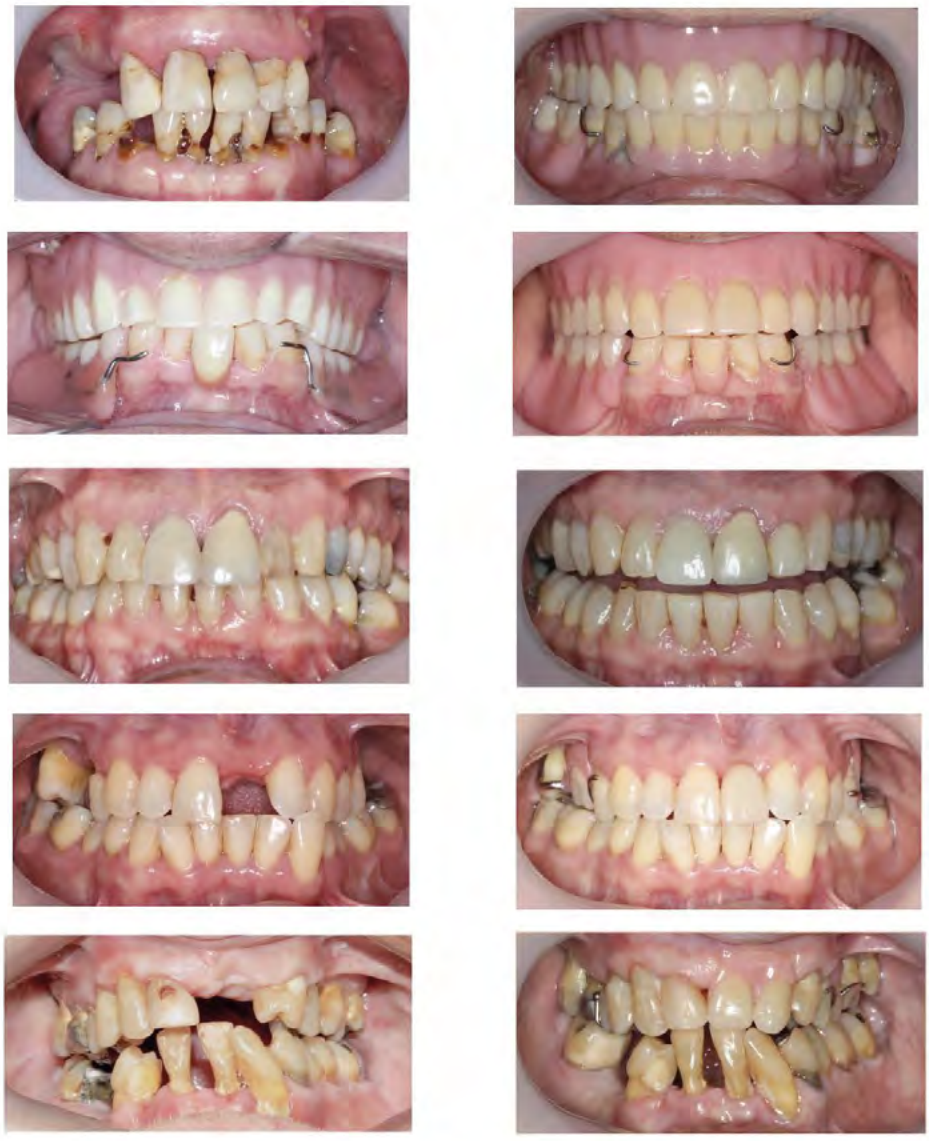
Case Portfolio

2019



[redacted]

Final Year Student
Doctor of Dental Medicine (DMD)
University of Western Australia

Contents

1. Aesthetic removable restorative case

1.1 Presenting complaint

- "I hate the appearance of my lower teeth, I want them all pulled out".
- "Three of my teeth have snapped off".
- "My upper denture keeps falling out".

1.2 History of presenting complaint

- Patient has decided she can no longer put up with her lower teeth after colleagues commented negatively on their appearance last week. Main driving factor for treatment is aesthetics.
- Upper denture needs to be "glued in" with PolyDent Denture Adhesive ever since loss of an upper tooth.
- Deteriorating dentition for many years
    - Patient neglect multiple missed and cancelled dental appointments, patient admits she allowed teeth to decay and gum disease to progress without seeking treatment (very embarrassed of teeth).
    - Lost faith in dental profession due to multiple restorations that were placed and fell out or needed replacement due to decay within a relatively short time.

1.3 Medical history

Conditions	Description
Bipolar disorder type 2*	• Major depressive episode for ≥2wks and at least one hypomanic episode. Typically less frequent and less severe manic episodes when compared with Bipolar disorder type 1.
Hashimoto's thyroiditis*	• Autoimmune condition where immune cells attack the thyroid gland, resulting in impaired ability of the thyroid gland to produce hormones.
Bursitis*	• Inflammation of the bursae that act as cushions at joints.
Hypercholesterolaemia*	• An elevation of total cholesterol and/or LDL cholesterol. May be due to a decrease in HDL cholesterol or an increase in triglycerides.
Smoker	• 2 cigarettes/day for the past 37 years → 4 pack years

*Conditions managed by medication.

Medications	Dosage	Use / Mechanism of action	Dental implication
Clozapine	350mg tablet orally 1x/day at night	• For bipolar disorder • Atypical antipsychotic - effects mediated by blockade of dopaminergic transmission (all D2 receptors, differential blockade of D1 receptors, antagonism of 5HT2 receptors) in various parts of the brain (AMH, 2019).	• Strong evidence of interference with salivary gland function and inducing xerostomia (Wolff et al, 2016). • Metabolised exclusively by CYP1A2 enzyme, which has elevated activity in smokers (due to polycyclic hydrocarbons present in smoke). Smoking cessation & clozapine dosage should be managed under GP to avoid clozapine toxicity.
Ziprasidone	80mg tablet orally 1x/day, as required	• As above.	• As above.
Zopiclone	2x7.5mg tablet orally 1x/day at night	• For insomnia • Non-benzodiazepine hypnotic agent - potentiates inhibitory effects of GABA (AMH, 2019).	• Moderate evidence for inducing xerostomia (Wolff et al, 2016).
Tramadol	200mg tablet orally 1x/day, as required	• For pain assoc with bursitis • Opioid analgesic - weak μ opioid receptor agonist and norepinephrine / 5-HT reuptake inhibitor (AMH, 2019).	• Moderate evidence for inducing xerostomia (Wolff et al, 2016). • Potentially reduced perception of dental pain.
Fenofibrate	145mg tablet orally 1x/day	• For hypercholesterolaemia • Fibrate - activates peroxisome proliferator-activated nuclear receptors and modulate lipoprotein synthesis and catabolism. Reduce plasma triglyceride, and moderately increase HDL and affect LDL concentration variably (AMH, 2019).	-
Levothyroxine	150μg tablet 2x/day	• For Hashimoto's thyroiditis • Thyroxine replaces / supplements thyroid hormone, which is normally produced by the thyroid gland (AMH, 2019).	• Poorly managed hypothyroidism can manifest as macroglossia, dysgeusia, poor periodontal health, and delayed wound healing.

- History of hospitalization / surgery
  - Laser eye surgery in [redacted]
- No known allergies

1.4 Dental history

- History of repeated temporary restorations for rampant caries over the past 5 years.
- Loss of multiple teeth or snapping of teeth over the years due to untreated or unsuccessfully treated caries and periodontal disease.
- CrCo P/ made 4yrs ago in OHCWA, but patient dissatisfied with unsatisfactory retention after snapping an abutment tooth.

1.5 Oral hygiene

- Toothbrushing 2x/day with electric toothbrush and non fluoridated toothpaste (charcoal toothpaste).
- No other dental products used.

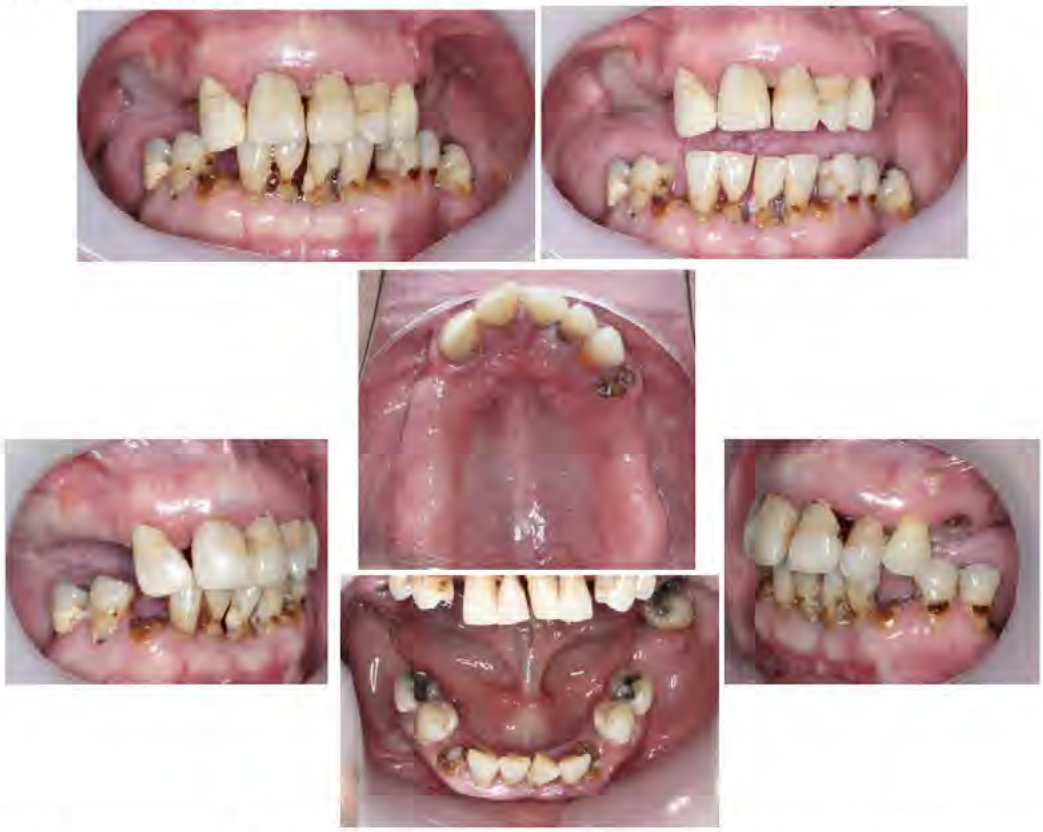
1.6 Social history

- Lives at home alone but is regularly visited by her mother, daughter and grandchildren.
- Works in a bakery.
- Has tried to quit smoking for the past few years, but has been unsuccessful. Smokes 2 cigarettes/day.
- Drinks alcohol rarely; 1 or 2 times per month.

1.7 Extra-oral examination

Facial appearance	Healthy, clear complexion
Facial symmetry	Symmetrical, deviation of nose tip to R
Thyroid gland	No noticeable enlargement or tenderness to palpation
Muscles of mastication	No noticeable enlargement or tenderness to palpation or clenching
TMJ	Smooth movement in translation and rotation on both sides
Facial thirds	Elongated lower third of face
Facial fifths	Balanced and symmetrical facial fifths
Upper lip	Distinct vermillion border, smooth vermilion, healthy appearance
Lower lip	Distinct vermillion border, smooth vermilion, healthy appearance
Smile analysis	On smile, 95% incisal display, 0% gingival display At rest, 0% incisal display Wide Bu corridors (due to missing upper posterior teeth)
Profile	Convex

1.8 Intra-oral examination

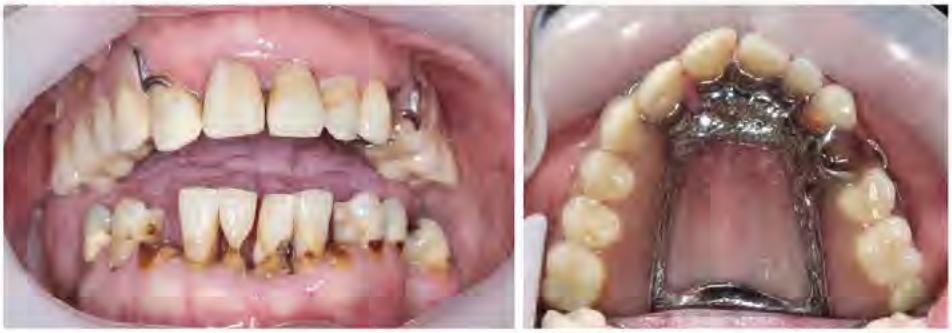


La mucosa	R ulcer 2x2mm with yellow base, diffuse red halo, no induration Ddx: • Aphthous ulcer (most likely given hx of recurrent aphthous ulcers) • Traumatic ulcer • OSCC Management: 2wk review.
Sulci	Smooth, pink, in-tact mucosa
Frena	Smooth, pink, in-tact mucosa
Gingiva	Edematous (loss of stippling), erythematous, very painful to probing, BoP+, blunting of interdental papilla, recession
Palate	U-shaped arch, diffuse erythematous and edematous appearance of anterior hard palate Ddx: • Denture stomatitis (most likely given poorly retentive P/- glued in with PolyDent Denture Adhesive daily) • Traumatic lesion • Allergic reaction Management: Remove likely cause (leave P/- out as much as possible, esp at night & clean meticulously) & 2wk review.
Oropharynx	Smooth, pink, in-tact mucosa
Alveolar ridge	Large, bulbous anterior alveolar ridge supporting prominent Mx anterior incisors, comparatively small posterior alveolar ridges
Bu mucosa	Smooth, pink, in-tact mucosa
Tongue	White dorsal surface; pink, in-tact mucosa on ventral surface
Floor of mouth	No tenderness to palpation or evidence of swelling
Saliva	Appears inadequate - dry appearance of gingiva, tongue, cheeks and teeth
Dentition	Partially dentate Mx and Md Mx & Md dental midlines coincident Mx dental midline L of facial midline

1.9 Occlusion

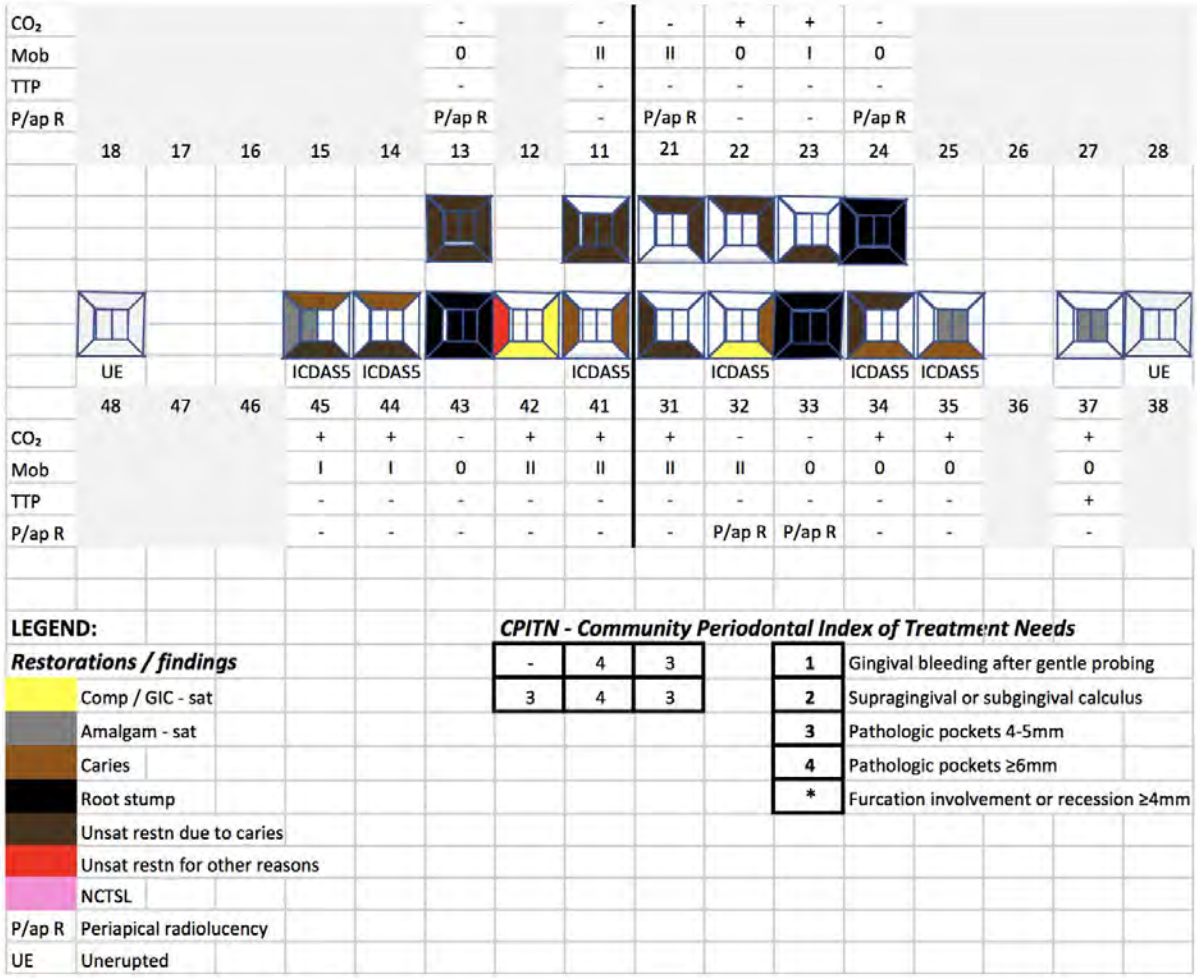
Right lateral	Frontal	Left lateral
Loss of posterior contacts	VDR 72mm VDO 70mm	Loss of posterior contacts
Overjet 5mm Overbite 2mm	Coincident Mx & Md dental midlines	Overjet 5mm Overbite 2mm
Canine rship N/A	Max opening 38mm Max opening (active stretch) 42mm	Canine rship N/A
Molar rship N/A	No deviation or deflection on opening	Molar rship N/A
R laterotrusive movement 5mm Anterior guidance 13,42	Protrusion 6mm Anterior guidance 11,41,21,31	L laterotrusive movement 5mm Anterior guidance 22,32

1.10 Dental prosthesis - CrCo P/-



Age	4yrs
Appearance	Poor - negative smile line, missing abutment tooth 24, poor aesthetics of natural teeth 13,11,21,22,23 (increased overjet, anterior asymmetry, unaesthetic restorations, black triangles, increased length of anterior teeth c.f. width)
Retention (Ab ty of denture to res st d sp acement n d rect on opp path of nsert on)	Poor - without PolyDent Denture Adhesive, the P/- is completely unretentive
Stability (Ab ty of prosthes s to res st d sp acement by funct ona hor zonta or rotat ona forces)	Poor - without PolyDent Denture Adhesive, the P/- is unable to resist displacement during speech or mastication
Occlusion	Negative occlusal plane, restores some posterior contacts Group function in left and right lateral excursions
Patient satisfaction	Poor - patient unhappy with poor retention and appearance

1.11 Tooth charting



	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
CO_2						-		-	-	+	+	-				
Mob						0		II	II	0	I	0				
TTP						-		-	-	-	-	-				
P/ap R						P/ap R		-	P/ap R	-	-	P/ap R				
	UE			ICDAS5	ICDAS5			ICDAS5		ICDAS5		ICDAS5	ICDAS5			UE
	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
CO_2				+	+	-	+	+	+	-	-	+	+		+	
Mob				I	I	0	II	II	II	II	0	0	0		0	
TTP				-	-	-	-	-	-	-	-	-	-		+	
P/ap R				-	-	-	-	-	-	P/ap R	P/ap R	-	-		-	

LEGEND:

Restorations / findings

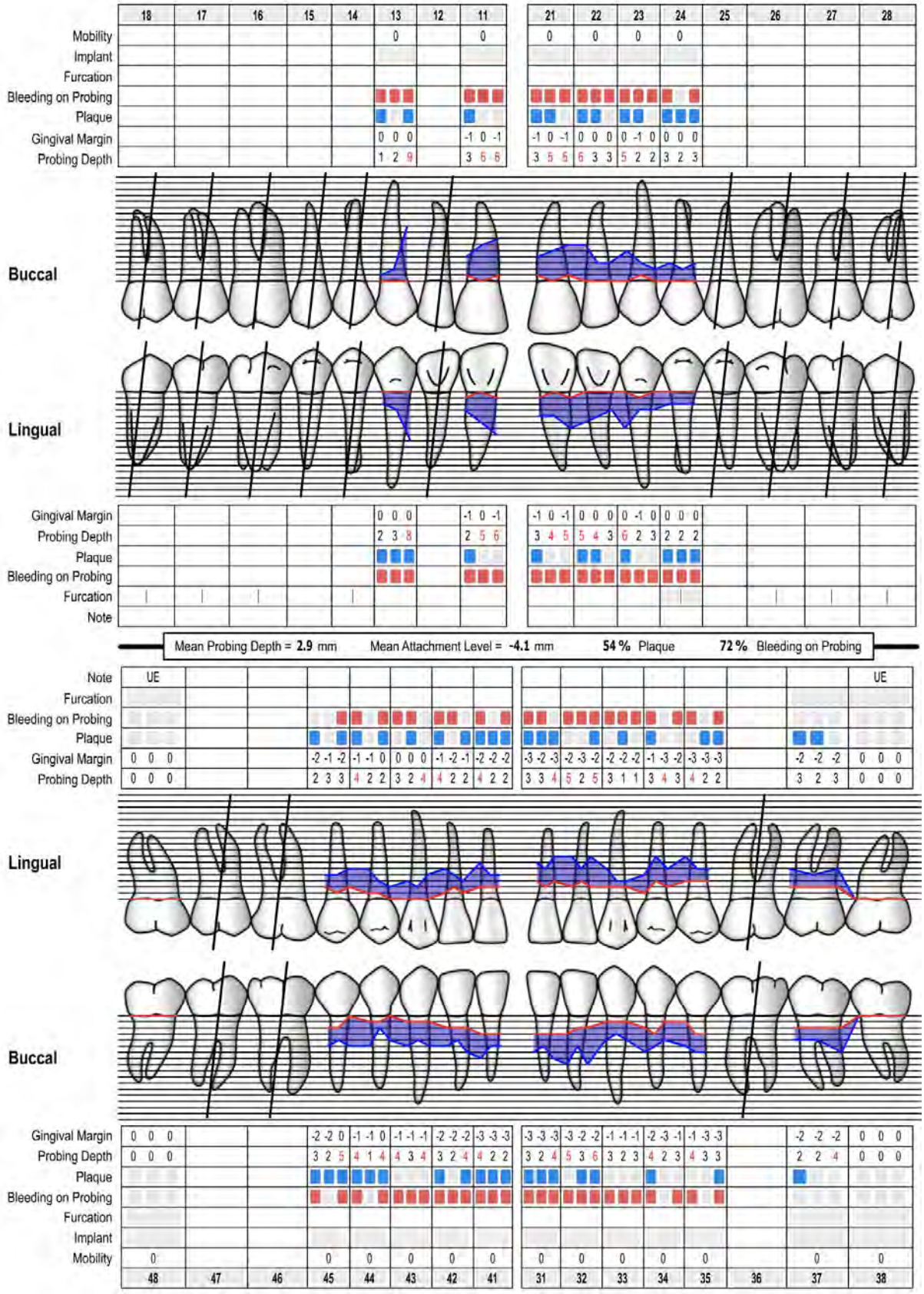
	Comp / GIC - sat
	Amalgam - sat
	Caries
	Root stump
	Unsat restn due to caries
	Unsat restn for other reasons
	NCTSL
P/ap R	Periapical radiolucency
UE	Unerupted

CPITN - Community Periodontal Index of Treatment Needs

-	4	3
3	4	3

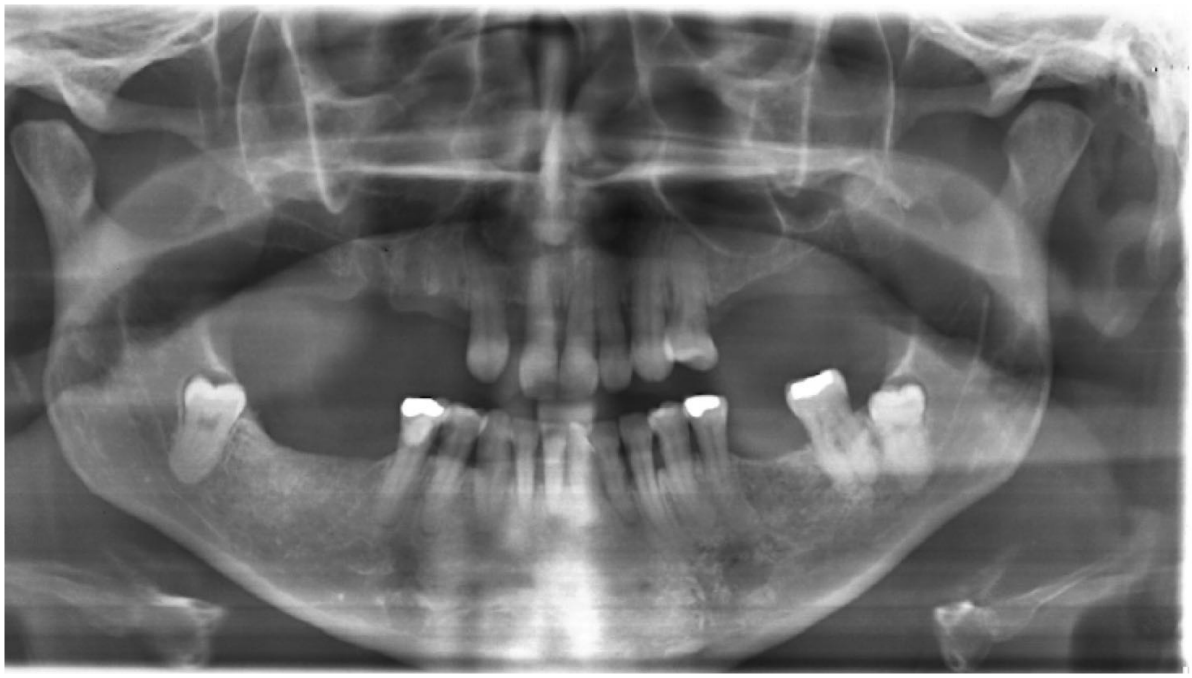
1	Gingival bleeding after gentle probing
2	Supragingival or subgingival calculus
3	Pathologic pockets 4-5mm
4	Pathologic pockets ≥6mm
*	Furcation involvement or recession ≥4mm

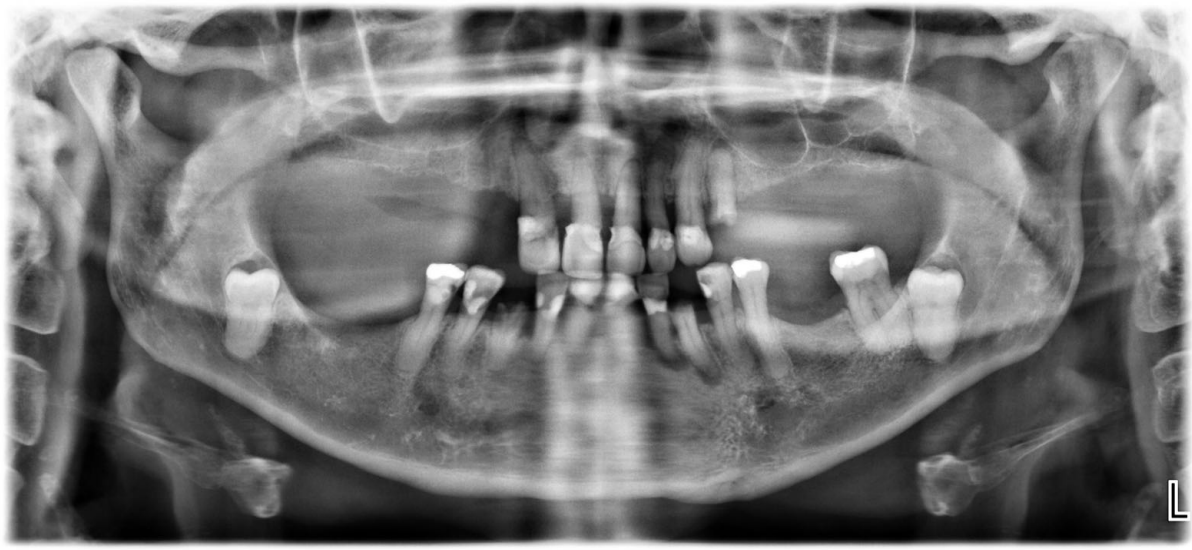
1.12 Periodontal charting



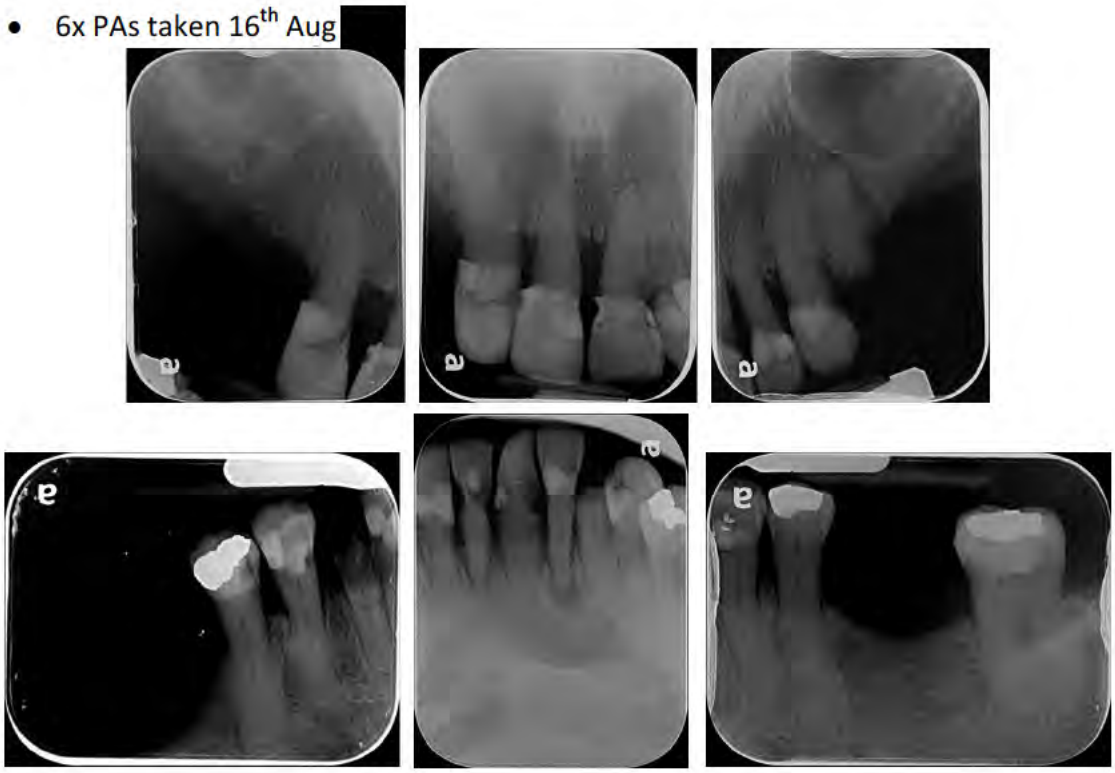
1.13 Radiographs

- 2x OPGs taken 31st Mar [redacted] and 16th July [redacted]
    - Dramatic change in caries experience.
    - In 2016, moderately restored dentition & Cr Co P/ .
    - By 2018, frank cavitation affecting almost every tooth. P/ap lesions involving 13, 21, 24, 33, 32.
    - Moderate to severe levels of bone loss. Relatively constant bone levels between [redacted] and [redacted].





