Comprehensive Case Mrs S

Severe tooth wear and loss of posterior support treated by composite build ups and upper denture with precision attachments while increasing the OVD

History

Presenting Complaint

Mrs S presented 12/4/11 complaining of the poor appearance of her teeth, she also complained of sinus problems, grinding, and sensitivity.

Social History

- smokes 10 a day
- drinks copious amounts of diet coke

Extra - Oral Examination

- no TMJ clicking/crepitus/pain
- no limitation/deviation on opening
- no swelling/asymmetry/tenderness
- no headaches

Intra - Oral Examination

- Keratosis of the edentulous ridges evident, otherwise the soft tissues are healthy
- Advanced toothwear of both upper and lower teeth evident, due to both erosion and attrition. Toothwear extends into the pulp of several teeth

Occlusion

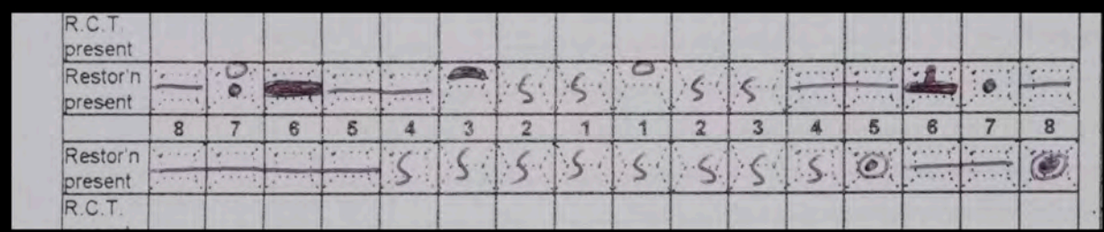
I was not able to determine the first contact in RCP at the first visit, I attempted to record RCP using a lucia jig and mounted study casts, the resulting mounted models were however also incorrect as wear facets on the 26 and 35 would indicate that a much more retruded position is possible. Indeed the side profile shot would indicate that this lady is grossly overclosed.

Group function is seen on both right and left lateral excursions with a NWSI seen on right lateral excursions on 26 & 37.

Periodontal Examination

Full mouth PPD's were caried out and no pockets greater than 3mm were found. No bleeding on probing.

Charting



Extra Oral Photos 4/5/11



Intra Oral Photos 4/5/11


Radiographs 12/4/11







Treatment Planning

Radiographic Findings

-13,12,13 appear to have peri-apical pathology
- approximatley 2mm generalised bone loss with the exception of 17,16 where a vertical defect is present associated with ++ subgingival calculus

Special Investigations

Endofrost confirms that 13,12,23 are non vital
27 is grade 2 mobile - most likley due to occlusal trauma.

Discussion on treatment planning

The treatment priorities were to
- eliminate any infection
- bring toothwear under control
- restore function
- restore appearance

The OVD was going to have to be increased to allow for the lost tooth structure to be replaced and therefore as the occlusion was going to be reorganised this would be best done in RCP

There were a range of options for restoring her dentition in RCP. Given the budget we had to work with implants were clearly not an option. Also given the state of 13,23 fixed bridgework was not an option. This left only the denture route available to us.
The decisions then centred around what design of denture to use and what teeth to keep. The decision was made to retain the canines as their extraction would have led to significant bone loss and collapse of support for the face. These teeth also had good bony support and had the potential to be very good overdenture abutments. Indeed the decision was made to utilise these teeth for precision attachments to aid in retention and eliminate the need for any unsightly anterior clasps.
Initially it was felt that 12,11,21,22 could be restored via composite build up to increase the OVD and restore appearance, however Mrs SC1057 did not return for treatment for 6 months by which time there was not enough coronal dentine left for 12,22 to be restored in this fashion. It was decided to retain these roots as a back up plan should anything happen to the canines.
Consideration was also given to using a metal framework, however given the budget and questionable prognosis of some of the abutment teeth an acrylic denture was used

