In patients with missing anterior single tooth gaps which are scheduled for implant placement, challenging situations can frequently be encountered regarding the neighbouring teeth. These can include asymmetric tooth or gap sizes; triangular shaped clinical crowns; discoloured teeth; and fillings. These problems can jeopardise the aesthetic result, even if the implant treatment is of the highest standard. Minimally invasive or non-invasive prosthetic treatment of the neighbouring teeth using veneers can help to solve these problems.

The fabrication and handling of these very thin veneers requires great skill by both the dental technician and the dentist. Feldspathic ceramic is layered and sintered directly on to a special model. The insertion of the veneers with resin-based cements is also a delicate task – they may break at try-ins or cementation, since they only reach their stability once they are adhesively bonded to the underlying enamel.

Unfortunately, there is not yet any scientific evidence regarding the long-term results of these minimally invasive veneers. Possible complications could include ceramic fractures; discolourations; or loss of retention. However, clinical experience so far has been very promising.

Case presentation

A 25-year-old patient was referred to the clinic for replacement of a missing lateral incisor and general improvement of the aesthetic appearance of his anterior teeth (Fig. 1). A resin-bonded bridge had been inserted by the referring practitioner, replacing the missing right lateral incisor. The patient presented with a midline shift (2mm to the left), and a gap between the central incisors. After removal of the resin-bonded bridge, it became more evident that the gap for tooth 12 was too wide in comparison to the right lateral incisor (Fig. 2).

A direct mock-up from on a diagnostic wax up was tried in and discussed with the patient. Based on a CBCT scan and this simulation of the desired final outcome, digital implant planning was performed (Fig. 3) and a 3D-printed splint fabricated for guided implant placement (Fig. 4). After completion of the hygiene phase, an Astra Osseospeed implant with a 3.5mm diameter was placed in the prosthetically correct position, resulting in a major buccal osseous defect (Fig. 5 and 6). The defect was regenerated using demineralised bovine bone mineral (DBBM) and a non-resorbable ePTFE membrane (Fig. 7). Healing was uneventful (Fig. 8) and the membrane was removed after 6 months, revealing a nicely regenerated ridge (Fig. 9). Additionally, an autologous connective tissue graft harvested from the patient’s palate was used for soft tissue augmentation of the site. Eight weeks after the soft tissue graft, abutment connection was performed. A temporary implant crown was inserted which allowed for conditioning of the peri-implant soft tissue by adding flowable composite to the temporary implant crown (Fig. 10). In order to correct the midline shift and improve the aesthetic appearance of the patient’s smile, the placement of veneers was planned on the adjacent incisors. Furthermore, a non-prep additional veneer was planned to cover the colour defect of the right canine. A second prosthetic mock-up, based on the diagnostic wax-up, was presented to the patient revealing the amount of dental hard tissue that would need to be removed in order to realise the planned restorative treatment (Fig. 11).

In order to minimise the need for buccal preparation of the front teeth, and to correct the midline shift, the incisors were slightly moved palatally as well as to the right using a transparent splint. Subsequently, the central incisors and left lateral incisor were prepared for the veneers and the final impression was taken using retraction cords (Fig. 12). Following bisque bake try-ins, the final implant crown and the veneers were inserted using a resin-based cement (Fig. 13, 14 and 15). The screw-retained implant crown was fabricated with a directly veneered gold abutment. The patient was very happy with the final result (Fig. 16).

In this case, four anterior teeth were treated prosthetically, which led to a certain loss of tooth substance and considerable treatment costs. However, the patient’s wish for correction of the midline and improvement of the shape of the incisors could only be achieved with four veneers. The patient wears a night guard both for protection and retention of the maxillary anterior teeth.