

Aspirational implant surgery

Implant dentistry is an all-encompassing field that delves deep into the realms of periodontology, oral surgery and restorative disciplines, says [Adam Patel](#)

The discipline of implant dentistry demands an intricate understanding and appreciation of several aspects of dental surgery. It truly is an all-encompassing field that delves deep into the realms of periodontology, oral surgery and restorative disciplines. Comprehensive treatment aspirations often encompass a diligent multi-disciplinary approach commencing with the final aspired outcome in mind.

Substantial time, effort and endeavour must be devoted to garnering a deeper understanding of all the sciences enveloped within this exquisitely artisan profession, in order to harmoniously replicate nature. Implant surgery accomplished in a thoughtful and controlled manner is truly an embodiment of all the intricate multi-faceted skills we nurture over several years of practice.

The key to achieving success in this discipline is to consolidate knowledge and nous accrued by gaining a thorough understanding and respect for all of the aforementioned disciplines. Often, a multi-disciplinary approach needs to be implemented during the treatment planning phase in order to formulate a comprehensive, coherent and predictable plan.

Prior to embarking on a journey through this discipline, ensure you have invested copious amounts of clinical time and effort so that you may do justice to yourself, your patient and the profession at large. For errors within implant dentistry can be relentlessly unforgiving, whilst results can be devastatingly more reprehensible if things go wrong.

Below I present a short concise summary of a case that involved rehabilitation of the maxillary dentition combining periodontal, surgical, restorative and prosthodontic elements. Indeed, a short clinical article does not do a case of this magnitude justice. However, the desired objective of displaying the below case is to convey the intricacies, heedfulness, attention to detail, reflection and pragmatism that is often required to achieve a desired outcome, whilst

demonstrating what can be achieved if you follow a thorough step-wise and evidence-based approach to your clinical practice.

Patient history

- Patient: Male, aged 65
- Complaint: Would like to replace fractured UR1-UR3 bridge and missing units UL1-UL4 and UL6-UL7 as well as failing UL5 post-crown.



Figure 2: Following replacement of UR1-UR3 porcelain fused to precious metal bridge



Figure 4 and 5: Lower arch post-operative (comformative approach)



Figure 6: Post-restorative phase anterior view of dentition

Patient also wished to have LR2 restored and LR1, LL1, LL2 and LL3 crowns replaced due to marginal recession, unsound/leaking margins and unsatisfactory aesthetics.

- History of present complaint: URQ bridge



Figure 1: Preoperative image following removal of fractured bridge



Figure 3: Lower pre-operative arch



fractured recently and decemented anteriorly. ULQ teeth extracted over six months ago. Lower anterior crowns present for over seven years

- Extraction status: forcep and surgical extractions with no retained roots
- Previous dental history: regular attendance and history of routine dental treatment. Wears P/-C/C (partial cobalt chrome)
- Medical history: ASA1, fit and well, no previous medical conditions and taking no prescribed medications. No known drug allergies
- Social history: non-smoker and does not drink alcohol
- Primary expectation: improve masticatory function and have a balanced dentition

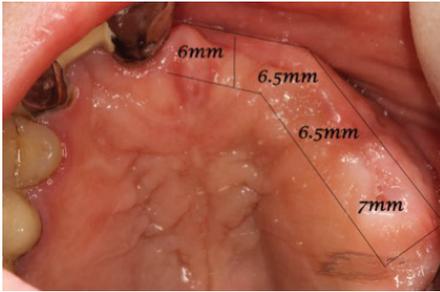


Figure 7 and 8: I/O view upper arch following restorative phase and healing post-extraction of UL5. Measurements show ridge width in ULQ



Figure 8: Inter-maxillary height measurement



Figure 9: Articulated study models



Figure 10: Diagnostic wax-up ULQ

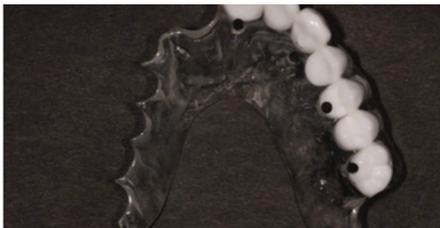


Figure 11: Radiographic stent with radiopaque Voclar teeth



Figure 12: Maxillary CBCT scan showing bone height and width

- Secondary expectation: to replace removable prosthesis with fixed prosthesis
- Tertiary expectation: to improve aesthetics and smile line.

