Management of Combined Erosive and Traumatic Tooth Surface Loss using Injection Moulding and Indirect techniques

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History

Presenting complaint
Broken and chipped teeth, wants her smile back

Medical history
Epilepsy, depression, anxiety, history of IV drug abuse, previous bulimia

Sodium valproate, Lithium, emergency Midazolam, Lithium, Quetiapine

Social and dental history:
29 year old female, ex smoker, occasional alcohol

Previous dental treatment included restorations only until epileptic seizure in 2018, which lead to extensive facial and dental trauma

Diet history:
High sugar intake, low acid intake

Examination

Extra oral examination
Facial scaring from accident – forehead, left philtrum and left nasal alar

Skeletal class I

TMJ assessment revealed no abnormalities

Facial scaring from accident

Extra oral examination
Facial scaring from accident – forehead, left philtrum and left nasal alar

Skeletal class I

TMJ assessment revealed no abnormalities

Facial scaring from accident

Intra oral examination
Soft tissues: NAD

BPE: 1 1 0

Root canal treated UL1, UL2, UL3

Discoloration of UL3

Localised tooth surface loss: intrinsic erosive and previous trauma

BENW: 1 3 3

0 0 0

Oclusion: Slightly reduced OVD, no space for restoration, Class 1 incisors

Special Investigations

Bitewing and IOPAs were taken at first trauma assessment at RLH: Diagnosed caries in US1,US2,UL6,UL16 which was treated prior to my treatment plan

Subsequent IOPAs of UL1,UL2,UL3, taken to assess RCT quality and root morphology of UL2 [RCTs completed by previous DCT in training]

Upper and lower impressions, facebow and RCP record was taken to gain articulated study casts for mock up

Diagnosis

Generalised multifactorial tooth surface loss (intrinsic erosion and trauma)

Previous RCT UL1, UL2 and UL3 (Acceptable, good quality, slight extrusion UL1, accepted)

Generalised plaque induced gingivitis

Discoloured UL3

Clinical Photographs

Discussion of options

Conformative Y Reorganised approach:

Reorganised approach most appropriate due to need for increasing OVD to allow restoration of palatal and incisal wear; re-establish correct OVD and restore aesthetics

Choice of restorative material for restoring UL123 and UL3:

Primary aetiology of TSL is erosion therefore minimal parafunctional forces

Options included: Composite (Direct or indirect), Metal, Metal ceramic and all ceramic restorations

Direct composite was material of choice due to its minimally invasive nature and suitability for restoring erosive TSL

Injection moulding or free hand build ups were discussed. Injection moulding selected due to...

Discussion longevity of composite restorations, the need for excellent OH replacement needs in the future, risk of staining and chipping

Choice of restorative material for UL2:

Minimal coronal tooth structure resulted in need for post and core. Planned for RCT and fibre post and resin core to allow root canal to be immediately sealed and tooth temporised

Definitive crown made from PFM but could have been made from all ceramic as well

Discolouration of UL3:

Option of non vital internal/external bleaching offered but due to COVID19 delays, patient was keen for masking with composite instead

Treatment plan

Prevention

- Oral hygiene instruction, diet advice, high fluoride toothpaste (full mouth supra gingival scaling completed by previous trainer, following Delivering Better Oral Health Toolkit)
- Patient presented to me with good OH after preventative advice already given by previous trainer

1. Upper and lower impressions, facebow and RCP record was taken to gain articulated study casts for mock up

2. Mock-up completed intra-oral: accepted by patient

3. Subsequent IOPAs of UL1,UL2,UL3, taken to assess RCT quality and root morphology of UL2 [RCTs completed by previous DCT in training]

4. Preparation of post crown for UL2: direct post

5. Restoration of palatal capping UL1,UL3

6. Review/Next visit – NICE Guidance

Reflection

Learning and understanding the injection moulding technique – initial difficulty getting smooth junction at gingival margin, use of double retraction cord technique was helpful in achieving successful outcome

Improved polishing protocol required, which was practiced over the course of the treatment plan

Discolouration of UL3 – ideally this should have undergone non-vital bleaching but the patients wish to not to have this due to time constraints. In addition, more work could have been undertaken to block out grey discoloration using more opaque composite

Temporary crown caused inflammation of gingival tissue leading to gingival margin to be pushed apically to review after healing and fit of crown

Overall, an improved aesthetic outcome and a happy patient. Both oral hygiene and patient motivation have had a massive improvement