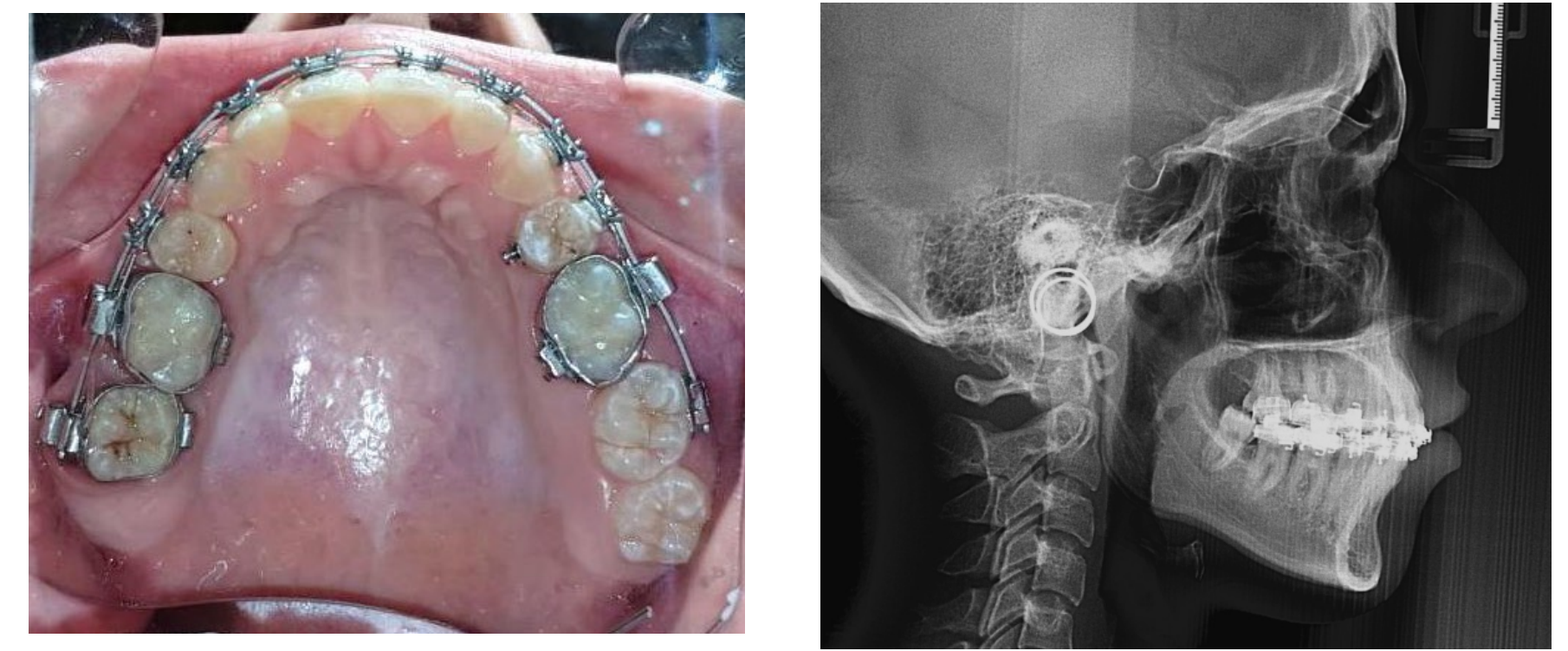
Severe maxillomandibular transverse discrepancies are considered a relatively rare form of malocclusion. Scissor bite is a transverse discrepancy characterized by a completely buccal occlusion of maxillary posterior teeth to the opposing mandible. Early interception on such cases is highly recommended in order to avoid consequent impairments such as mandibular deviation, temporomandibular joint disorders, chewing difficulties and deteriorated muscular functions. For mild cases, intermaxillary cross-elastic with transpalatal arch are effective in achieving treatment goals. However, severe cases with extreme teeth extrusion usually require the application of different tactics of orthognathic surgeries, jaws osteotomies, surgery first approach or functional appliances at early ages. In the presented case, a miniscrew-enhanced treatment was applied to solve a challenging severe scissor bite in a patient who declined the extensive surgery option.

Case Presentation

A 15-year-old Arabic female with no relevant medical history presented with mild facial asymmetry accompanied by a severe unilateral scissor bite and inability of chewing at the right side. This was complicated with class II subdivision malocclusion, lower midline shift of 4 mm to the left, increased overjet, increased overbite and upper and lower arches spacing. A considerable transverse discrepancy presented between upper and lower arches with no displacement while opening and closing. The patient and her parents rejected any surgical approach for the treatment. Alternatively, a miniscrew-assisted treatment was proposed to manage the existed severe defect.