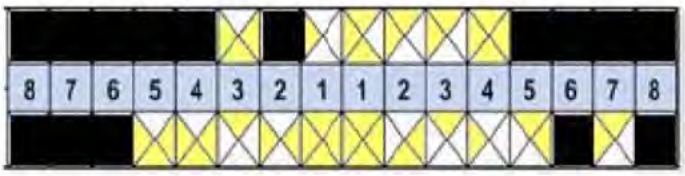
- 6x PAs taken 16th Aug



1.14 Caries risk assessment (Evans et al, 2008)

- **Diet assessment** (Usual 24h snacking questionnaire)
  - Breakfast banana, oats
  - 3 cups of coffee with 2tsp sugar drunk throughout the morning
  - 2 3 sweet lollies
  - Lunch toasted sandwich
  - Handful of potato chips (usually in one sitting)
  - Cake or pastries at work
  - Pepsi Max 375mL sipped throughout the afternoon
  - 1 2 cups of coffee before dinner
  - Dinner weight watchers set meals, typically meat, veg and rice
  - Occasionally cake or ice cream
  - Patient does not drink tap water during a typical day

- **Plaque score -** 59% (40/68)



- **Saliva assessment -**

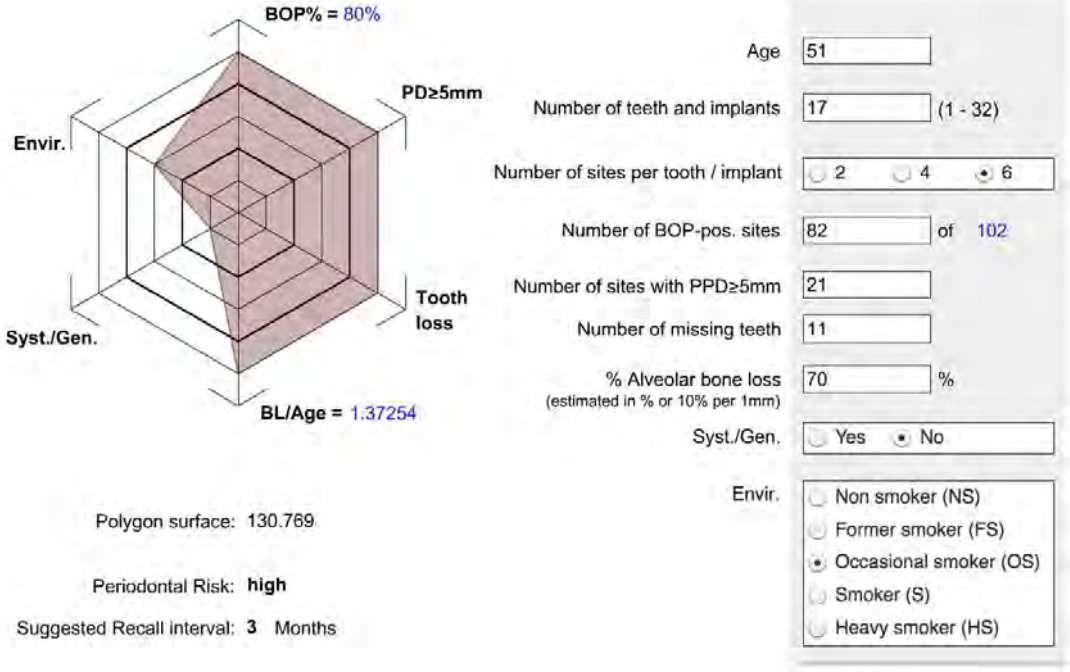
Resting saliva		
Hydration	**Viscosity**	**pH**
>60s	Sticky/stringy	5.0-5.8
30-60s	Frothy/bubbly	6.0-6.6
<30s	Watery/clear	6.8-7.8

Stimulated saliva		
Quantity	**pH**	**Buffering**
<3.5mL	5.0-5.8	0-5pt
3.5-5.0mL	6.0-6.6	6-9pt
>5.0mL	6.8-7.8	10-12pt

- **Clinical examination / radiographic assessment -**
  - Multiple untreated frank cavities
  - Multiple deep carious lesions that radiolucency appear to extend into the pulp chamber
  - Multiple periapical radiolucencies

- **Caries risk: HIGH**

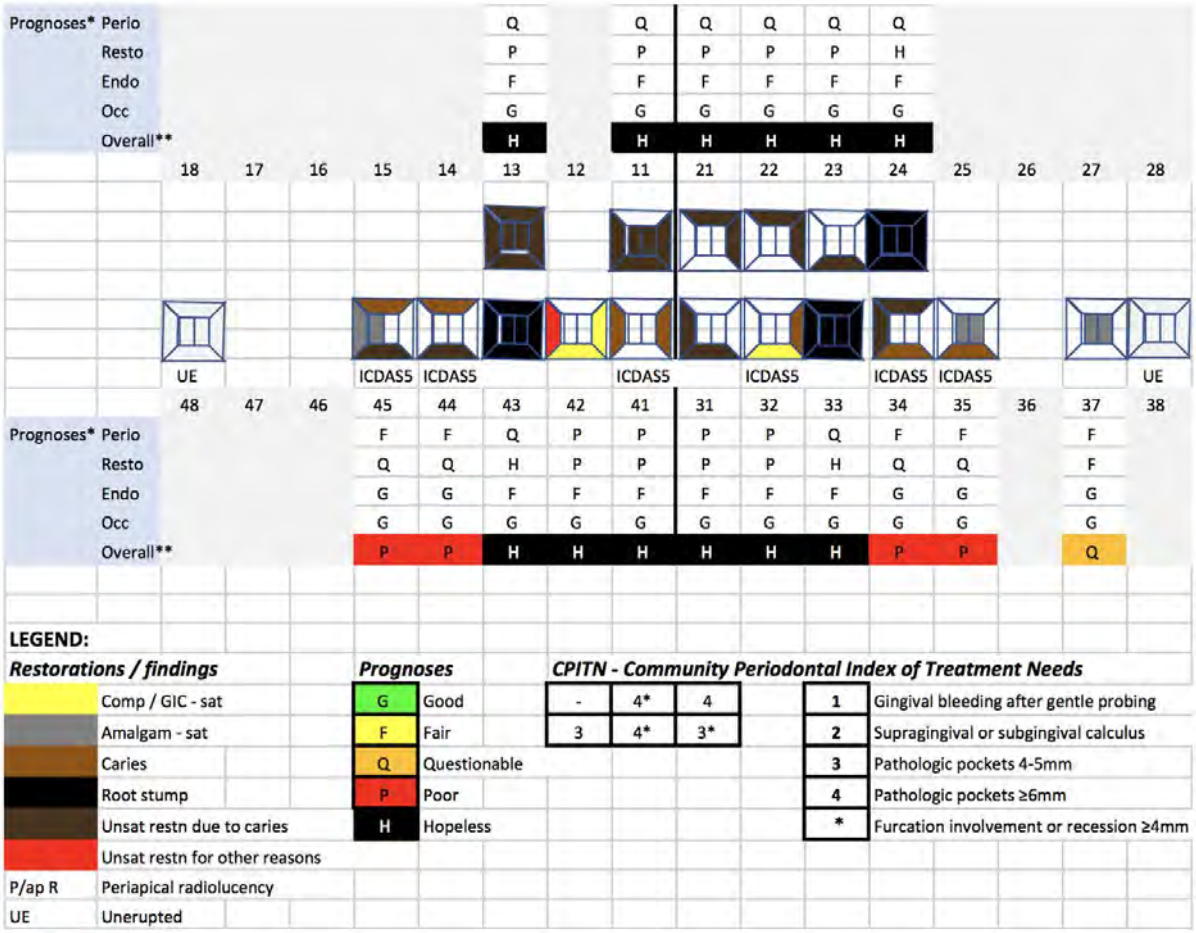
1.15 Periodontal risk assessment (Lang & Tonetti, 2003)



- **Periodontal risk: HIGH**

1.16 Prognosis (Samet & Jotkowitz, 2009)

- **Individual tooth prognosis -**



* Prognosis categories are based on a classification proposed by Samet & Jotkowitz (2009), where overall prognosis is the worst of periodontal, restorative, endodontic and occlusal prognoses. Anatomic, iatrogenic and patient factors modify the overall prognosis.

** Overall tooth prognosis modified downward by patient factors - poor OH, cariogenic diet, smoking, aesthetics as motivation for treatment, and high aesthetic expectations.

- **Overall dentition prognosis** **POOR to HOPELESS**

1.17 Problem list

- Poor smile aesthetics and unsat CrCo P/ (presenting complaint)
    - Multiple root stumps, discolouration due to caries
    - Unsat CrCo P/ design and loss of retention due to fracture of abutment tooth 24
- Host related
    - Bipolar disorder & hypothyroidism managed by medication
    - Dry mouth
    - Smoker
    - Frequent and high intake of sugary & acidic foods and drinks
    - Questionable OH compliance / dental attendance record
- Pathology
    - Carious root stumps 24, 33, 43
    - Frank cavitation due to caries 11, 13, 21, 22, 23, 31, 32, 34, 35, 41, 44, 45
    - Moderate to severe generalized chronic periodontitis modified by smoking (AAPD, 1999) / Periodontitis Stage 4 Grade C modified by smoking (Papapanou et al, 2017)
    - Pulpless and infected root canal system and chronic apical periodontitis due to caries 24, 32, 33 (Abbott & Yu, 2007; Abbott, 2004)
    - Recurrent aphthous ulcerative disease
    - Denture stomatitis of the anterior hard palate
- Morphology
    - Skeletal Cl II and dental Cl II div 1
    - Vertically impacted 38, 48
    - Hypercementosis 13, 23, 24, 34, 35, 44, 45
    - Missing teeth Mx Kennedy Cl I, Md Kennedy Cl II Mod 1
    - Large, bulbous Mx anterior alveolar ridge
    - Loss of posterior support

1.18 Diagnoses

- Poor smile aesthetics and unsat CrCo P/ (presenting complaint)
- Root stumps / “unrestorable” teeth
- Caries
- Periodontal disease
- Endodontically involved teeth
- Mx Kennedy Cl I
- Md Kennedy Cl II Mod 1

1.19 Treatment options

1. **Immediate acrylic F/P (Jogezai et al, 2018)** SRD and restoration of teeth 34, 35, 37, 44, 45 (to be abutment teeth), extraction of teeth with hopeless prognosis (all Mx teeth and Md teeth 33, 32, 31, 41, 42, 43). Fabrication of immediate F/P for edentulous Mx and Kennedy Cl II Mod 2 Md.

Advantages	Disadvantages
• Significant improvement in aesthetics achievable in a relatively short period of time. • Pt receives dentures to replace teeth immediately. • Removes teeth with hopeless prognosis & highest disease burden, greatly simplifying treatment. • Good interim option for pt's inevitable transition to -/F in the medium term. • -/P (maintaining 34, 35, 37, 44, 45) will have better retention and stability c.f. -/F. (Studies show pt satisfaction with -/P higher than -/F (Celebic & Znezovic-Zlataric, 2003)).	• Significant pt adaptation required for acceptable function (mastication & speech) and comfort (loss of proprioception, introduction of foreign objects into mouth). • Imperfect fit (potential sore spots) due to immediate nature. Loss of retention over the short to medium term after bone resorption that follows extractions. • Removable.

2. **Conventional acrylic F/P** SRD and restoration of teeth 34, 35, 37, 44, 45 (to be abutment teeth), extraction of teeth with hopeless prognosis (all Mx teeth and Md teeth 33, 32, 31, 41, 42, 43). Wait 3 6mths for healing / ridge resorption. Fabrication of conventional F/P.

Advantages	Disadvantages
• More predictable fit due to impressions taken following majority of bone resorption has occurred following extractions. • Significant improvement in aesthetics achievable. • Removes teeth with hopeless prognosis & highest disease burden, greatly simplifying treatment. • Good interim option for pt's inevitable transition to -/F in the medium term. • -/P (maintaining 34, 35, 37, 44, 45) will have better retention and stability c.f. -/F.	• Significant time without teeth • Significant pt adaptation required for acceptable function (mastication & speech) and comfort (loss of proprioception, introduction of foreign objects into mouth). • Removable.

3. **Mx and Md implant supported fixed prostheses** specialist referral required. Mx arch likely to have sufficient alveolar ridge support for a satisfactory F/ , however, if pt unable or unwilling to accept removable prosthesis, pt may consider implant supported fixed prostheses (e.g. for the Mx, all on 4 implant supported fixed prosthesis, and for the Md, single or two implant supported fixed prosthesis).

Advantages	Disadvantages
• Significant improvement in aesthetics achievable. • Significantly improved retention and stability for Md c.f. conventional dentures. • Decreased resorption of residual ridges. • Fixed prostheses.	• High cost. • Surgery required. • Risk for implant failure (pt has moderate to severe chronic periodontitis modified by smoking, poor OH and poor dental attendance record).

4. **Restoration / temporisation of remaining teeth ± 24 tooth addition to existing CrCo P/- (not recommended)** SRD and temporary restoration of remaining teeth. Potential addition of tooth 24 for CrCo P/ .

Advantages	Disadvantages
• Fastest way to address pt's presenting complaint.	• Short-term outcome only. • Highly compromised result.

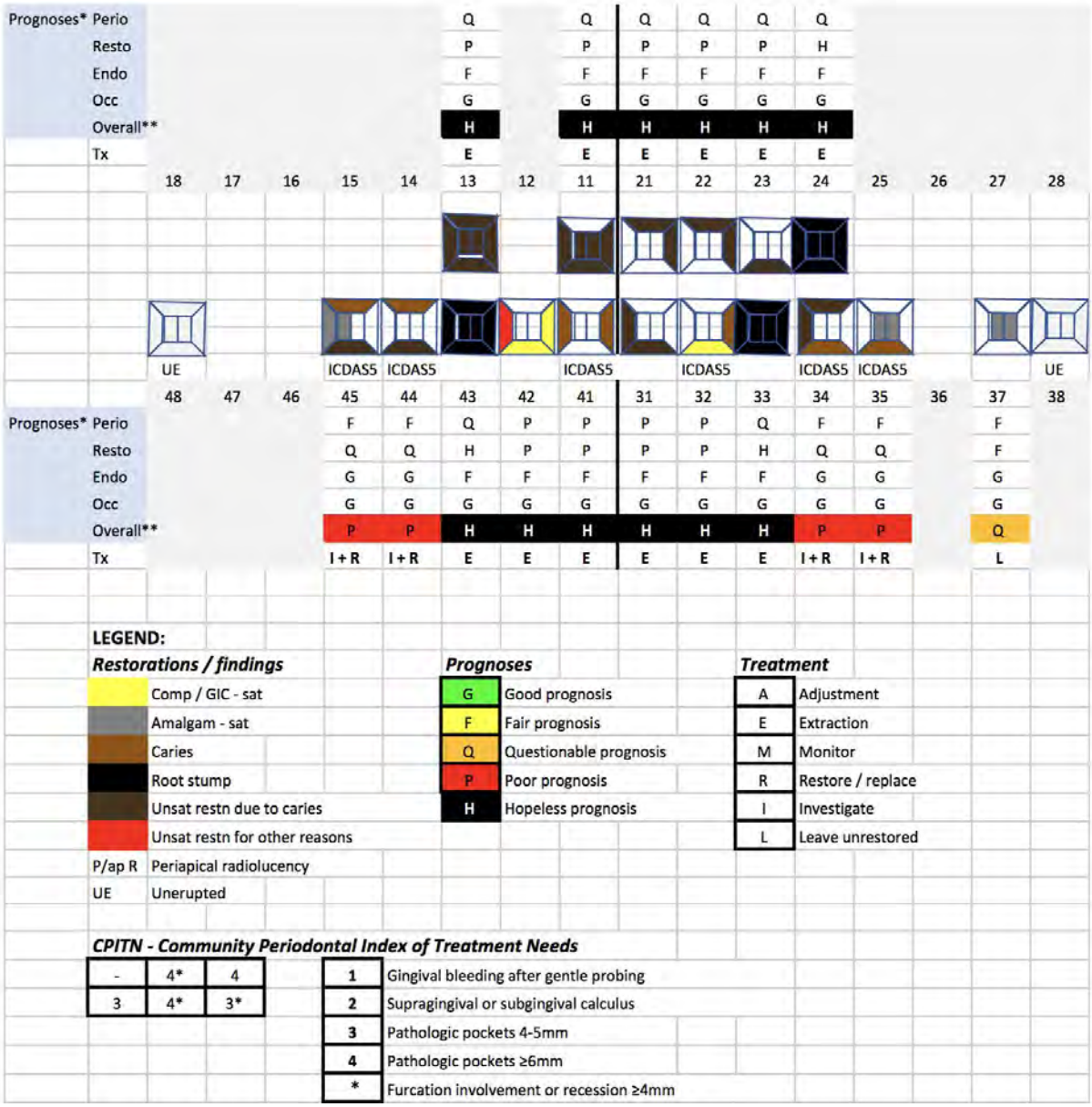
5. **Immediate or conventional acrylic F/F (not recommended)** full clearance followed by immediate F/F insert or conventional F/F insert following 3 6mths for healing / ridge resorption.

Advantages	Disadvantages
• Significant improvement in aesthetics achievable in a relatively short period of time. • Eliminates dental caries, odontogenic infections & periodontal disease.	• Sudden change from dentate to edentulous → likely issues with adaptation. • Poor retention of -/F.

6. **No treatment**

Advantages	Disadvantages
• No further action required by pt.	• Oral diseases will progress → eventual loss of teeth in the short to medium term ± pain and infection, in an unpredictable fashion. • Aesthetics will worsen over the short to medium term.

- Patient decided on treatment option 1 Immediate acrylic F/P due to:
    - Potential for significant improvement in aesthetics
    - Relatively low cost of tx
    - Significant reduction in disease burden assoc with removal of teeth with hopeless prognosis
    - Simplified course of tx
    - Patient refused to go without teeth for any period of time



1.20 Management plan

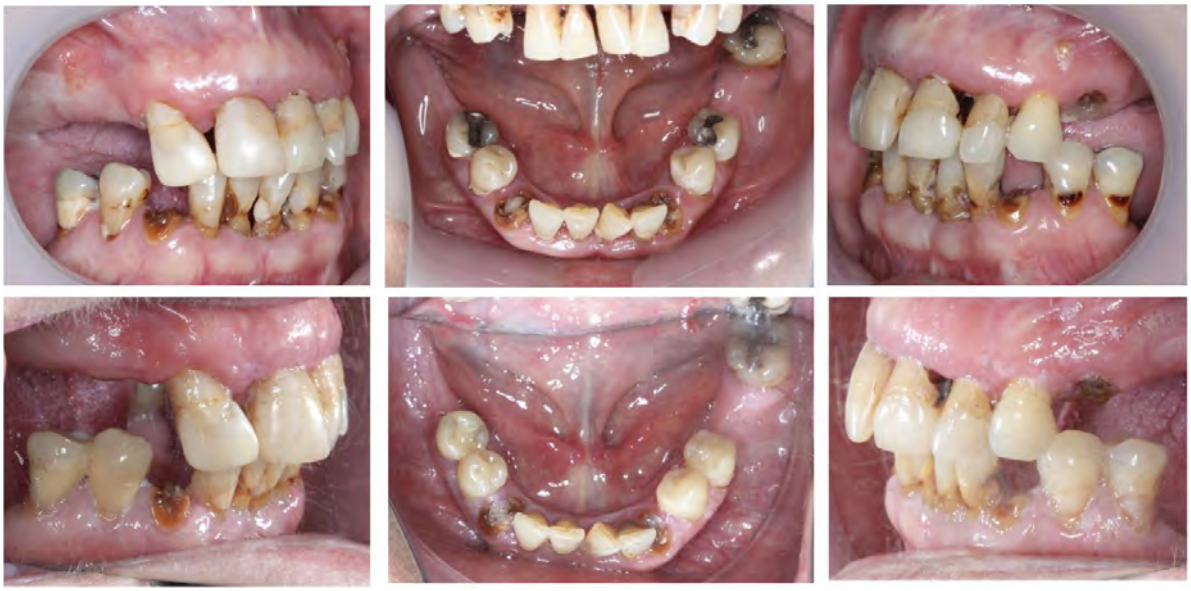
Foundational phase

- **Address the presenting complaint**
  - Expressed an understanding of the patient's dissatisfaction with the appearance of her lower teeth, snapped teeth, and non retentive CrCo P/ .
  - Although the patient's main concern was the aesthetics of her lower teeth, it was emphasized that:
    - There was a huge burden of disease in her mouth.
    - The disease processes are the underlying cause / have contributed to each of her presenting complaints.
    - Any treatment that only addresses her presenting complaints would ultimately fail (likely within the short term) because the causes (disease processes) need to be addressed.
    - Without treatment, the patient's condition is likely to deteriorate with further tooth decay leading to infection and tooth loss. Smile aesthetics are also likely to decline as more teeth are lost.

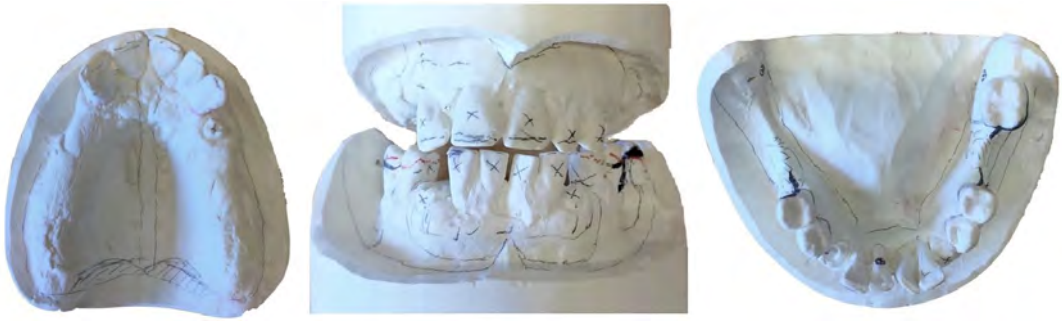
- **Counselling on required changes in lifestyle factors / OH routine ([redacted])**
  - **Dry mouth**
    - Smoking cessation counselling "The 5As" (RACGP, 2019).
      - Ask about tobacco use
      - Assess stage of change and nicotine dependence
      - Advise to quit clearly and unambiguously
      - Assist with written information (Quit Pack) or hotline (Quitline)
      - Arrange follow up (refer to GP)
    - Encourage patient to drink tap water initially aim to finish a 1L water bottle per day.
    - Reduce coffee intake, try to drink in one sitting and have a glass of tap water after.
  - **Diet** (Evans et al, 2008)
    - Reduce intake of high sugar foods (cake, pastries, lollies). When having high sugar foods, have them in one sitting and drink a glass of tap water after.
  - **Oral hygiene and dental visits** (Evans et al, 2008)
    - Toothbrushing 2x/day in the morning and at night using Neutrafluor 5000 Plus toothpaste.
    - Floss or use interdental brushes 1x/day at night before brushing.
    - Attend all scheduled dental appointments.

- **Scaling and root debridement** [redacted] of teeth 37, 35, 34, 44, 45 under LA. Prophy of all teeth. Topical fluoride application to incipient caries on 37, 35, 34, 44, 45.

- **Restorations ([redacted])**
  - 34 MOLiBu Equia Forte + composite sandwich restoration.
  - 35 OBu composite restoration.
  - 44 DBuLi Equia Forte restoration.
  - 45 MODLiBu Equia Forte + composite sandwich restoration.



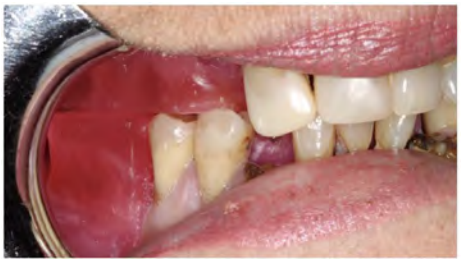
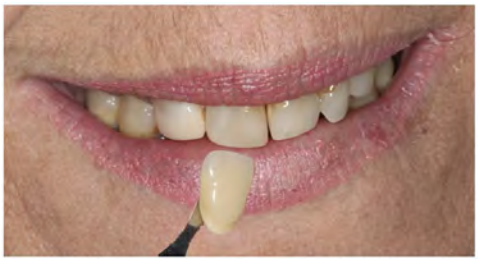
- **Acrylic F/P work-up (Jogezai et al, 2018) (23/8[redacted] - 18/2/[redacted])**
  - Mx & Md primary alginate impressions → primary casts



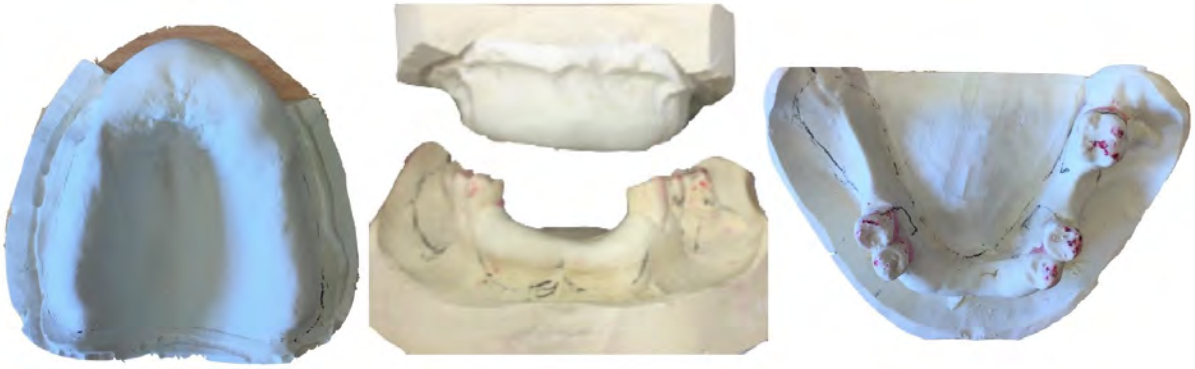
  - Mx & Md special tray fabrication modified special tray for Mx (for Campagna impression technique (Campagna, 1968)*) → Mx PVS & Md alginate secondary impressions → secondary / master casts

* The Campagna impression technique uses a special tray with flanges, but no material covering the remaining anterior teeth. This reduces the bulk of the special tray anteriorly, and minimizes distortion of the lip and labial sulcus during the impression process. This tends to produce a more accurate recording of the labial vestibules.