Treatment Plan

Stage 1 - Acute treatment

At her second visit mrs S presented with severe pain trom the upper left quadrant to hot/cold lasting >10s this was localised to tooth 27 and first stage rct was carried out

Stage 2 - Stabilisation

RCT's on 13,12,22,23,27
Remove subgingival calculus
Bring intake of carbonated drinks under control

Stage 3 - Reconstruction

Construct precision attachments 13,23
Replace lost tooth structure on lower arch with composite
Build up 11,12 to increase OVD and move into RCP
Construct denture

Stage 4 - Maintenance

Regular hygiene appointments and follow up to ensure no further tooth wear

Sequence of Treatment

Visit 1 12/4/11
New patient consultation, radiographs taken

Visit 2 4/5/11
Impressions and registration in RCP, photos taken (written consent obtained) 1st stage RCT carried out on 27

Visit 3 11/5/11
Diet advice and advice given on oral health techniques by dental nurse

Visit 4 31/5/11
Insert lower whitening tray, full mouth subgingival scaling.

Visit 5 30/6/11
Registration redone in RCP to remount models
17 had buccal composite placed

Visit 6 20/12/11
13,12,23 had root canal therapy
13,23 prepared for precision attachments

Visit 7 10/1/12
Cemented precision attachments 13,23
All lower teeth except 37 restored with composite to replace lost tooth structure

Visit 8 13/1/12
22 root treated
12,22 overdenture preparation
11,21 built up in composite to restore appearance/ increase the OVD and allow the jaw to go back to RCP
Impresions taken for special tray

Visit 9 27/1/12
26 MODB amalgam placed
27 XLA as size 10 file # in heavily infected canal and access was poor

Visit 10 8/2/12
Master impression, registration in RCP and facebow taken

Visit 12 2/3/12
Insert denture

Visit 13 12/3/12
Review denture
Hygiene visit
37 occlusal composite

29/5/12
Photos/impressions taken for final articulated casts

Root canal therapy of 13,12,22,23

13,12, and 22 were root treated in one visit, anesthesia was administered and rubber dam was applied. Canals were negotiated to near the WL as estimated from the radiographs and S1 protaper used to flare the canal. Working lengths were determined with an apex locator and visually compared to the radiographs. Canals were worked to size 20 flexofile 0.5 mm short of the apex locator reading.

Canals were then worked through F1, F2, and F3 maintaining patency with a size 15 flexofile and rechecking the WL with the apex locator after F2. Canals were irrigated with 5% hypochlorite followed by a 17% EDTA solution. Obturation was carried out with F3 GP points. 13 and 23 were prepared for posts to (red) leaving 4 mm of GP apically. 22 was root treated at a later date in a similar manner.

Build up of lower teeth

To restore the lower dentition it was decided to use composite due to its
- ease of placement (one visit)
- highly conservative nature
- relatively low cost
- easy to adjust

The intention of the build ups was to return these teeth to their original form. While these teeth would open the OVD final refinement of the OVD was to be done with the maxillary teeth as were refinements in lateral excursions.

Anesthesia was administered and rubber dam placed, a coarse diamond bur was used to roughen the tooth surface (especially the sclerotic dentine) to encourage bonding and the teeth were sandblasted with 50 micron alumina particles to encourage bonding. A 3 step bonding agent (optibond FL) was used and the teeth were built up incrementally using a nanofilled composite (filtek supreme) in denitne and enamel shades. Final curing was carried out with the teeth covered by glycerine jelly. Polishing was carried out using soft flex discs. Patient was warned that the bite was going to be “high”.