Step 4: End of transverse discrepancy correction. At this stage, extraction of 14, 24, 44 was planned. Extraction of 17 was also done in order to allow spontaneous replacement by 18.



Step 5: End of space closure stage. The sagittal discrepancy was corrected. 18 replaced 17

RESULTS

Facial Aesthetics

The facial aesthetics improved throughout treatment. Lip competency was improved and the profile became less convex. A slight increase in lower face height was achieved through ramal growth.

Smile Aesthetics

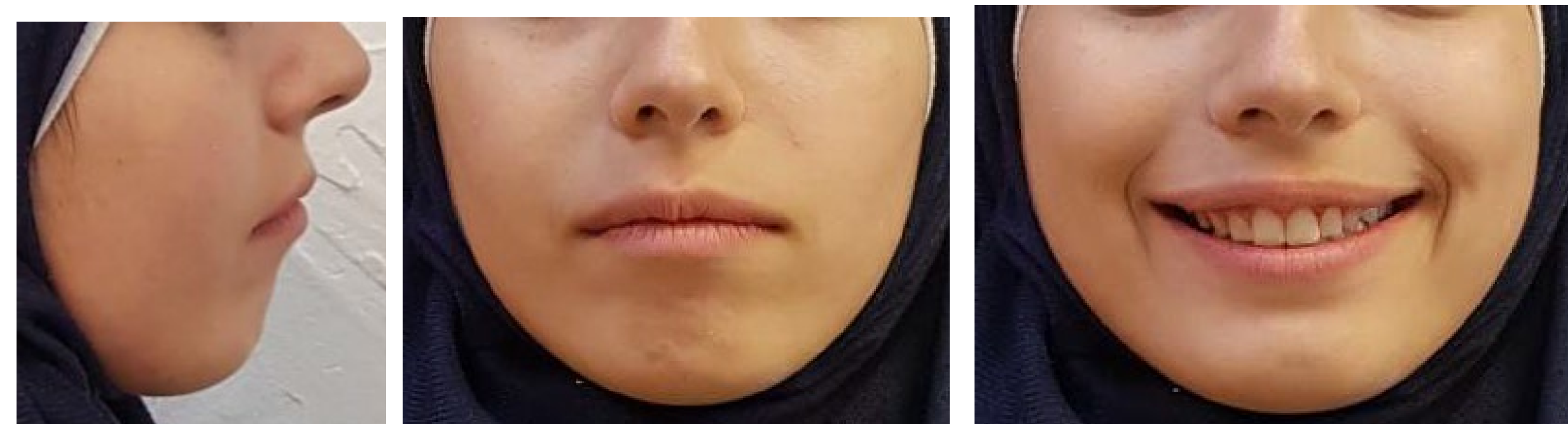
The smile arc followed the curvature of the lower lip well. The amount of gingival display on the upper right side was significantly decreased. The case finished with good upper incisal display at rest and smiling.

Dental

A class I occlusion was achieved with normal overbite, overjet and good interdigitation; however, lower right first molar needed mesial offset and toe-in.