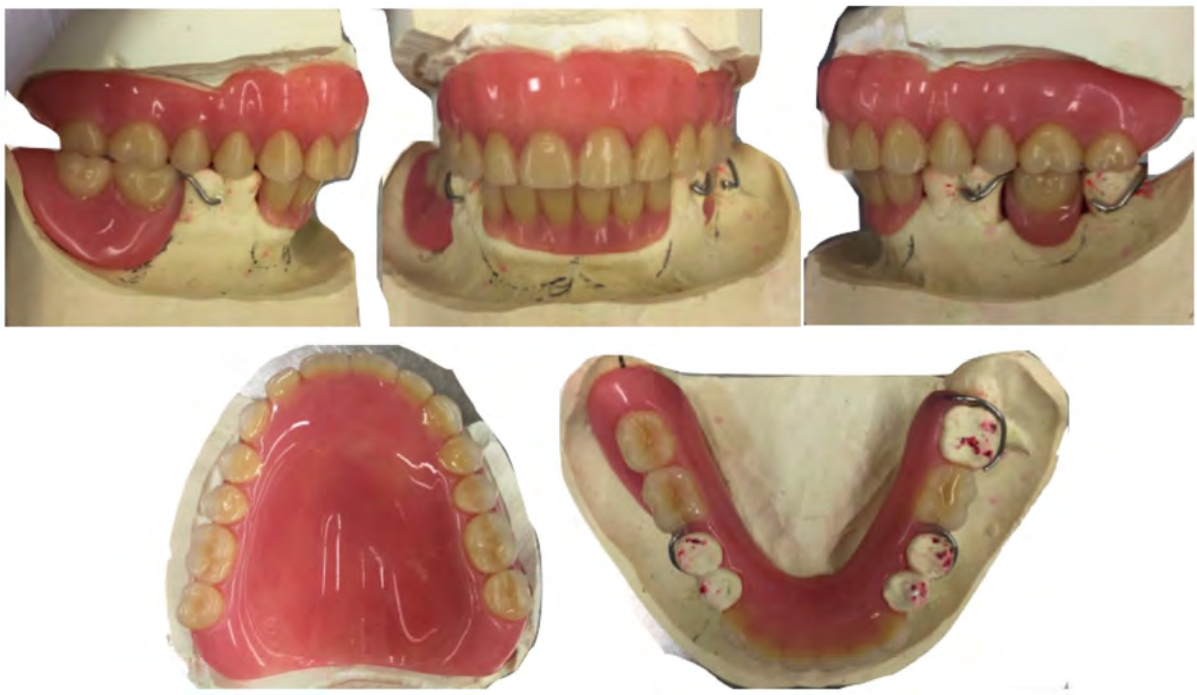
- Base & rims fabrication for facebow & bite registration (constructed denture to conform to patient's existing OVD) → mounted master casts
- Shade selection Vita Classical shade B3

- Mx and Md casts marked with PPDs for teeth to be extracted (13, 11, 21, 22, 23, 24, 31, 32, 33, 41, 42, 43) to guide lab decoronation of teeth to be extracted on casts → duplicates of master casts formed & cross mounted



- In this case, a wax try in was not possible due to teeth being not yet extracted. The patient was shown the waxed up prosthesis on articulated casts to give an idea of the final result.
- Lab instructed to reduce Mx incisal display of natural teeth by 1 2mm when setting Mx denture teeth. Also instructed to set Mx denture teeth following Pal surfaces of Mx natural teeth in order to reduce overjet and Cl II appearance (which would be exaggerated with a F/), and to set Md teeth following line of occlusion.
- Fabrication of acrylic F/P on mounted duplicates after decoronation of teeth to be extracted. Check of fit and occlusion by cross mounting.

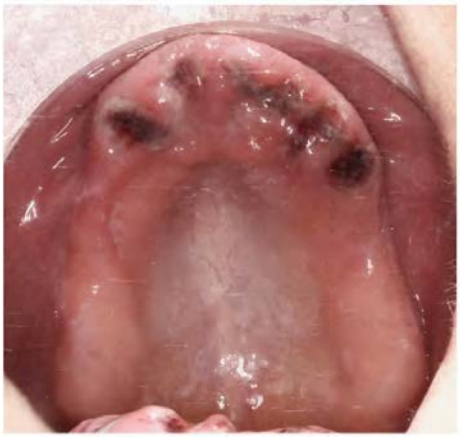
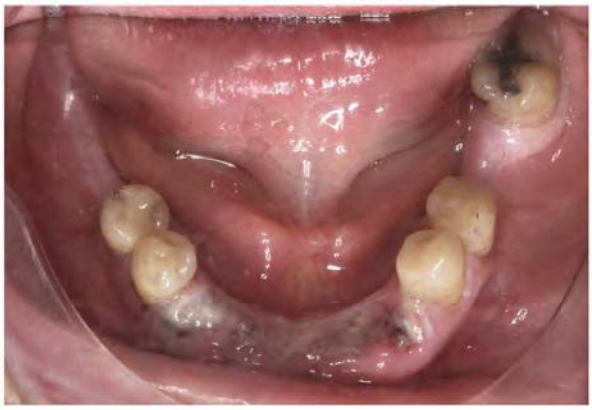


- **Reinforce pre-operative warnings for extractions** (risk of bleeding, bruising, swelling, and infection following extraction). Patient understands the risks involved and is willing to proceed.

- **Reinforced things to expect with immediate F/P**
    - Likely to require a significant period of adjustment because transitioning from natural teeth to a removable prosthesis. May experience problems with function (mastication & speech) while adapting to F/P.
    - Soreness (moderate to severe pain) immediately following exo to be expected and for a few days afterward as exo sites heal.
    - F/P expected to become loose after 4 6wks due to resorption of bone following exos. Temporary chairside relines will be performed every 3 4wks after the exos until a definitive reline at 6 12mths can be performed (once stability is achieved and no additional soft liners are required).
    - Due to the amount of guess work involved, there is a possibility that the fit, aesthetics, occlusion and/or comfort of the immediate F/P will be unsatisfactory and not easily repairable. In this case, a new set of F/P dentures will need to be made.
- Patient understands the limitations of the immediate F/P, and is still willing to proceed with tx after having the main issues reinforced.

Definitive phase (Jogezai et al, 2018)

- **Extractions (19/2/[redacted])** rinse with CHX 0.2% mouthwash, non surgical extraction of anterior Md teeth (31, 32, 33, 41, 42, 43), followed extraction of all Mx teeth (11, 13, 21, 22, 23, 24). All teeth luxated then delivered with extraction forceps whole. Careful curettage of tooth sockets with p/ap radiolucencies (24, 32, 33). Extraction sites checked for any sharp bony protuberances. Sockets squeezed buccal lingually to facilitate closure. Haemostasis readily achieved.

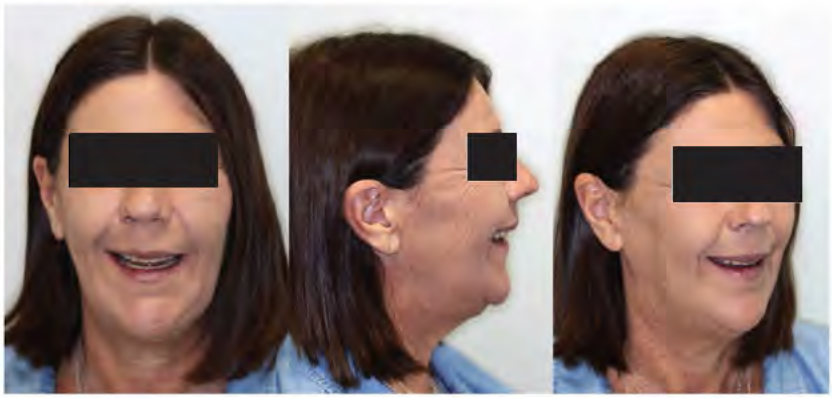



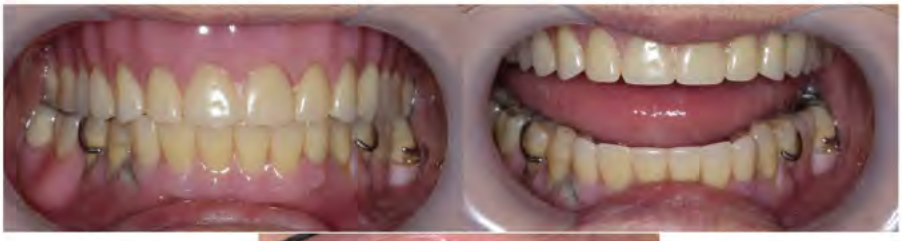
- **Insert of acrylic F/P (19/2[redacted])** excellent fit, retention and stability for acrylic F/P. Slight adjustment of /P surfaces opposing teeth required to achieve full seating. Occlusal parameters checked.

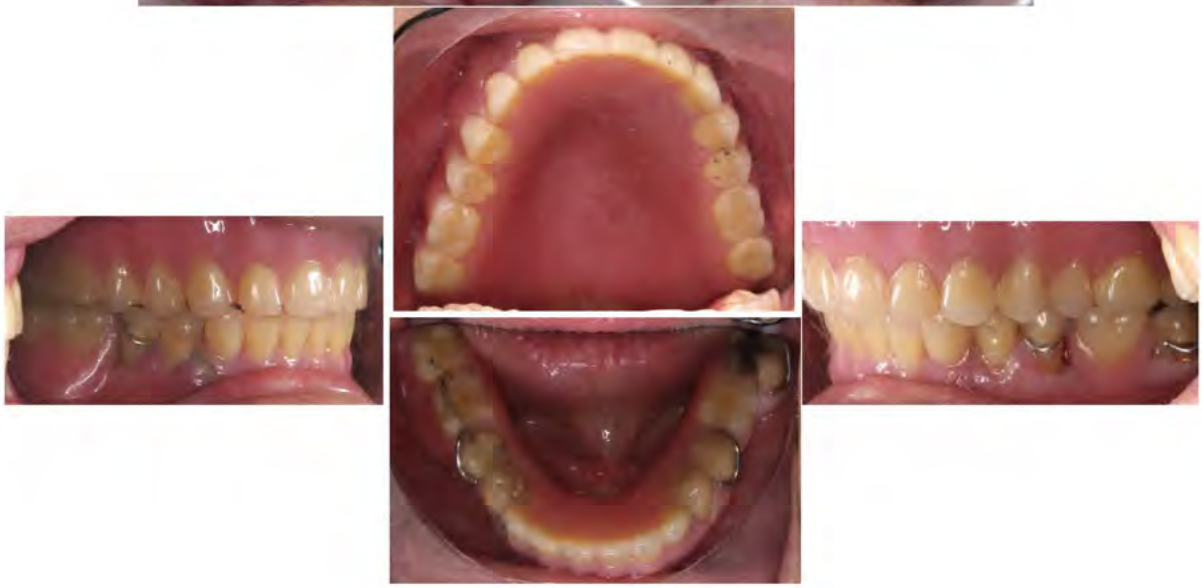
- **Post-operative instructions for immediate F/P (19/2/[redacted])**
  - Patient was anxious and emotionally drained following exo procedure. Extra care and attention was given to the patient, and it was reinforced that we would guide her through the recovery stages.
  - Written & verbal post operative instructions were provided.
  - First 24hrs do not remove dentures (to ensure soft tissue edema does not prevent denture from seating well), maintain good nutrition with a soft diet.
  - After first 24hrs remove dentures 4 5 times/day and meticulously clean external and intaglio surfaces, then rinse mouth with warm saline water.
  - Wear dentures at night for first 3 4 nights, brush tongue.
  - Leave in water overnight after first 3 4 nights.

- **Post-operative extraction instructions (19/2/[redacted])**
  - Written & verbal post operative instructions were provided.
  - Avoid smoking and drinking alcohol for at least 1wk.
  - Bleeding of an oozing nature may occur if so, bite down on the gauze provided for 20min until haemostasis achieved. Then re insert the dentures. If there is non stop bleeding, please contact the clinic.
  - Care of the area avoid playing with extraction sockets, avoid vigorous rinsing or blowing that could dislodge the blood clots. For pain, take Paracetamol 1000mg orally 4hrly for 1 day AND Ibuprofen 400mg orally 4hrly for 3 days.

- **24hr review (20/2/[redacted])**
    - Patient returned sore and swollen. However, she was extremely pleased with the aesthetic result. Reassurance at this appointment made a huge impact on the patient.
    - Checked occlusion and refined for balanced occlusion. Warned patient that if significant changes are required for a satisfactory result in the short to medium term, a denture remake may be necessary.
    - Reinforced post operative instructions. Re emphasised home care routine for the next week.



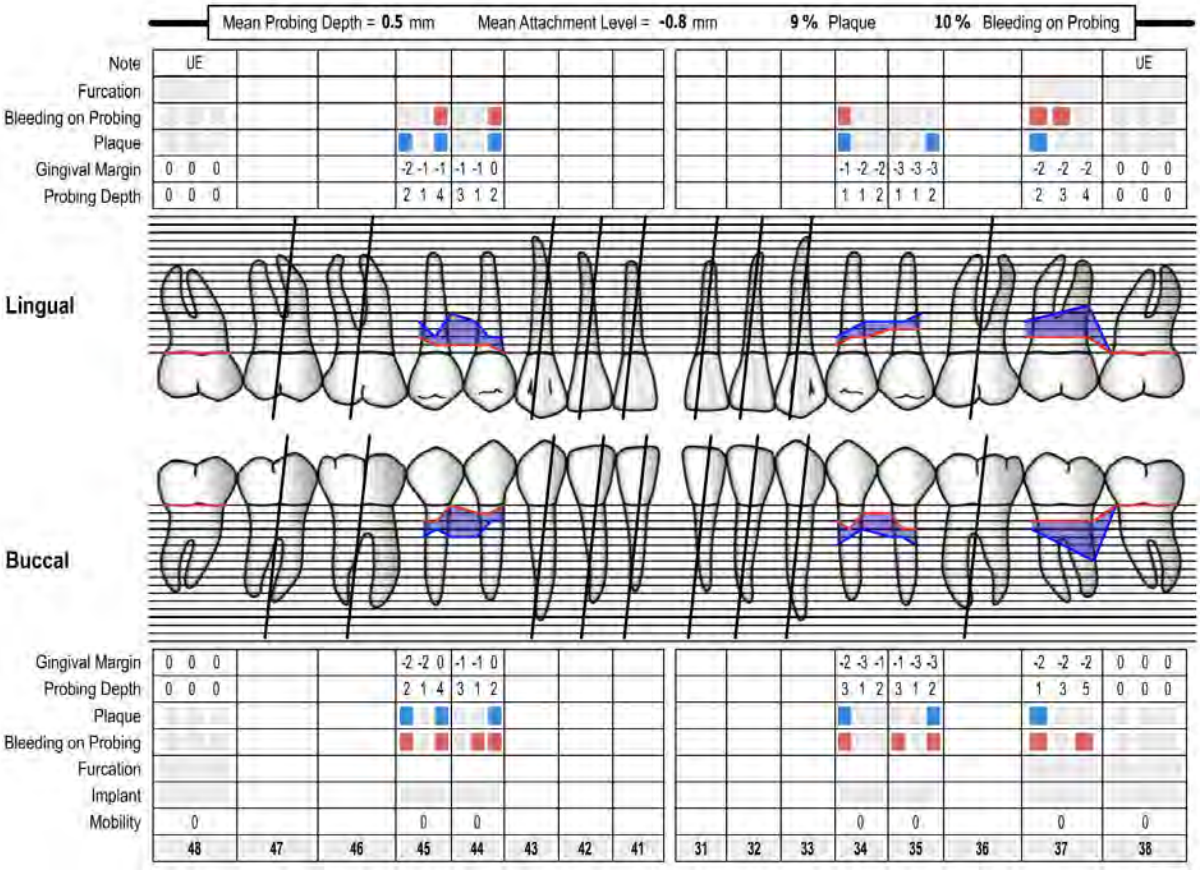




- **1wk review (26/2/[redacted])**
    - Patient remained extremely pleased with the aesthetic result, and reported that many of her colleagues and family members had complimented her new smile.
    - Although the patient was still getting used to the dentures, she felt positively about the whole experience, especially since the majority of soreness and swelling had resolved by this time.
    - Minor areas of the dentures were adjusted to relieve sore spots.
    - Reinforced the home care routine, and that it is expected the acrylic F/P will become "loose" over the next few weeks as bone resorption takes place.

- **First 3-4wk review (21/3/[redacted])**
    - Patient reported that the F/P was starting to feel slightly loose. She was not concerned because she had been pre warned, but wanted the looseness addressed promptly.
    - Minor areas of the dentures were adjusted to relieve any sharp edges.
    - Viscogel soft liner was added to the intaglio surface of the F/P to improve retention and stability.

- **Perio review (18/3/[redacted])**
    - Review perio chart revealed significant improvements in oral hygiene, although periodontal pocket depths remained. SRD was performed. Positive lifestyle changes and oral hygiene instructions were reinforced.

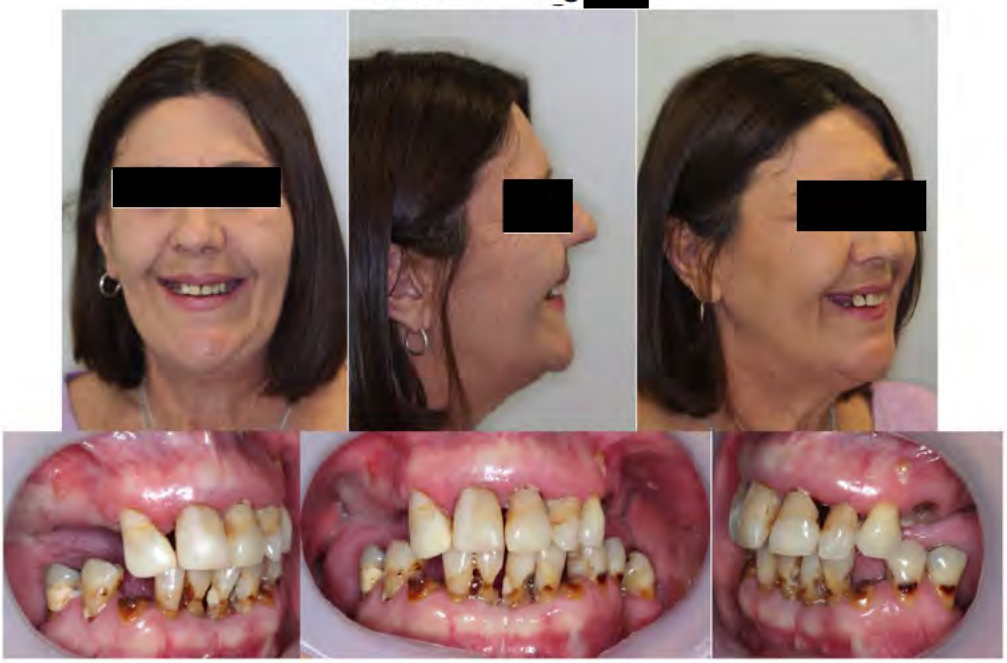


- **Second 3-4wk review (2/4/[redacted] and 5/4/[redacted])**
    - Patient reported she was adapting well to the dentures, however some looseness had developed. A second chairside reline of F/P was performed using Viscogel soft liner.
    - Plan for a third chairside reline in May, followed by definitive F/P reline by the end of year.

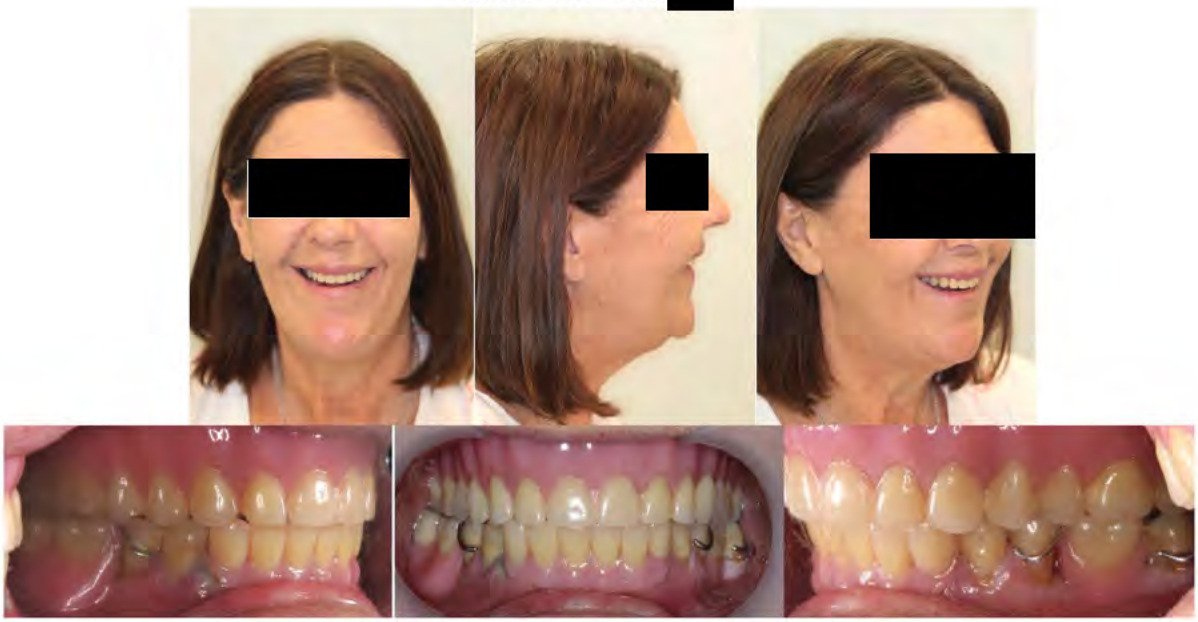
- **Third 3-4wk review (1/8[redacted])**
    - Patient was away travelling so delayed review appointment. Patient reported minimal looseness of F/P, extremely pleased with appearance and happy with comfort.
    - Final chairside reline performed using Viscogel soft liner.
    - Informed patient definitive F/P reline can now take place as soft tissue stability has been achieved. Warned patient she will be without her dentures for at least 3 days. Appointments scheduled according to a time convenient for the patient in Nov.

1.21 Before and after treatment photographs

Before - 24th Aug [redacted]



After - 26th Feb [redacted]



2. Functional removable restorative case

[redacted]

DOB: [redacted]

2.1 Presenting complaint

- "My upper denture is loose. It comes out when I chew."
- "I've never really liked the look of the big tooth in the middle of my bottom denture."

2.2 History of presenting complaint

- Patient has noticed over the past 2 3 months that his upper denture dislodges when he eats hard foods.
- Otherwise, the upper denture stays in place i.e. when speaking, laughing or sneezing.

2.3 Medical history

Conditions	Description
History of gastric cancer in 2014	• Pt underwent surgery to remove a significant portion of the stomach & chemotherapy. • Currently presents to oncologist 6mthly for CT scans to monitor condition. • Recent visits (Mar 2019) to GP / oncologist for blood tests & evaluation of scans revealed no abnormalities & were consistent with health.
Asthma*	• Chronic inflammatory disorder of the airways associated with airway hyper-responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness & coughing.
Gastro-oesophageal reflux disease (GORD)	• Chronic digestive disease with symptoms of esophageal burning and heartburn.

*Conditions managed by medication.

Medications	Dosage	Use / Mechanism of action	Dental implication
Pantoprazole	40mg tablet orally 1x/day	• For GORD • Proton pump inhibitor - irreversibly inactivates the hydrogen/potassium ATPase enzyme system (proton pump), suppressing both stimulated & basal acid secretion (AMH, 2019).	• Chronic regurgitation of gastric contents (pH as low as 1) can cause dental erosion.

Paracetamol	500mg tablet orally 1x/day, as required	• For stomach pain • Mode of action not fully determined - may include inhibition of central prostaglandin synthesis & modulation of inhibitory descending serotonergic pathways (AMH, 2019).	• May affect perception of dental pain if taken recently.
Indometacin	25mg capsule orally 1x/day, as required	• For neck pain • Non-selective NSAID - inhibits synthesis of prostaglandins by inhibiting COX-1 and COX-2 (AMH, 2019).	• May affect perception of dental pain if taken recently.
Salmeterol + Fluticasone (Seretide)	1 puff 2x/day	• For asthma • Salmeterol is a β_2 agonist - relax bronchial smooth muscle by stimulating β_2 adrenoreceptors (AMH, 2019). • Fluticasone is a corticosteroid - reduces airway inflammation & bronchial hyper-reactivity (AMH, 2019).	• Advise pt to rinse mouth out with water following use to reduce risk of oropharyngeal candidiasis & systemic corticosteroid absorption. • Consider potential for adrenal suppression (generally require higher corticosteroid dose).
Salbutamol	1-2 puffs/wk, as required	• For asthma • β_2 agonist - relax bronchial smooth muscle by stimulating β_2 adrenoreceptors (AMH, 2019).	• Advise pt to bring puffer to dental appointment for use in case dental treatment triggers an asthma attack.
Supplements - magnesium, calcium, vit D, folic acid	1 tablet 1x/day " " 5mg tablet 1x/day	• For general health	-

- History of hospitalization / surgery
    - 2014 gastric surgery for stomach cancer
- No known allergies

2.4 Dental history

- Acrylic F/ made 6yrs ago as immediate denture, acrylic /P made 4yrs ago.
- Previous private practice patient who regularly attended 12mthly dental recalls.

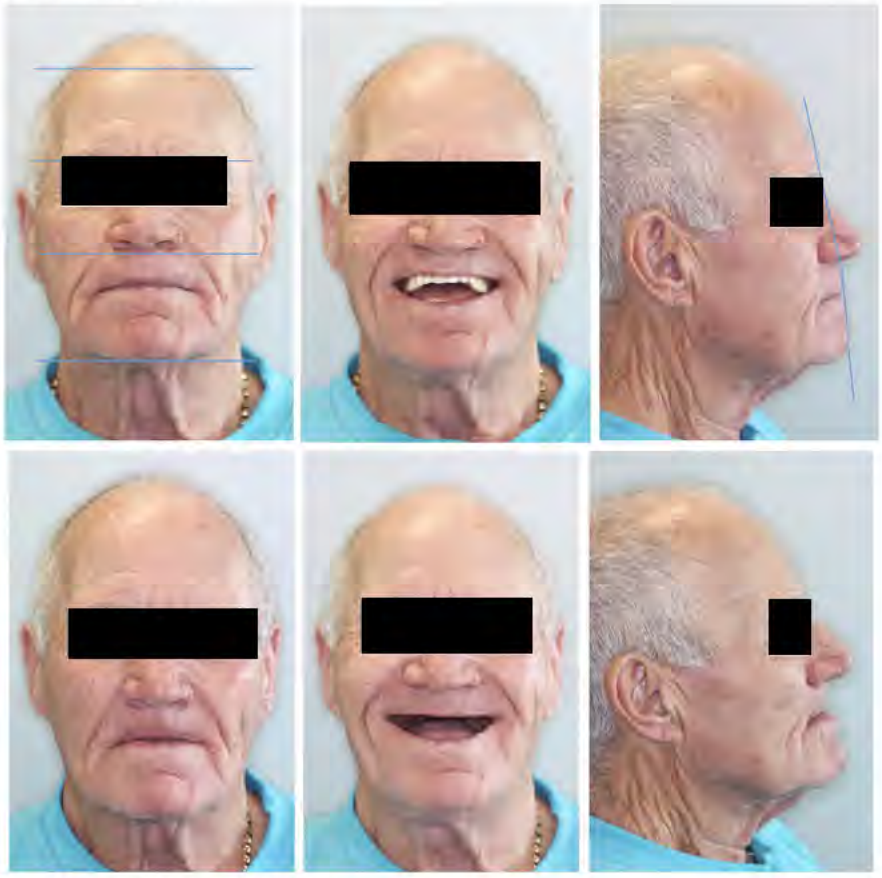
2.5 Oral hygiene

- Toothbrushing 2x/day with manual toothbrush and 1000ppm fluoride toothpaste.
- Interdental brushes (Piksters) 1x/day.
- Acrylic F/P removed at night, brushed with toothpaste & soaked overnight in Steridient solution.

2.6 Social history

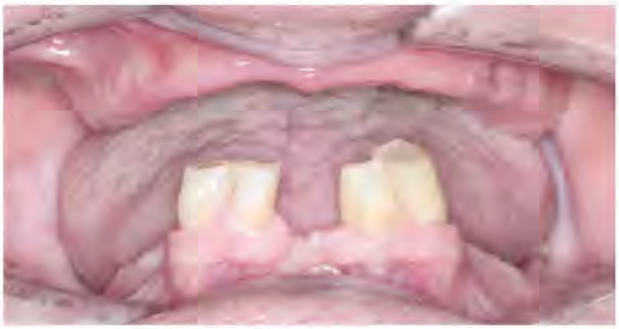
- Retired approximately 10 years ago.
- Lives at home with wife of over 30 years.
- Socialises with friends and is visited by children & grandchildren regularly.