Extra-oral examination

- Nothing abnormal detected (NAD)
- lymph nodes: NAD
- Temporomandibular joint: NAD
- MoM: NAD
- Class I skeletal base
- Maximum vertical opening: 40mm
- Low smile line
- Lip line at rest on mid to incisal 1/3
- No papilla visible.

Intra-oral examination

- Soft tissues: healthy appearance with NAD
- Oral hygiene: good; patient flosses daily
- Basic periodontal examination:
- Gingival biotype: thick
- Tooth form: triangular
- No signs of active bruxism; restored abfraction lesions
- Gingival recession around PFM crowns
- Plaque control index: 3%
- Bleeding index: 2%
- No calculus
- Caries risk assessment: low risk
- Periodontal risk assessment: low risk
- Mobility: UL5 grade I.

Occlusal considerations

- Angles class I
- Class I incisor relationship
- Overbite: 2mm
- Overjet: 3mm
- No crossbites
- Canine guidance R and L
- No working side interferences
- No non-working side interferences
- Slide from retruded contact position to intercuspal position Vh (large vertical component, small horizontal component)
- Occlusal harmony.

Staged conformative treatment approach

1. Diagnostic wax-ups of planned rehabilitation created on a semi-adjustable articulator with custom incisal guidance table
2. Replace UR1-UR3 three unit fixed prosthesis (porcelain fused to precious metal)
3. Restore LR2; replace LR1, LL1, LL2 and LL3 crowns (porcelain fused to precious metal)
4. Extract failing UL5 post-crowned, GI mobile tooth with poor prognosis

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Figure 13: Immediately post placement of fixtures UL1, UL3, UL5, UL6

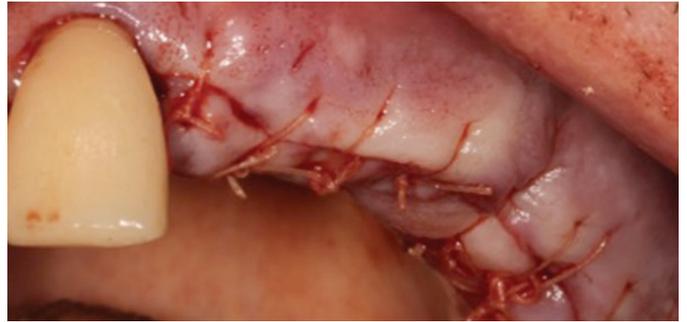


Figure 14: Guided bone regeneration was carried out and the implants buried submucosally. Tension-free flap closure was achieved and immediate post-suturing appearance as above



Figure 15: Appearance following exposure and placement of healing abutments



Figure 16: Atlantis ISUS framework milled from solid block of titanium produced using the latest developments in CAD/CAM technology



Figure 17: Framework with porcelain fired onto surface



Figure 18: Acrylic try-in to assess soft tissue deficiencies

5. Implant rehabilitation ULQ with definitive plan to follow. Maintain sound UL8.

The finalised implant treatment plan involved

placement of four fixtures; UL1, UL3, UL5, UL6 based on available bone with restorative solution involving placement of a seven unit bridge.

Conclusion

I sincerely hope the above case will help stimulate a desire to expand your knowledge and skill-set through post-graduate training.

Dental school provides us with a stable foundation upon which we can broaden our horizons and capabilities within the profession. Some may not wish to specialise or focus onto any one specific discipline and that in itself is absolutely fine, but I sincerely believe post-graduate training will nurture the best clinician from within you and help fine-tune those skills you began to garner at undergraduate level.

There are a plethora of post-graduate training institutes and courses, so research them well, speak to former alumni and find a pathway that is most suited to your goals. 

Dr Adam Patel
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 BARD graduated from the University of Liverpool in 2008, going on to embark on a multitude of post-graduate courses in restorative, prosthodontics and oral surgery. He also has an MSc in implantology from the University of Manchester. Dr Patel is a lecturer and visiting clinician in several practices nationwide, whilst providing mentorship for implant dentists.




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Figure 19 - 21: Final result