Restoration of anterior 6 teeth

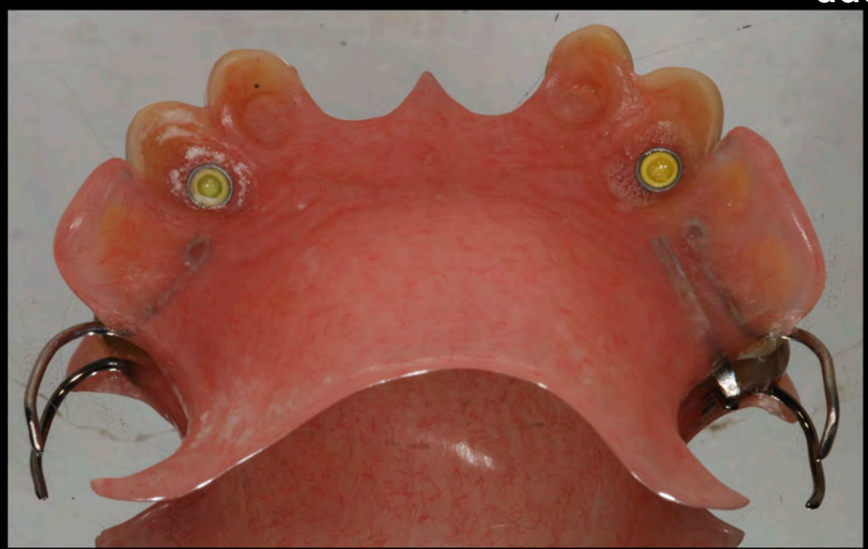
13 and 23 were prepared for cast post cores (non precious) and these were constructed with bredent ball end attachments, these were cemented with zinc phosphate. 12 and 22 were prepared for overdenture abutments. Finally 11 and 21 were built up in composite. A nanofilled composite with enamel and dentine shades was used along with a 3 stage bonding agent

Firstly the facial aspect was built up to return the tooth to its original shape. Next the OVD was increased untill the facial profile did not appear overclosed. Then the occlusal platform was extended palatally such that when Mrs SC1057 retruded her mandible her lower teeth were still loading 11,21 axially.

Impressions were taken for a special tray at this visit.

Denture Construction

While the special tray was being constructed 26 had an extensive amalgam restoration placed and 27 had to be extracted as there was not enough access to carry out the root treatment. Guide planes were prepared in the mesial surfaces of 16,26 and a mesial rest seat in 26. The master impression was taken in a medium body addition cured silicone.



A facebow registration was taken and a blue mouse bite was taken in RCP. It was decided to go straight to finish as 11 21 were the sole teeth in occlusion. The decision was also made to have the denture teeth 13,12,22,and 23 fitted gum as there had been no soft tissue loss in these areas and retention was not an issue

Extra Oral Photos 29/5/12



Intra Oral Photos 29/5/12


Maintenance

Mrs S is to be seen on a 3 monthly recall initally to reinforce oral hygiene procedures and the need to stay away from carbonated drinks. We will monitor the restorations and should any # of the composite occur we will repair them. The composite build ups will need to be polished approximatley every 6 months to maintain their appearance

Reflection

This was quite a challenging case given the amount of toothwear involved and the constraints placed on the treatment plan by the budget. I feel that we have given this lady a result that is a huge improvement on her existing situation that has some flexibility should she loose any of the upper teeth. Unfortunatley working to such a tight budget there were a number of things that I would like to have done differently, it would have been nice to try and save tooth 27 via referral to a specialist endodontist. Likewise the placement of gold onlays on 16, and 26 would have been the preferred treatment.

While a denture with a metal framework is better tolerated by patients, due to the bone levels and relatively short roots of 16 and 26 an acrylic denture may be a more pragmatic solution in this case. The decision to utilise 13 and 23 for precision attachments has worked well and the denture is very retentive though the nylon caps will need replaced occasionaly. Unfortunatley it was not noted at insert that there was a slight marginal gap on the palatal of 23, Mrs S has been advised of this and has been shown how to clean it appropriately.

On the bottom arch the use of a nano composite to restore the lost tooth structure should work well. It was highly conservative of tooth structure, protects the underlying dentine from acids, restores the aesthethics, and should wear well as it is mainly opposed by acrylic/composite. Again maintenance will be required in the form of polishing to maintain the appearance as well as the need to repair small # when they occur.

Ultimatley however we have provided this lady with a solution that is a huge improvement on where she started out and one that she is well pleased with.