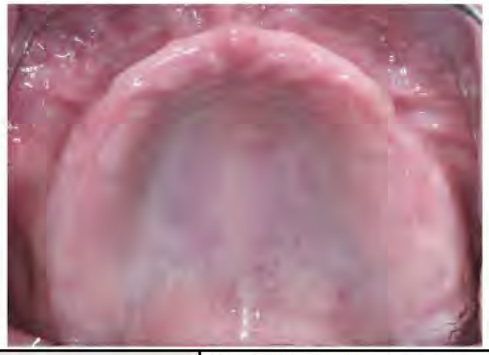
2.7 Extra-oral examination

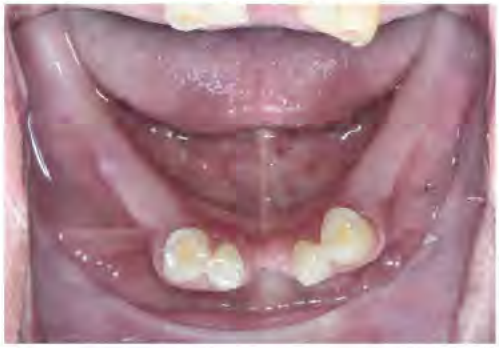


Facial appearance	Healthy, clear complexion
Facial symmetry	Symmetrical
Thyroid gland	No noticeable enlargement or tenderness to palpation
Muscles of mastication	No noticeable enlargement or tenderness to palpation or clenching
TMJ	Smooth movement in translation and rotation on both sides
Facial thirds	Balanced facial thirds
Facial fifths	Balanced and symmetrical facial fifths
Upper lip	Dry, patchy appearance consistent with solar keratosis Nasolabial angle obtuse without F/- in place
Lower lip	Dry, patchy appearance consistent with solar keratosis
Smile analysis	On smile, 30% incisal display, 0% gingival display, 100% posterior tooth display At rest, 0% incisal display Negative smile line
Profile	Concave

2.8 Intra-oral examination





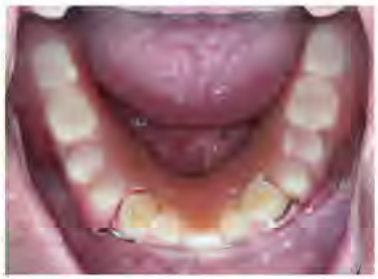


La mucosa	Smooth, pink, in-tact mucosa
Sulci	Smooth, pink, in-tact mucosa
Frena	Smooth, pink, in-tact mucosa
Gingiva	Coral pink, stippled appearance
Palate	U-shaped arch
Oropharynx	Smooth, pink, in-tact mucosa
Alveolar ridge	U-shaped alveolar ridges
Bu mucosa	Smooth, pink, in-tact mucosa
Tongue	Dorsal surface - white plaque Ventral surface - pink, in-tact mucosa
Floor of mouth	No tenderness to palpation or evidence of swelling
Saliva	Appears adequate
Dentition	Edentulous Mx Partially dentate Md

2.9 Occlusion

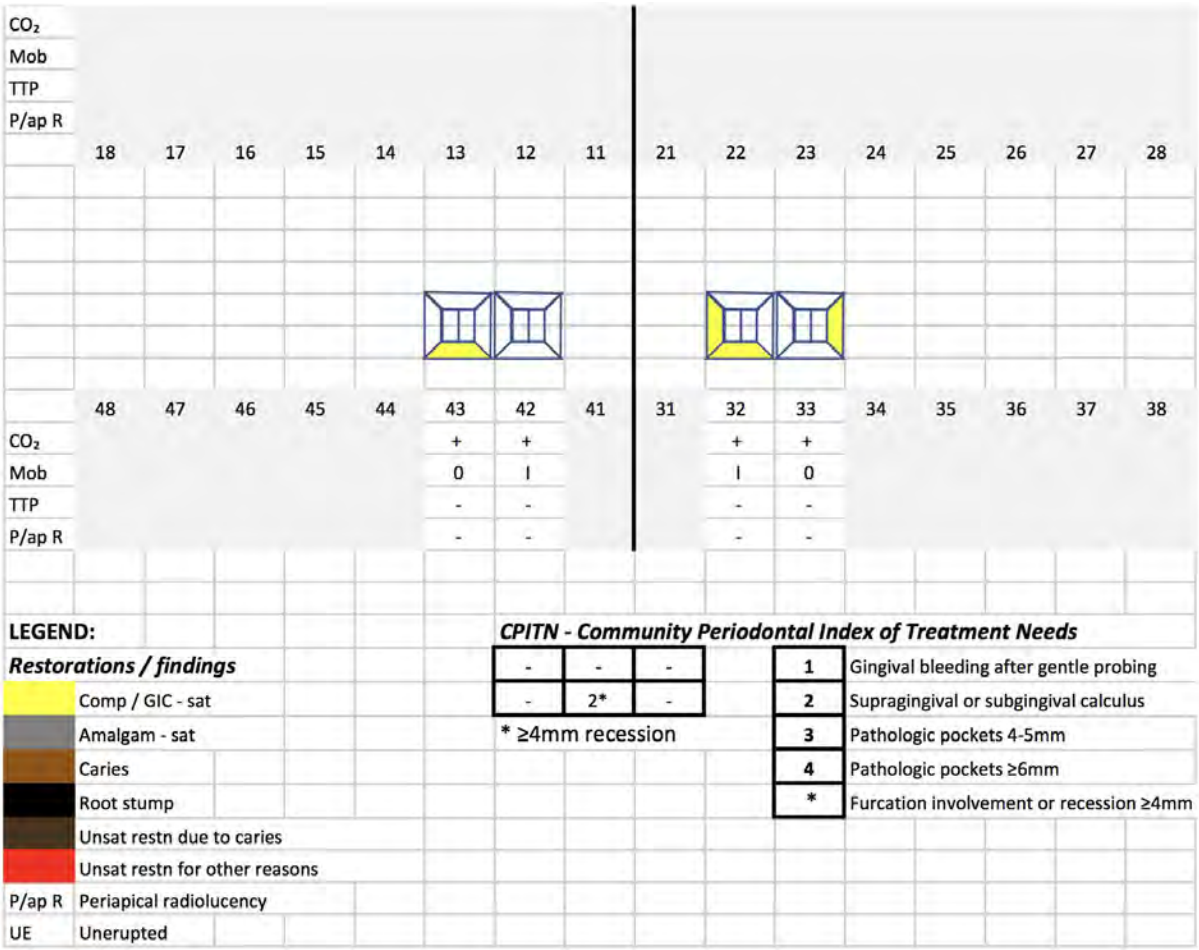
Right lateral	Frontal	Left lateral
Loss of posterior contacts	VDR 74mm VDO 72mm	Loss of posterior contacts
Overjet 2mm Overbite 1mm	Coincident Mx & Md dental midlines	Overjet 2mm Overbite 1mm
Canine rship Cl III	Max opening 38mm Max opening (active stretch) 42mm	Canine rship Cl II
Molar rship edge to edge	No deviation or deflection on opening	Molar rship edge to edge
R laterotrusive movement 5mm Anterior guidance denture tooth 13 & 12 opposing denture tooth 43	Protrusion 6mm Anterior guidance denture tooth 11 & 21 opposing denture tooth 41 / 42	L laterotrusive movement 5mm Anterior guidance denture tooth 23 & 33

2.10 Dental prosthesis - Acrylic F/P



Age	F/- 6yrs -/P 4yrs
Appearance	Poor - negative smile line, large central Md denture tooth
Retention (Ab ty of denture to res st d sp acement n d rect on opp path of nsert on)	Excellent for F/- and -/P
Stability (Ab ty of prosthes s to res st d sp acement by funct ona hor zonta or rotat ona forces)	Excellent for F/- and -/P
Occlusion	Negative occlusal plane, loss of posterior contacts Heavy anterior contact breaks post dam seal of F/- during function
Patient satisfaction	Poor - patient unhappy with appearance & loss of retention during function

2.11 Tooth charting



	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
CO_2						+	+			+	+					
Mob						0	I			I	0					
TTP						-	-			-	-					
P/ap R						-	-			-	-					

	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38

LEGEND:

Restorations / findings

- Comp / GIC - sat
- Amalgam - sat
- Caries
- Root stump
- Unsat restn due to caries
- Unsat restn for other reasons
- P/ap R — Periapical radiolucency
- UE — Unerupted

CPITN - Community Periodontal Index of Treatment Needs

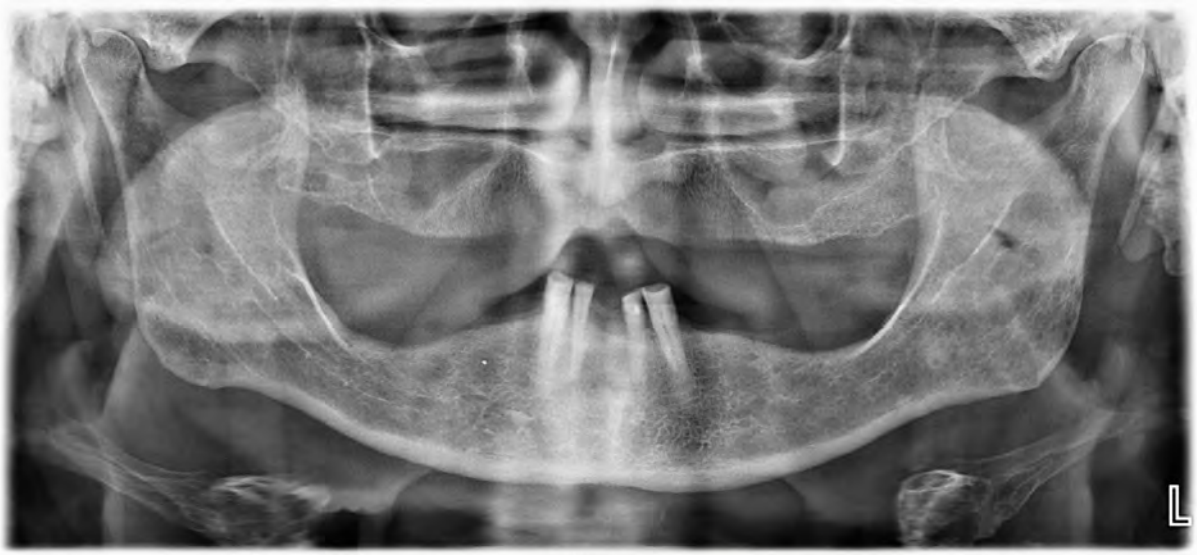
-	-	-
-	2*	-

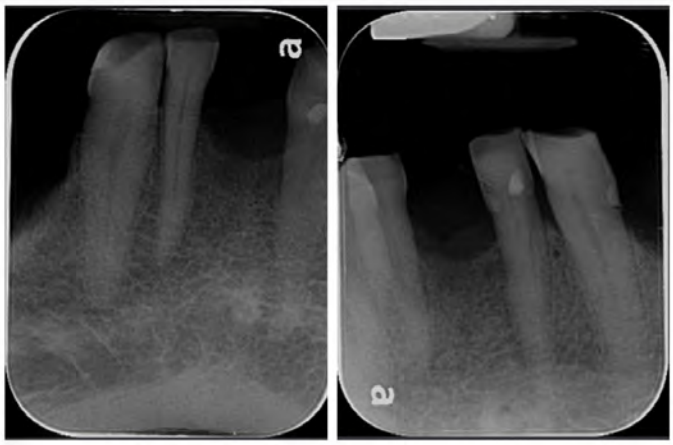
* ≥4mm recession

1	Gingival bleeding after gentle probing
2	Supragingival or subgingival calculus
3	Pathologic pockets 4-5mm
4	Pathologic pockets ≥6mm
*	Furcation involvement or recession ≥4mm

2.12 Radiographs

- OPG taken 18th Sept [redacted]
- 2x PAs taken 22nd Oct [redacted]
    - No evidence of caries, adequate bone support, incisal wear





2.13 Caries risk assessment (Evans et al, 2008)

- **Diet assessment** (Usual 24h snacking questionnaire)
  - Breakfast cereal with milk
  - Lunch meat & veg
  - Dinner meat & veg
  - Occasionally will have something small and sweet for dessert e.g. chocolate or ice cream
  - 4 5 cups of coffee throughout the day without added sugar
  - Patient drinks at least 2L tap water during a typical day

- **Plaque score -** 12.5% (2/16)

- **Saliva assessment -**

Resting saliva		
Hydration	**Viscosity**	**pH**
>60s	Sticky/stringy	5.0-5.8
30-60s	Frothy/bubbly	6.0-6.6
<30s	Watery/clear	6.8-7.8

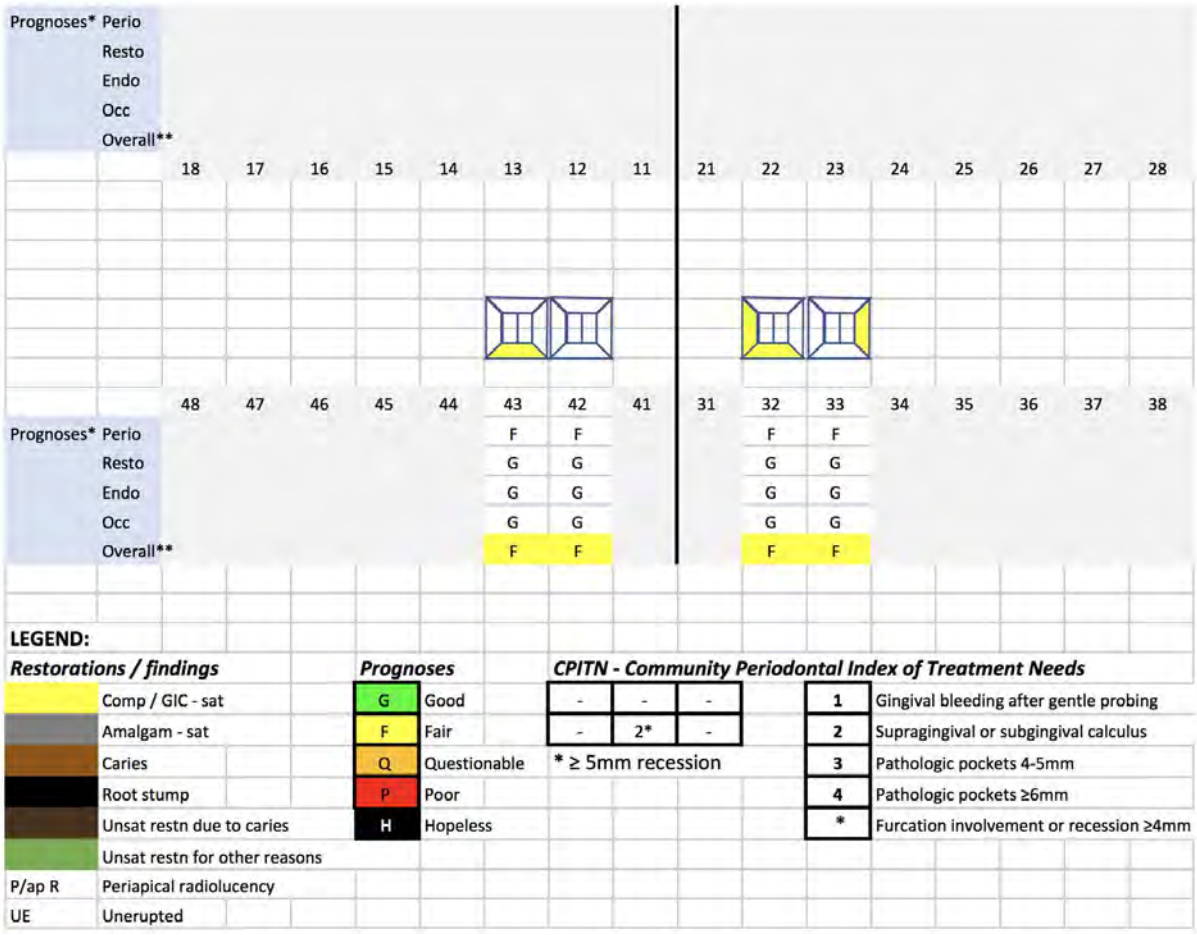
Stimulated saliva		
Quantity	**pH**	**Buffering**
<3.5mL	5.0-5.8	0-5pt
3.5-5.0mL	6.0-6.6	6-9pt
>5.0mL	6.8-7.8	10-12pt

- **Clinical examination / radiographic assessment -**
  - Mild alveolar bone loss
  - Mild generalized gingivitis
  - Hx of tooth loss edentulous Mx and partially dentate Md
  - Caries free dentition

- **Caries risk:** LOW

2.14 Prognosis (Samet & Jotkowitz, 2009)

- **Individual tooth prognosis -**



Prognoses*		18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	Perio																
	Resto																
	Endo																
	Occ																
	Overall**																

Prognoses*		48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
	Perio						F	F			F	F					
	Resto						G	G			G	G					
	Endo						G	G			G	G					
	Occ						G	G			G	G					
	Overall**						F	F			F	F					

LEGEND:

Restorations / findings		*Prognoses*		*CPITN - Community Periodontal Index of Treatment Needs*				
	Comp / GIC - sat	G	Good	-	-	-	1	Gingival bleeding after gentle probing
	Amalgam - sat	F	Fair	-	2*	-	2	Supragingival or subgingival calculus
	Caries	Q	Questionable	* ≥ 5mm recession			3	Pathologic pockets 4-5mm
	Root stump	P	Poor				4	Pathologic pockets ≥6mm
	Unsat restn due to caries	H	Hopeless				*	Furcation involvement or recession ≥4mm
	Unsat restn for other reasons							
P/ap R	Periapical radiolucency							
UE	Unerupted							

* Prognosis categories are based on a classification proposed by Samet & Jotkowitz (2009), where overall prognosis is the worst of periodontal, restorative, endodontic and occlusal prognoses. Anatomic, iatrogenic and patient factors modify the overall prognosis.
** Overall tooth prognosis modified downward by patient factors - poor OH, cariogenic diet, smoking, aesthetics as motivation for treatment, and high aesthetic expectations.

- **Overall dentition prognosis** FAIR

2.15 Problem list

- Unsatisfactory F/P due to poor occlusion & aesthetics (presenting complaint)
    - Lack of posterior support leading to loss of retention during function
    - Pt unhappy with appearance of lower middle denture tooth
- Host related
    - N/A
- Pathology
    - Mild generalized gingivitis on a reduced periodontium
- Morphology
    - Class III skeletal relationship
    - Missing teeth Mx edentulous, Md Kennedy Cl I Mod 1
    - Lack of posterior support
    - Negative smile arc

2.16 Diagnoses

- Unsatisfactory F/P (presenting complaint)
- Gingivitis
- Mx edentulous
- Md Kennedy Cl I Mod 1
- Lack of posterior support
- Negative smile arc

2.17 Treatment options

1. **Remake acrylic F/P** maintenance of remaining teeth, and fabrication of conventional F/P.

Advantages	Disadvantages
• Simplest course of tx that will address pt's presenting complaint (improve retention of F/- in function and aesthetics) • Provides upper lip support • Pt has experience wearing F/P without major issues • Low cost	• Removable option • Adaptation to a new set of dentures may be an issue • Increased prosthesis movement due to Md bilateral free end saddles

2. **Mx conventional denture OR overdenture OR implant supported fixed prosthesis + Md implant supported fixed prosthesis** specialist referral required.
    - Mx arch likely to have sufficient alveolar ridge support for a satisfactory F/ , however, if pt is unable or unwilling to accept a conventional denture, then an implant supported prosthesis is more appropriate.
    - For the Mx, overdenture or implant supported fixed prosthesis (e.g. all on 4).
    - For the Md, two or more implants placed posterior to 33 and 43 respectively to restore posterior teeth with 3 single tooth implant restorations on each side or 2 implants on each side to support a three unit fixed dental prosthesis.

Advantages	Disadvantages
• Fixed option (except Mx overdenture which is removable, but retention is improved) • Maintains bone around implant sites • Minimal adaptation required	• Significant financial cost • Extended treatment time & surgery required

3. **No treatment**

Advantages	Disadvantages
• No action required	• Continued loss of retention of F/- during function, which is likely to worsen as posterior denture teeth wear at a greater rate than natural anterior teeth • Aesthetic issues will persist

- Patient decided on treatment option 1 remake acrylic F/P due to:
    - Pt happy with existing F/P aside from F/ loss of retention in function
    - Able to improve aesthetics & occlusion
    - Relatively low cost of tx

Prognoses*	Perio																
	Resto																
	Endo																
	Occ																
	Overall**																
	Tx						UPPER COMPLETE DENTURE										
		18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
		48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
Prognoses*	Perio						F	F			F	F					
	Resto						G	G			G	G					
	Endo						G	G			G	G					
	Occ						G	G			G	G					
	Overall**						F	F			F	F					
	Tx	LOWER PARTIAL DENTURE					L	L			L	L	LOWER PARTIAL DENTURE				

LEGEND:

Restorations / findings		*Prognoses*		*Treatment*	
	Comp / GIC - sat	G	Good prognosis	A	Adjustment
	Amalgam - sat	F	Fair prognosis	E	Extraction
	Caries	Q	Questionable prognosis	M	Monitor
	Root stump	P	Poor prognosis	R	Restore / replace
	Unsat restn due to caries	H	Hopeless prognosis	I	Investigate
	Unsat restn for other reasons			L	Leave unrestored
P/ap R	Periapical radiolucency				
UE	Unerupted				

CPITN - Community Periodontal Index of Treatment Needs

-	-	-	1	Gingival bleeding after gentle probing
-	2*	-	2	Supragingival or subgingival calculus
* ≥ 5mm recession			3	Pathologic pockets 4-5mm
			4	Pathologic pockets ≥6mm
			*	Furcation involvement or recession ≥4mm

2.18 Management plan

Foundational phase

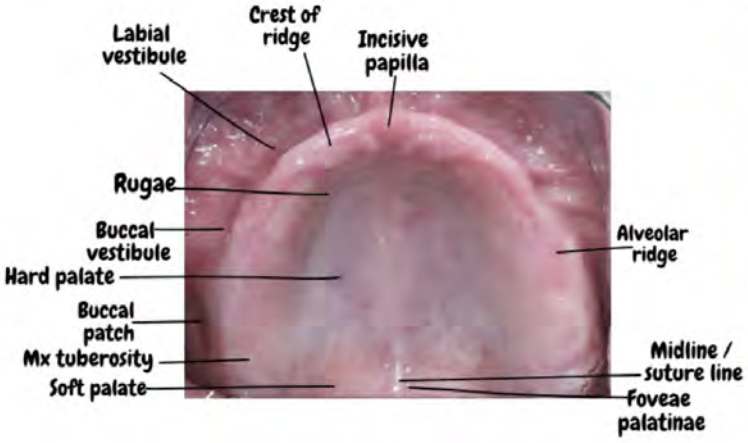
- **Address the presenting complaint**
  - Explain to pt that loss of retention of F/ occurs during function due to lack of posterior support provided by F/P. Because it is an occlusal problem, both dentures will need to be replaced to address the issue. A new set of dentures will also address the aesthetic complaints.

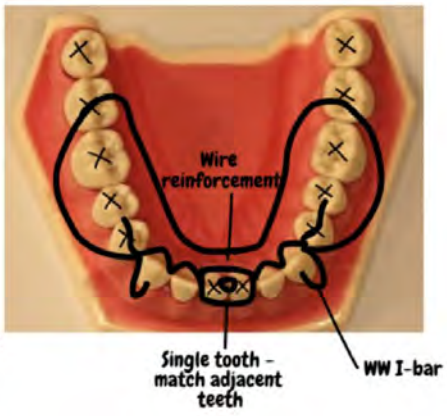
- **Address lifestyle factors / OH routine (4/10/[redacted])**
  - **Diet** (Evans et al, 2008)
    - Pt encouraged to continue balanced diet with low sugar intake, and to drink tap water regularly.
  - **Oral hygiene and dental visits** (Evans et al, 2008)
    - Pt encouraged to continue good OH habits for natural teeth.
    - For denture hygiene, recommended using a separate toothbrush to teeth and brushing the dentures with detergent & water. Pt to leave dentures out at night dry in the denture case.
    - Pt encouraged to continue attending recall appointments after course of tx. Emphasised dentures require maintenance as the tissues in the mouth change over time.

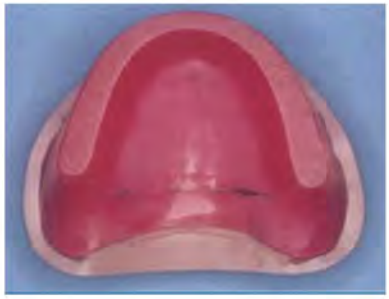
- **Scale and clean, prophylaxis paste applied (4/10/[redacted]**

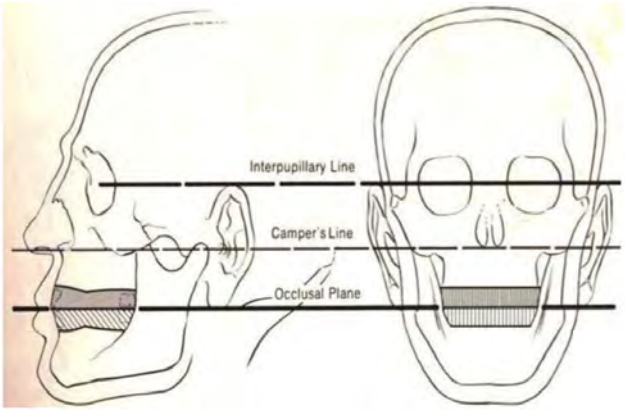
Definitive phase

- **Acrylic F/P work-up (9/10[redacted] - 22/1[redacted])**
  - Mx & Md primary alginate impressions → primary casts
  - Mx & Md special tray fabrication → Mx & Md alginate PVS impressions → secondary / master casts
  - Base & rims fabrication for facebow & bite registration → mounted master casts
  - /P denture design to include lingual wire reinforcement if insufficient thickness of acrylic achievable for torsional strength

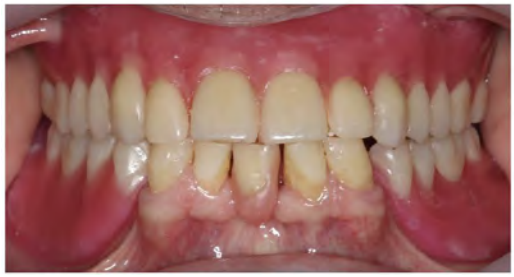


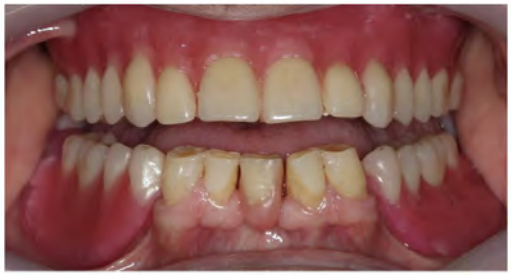




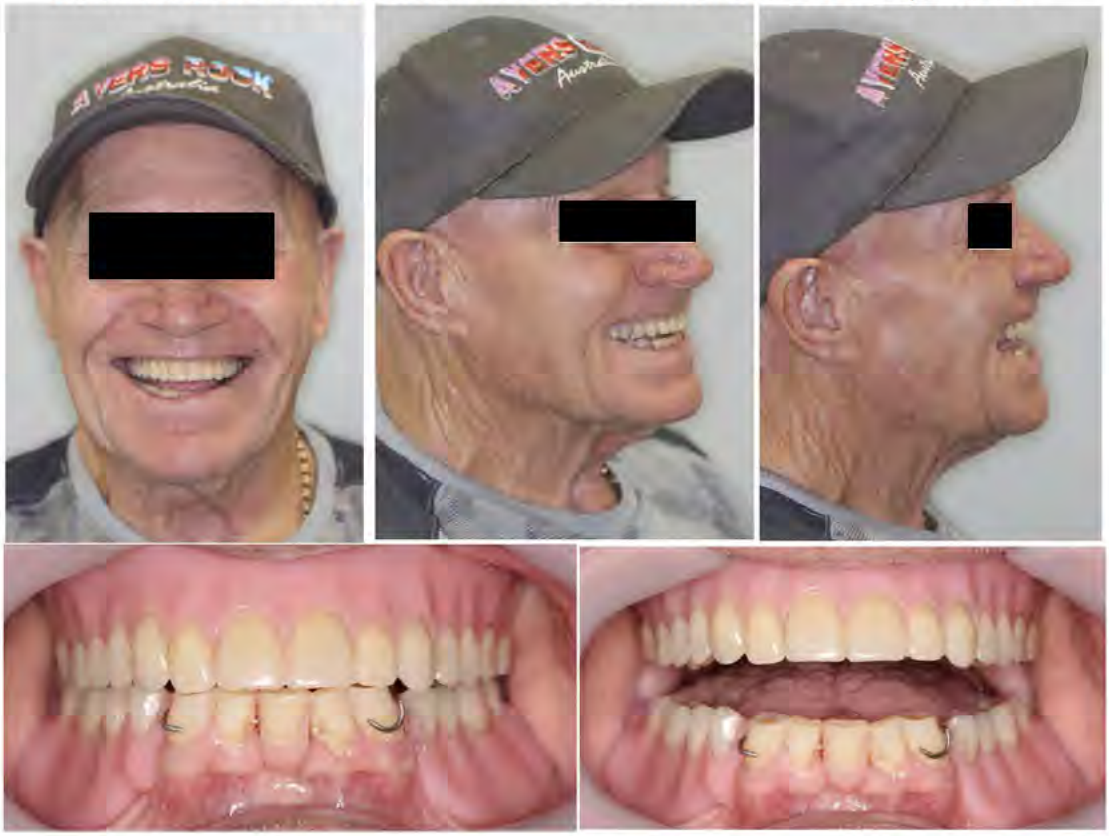


- Shade selection Vita Classical shade A3.5
- Anterior tooth try in to confirm pt happy with aesthetics, followed by posterior tooth try in to confirm satisfactory occlusion





- **Insert of acrylic F/P (15/2/[redacted])** excellent fit, retention and stability for acrylic F/P. Pt extremely happy with result. Occlusal parameters checked slight adjustment of occlusion for balanced contacts. Denture care instructions & case provided.