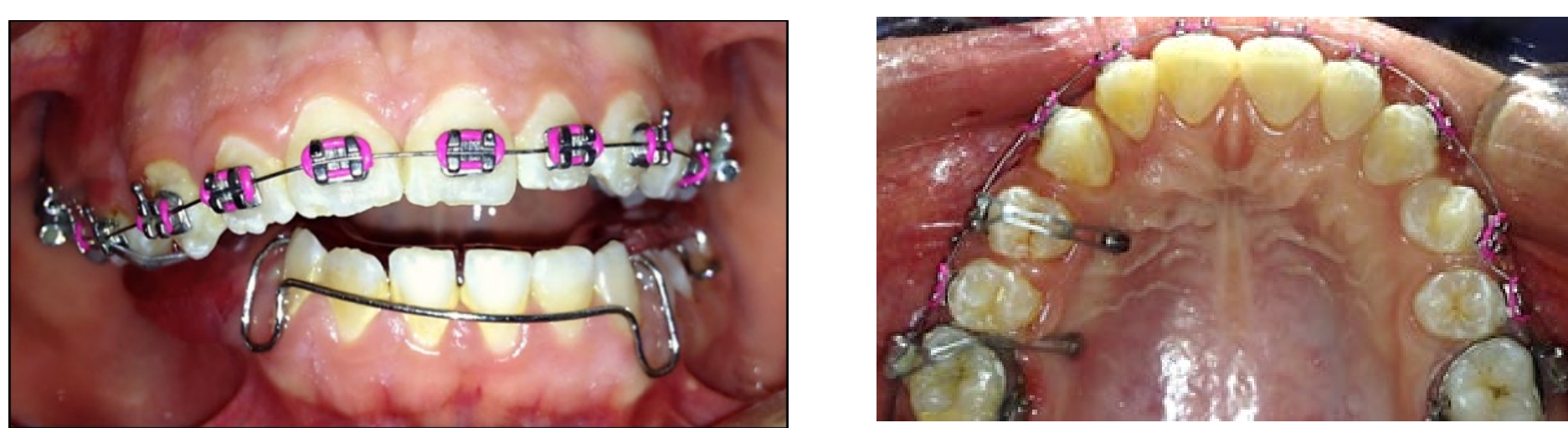
Retention

Upper and lower removable vacuum formed retainers were issued.



Treatment Progression

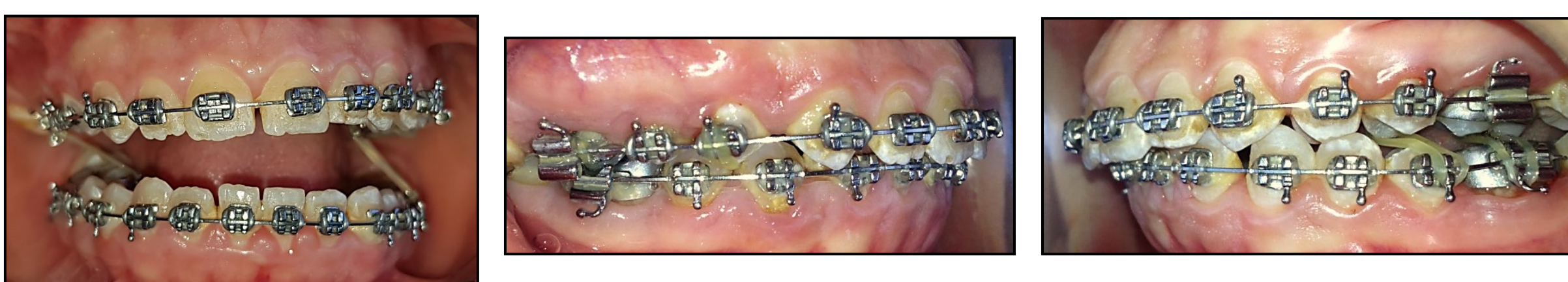
Full upper and lower pre-adjusted edgewise appliances (0.022"x0.028" slot) with MBT prescription was utilized. Two miniscrews (1.6 mm in diameter, 8 mm in length) were inserted palatally and were utilized to apply intrusion and palatal displacement on the upper right segment. At the early stages, a removable posterior bite plane was applied, then, bite turbos were bonded and the upper archwire was segmented. During the treatment, 17 caused a functional painful mandibular displacement with no improvement in its position, thus, underwent crown length reduction after being root-canal treated. The treatment plan was modified to extract the 17 at the appropriate timing to be replaced by 18. When available space was achieved for bonding lower brackets, lower fixed appliance was bonded and intermaxillary elastics were used to enhance the correction. After fully correction of the transverse discrepancy, treatment involved extraction of 14, 24, 44 to achieve class I incisal relationship. 17 was Replaced by 18.



Step 1: Fixed appliance was bonded on the upper arch. Two palatal miniscrews (1.6 mm in diameter, 8 mm in length) were inserted. Removable lower bite plane was provided.



Step 2: During the progression of the treatment, the lower removable bite planes were replaced by bite turbos and the upper arch wire was segmented. Upper right 7 caused a functional painful mandibular displacement and, thus, underwent crown length reduction after being root-canal treated. The treatment plan was modified to extract 17 at the appropriate timing to be replaced by 18.



Step 3: When available space was achieved for bonding lower brackets, lower fixed appliance was bonded and intermaxillary elastics were used to enhance the correction.

CONCLUSION

The presented severe scissor bite was successfully and efficiently managed using two intra-alveolar mini-screws. The utilization of miniscrews extended the ability of applying wide variety of biomechanics, hence, resolving challenging severe unilateral scissor bite and decreasing the need of orthognathic surgeries.