Management of complex dento-alveolar trauma with implants Stefano Del Monte^a, Azim Malik^band Mital Patel^c

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Aim

This case outlines the treatment provided to a patient presenting with severe dental trauma with extensive hard and soft tissue defects. In particular it highlights the various surgical and prosthodontics stages required to restore function and aesthetics. The case shows how carefully planned and executed treatment can help re-build confidence in trauma patients.

Case overview



A 19-year-old female patient presented to the Dental Hospital with multiple fractures, loss of several teeth and extensive bone loss following several fractures to the mandible. The oral and maxillofacial team carried out Open Reduction and Internal Fixation to repair the fractured mandible but as a result the patient was left with unfavourable inter arch relationship, extensive scar tissue and a lack of keratinised tissue in the lower anterior region in particular. The patient was keen to have a fixed replacement of her teeth.

Tissue regeneration and implant placement



Prior to implant placement the soft tissues were optimised in the lower anterior region using a collagen matrix graft (Mucograft, Geistlich) sutured onto to a split thickness connective tissue bed. Following healing, a significant increase in keratinised tissue was noted as well as an improvement in the ridge profile. Straumann tissue level dental implants were then placed in the UL5, UL1, UR1, UR5, LL2, LL5, LR2 and LR4. All implants were placed with a traditional vacuum formed surgical stent to guide their position.

Provisional prostheses



3D printed screw retained PMMA provisional prostheses were secured in both the upper and lower mandible. Soft tissue manipulation was performed using addition of composite material to PMMA restorations. Due to the extensive vertical bone loss it was not possible to create ideal papillae in this case and therefore a plan to add ceramic in the final restoration was made. A stable occlusal relationship was established at an increased OVD. The provisional restorations were trialed for a few months before proceeding to the definitive phase.

Definitive prostheses



Posteriorly, the upper arch was restored with a single implant retained crown and a two unit cantilever bridge. The upper anterior region was changed to a four unit definitive bridge to allow for the addition of pink porcelain. The upper anterior bridge was made on two variobase (Straumann) abutments and a milled zirconia framework with layering porcelain. The lower long span bridge on four implants was made with a milled framework with angle correction (Createch) and layering porcelain. All restorations were screw retained.

Conclusions

Implant retained prosthesis can be favourably used in restoring complex dento-alveolar trauma. The use of connective tissue substitutes can help correct soft tissue deficiencies and enhance aesthetic outcome, without increasing patient morbidity with a donor site. When treatment planning such cases one should consider the prognosis of the remaining dentition and plan for future extension of the current prosthesis, especially in the young patient. This case shows how all of these principles have been applied to achieve an acceptable clinical outcome.