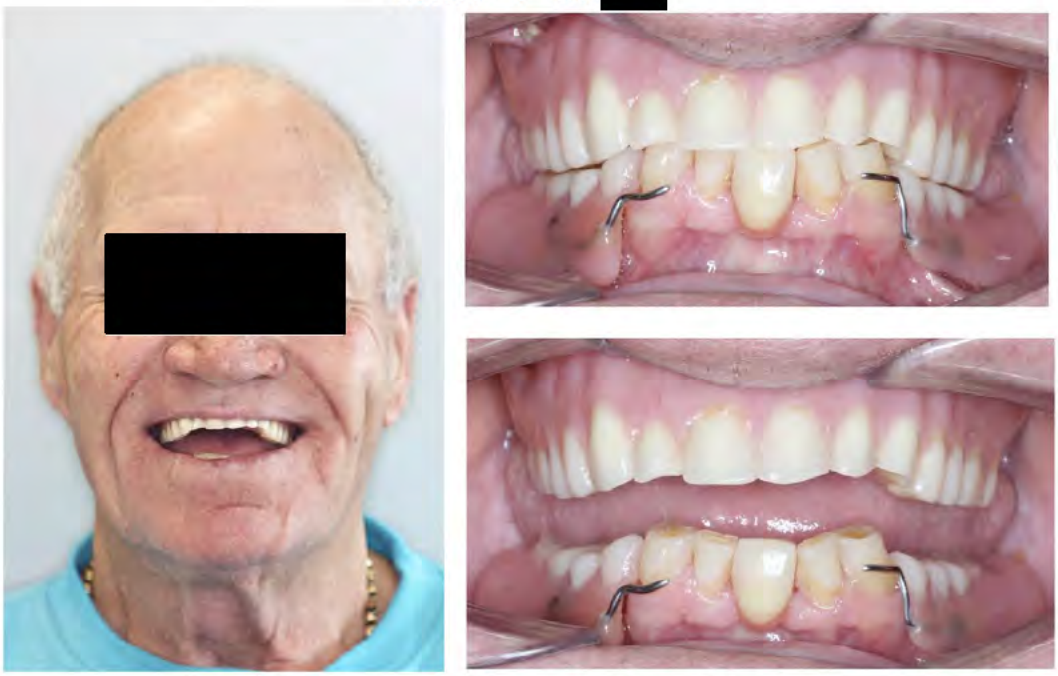


- **Post-insert review (18/2/[redacted])**
    - Pt returned with some sore spots where F/P flanges appeared to be over extended. These were adjusted & polished.

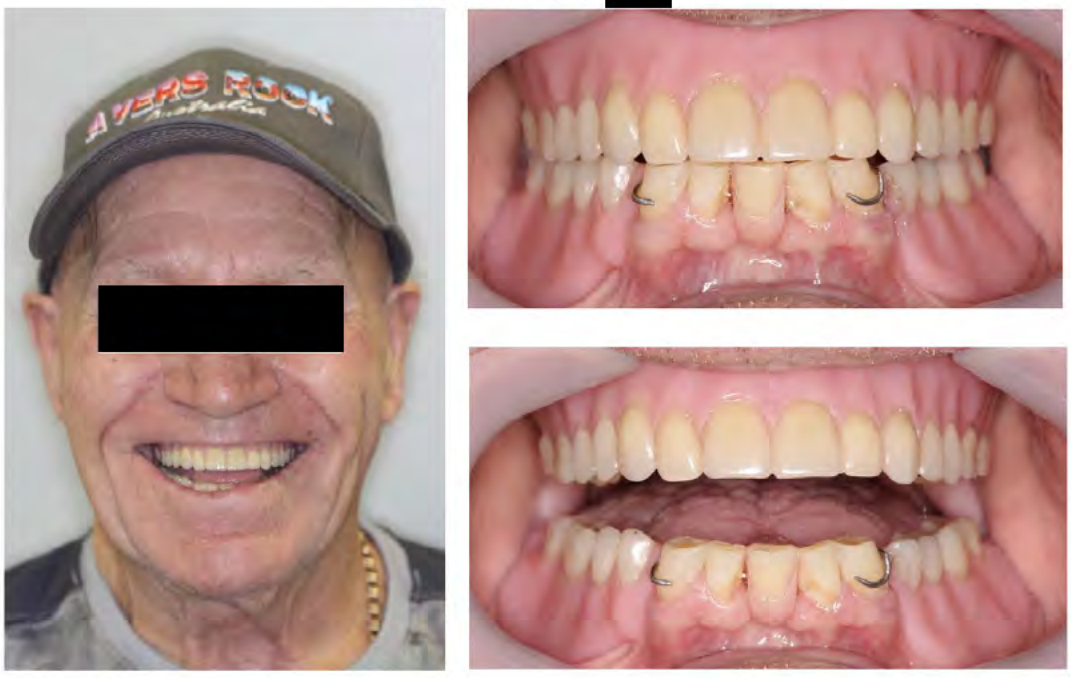
- **6mth review (1/8/[redacted])**
    - Pt was very happy with F/P and reported no problems since the last review appointment.
    - Pt is continuing to brush 2x/day with a manual toothbrush & fluoride toothpaste, 1x/day with interdental brushes & brushes F/P at night with detergent & a separate toothbrush. Dentures left in water overnight as pt dislikes dentures dry.
    - F/P has excellent retention, stability & aesthetics, pt comfort & satisfaction. Anterior tooth contacts are light.
    - S+C performed with ultrasonic, prophylaxis paste polish, topical fluoride applied to areas of exposed dentine on 33,43 (incisally & root surfaces).
    - Pt placed on 6mth recall.

2.19 Before and after treatment photographs

Before - 4th Oct [redacted]



After - 15th Feb [redacted]



3. Aesthetic fixed restorative case

[redacted]

3.1 Presenting complaint

- "I've had a toothache on and off for the past year in one of my upper right back teeth."
- "I've never liked that two of my teeth on the left hand side are stained."

3.2 History of presenting complaint

- Spontaneous dull aching sensation on/off in upper right posterior starting Feb [redacted] (12mths ago). Pain is exacerbated by hot/cold food and drink. Pain lingers for about an hour.
- In Feb [redacted] amalgam restoration on tooth 15 was replaced with an indirect composite onlay prepared and cemented in a single visit. Pt reports toothache began after onlay was prepared and did not improve with time.
- In Jun/Jul [redacted], pt's private GDP recommended RCT for the tooth 15 but was unavailable for tx. When pt re presented to private GDP clinic, she was seen by a different GDP who believed "cracks" in the tooth were responsible for symptoms. A "sealant" was placed over the cracks, but symptoms persisted. Pt would like the toothache resolved.
- Pt identified "stained" teeth as 22 and 24. Pt recalls the staining appeared some time ago.

3.3 Medical history

Conditions	Description
Hypertension*	• Long term high blood pressure (consistently over 140/90mmHg). (Optimal blood pressure <120/80mmHg, 120/80mmHg to 139/89mmHg are in the normal to high range.)
Lower back pain*	• Due to previous back muscle injury.

*Conditions managed by medication.

Medications	Dosage	Use / Mechanism of action	Dental implication
Perindopril (Apo-Perindopril Erbumine)	4mg tablet orally 1x/day	• For hypertension. • Angiotensin-converting enzyme (ACE) inhibitors block conversion of angiotensin I to angiotensin II also inhibit the breakdown of bradykinin. This reduces angiotensin II-induced vasoconstriction, sodium retention and aldosterone release (AMH, 2019).	• Weak evidence of interference with salivary gland function and inducing xerostomia (Wolff et al, 2016).
Celecoxib (Apo-Celecoxib)	200mg capsule orally 1x/day	• For back pain. • Selective NSAID. Inhibit only the COX-2 enzyme, allowing production of prostaglandins that protect the stomach, while still sufficiently inhibiting synthesis of prostaglandins to relieve fever, pain and inflammation (AMH, 2019).	• May effect perception of dental pain if taken recently.

- Allergies
    - Penicillin

3.4 Dental history

- Previous private practice patient for the past 10yrs, presenting for yearly dental recalls. Recently presented to OHCWA for comprehensive dental care, as private dental care is becoming too expensive.

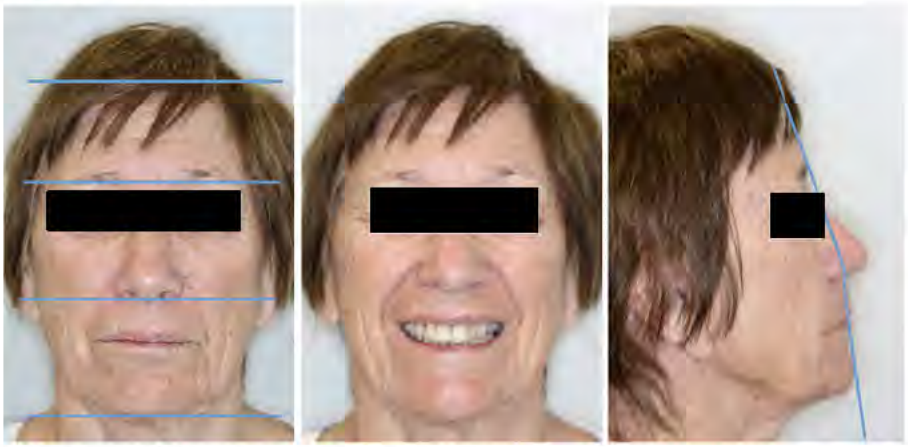
3.5 Oral hygiene

- Toothbrushing 2x/day with Sensodyne toothpaste and manual toothbrush.
- Flosses infrequently.

3.6 Social history

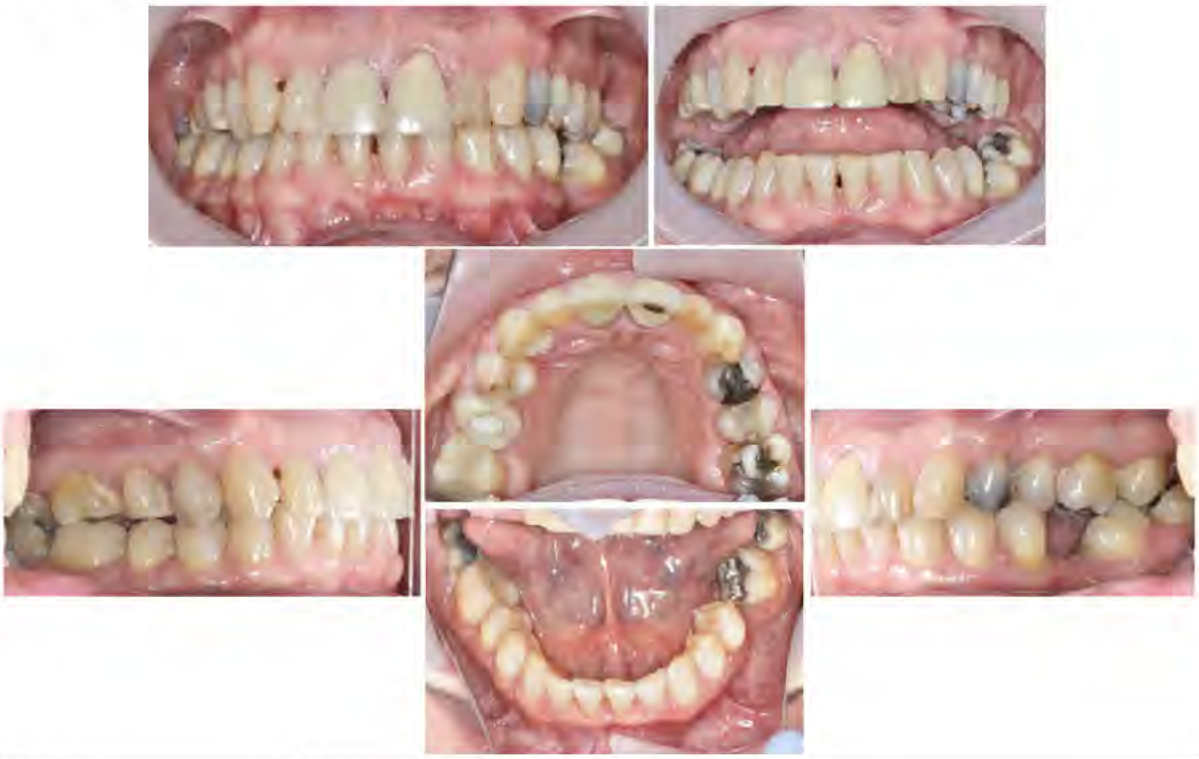
- Retired, lives at home alone with two pet dogs.
- Visited regularly by daughter and friends.

3.7 Extra-oral examination



Facial appearance	Healthy, clear complexion
Facial symmetry	Symmetrical
Thyroid gland	No noticeable enlargement or tenderness to palpation
Muscles of mastication	No noticeable enlargement or tenderness to palpation or clenching
TMJ	L TMJ click on opening and closing, asymptomatic
Facial thirds	Balanced facial thirds
Facial fifths	Balanced and symmetrical facial fifths
Upper lip	Dry, patchy appearance consistent with solar keratosis
Lower lip	Dry, patchy appearance consistent with solar keratosis Lower lip multiple melanotic macules
Smile analysis	On smile, 90% incisal display, 0% gingival display At rest, 0% incisal display
Profile	Straight

3.8 Intra-oral examination



La mucosa	Smooth, pink, in-tact mucosa
Sulci	Smooth, pink, in-tact mucosa
Frena	Smooth, pink, in-tact mucosa
Gingiva	Coral pink, stippled texture, scalloped contour
Palate	U-shaped arch, smooth, pink, in-tact mucosa
Oropharynx	Smooth, pink, in-tact mucosa
Alveolar ridge	Bu and Li resorption at site of missing tooth 36
Bu mucosa	Smooth, pink, in-tact mucosa
Tongue	Geographic tongue
Floor of mouth	No tenderness to palpation or evidence of swelling
Saliva	Appears adequate
Dentition	Missing tooth 36 Mx dental midline L of Md midline Mx dental midline R of facial midline

3.9 Occlusion

Right lateral	Frontal	Left lateral
Stable contacts in MIP	VDR 76mm VDO 74mm	Stable contacts in MIP
Overjet 2mm Overbite 2mm	Mx midline left of Md midline	Overjet 2mm Overbite 2mm
Canine rship Cl II	Max opening 33mm Max opening (active stretch) 38mm	Canine rship Cl I
Molar rship Cl II	No deviation or deflection on opening	Molar rship N/A
R laterotrusive movement 6mm Anterior guidance 13,43	Protrusion 6mm Anterior guidance 11,41,21,31	L laterotrusive movement 7mm Anterior guidance 23,33

3.10 Tooth charting

CO_2	+	+		++	+	+	+	-	-	+	+	+	+	+	+	+
Mob	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0
TTP	-	-		+	+	-	-	-	-	-	-	-	-	-	-	-
P/ap R	-	-		-	-	-	-	P/ap R	GP ext	-	-	-	-	-	-	-
	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
			RR													
	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
CO_2		+	+	+	+	+	+	+	+	+	+	+	+		+	+
Mob		0	0	0	0	0	0	0	0	0	0	0	0		0	0
TTP		-	-	-	-	-	-	-	-	-	-	-	-		-	-
P/ap R		-	-	-	-	-	-	-	-	-	-	-	-		-	-

LEGEND:

Restorations / findings

	Comp / GIC - sat
	Amalgam - sat
	Caries
	Root stump
	Unsat restn due to caries
	Unsat restn for other reasons
	NCTSL
RR	Root remnant
GP ext	GP extrusion
P/ap R	Periapical radiolucency
UE	Unerupted

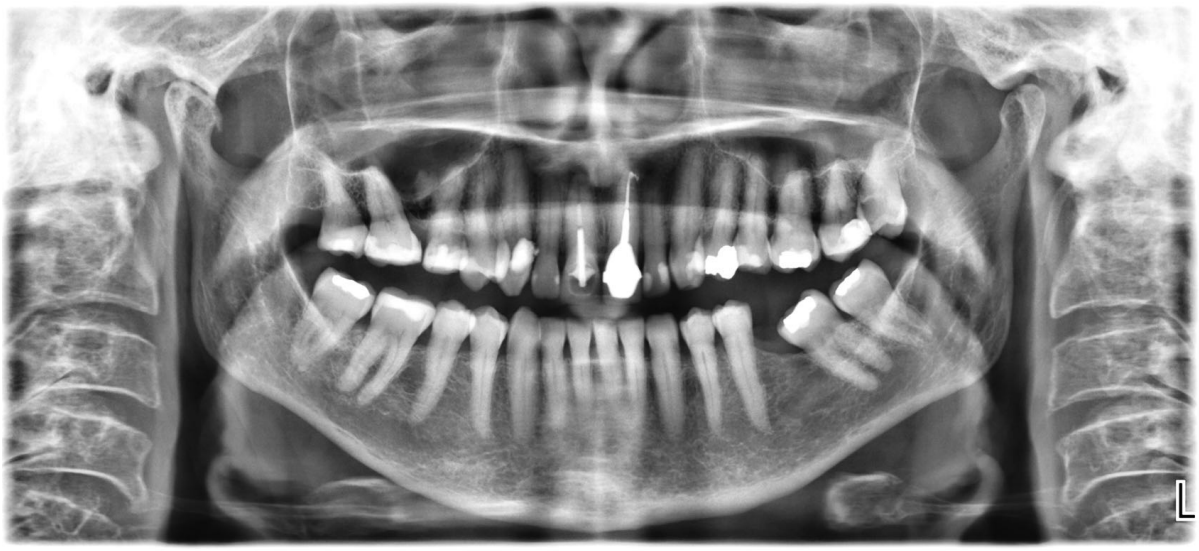
CPITN - Community Periodontal Index of Treatment Needs

2	2	2
2	2	2

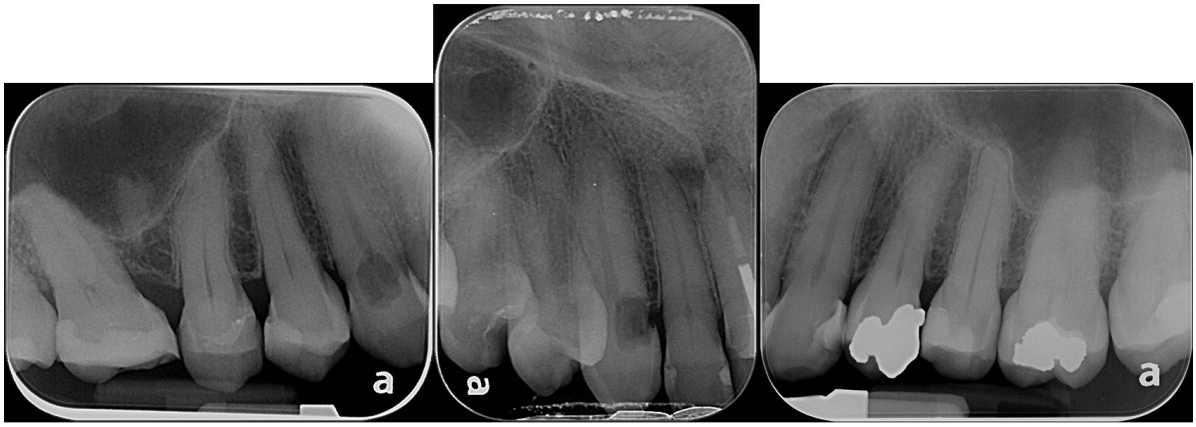
1	Gingival bleeding after gentle probing
2	Supragingival or subgingival calculus
3	Pathologic pockets 4-5mm
4	Pathologic pockets ≥6mm
*	Furcation involvement or recession ≥4mm

3.11 Radiographs

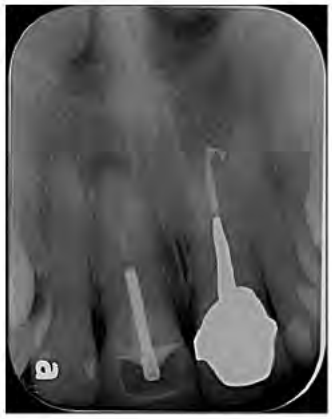
- OPG taken 20th Mar [redacted]
    - 11,21 previous RCT
    - Heavily restored dentition
    - Missing tooth 36, mesially tilted 37 & 38



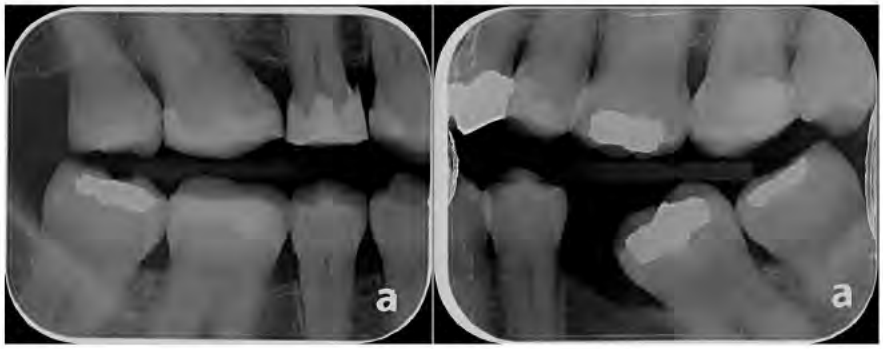
- 3xPAs taken 13th Feb [redacted]
    - 16 root remnant at sinus floor, no p/ap radiolucency or clinical evidence of infection
    - 13 external invasive resorption Cl III
    - 14, 15, 24 no evidence of p/ap radiolucencies
    - 11 previous RCT, technically inadequate & p/ap radiolucency
    - 23 unsat D restoration
    - 24 non ideal D contact



- 1xPA taken 23rd Feb [redacted]
  - 11 previous RCT, technically inadequate & p/ap radiolucency, restored with post, core & crown
  - 21 previous RCT, technically inadequate due to GP extrusion, but no assoc p/ap radiolucency, restored with post, core & crown



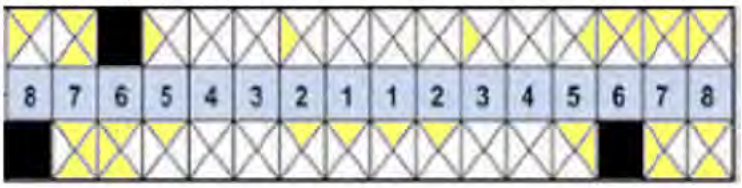
- 2xBWs taken 19th Apr [redacted]
  - No evidence of interproximal caries
  - Satisfactory posterior restorations (15 temporary restoration)
  - Mesially tilted 17 and 37, missing teeth 16 & 36



3.12 Caries risk assessment (Evans et al, 2008)

- **Diet assessment** (Usual 24h snacking questionnaire)
  - Breakfast toast with vegemite
  - Lunch salad
  - Dinner fish or chicken with vegetables
  - Snacks fruit and nuts between meals
  - Drinks 2 tsp sugar with 1 coffee/day and 2 teas/day drank in single sittings
  - Tap water drunk regularly throughout the day

- **Plaque score -** 30% (35/116)



- **Saliva assessment -**

Resting saliva		
Hydration	**Viscosity**	**pH**
>60s	Sticky/stringy	5.0-5.8
30-60s	Frothy/bubbly	6.0-6.6
<30s	Watery/clear	6.8-7.8

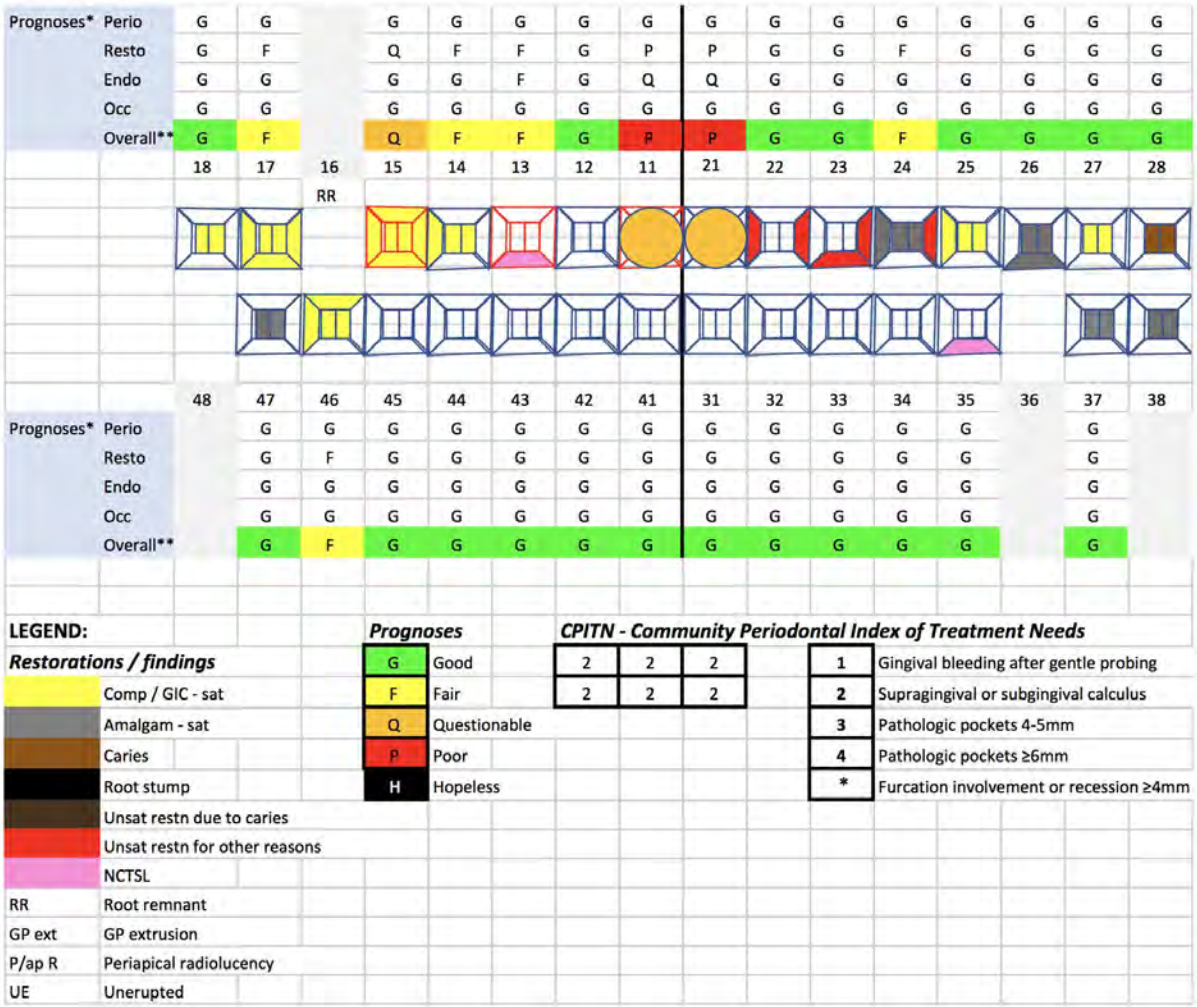
Stimulated saliva		
Quantity	**pH**	**Buffering**
<3.5mL	5.0-5.8	0-5pt
3.5-5.0mL	6.0-6.6	6-9pt
>5.0mL	6.8-7.8	10-12pt

- **Clinical examination / radiographic assessment -**
  - Single untreated cavity 28
  - 15, 13, 11 requiring endodontic treatment and definitive restoration
  - Restoration breakdown 22, 23, 24

- **Caries risk: LOW**

3.13 Prognosis (Samet & Jotkowitz, 2009)

- **Individual tooth prognosis -**



* Prognosis categories are based on a classification proposed by Samet & Jotkowitz (2009), where overall prognosis is the worst of periodontal, restorative, endodontic and occlusal prognoses. Anatomic, iatrogenic and patient factors modify the overall prognosis.
** Overall tooth prognosis modified downward by patient factors - poor OH, cariogenic diet, smoking, aesthetics as motivation for treatment, and high aesthetic expectations.

- **Overall dentition prognosis FAIR**

3.14 Problem list

- 15 chronic irreversible pulpitis with primary acute apical periodontitis due to tooth preparation (presenting complaint)
- Discolouration associated with 22 and 24 restoration breakdown (presenting complaint)
- Host related
    - N/A
- Pathology
    - Generalised mild gingivitis
    - 11 previous root canal treatment (technically unsatisfactory) and infected root canal system and chronic apical periodontitis due to restoration breakdown (Abbott & Yu, 2007; Abbott, 2004)
    - 13 external invasive resorption Cl III
    - 28O caries
    - 23 restoration breakdown
    - 35Bu NCTSL
- Morphology
    - Skeletal Cl I
    - Stable MIP, acceptable VD, canine guidance in dynamic occlusion
    - 16 root remnant at R sinus floor
    - Missing 36
    - M tilted 17 & 37

3.15 Diagnoses

- Endodontically involved teeth (includes presenting complaint)
- Discoloured teeth (presenting complaint)
- Gingivitis
- Caries
- Restoration breakdown
- NCTSL

3.16 Treatment options

1. **Aesthetically driven treatment plan:**

   Foundational phase involving

   - S+C
   - Endodontic treatment of 11, 13, 15 referral to Endodontic specialist for 11, 13
   - Restoration of 23, 28 and 35

   Definitive phase involving

   - 11 cast post & core to match 21 and zirconia crown
   - 21 replace PFM crown with zirconia crown to match 11
   - 22 replace leaking M comp and place La ceramic veneer
   - 24 replace amalg with full crown or ceramic onlay
   - 13 restoration of Pal resorptive lesion or access cavity if RCT required
   - 15 full ceramic crown

Advantages	Disadvantages
• Addresses pt's presenting complaints with an aim to achieve the most aesthetic result possible. • Indirect restorations on 11, 21 and 22 placed at the same time allows best aesthetic result (control for harmonious shape, contour, shade). • Higher chance of pt having long term satisfaction with treatment result.	• Need for more extensive treatment - replacement of technically satisfactory 21 PFM crown and 24 MOD amalg, veneer preparation of 22 for aesthetic reasons only. • Significant treatment commitment required (time, financial cost, maintenance). Financial cost would be a more significant factor if treatment was performed in private practice.

2. **Minimal intervention treatment plan with aesthetics in mind:**

   Foundational phase involving

   - S+C
   - Endodontic treatment of 11, 13, 15 referral to Endodontic specialist for 11, 13
   - Restoration of 23, 28 and 35

   Definitive phase involving

   - 11 cast post & core and PFM or zirconia crown to match 21
   - 22 replace leaking M comp and place La ceramic veneer
   - 24 replace amalg with ceramic onlay
   - 15 full ceramic crown

Advantages	Disadvantages
• Very difficult to achieve a highly aesthetic result, as some discrepancy between 11 and 21 can be expected. • Addresses pt's presenting complaints with an aim to achieve improved aesthetics and a reasonable result without additional treatment of 21. • If pt finds 11, 21 discrepancy to be unacceptable, 21 crown can be replaced after 11 insert with CAD/CAM technology used to replicate 11 design.	• 11, 21 discrepancy may be aesthetically unacceptable to pt. • Still require replacement of 24 MOD amalg for primarily aesthetic reasons, and veneer preparation of 22 for aesthetic reasons only. • Significant treatment commitment required (time, financial cost, maintenance), but less than option 1.

3. **Functionally driven treatment plan:**
   Foundational phase involving
   - S+C
   - Endodontic treatment of 11, 13, 15 referral to Endodontic specialist for 11, 13
   - Restoration of 23, 28 and 35

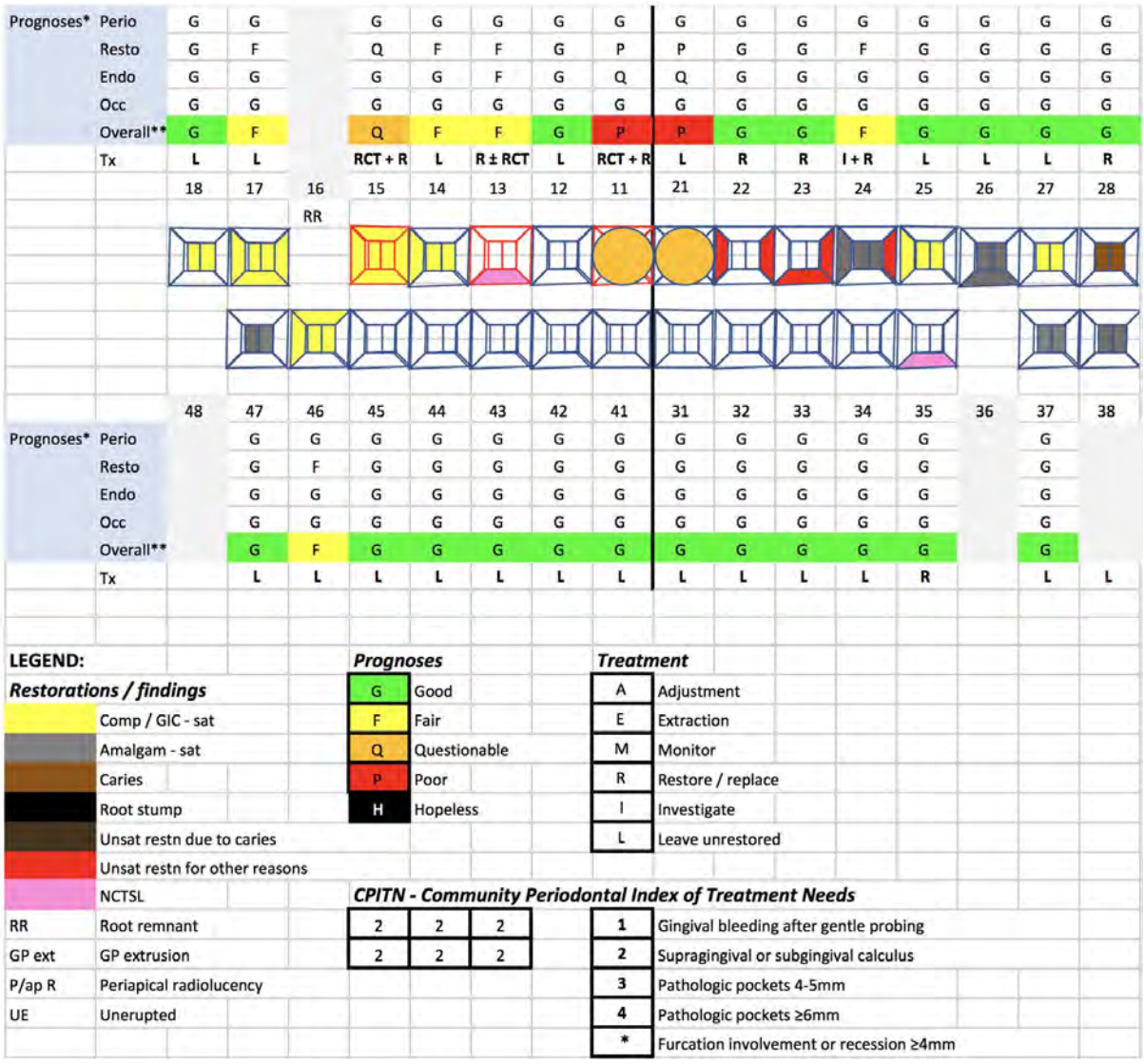
   Definitive phase involving
   - 11 cast post & core and PFM or zirconia crown to match 21
   - 22 replace leaking M comp
   - 15 full ceramic crown

Advantages	Disadvantages
• Treatment will resolve pt's toothache and involves a conservative course of treatment. • Lower treatment commitment required (less time and financial cost). • If pt finds 11, 21 discrepancy to be unacceptable, 21 crown can be replaced after 11 insert with CAD/CAM technology used to replicate 11 design.	• Fails to address pt's aesthetic complaints regarding discolouration of 22 and 24. • 11, 21 discrepancy may be aesthetically unacceptable to pt.

4. **No treatment**

Advantages	Disadvantages
• No course of action required.	• Pt's presenting complaints will not be addressed - 15 toothache will persist or progress to infection, tooth 22 and 24 will remain discoloured. • Other disease processes, including 11 previously RCT and infected RCS, 13 external invasive resorption and 28 caries, will progress.

- Patient decided on treatment option 2 Minimal intervention treatment plan with aesthetics in mind
    - Pt understood achieving a baseline level of oral health was important, and was happy to go ahead with the foundational phase of treatment, including referral to an Endodontic specialist for treatment of 13 and 11.
    - Pt wanted her aesthetic concerns assoc with the tooth 22 and 24 addressed.
    - Pt was happy to accept some discrepancy between the 11 and 21, as long as it wasn't obvious. Pt did not want the 21 crown unnecessarily removed since the treatment plan was already quite extensive. Pt understood that 11 crown would not be cemented until an acceptable match was produced, and removal and replacement of the 21 crown could be revisited if the match was unacceptable to the pt.

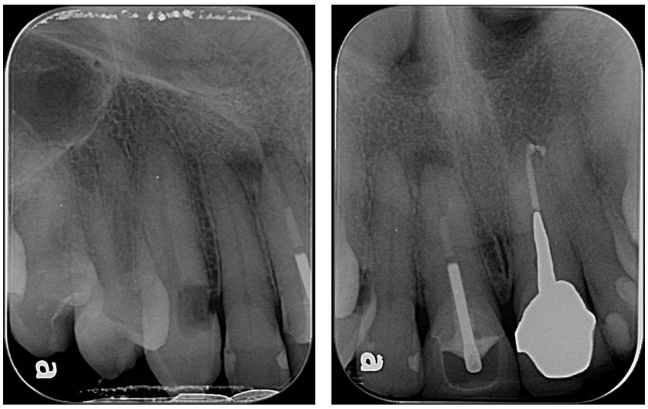


3.17 Management plan

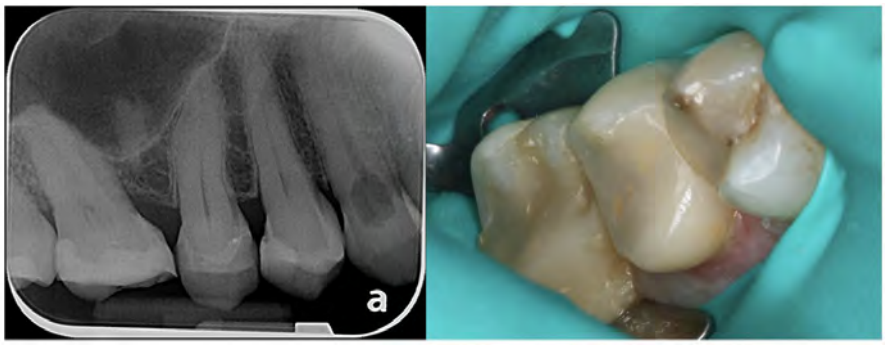
Foundational phase

- **Address the presenting complaint (7/2/[redacted]**
  - Diagnosed 15 chronic irreversible pulpitis and primary acute apical periodontitis due to tooth preparation. Pt was particularly frustrated with the symptoms associated with the toothache, as they had been ongoing for 12mths. Agreed to prioritise pulp extirpation of the tooth 15 to relieve pt's symptoms.
  - Expressed an understanding of pt's dissatisfaction with the appearance of her discoloured upper left teeth. However, explained to pt that oral health needs to be established first before going on to address aesthetic concerns.
  - Explained to pt that there are a number of dental issues that need to be addressed in addition to pt's presenting complaints, including:
    - Endodontically involved teeth with 2 requiring specialist referral
    - Caries
    - Restoration breakdown over time
    - NCTSL
  - Discussed treatment options and pros and cons of each choice with pt.

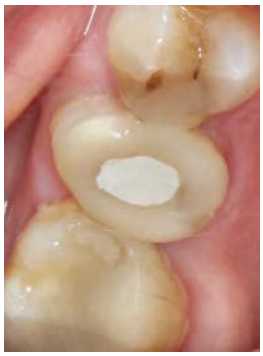
- **Referral to Endodontic specialist (7/2/[redacted])**
  - 11 previous RCT (technically unsatisfactory) and infected RCS with chronic apical periodontitis due to unsatisfactory RCT (Abbott & Yu, 2007; Abbott, 2004).
    - Referral for endodontic re treatment and removal of post and core. Minimal tooth structure remaining so conservative canal preparation required.
  - 13 external invasive resorption Cl III.
    - Referral for access and removal of resorptive tissue with trichloroacetic acid (TCA).

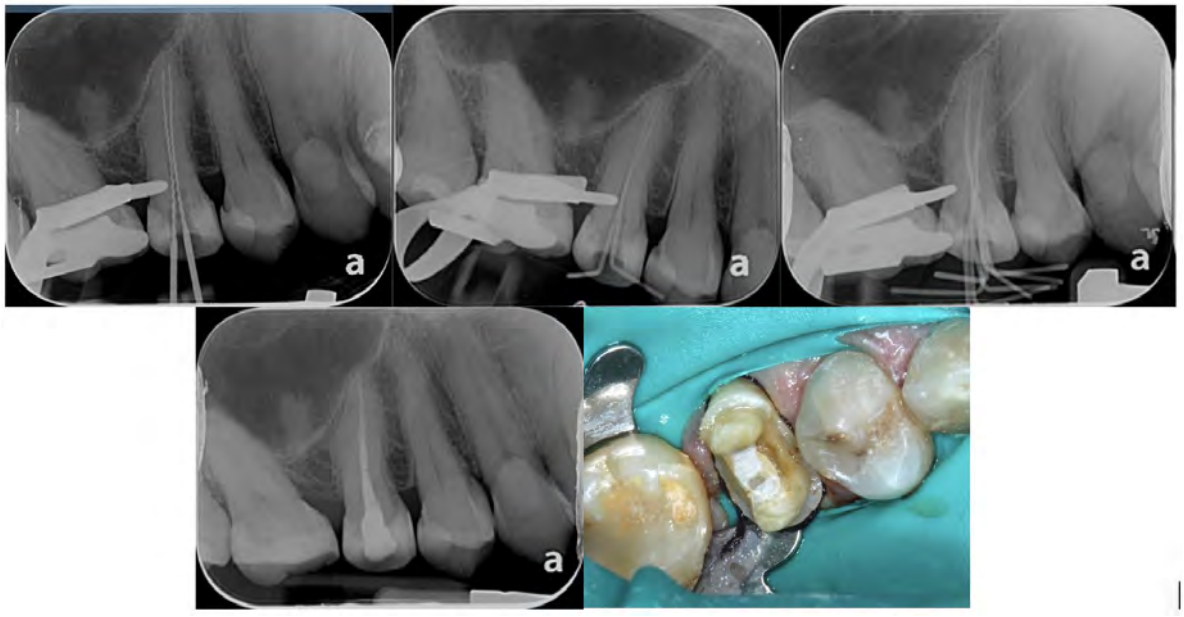


- **Tooth 15 RCT (14/2/[redacted] - 7/8/[redacted])**
  - Dx: 15 chronic irreversible pulpitis and chronic apical periodontitis due to tooth preparation (Abbott & Yu, 2007; Abbott, 2004).



  - Pt opted for RCT over extraction as she was eager to keep the tooth 15. Pt aware a course of tx is required and final restoration will likely be a crown.
  - Investigation (14/2/[redacted])
    - Indirect composite restoration, tooth deemed suitable for restoration & requires a full crown.
    - Located 2 canals Bu and Li.
  - Canal preparation (10/4/[redacted])
  - Dressing change (12/7/[redacted]) with Pulpdent medicament
  - RCF (7/8/[redacted]) via lateral condensation with GP + AH26

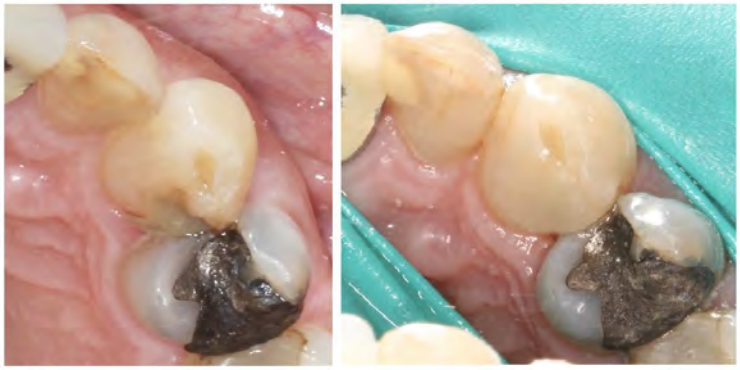




- **Counselling on required changes in lifestyle factors / OH routine (7/2/[redacted])**
    - **Diet** (Evans et al, 2008)
        - Pt encouraged to continue eating balanced diet and eating three meals per day regularly.
        - Pt encouraged to be wary of exposures to sugar during the day through dried fruit and sugar added to tea and coffee. Advised pt to drink water after sugar exposures and give teeth 2hr break for remineralisation to occur.
    - **Oral hygiene and dental visits** (Evans et al, 2008)
        - Pt encouraged to continue good OH habits. Encouraged pt to focus on using large interdental brushes to clean area of missing 36.
        - Pt encouraged to continue attending recall appointments after course of tx. Emphasised restorations require maintenance, and detecting and addressing issues early is essential to prolonging the lifespan of teeth with minimal tooth structure remaining.

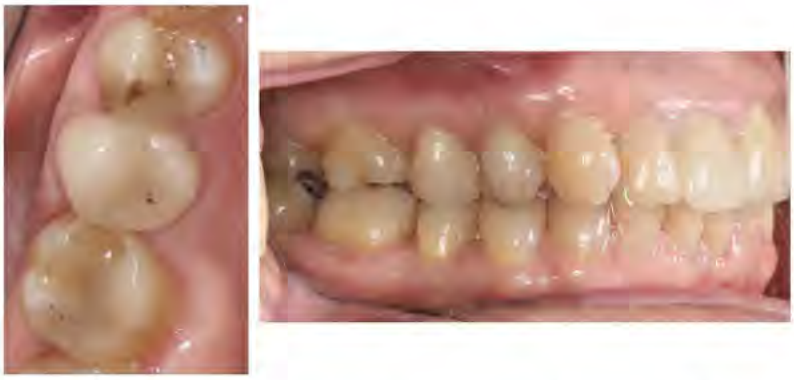
- **Scale and clean, prophylaxis paste applied (19/4/[redacted])**

- **Restorations (23/4/[redacted] - 30/4/[redacted])**
    - 28 O GIC (Fuji VII) restoration.
    - 22 M composite restoration.
    - 23 DPal composite restoration.
    - 35 Bu GIC (Fuji IX) restoration.
    - 13 Pal composite restoration (completed by Endodontic specialist).

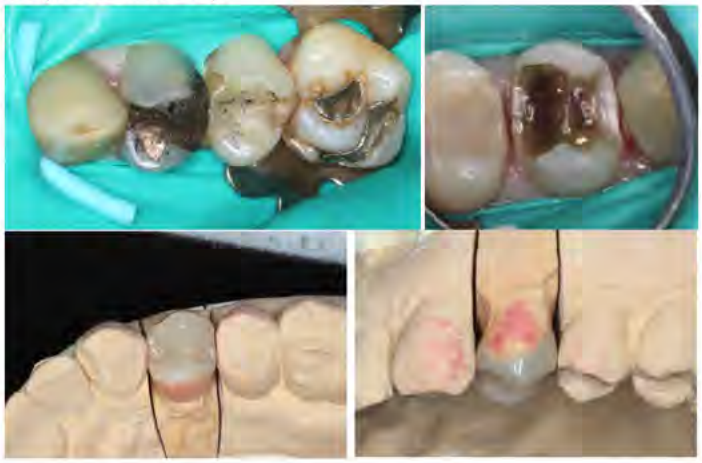


Definitive phase

- **Tooth 15 full ceramic (lithium disilicate) crown (9/8/[redacted] - 22/3[redacted])**
    - Pt desired an aesthetic restoration, and there were no occlusal contraindications to the use of ceramic, hence a full ceramic crown was selected.
    - In this case, IPS e.Max lithium disilicate was chosen. Monolithic full crowns in this material have been shown to provide excellent longevity when placed in anterior and posterior teeth. A 10.4 year clinical study reported a 0.2% per year failure rate primarily confined to molar teeth (Malament et al, 2019). The crown was cemented using a resin cement system (Variolink DC).
    - Alternative ceramic material options include leucite based ceramics, glass infiltrated alumina and zirconia, or zirconia.



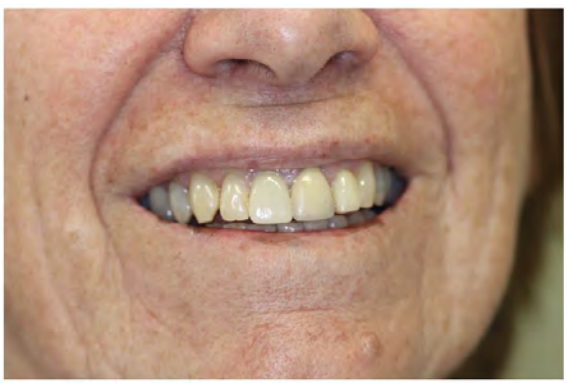
- **Tooth 24 indirect composite (Enamic) onlay (11/5/[redacted] - 1/6/[redacted])**
  - Pt desired an aesthetic restoration, and there were no occlusal contraindications to the use of ceramic or an indirect composite.
  - In this case, indirect composite (Enamic) was selected for the onlay, as it is the preferred material for onlays at the UWA Dental School. While there is some positive evidence for the longevity of indirect composites, the consensus in the literature is that gaps in clinical evidence exist for the justification of resin composites compared with ceramics when restoring teeth with onlays and overlays (Miromoto, 2016). However, advantages of using indirect composite include greater flexibility to make adjustments following insertion, restorations are relatively easy to repair, and reduced expense when compared to ceramic onlays. The onlay was cemented using a resin cement system (Variolink DC).

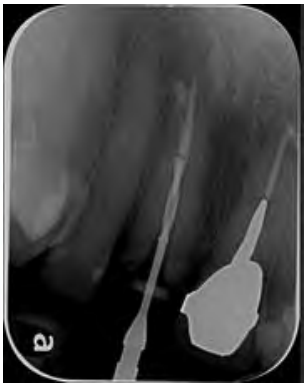


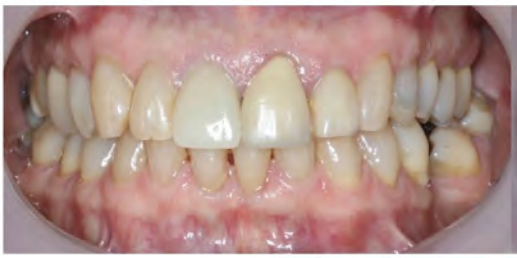
- **Tooth 11 cast post & core (gold) and full ceramic (zirconia) crown, and tooth 22 ceramic veneer (10/5[redacted] - 22/8/[redacted])**
  - Post space preparation (Stockton, 2019)
    - Length was maximised while maintaining a 4mm GP apical seal.
    - Diameter was minimised to maximise preservation of the remaining dentine. Preparation to 1.14mm diameter (Blue Parapost drill).
  - A gold cast post and core system was selected to maximise preservation of tooth structure. Gold has been successfully used for many years as it exhibits high tensile strength and its coefficient of thermal expansion is similar to that of tooth structure (Cheung, 2005). The gold cast post & core and zirconia crown were cemented using a compomer cement system (PeramaCem).

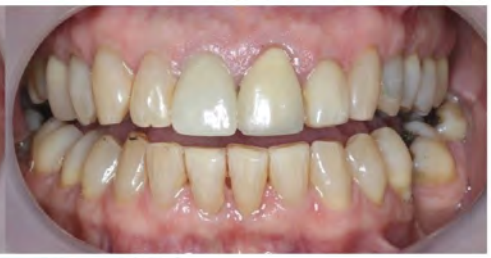
Aesthetics was not a concern in this case as the 21 was similarly restored with a gold cast post and core restoration.

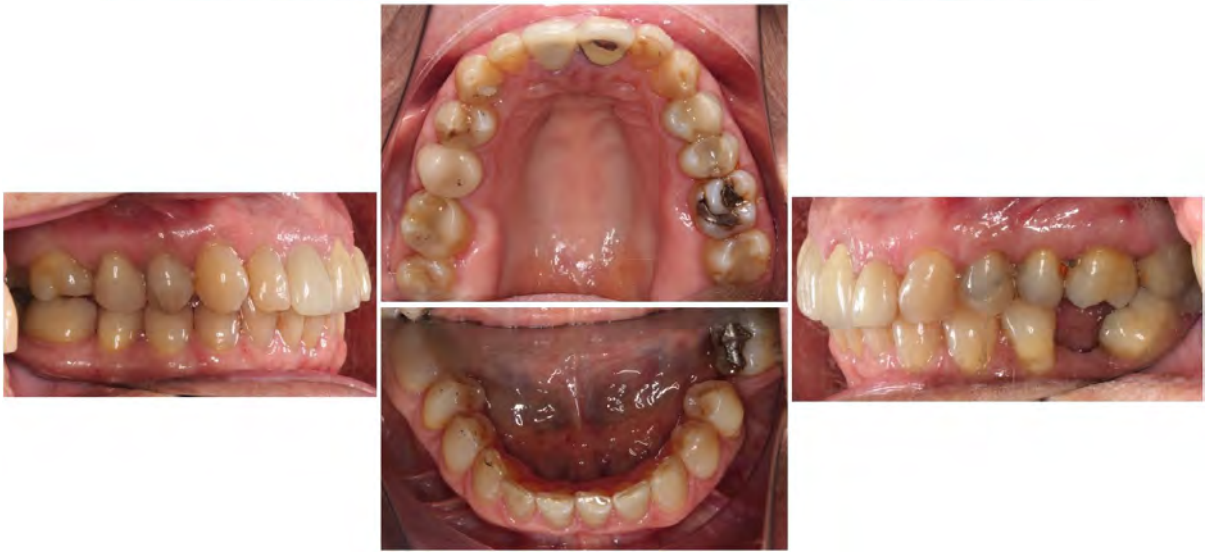
- An alternative post material option would be a quartz fibre post. Although the literature reports mixed results when comparing cast gold and quartz fibre posts, studies indicate that metal posts require higher loads for failure, although root fracture is more likely (Schwartz & Robbins, 2004). Quartz fibre also provide a more aesthetic option in cases where the contralateral tooth has not already been treated with a gold cast post and core.









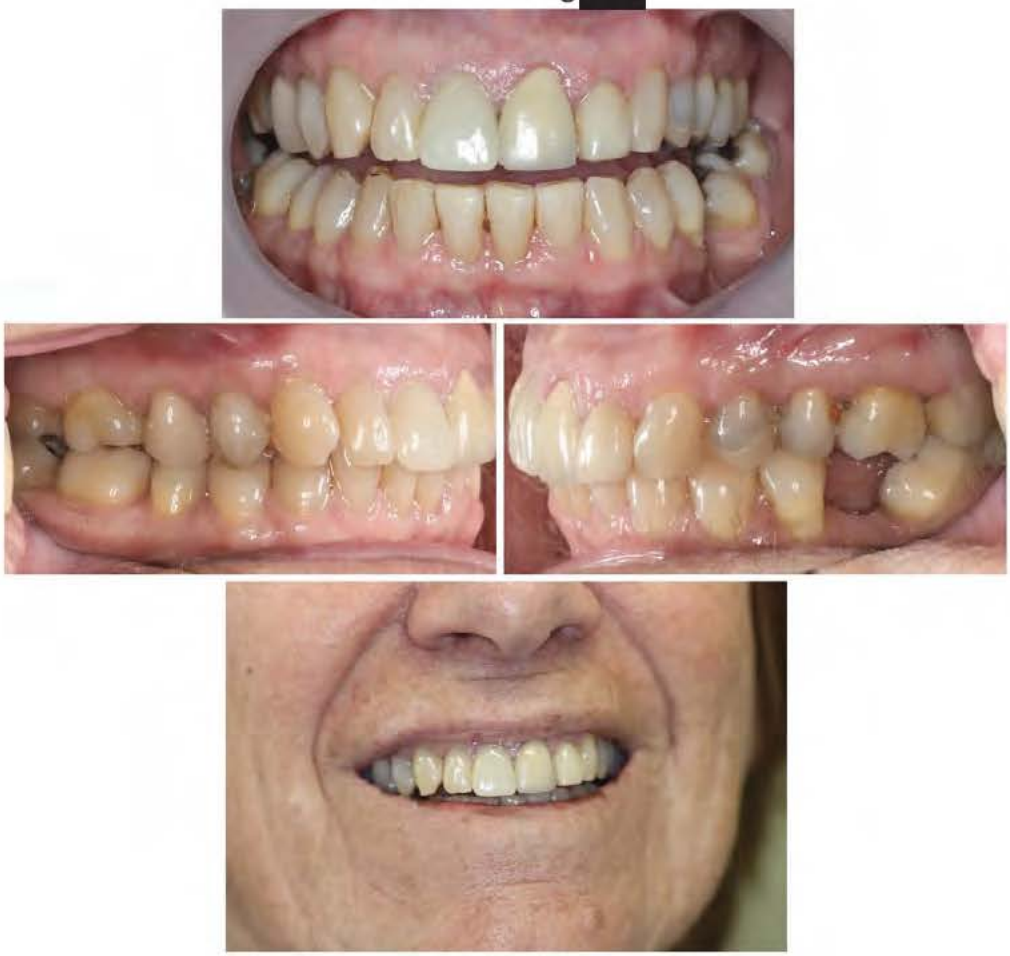


- **3mth periodic review (Nov [redacted])**

3.18 Before and after treatment photographs

Before - 7th Feb [redacted]

After - 22nd Aug [redacted]



4. Functional fixed restorative case

[redacted]

4.1 Presenting complaint

- "I'd like a new denture to fill in my missing teeth at the back and to replace my temporary denture for the front tooth."

4.2 History of presenting complaint

- Acrylic P/ made 4.5yrs ago as immediate denture to replace 21 that was avulsed in a boating accident.
- Pt feels the immediate P/ is not stable and may "fall out any minute" due to limited support. Otherwise, she is very happy with the function, aesthetics & comfort of the P/ .

4.3 Medical history

Conditions	Description
Major depression*	• Characterised by a persistent feeling of sadness or a lack of interest in outside stimuli.
Hypertension*	• Long term high blood pressure (consistently over 140/90mmHg). (Optimal blood pressure <120/80mmHg, 120/80mmHg to 139/89mmHg are in the normal to high range.)
Morton's neuroma	• Where the sheath surrounding the nerve becomes irritated, inflamed and forms a thickened scar tissue (perineural fibrosis).

*Conditions managed by medication.

Medications	Dosage	Use / Mechanism of action	Dental implication
Pregabalin (Lyrica)	150mg tablet orally 1x/day	• For nerve pain assoc with Morton's neuroma in foot. • Exact mechanism unknown. Binds to α_2 delta protein subunit of high threshold voltage-dependent Ca^{2+} channels, reducing Ca^{2+} influx & neurotransmitter release (AMH, 2019).	• Potentially reduced perception of dental pain.

Sertraline (Zoloft)	100mg tablet orally 1x/day	• For depression. • Selective serotonin reuptake intake (SSRI) selectively inhibit the presynaptic uptake of serotonin (5-hydroxytryptamine) (AMH, 2019).	• Strong evidence for inducing xerostomia (Wolff et al, 2016).
Paracetamol (Panadol Osteo)	500mg tablet orally 2x/day	• For osteoarthritis. • Exact mechanism not fully determined. May include inhibition of central prostaglandin synthesis and modulation of inhibitory descending serotonergic pathways. The antipyretic effect is probably due to reduced production of prostaglandins in the hypothalamus (AMH, 2019).	• Moderate evidence for inducing xerostomia (Wolff et al, 2016).
Amitriptyline (Endep)	40mg tablet orally 1x/day, as needed	• For depression. • Tricyclic antidepressants (TCA) inhibit reuptake of noradrenaline & serotonin into presynaptic terminals (AMH, 2019).	• Strong evidence for inducing xerostomia (Wolff et al, 2016). • Adrenaline in LA may have exaggerated effects on blood pressure & heart rate for that portion of the drug that reaches the heart & peripheral vasculature.
Fish oil & magnesium supplements	-	• For general health.	• Weak antiplatelet effect.

- History of hospitalization / surgery
    - L hemithyroidectomy due to cancer in thyroid gland in [redacted]
- No known allergies

4.4 Dental history

- Attends dental recalls yearly for cleans and occasionally a restoration.
- Acrylic P/ made 4.5yrs ago.

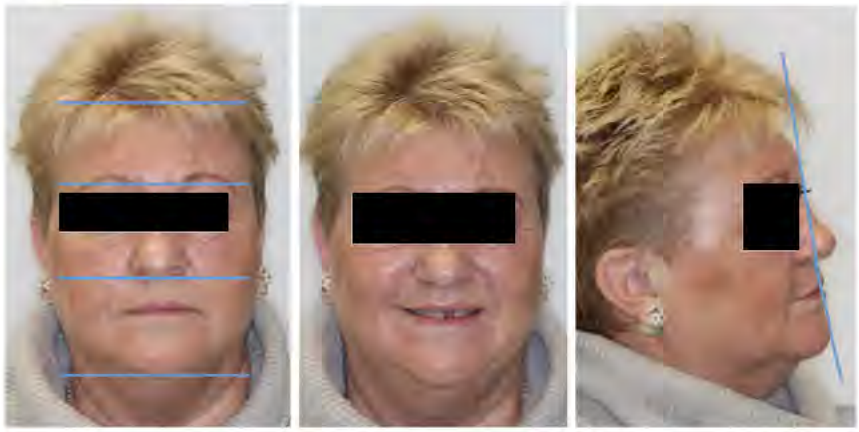
4.5 Oral hygiene

- Toothbrushing 2x/day with manual toothbrush and fluoridated toothpaste.
- Acrylic P/ brushed with the same toothbrush and toothpaste, left in overnight.
- Flossing 1x/day.

4.6 Social history

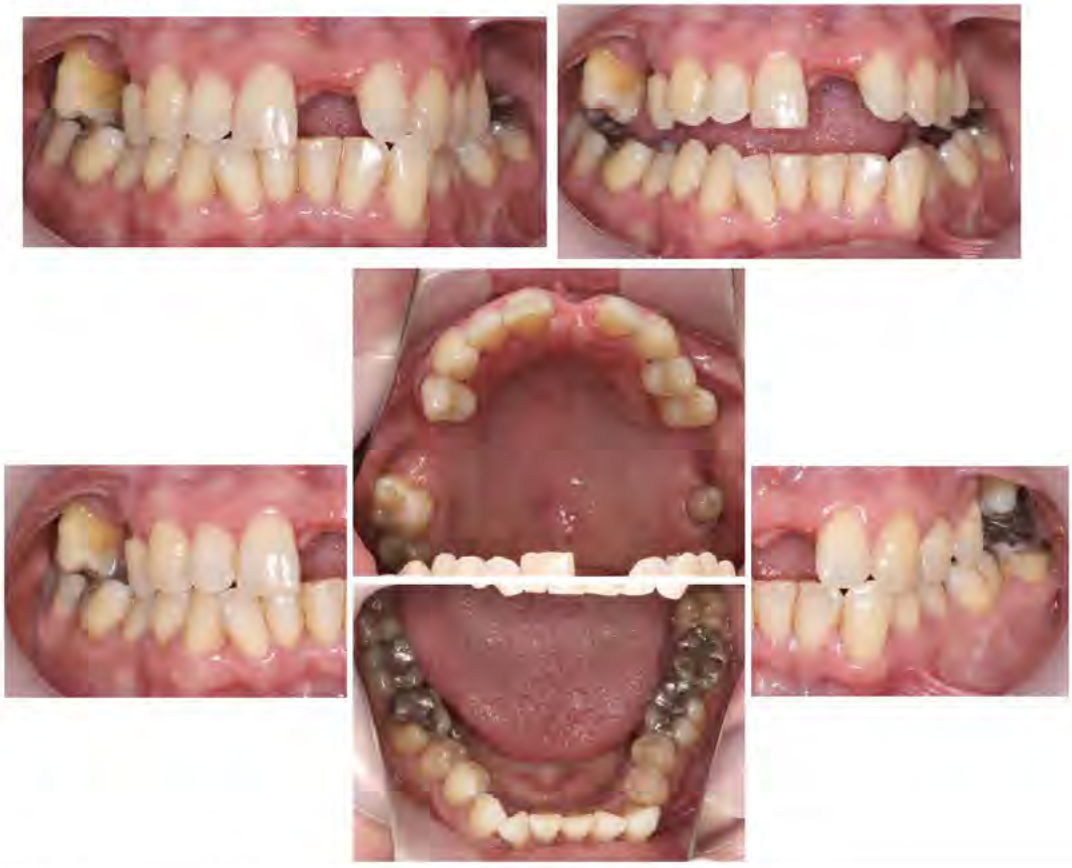
- Retired and lives at home with husband.
- Primary caregiver for elderly father with dementia.
- Drinks 2 shots of gin/day.

4.7 Extra-oral examination



Facial appearance	Healthy, clear complexion
Facial symmetry	Symmetrical
Thyroid gland	No noticeable enlargement or tenderness to palpation
Muscles of mastication	No noticeable enlargement or tenderness to palpation or clenching
TMJ	Crepitus of L and R TMJ, R TMJ click on closing, asymptomatic
Facial thirds	Balanced thirds
Facial fifths	Balanced and symmetrical facial fifths
Upper lip	Distinct vermillion border, smooth vermilion, healthy appearance
Lower lip	Distinct vermillion border, smooth vermilion, healthy appearance
Smile analysis	On smile, 70% incisal display, 0% gingival display At rest, 0% incisal display
Profile	Concave

4.8 Intra-oral examination



La mucosa	Smooth, pink, in-tact mucosa
Sulci	Smooth, pink, in-tact mucosa
Frena	Frenal tag on Mx frena
Gingiva	Edematous (loss of stippling), BoP+, recession
Palate	U-shaped arch, diffuse erythematous and edematous appearance of anterior hard palate Ddx: • Denture stomatitis (most likely given pt does not remove P/- at night) • Traumatic lesion • Allergic reaction Management: Remove likely cause (leave P/- out as much as possible, esp at night & clean meticulously) & 2wk review.
Oropharynx	Smooth, pink, in-tact mucosa
Alveolar ridge	Smooth, U-shaped arch with resorption of buccal bone at site of 21
Bu mucosa	Smooth, pink, in-tact mucosa
Tongue	Dorsal surface - white plaque Ventral surface - pink, in-tact mucosa
Floor of mouth	No tenderness to palpation or evidence of swelling
Saliva	Appears adequate
Dentition	Partially dentate Mx, 28 peg wisdom tooth Md anterior crowding Mx & Md dental midlines coincident Mx dental midline coincident with facial midline

4.9 Occlusion

Right lateral	Frontal	Left lateral
Stable posterior contacts	VDR 70mm VDO 68mm	Stable posterior contacts
Overjet 2mm Overbite 2mm	Coincident Mx & Md dental midlines	Overjet 0mm Overbite 0mm 33 in crossbite
Canine rship Cl I	Max opening 38mm Max opening (active stretch) 42mm	Canine rship Cl I
Molar rship N/A	No deviation or deflection on opening	Molar rship N/A
R laterotrusive movement 8mm Anterior guidance 13,43	Protrusion 5mm Anterior guidance 11,41,42	L laterotrusive movement 5mm Anterior guidance 23,33

4.10 Dental prosthesis - Acrylic P/-

Age	4.5yrs
Appearance	Good - denture tooth 21 slightly more yellow than other teeth, but size & shape are a very good match
Retention (Ab ty of denture to res st d sp acement n d rect on opp path of nsert on)	Very good
Stability (Ab ty of prosthes s to res st d sp acement by funct ona hor zonta or rotat ona forces)	Very good
Occlusion	Does not replace missing posterior teeth
Patient satisfaction	OK - pt would like posterior teeth replaced, but happy with P/- as immediate 21 tooth replacement

4.11 Tooth charting

CO_2	-	+			+	+	+	+		+	+	+	+			-
Mob	0	0			0	0	I	I		I	0	0	0			0
TTP	-	-			-	-	-	-		-	-	-	-			-
P/ap R	-	-			-	-	-	-		-	-	-	-			-
	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	Peg															Peg
		# #	# #											#		
	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
CO_2	+	+	+	+	+	+	+	+	+	+	+	+	+	++	++	++
Mob	0	0	0	0	0	0	0	I	I	I	0	0	0	0	0	0
TTP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P/ap R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEGEND:

Restorations / findings

	Comp / GIC - sat
	Amalgam - sat
	Caries
	Root stump
	Unsat restn due to caries
	Unsat restn for other reasons
	NCTSL
P/ap R	Periapical radiolucency
UE	Unerupted
#	Cracks

CPITN - Community Periodontal Index of Treatment Needs

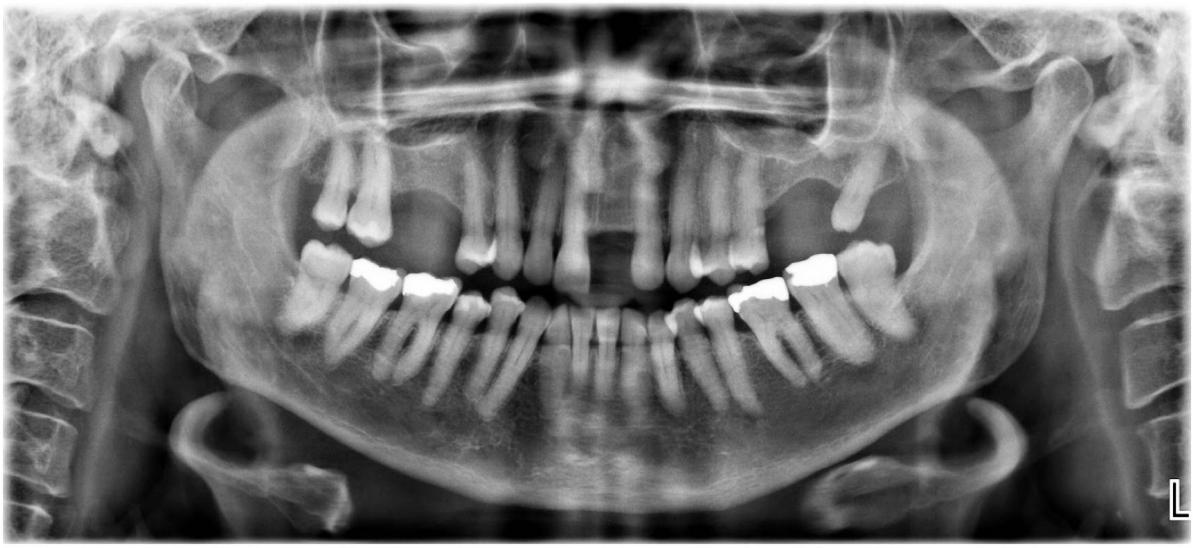
2	2	2*
2	2	2

*≥4mm recession

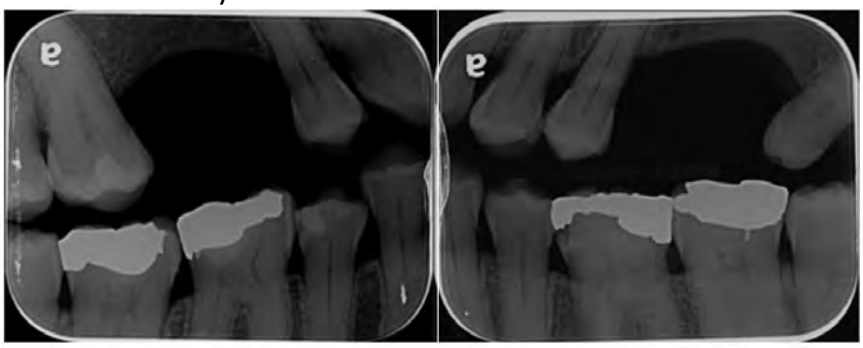
1	Gingival bleeding after gentle probing
2	Supragingival or subgingival calculus
3	Pathologic pockets 4-5mm
4	Pathologic pockets ≥6mm
*	Furcation involvement or recession ≥4mm

4.12 Radiographs

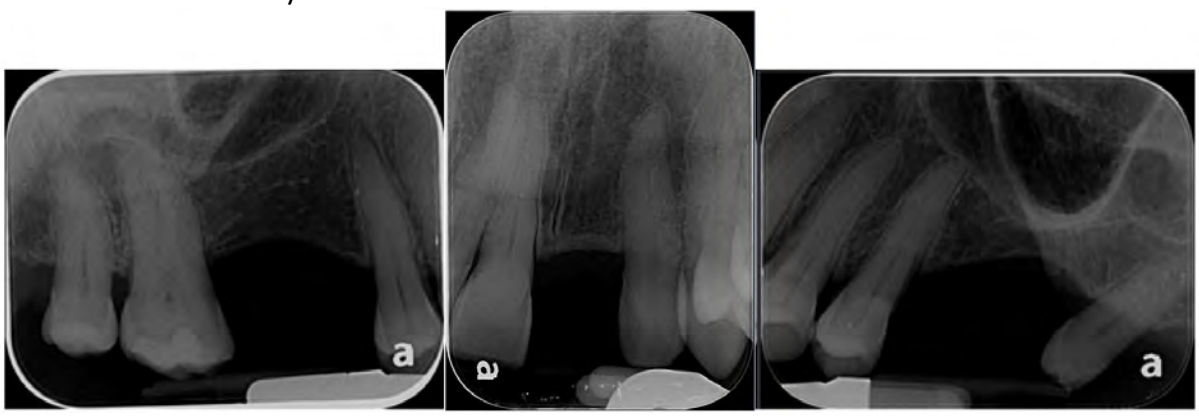
- OPG taken 20th April [redacted]
    - Missing Mx teeth



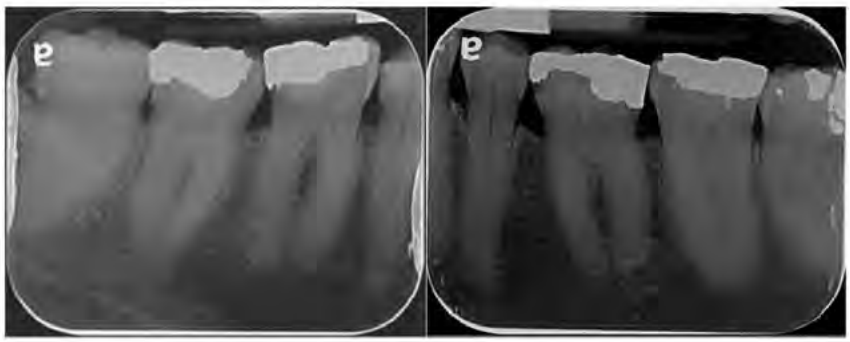
- 2x BWs taken 27th July [redacted]
    - 36 M secondary caries



- 3x PAs taken 27th July [redacted]
    - Mild levels of horizontal bone loss
    - Mesially tilted 28



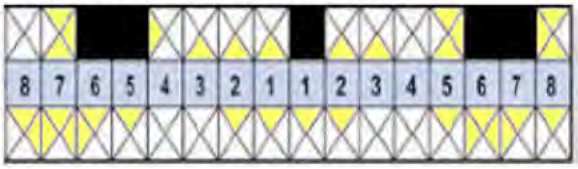
- 2x PAs taken 2nd August [redacted] and 29th August [redacted]
  - Large restorations assoc with 36, 37, 46, 47
  - 36 M secondary caries, consistent PDL width
  - 46, 47 no p/ap radiolucency, consistent PDL width



4.13 Caries risk assessment (Evans et al, 2008)

- **Diet assessment** (Usual 24h snacking questionnaire)
  - Breakfast two pieces of toast and an egg
  - Lunch usually skipped
  - Dinner vegetables & meat
  - Regularly snacks on sweet biscuits throughout the day
  - Patient does not drink tap water during a typical day

- **Plaque score -** 31% (34/108)



- **Saliva assessment -**

Resting saliva		
Hydration	**Viscosity**	**pH**
>60s	Sticky/stringy	5.0-5.8
30-60s	Frothy/bubbly	6.0-6.6
<30s	Watery/clear	6.8-7.8

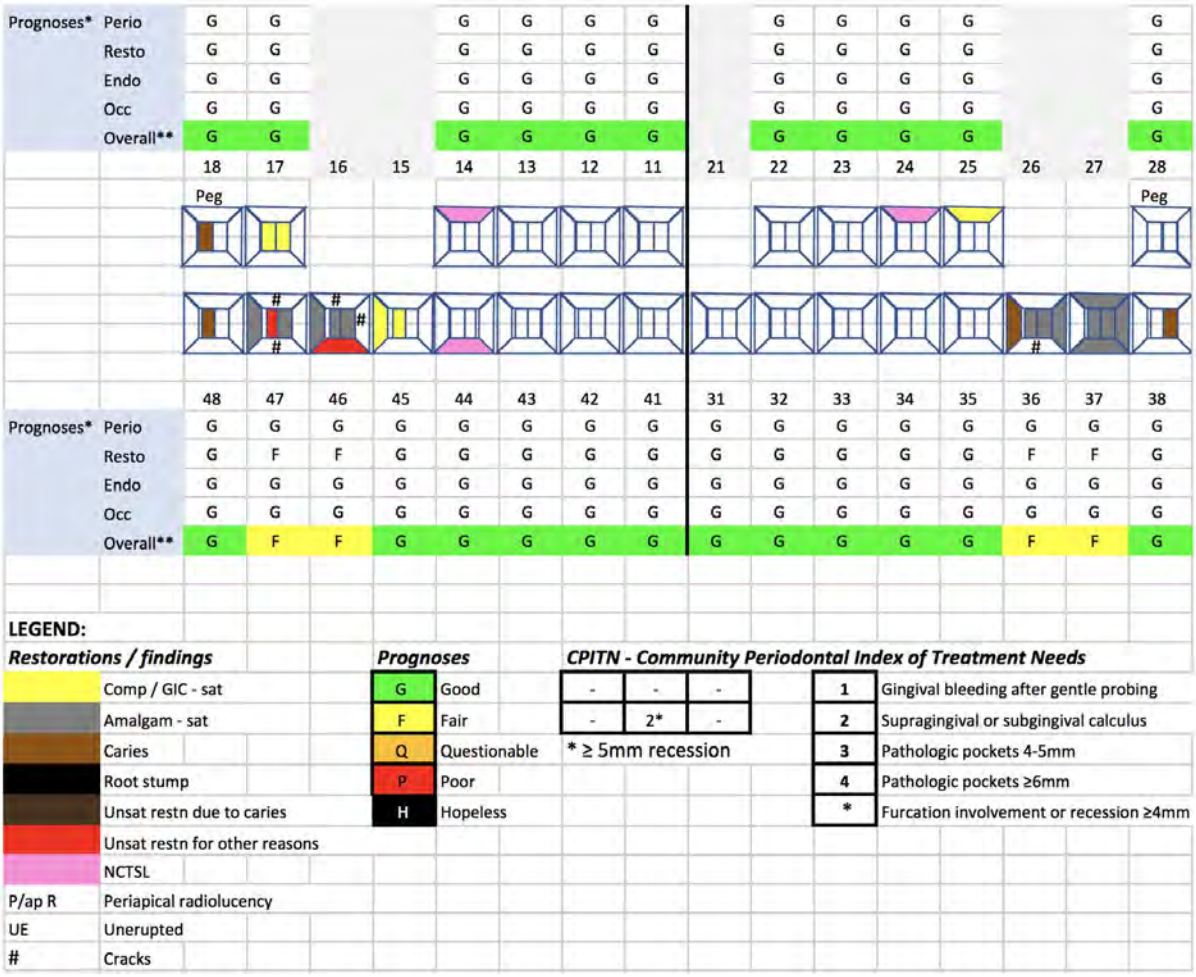
Stimulated saliva		
Quantity	**pH**	**Buffering**
<3.5mL	5.0-5.8	0-5pt
3.5-5.0mL	6.0-6.6	6-9pt
>5.0mL	6.8-7.8	10-12pt

- **Clinical examination / radiographic assessment -**
  - Multiple untreated frank cavities
  - Restoration breakdown
  - Missing teeth

- **Caries risk: HIGH**

4.14 Prognosis (Samet & Jotkowitz, 2009)

- **Individual tooth prognosis -**



Prognoses*		18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	Perio	G	G			G	G	G	G		G	G	G	G			G
	Resto	G	G			G	G	G	G		G	G	G	G			G
	Endo	G	G			G	G	G	G		G	G	G	G			G
	Occ	G	G			G	G	G	G		G	G	G	G			G
	Overall**	G	G			G	G	G	G		G	G	G	G			G
		Peg															Peg
			#	#											#		
			#	#													
		48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
Prognoses*	Perio	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
	Resto	G	F	F	G	G	G	G	G	G	G	G	G	G	F	F	G
	Endo	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
	Occ	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
	Overall**	G	F	F	G	G	G	G	G	G	G	G	G	G	F	F	G

LEGEND:

Restorations / findings		*Prognoses*		*CPITN - Community Periodontal Index of Treatment Needs*				
	Comp / GIC - sat	G	Good	-	-	-	1	Gingival bleeding after gentle probing
	Amalgam - sat	F	Fair	-	2*	-	2	Supragingival or subgingival calculus
	Caries	Q	Questionable	* ≥ 5mm recession			3	Pathologic pockets 4-5mm
	Root stump	P	Poor				4	Pathologic pockets ≥6mm
	Unsat restn due to caries	H	Hopeless				*	Furcation involvement or recession ≥4mm
	Unsat restn for other reasons							
	NCTSL							
P/ap R	Periapical radiolucency							
UE	Unerupted							
#	Cracks							

* Prognosis categories are based on a classification proposed by Samet & Jotkowitz (2009), where overall prognosis is the worst of periodontal, restorative, endodontic and occlusal prognoses. Anatomic, iatrogenic and patient factors modify the overall prognosis.

** Overall tooth prognosis modified downward by patient factors - poor OH, cariogenic diet, smoking, aesthetics as motivation for treatment, and high aesthetic expectations.

- **Overall dentition prognosis FAIR**

4.15 Problem list

- Extended use of temporary acrylic P/ (presenting complaint)
- Host related
    - Depression managed by medication
    - Primary caretaker for father with dementia
    - Frequent intake of sugary foods
- Pathology
    - Mild generalized gingivitis
    - Caries 18, 36, 38, 48
    - Restoration breakdown 46, 47
    - NCTSL 14, 24, 44
    - Denture stomatitis of the anterior hard palate
- Morphology
    - Skeletal Cl III
    - Missing teeth 21, 16, 15, 26, 27
    - Mx Kennedy Cl III Mod 2
    - Hypercementosis 46

4.16 Diagnoses

- Extended use of temporary acrylic P/ (presenting complaint)
- Gingivitis
- Caries
- Restoration breakdown
- Mx Kennedy Cl III Mod 2

4.17 Treatment options

1. **CrCo P/- replacing 21 and missing Mx posterior teeth, replacement of large Md amalg restorations with ceramic onlays**
    - Foundational phase involving scale & clean and required simple restorations for caries and NCTSL.
    - Recommend replacement of 36, 46 and 47 amalg restorations with ceramic onlays. Pt may consider replacing 37 amalg restoration, however, the restoration appears technically satisfactory at this time.

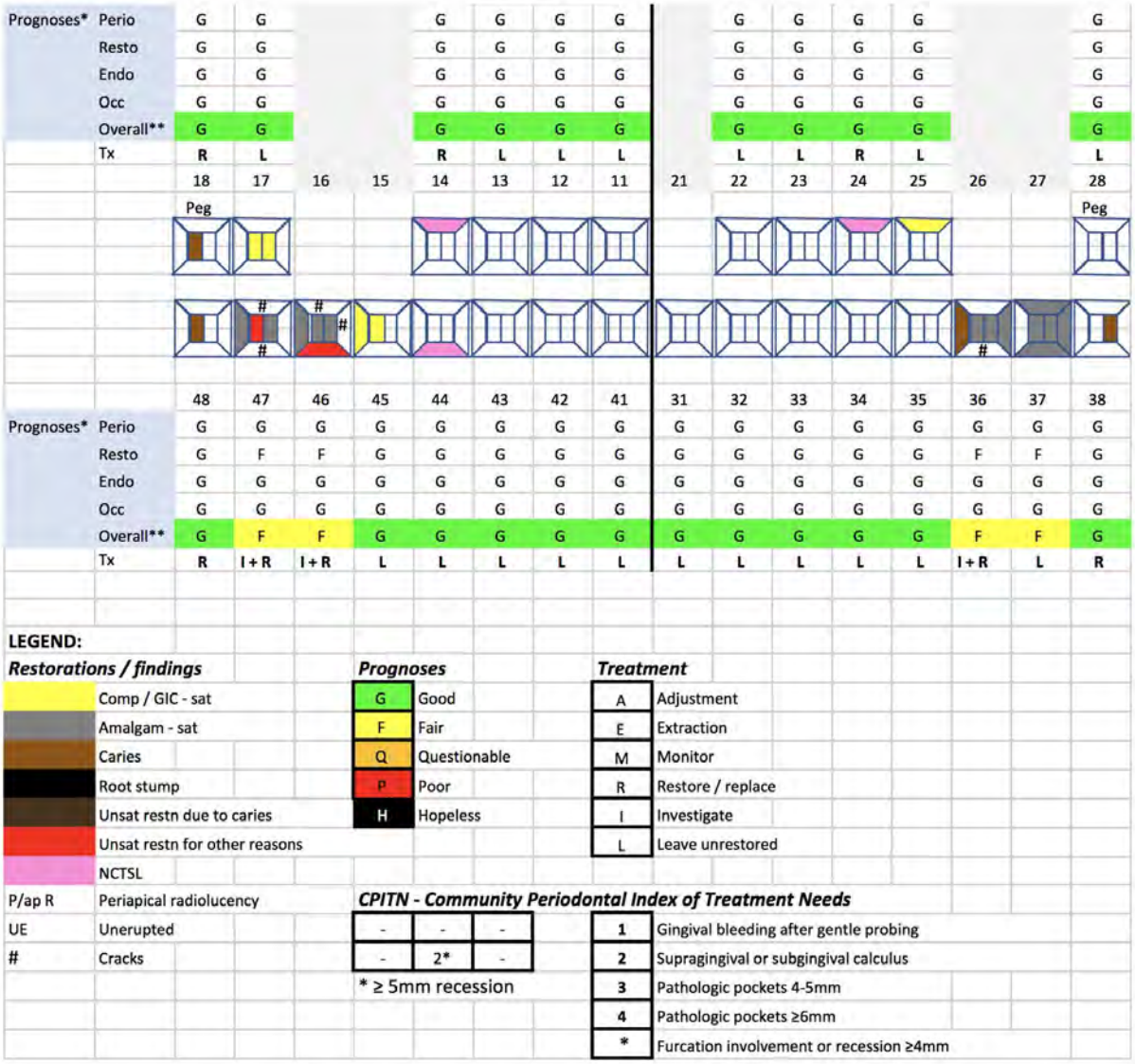
Advantages	Disadvantages
• Addresses pt's presenting complaint • Pt has previously successfully adapted to wearing a P/- • Stabilises Md posterior teeth with large amalg restorations with evidence of restoration breakdown • Lowest tx cost and simplest course of tx	• Removable replacement of tooth 21 and Mx posterior teeth

2. **Replacement of missing teeth with fixed prostheses**
    - Foundational phase involving scale & clean and required simple restorations for caries and NCTSL.
    - Replacement of tooth 21 with Maryland bridge using 11 as abutment OR single implant supported restoration.
    - Replacement of missing posterior teeth with single implant supported restorations.
    - Recommend replacement of 36, 46 and 47 amalg restorations with ceramic onlays. Pt may consider replacing 37 amalg restoration, however, the restoration appears technically satisfactory at this time.

Advantages	Disadvantages
• Fixed option • Stabilises Md posterior teeth with large amalg restorations with evidence of restoration breakdown	• Difficult to achieve satisfactory aesthetic result due to alveolar ridge defect at site of missing 21 • Missing 21 width larger than is larger than width of 11 due to drift of teeth over time • High financial cost and significant time commitment required

Patient decided on treatment option 1 CrCo P/ replacing 21 and missing Mx posterior teeth, replacement of large Md amalg restorations with ceramic onlays:

- Simplest course of treatment and low financial cost
- Pt happy with denture replacing 21
- Pt happy to have large amalgam restorations with evidence of breakdown replaced



Prognoses*		18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	Perio	G	G			G	G	G	G		G	G	G	G			G
	Resto	G	G			G	G	G	G		G	G	G	G			G
	Endo	G	G			G	G	G	G		G	G	G	G			G
	Occ	G	G			G	G	G	G		G	G	G	G			G
	Overall**	G	G			G	G	G	G		G	G	G	G			G
	Tx	R	L			R	L	L	L		L	L	R	L			L
		Peg															Peg

Prognoses*		48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
	Perio	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
	Resto	G	F	F	G	G	G	G	G	G	G	G	G	G	F	F	G
	Endo	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
	Occ	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
	Overall**	G	F	F	G	G	G	G	G	G	G	G	G	G	F	F	G
	Tx	R	I+R	I+R	L	L	L	L	L	L	L	L	L	L	I+R	L	R

LEGEND:

Restorations / findings		*Prognoses*		*Treatment*	
	Comp / GIC - sat	G	Good	A	Adjustment
	Amalgam - sat	F	Fair	E	Extraction
	Caries	Q	Questionable	M	Monitor
	Root stump	P	Poor	R	Restore / replace
	Unsat restn due to caries	H	Hopeless	I	Investigate
	Unsat restn for other reasons			L	Leave unrestored
	NCTSL				
P/ap R	Periapical radiolucency				
UE	Unerupted				
#	Cracks				

CPITN - Community Periodontal Index of Treatment Needs	
1	Gingival bleeding after gentle probing
2	Supragingival or subgingival calculus
3	Pathologic pockets 4-5mm
4	Pathologic pockets ≥6mm
*	Furcation involvement or recession ≥4mm

-	-	-
-	2*	-

* ≥ 5mm recession

4.18 Management plan

Foundational phase

- **Address the presenting complaint**
  - Advised pt that a foundation of oral health needs to be established first before making the CrCo P/ . Pt's acrylic P/ is technically satisfactory and can be safely used to maintain aesthetics while oral health is established.

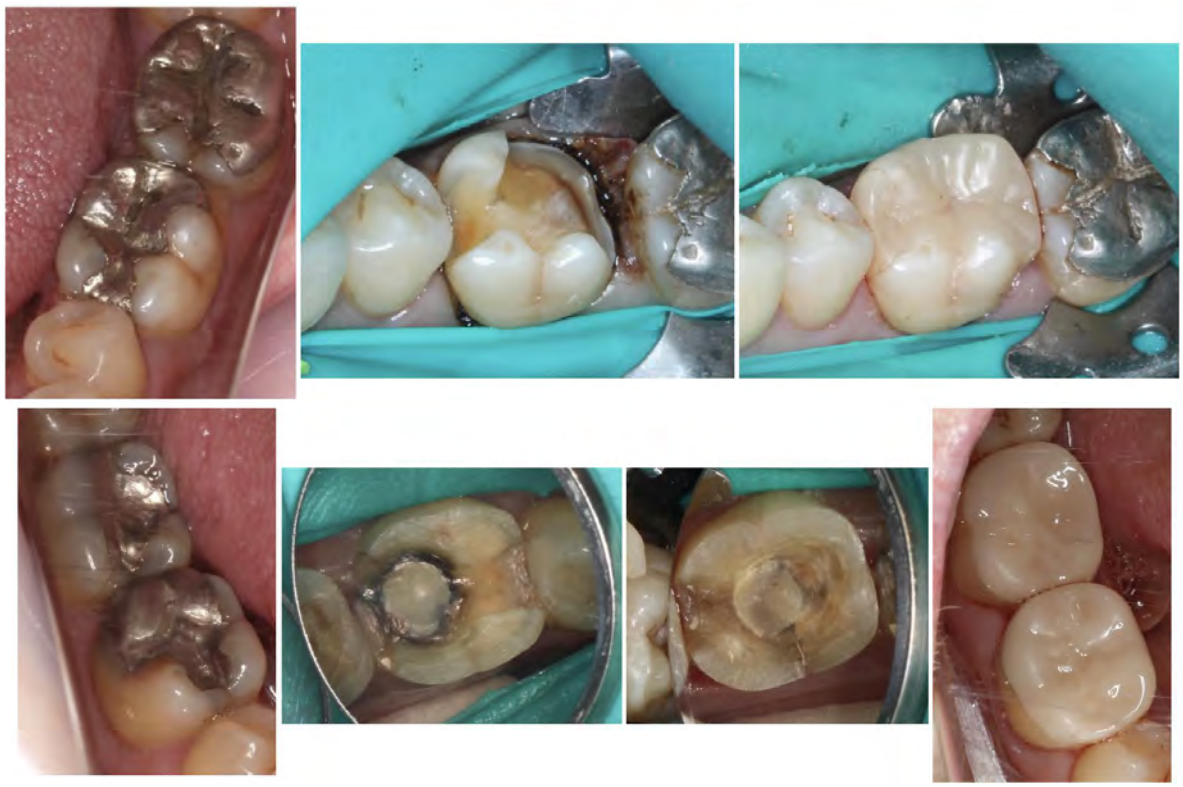
- **Counselling on required changes in lifestyle factors / OH routine (12/7/[redacted])**
  - **Diet** (Evans et al, 2008)
    - Continue 3 meals/day of a balanced and healthy diet.
    - Try to cut down on sugary biscuits between meals. After snacking, have a glass of tap water and try to give teeth a 2hr break to remineralise.
    - Start drinking tap water regularly aim for 2L/day.
  - **Oral hygiene and dental visits** (Evans et al, 2008)
    - Pt encouraged to continue toothbrushing 2x/day with a fluoride toothpaste. Advised pt to switch to a different toothbrush to clean P/ and use detergent and water.

- **Scale and clean, prophylaxis paste (27/7/[redacted])**

- **Restorations (1/8/[redacted] - 4/9[redacted])**
  - 18 O amalgam restoration.
  - 38 O amalgam restoration.
  - 48 O amalgam restoration.
  - 14 Bu, 24 Bu, 44 Bu composite restorations.

Definitive phase

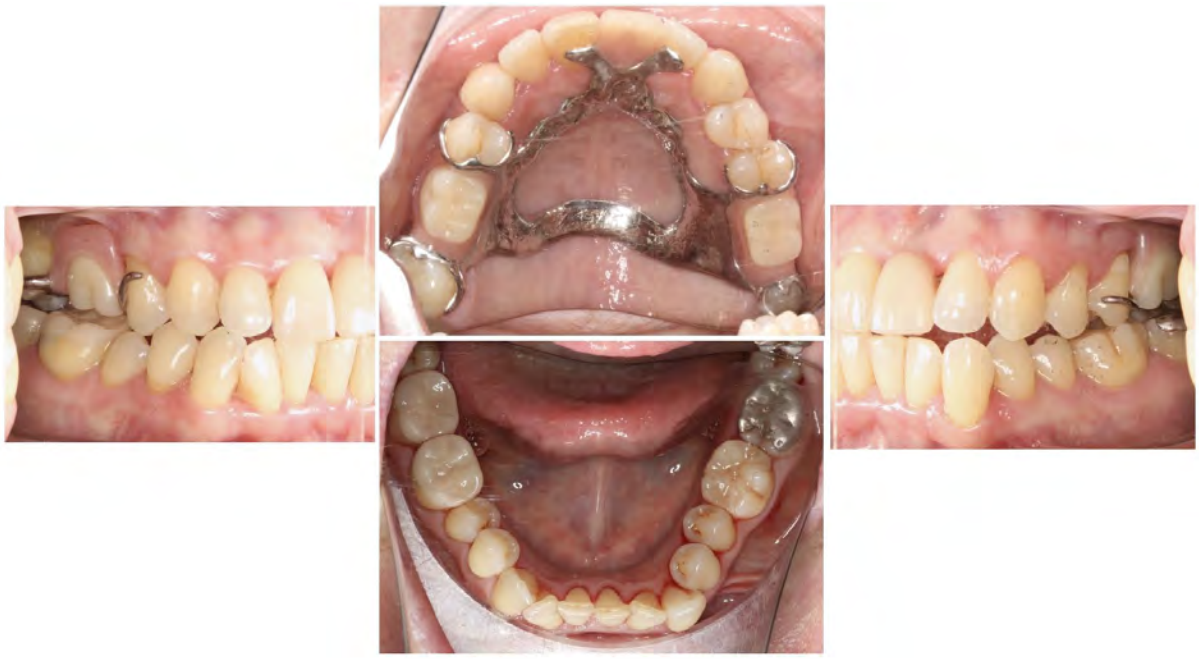
- **Replacement of Md amalg restorations 36, 46, 47 with ceramic onlays**
  - Pt desired an aesthetic restoration, and there were no occlusal contraindications to the use of ceramic or an indirect composite.
  - In this case, indirect composite (Enamic) was selected for the onlay, as it is the preferred material for onlays at the UWA Dental School. While there is some positive evidence for the longevity of indirect composites, the consensus in the literature is that gaps in clinical evidence exist for the justification of resin composites compared with ceramics when restoring teeth with onlays and overlays (Miromoto, 2016). However, advantages of using indirect composite include greater flexibility to make adjustments following insertion, restorations are relatively easy to repair, and reduced expense when compared to ceramic onlays. The onlay was cemented using a resin cement system (Variolink DC).



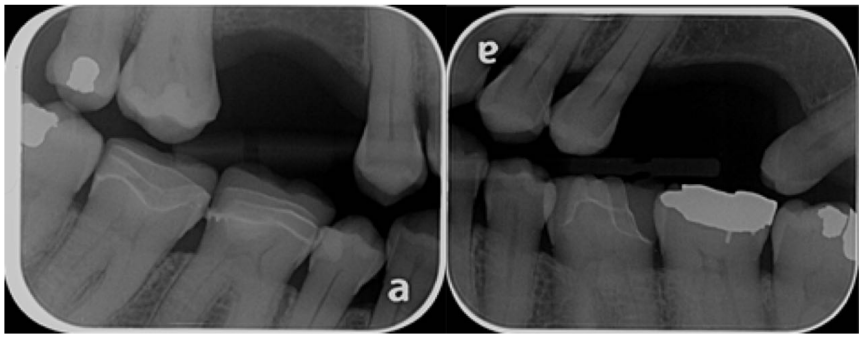
- **CrCo P/- work-up (27/7/[redacted] - 5/2/[redacted])**
  - Mx & Md primary alginate impressions → primary casts
  - Mx & Md special tray fabrication → Mx & Md secondary PVS impressions → secondary / master casts
  - Base & rims fabrication for facebow & bite registration (constructed denture to conform to pt's existing OVD) → mounted master casts
  - Shade selection Vita Classical shade A3
  - Anterior and posterior tooth try in

- **Insert of CrCo P/- (14/3[redacted])**
    - Excellent retention & stability achieved with CrCo P/ framework. Adjustment of sharp acrylic portions of 21 and 26. Phonetics unaffected by wear of P/ .
    - Pt very happy with aesthetic result. Pt offered tx options for minor tooth wear of 11:
        - Accept slight incisal difference between 11 and 21
        - Re create tooth wear in denture tooth 21
        - Smooth over tooth wear of 11 to match 21
    - Verbal consent obtained for option 3. Enameloplasty of tooth 11 with Soflex discs to match denture tooth 21.
    - Slight adjustment of denture tooth 16 to remove interference in right lateral excursions. Occlusal parameters checked.
    - Denture case and care instructions given in written and verbal forms. Warned pt of potential sore spots. Pt happy to present for a 1wk review.

- **1wk review (19/3/[redacted]**
    - Post insert review of CrCo P/ . Pt very happy with P/ and reports no problems.
    - S+C with ultrasonic, prophylaxis paste applied.

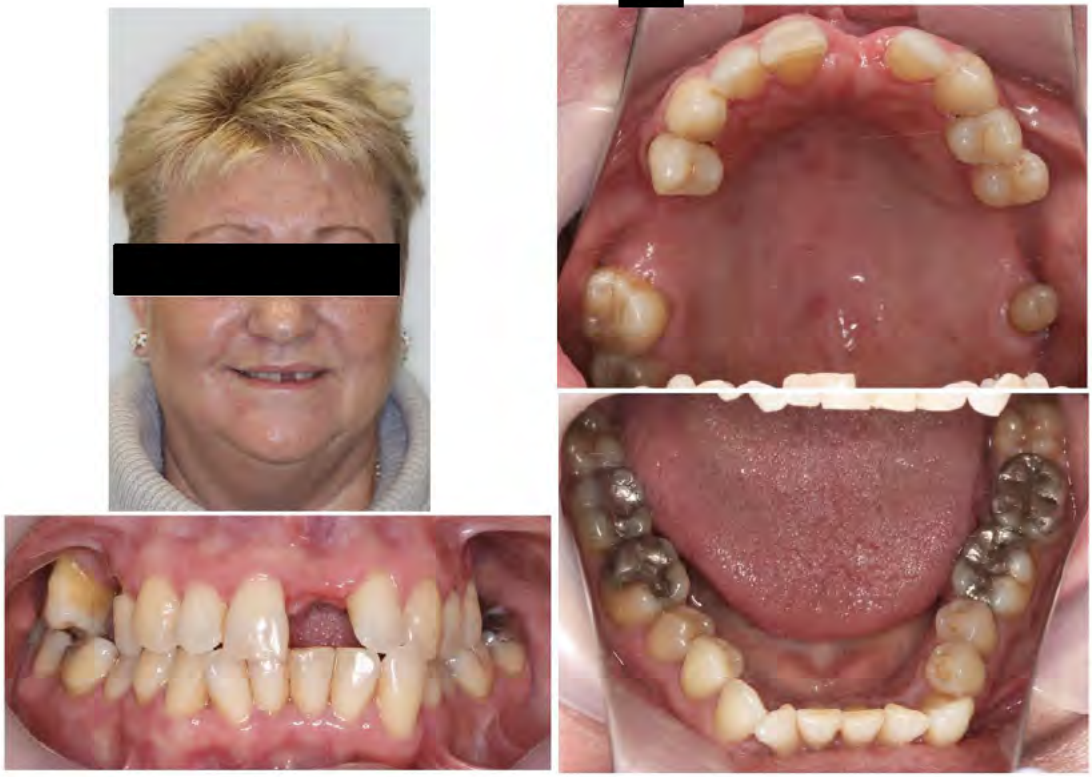


- **3mth review (5/6/[redacted])**
    - Periodic examination and review of CrCo P/ . Examination consistent with dental health. 36, 46, 47 remain asymptomatic and positive to CO_2 test.
    - Denture hygiene instruction reinforced. Scale and clean performed.
    - 2xBWs taken to screen for interproximal caries (as last set taken 1yr ago and pt is high caries risk) and assess indirect restorations 36, 46 and 47.

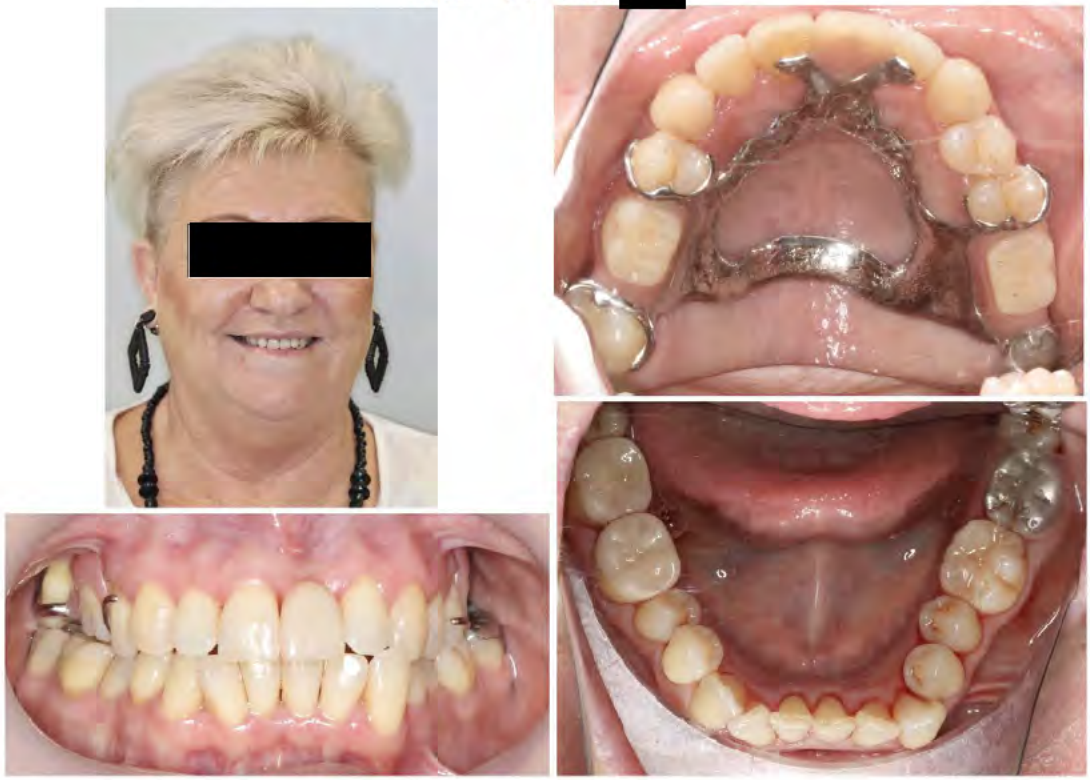


4.19 Before and after treatment photographs

Before - 12th Jul [redacted]



After - 14th Mar [redacted]



5. Multidisciplinary case

[redacted]

5.1 Presenting complaint

- "I have a lot of holes in my teeth. Some of them hurt when I try to clean food out of the holes."
- "I lost two of my front teeth a long time ago, and used to have a flipper plate to replace them. I'd like to have the teeth replaced with a new denture."

5.2 History of presenting complaint

- Pt had multiple courses of dental treatment commenced and not completed due to periods of poor health.

5.3 Medical history

Conditions	Description
Metastasis of prostate cancer to lower vertebrae (diagnosed in [redacted])*	• Prostate gland cancer diagnosed in 2000 and prostatectomy performed. Metastasis of prostate cancer to lower vertebrae diagnosed in [redacted]. • Treatment with androgen deprivation therapy (ADT) has been successful in shrinking the cancer, delaying its growth and reducing symptoms. Hormone therapy can keep prostate cancer under control for months or years. The treatment intention is to control and contain, before additional treatment options need to be considered. The average 5yr relative survival rate for individuals with metastatic prostate cancer is 30% (American Cancer Society, 2019).
Type II diabetes mellitus*	• Occurs when β cells in the liver produce insulin but cells do not respond by presenting the glucose transporter, which allows transport of glucose in the blood into cells. As a result, glucose begins to accumulate in the blood. Greater insulin production is required from β cells, which is not sustainable. This eventually results in an inability to produce sufficient insulin. • Pt's condition is moderately controlled, HbA1c (Aug 2018) = 7.4.
Hypertension*	• Long term high blood pressure (consistently over 140/90mmHg). (Optimal blood pressure <120/80mmHg, 120/80mmHg to 139/89mmHg are in the normal to high range.)
Hyperlipidaemia*	• Elevated levels of any or all lipids or lipoproteins in the blood.

Essential tremors*	• Nerve disorder characterised by uncontrollable shaking in different parts and different sides of the body.
Osteoarthritis*	• A condition in which the cushion of cartilage between the joints breaks down and wears away, which can result in joint pain and swelling.
Major depression*	• Characterised by a persistent feeling of sadness or a lack of interest in outside stimuli.

*Conditions managed by medication.

Medications	Dosage	Use / Mechanism of action	Dental implication
Goserelin (Zoladex)	10.8mg implant inserted subcutaneously 12wkly	• For metastatic prostate cancer. • Leutenising hormone releasing hormone (LHRH) agonist that downregulates the body's production of testosterone in the testicles. For the first 7-10 days, the drug causes increased testosterone production, which may cause the cancer to grow (tumour flare). However, after a short period, testosterone levels in the body will drop the equivalent of men who have had their testicles surgically removed. This dramatically reduces growth and spread of the cancer (AMH, 2019).	• Multiple side effects associated with medication use, including (AMH, 2019): • Hot flushes in 34-80% of men on hormone therapy. May be triggered by stress and be a deterrent to presenting for dental tx. • Feelings of fatigue, anxiety and depression. • Osteoporosis may develop with long term use of hormone therapy. Achieving and maintaining dental health is critical to simplify future courses of dental tx and so dental clearance for bisphosphonate therapy (if required) can be easily granted.
High calcium diet	-	• For prevention of osteoporosis, which may develop with long term use of hormone therapy.	-
Metformin (Formet)	1g tablet orally 2x/day	• For T2DM. • Reduces hepatic glucose production & increases peripheral utilisation of glucose (AMH, 2019).	• Appointments in the mid-morning or early afternoon and avoiding extensive treatment & long appointments prevents interruptions to pt's regular meals & medications. • Poorly controlled diabetes results in delayed healing & increased risk of infection.
Timolol (Ganfort)	0.03% 3mL drop 1x/day	• For ocular hypertension. • β blocker. Reduces aqueous humour formation, probably by the blockade of β receptors on the ciliary epithelium (AMH, 2019).	• Strong evidence for inducing xerostomia (Wolff et al, 2016), but rare for eyedrops to induce dry mouth.
Amlodipine (Nordip)	5mg tablet 1x/day	• For high blood pressure. • Calcium channel blocker. Blocks inward current of calcium into cells in vascular smooth muscle,	• May induce gingival overgrowth.

		myocardium and cardiac conducting system via L-type calcium channels. Act on coronary arteriolar smooth muscle to reduce vascular resistance and myocardial oxygen requirements, relieving angina symptoms (AMH, 2019).	
Atorvastatin (Lorstat)	20mg tablet 1x/day	• For hypercholesterolaemia. • Statin. Competitively inhibit 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase (a rate-limiting enzyme in cholesterol synthesis). Increase hepatic cholesterol uptake from blood, reduce concentrations of total cholesterol, LDL and triglyceride, and produce a small increase in HDL concentrations (AMH, 2019).	-
Propranolol	40mg 1x/day orally	• For essential tremors. • Competitively block β receptors in peripheral vasculature to reduce tremors (AMH, 2019).	-
Paracetamol (Panamax)	500mg 1-2x/day orally	• For osteoarthritis. • Mode of action not fully determined - may include inhibition of central prostaglandin synthesis & modulation of inhibitory descending serotonergic pathways (AMH, 2019).	• May affect perception of dental pain if taken recently.
Sertraline (Zoloft)	100mg tablet orally 1x/day	• For depression. • Selective serotonin reuptake intake (SSRI) selectively inhibit the presynaptic uptake of serotonin (5-hydroxytryptamine) (AMH, 2019).	• Strong evidence for inducing xerostomia (Wolff et al, 2016).
Esomeprazole (Nexium)	20mg tablet orally 1x/day, as required	• For acid reflux. • Proton pump inhibitor. Bind to hydrogen/potassium ATPase proton pump, inhibiting both stimulated and basal acid secretion (AMH, 2019).	• Chronic regurgitation of gastric contents (pH as low as 1) can cause dental erosion.

- History of hospitalization / surgery
    - Surgical removal of frontal lobe meningioma ([redacted])
    - Prostatectomy following prostate cancer diagnosis ([redacted])
    - Surgical removal of upper sinus meningioma ([redacted])
    - Severe *E. Coli* infection necessitating removal of titanium plate in skull and leaving pt with missing frontal bone ([redacted])
- Allergies
    - Ibuprofen
    - Dilantin
    - Tramadol
    - Tricyclic antidepressants

5.4 Dental history

- Irregular attendance due to health complications. Previous visits to OHCWA reported heavy subgingival calculus deposits, active periodontal disease, multiple cavitated lesions.
- Pt had an acrylic P/ "flipper denture" made over 50 years ago while he was in the navy. Pt was very happy with the P/ but lost it many years ago.
- Acrylic P/P made 2yrs ago, but pt reports he rarely wore them as both were tight and difficult to wear. Now unable to wear P/P due to drifting of teeth.

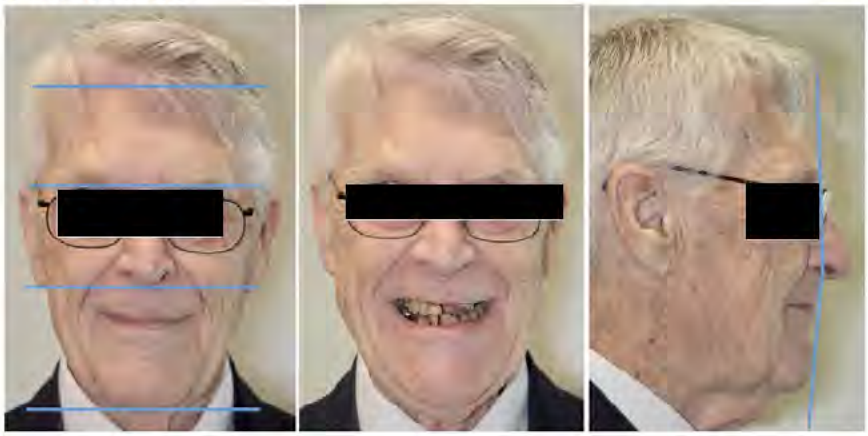
5.5 Oral hygiene

- Toothbrushing 2x/day with electric toothbrush and Sensodyne toothpaste
- Interdental brushes 2x/day

5.6 Social history

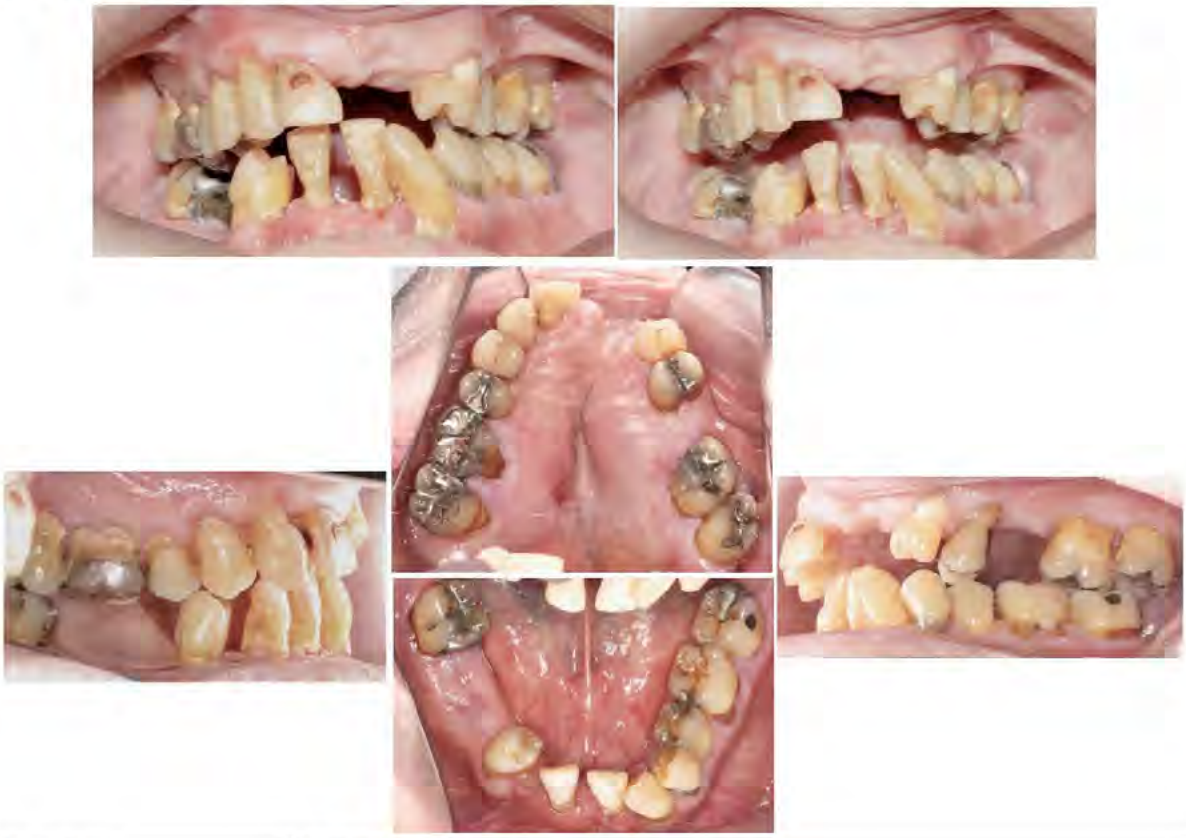
- Retired, lives at home alone with his cat.
- Regularly attends church on Sundays and socialises with friends.
- Occasionally visited by his two sons.

5.7 Extra-oral examination



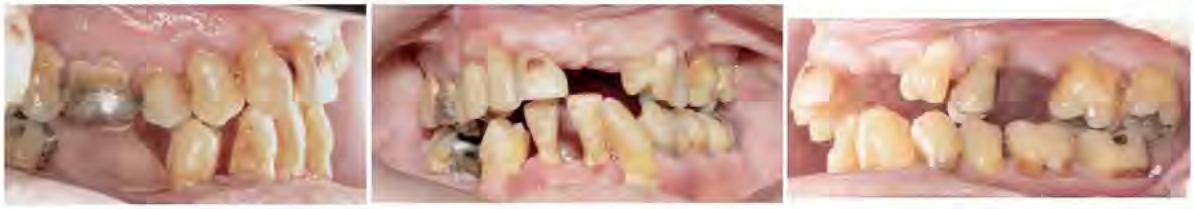
Facial appearance	Healthy, clear complexion
Facial symmetry	Symmetrical
Thyroid gland	No noticeable enlargement or tenderness to palpation
Muscles of mastication	No noticeable enlargement or tenderness to palpation or clenching
TMJ	Bilateral crepitus, asymptomatic
Facial thirds	Elongated lower third of face
Facial fifths	Balanced and symmetrical facial fifths
Upper lip	Distinct vermillion border, smooth vermilion, healthy appearance
Lower lip	Distinct vermillion border, smooth vermilion, healthy appearance
Smile analysis	On smile, 80% incisal display, 0% gingival display At rest, 0% incisal display
Profile	Convex

5.8 Intra-oral examination



La mucosa	Smooth, pink, in-tact mucosa
Sulci	Smooth, pink, in-tact mucosa
Frena	Smooth, pink, in-tact mucosa
Gingiva	Edematous (loss of stippling), localised erythema, very painful to probing, BoP+, recession
Palate	V-shaped arch, asymptomatic bilateral fluctuant swelling of hard palate, pt unsure when the swelling appeared Recent referral to Oral Medicine department & diagnosed with biopsy as fibrous hyperplasia of the hard palate
Oropharynx	Smooth, pink, in-tact mucosa
Alveolar ridge	Mx Bu recession in area of missing 21 and 26 Md U shaped alveolar ridge in area of missing R Md molar & premolar
Bu mucosa	Smooth, pink, in-tact mucosa
Tongue	White dorsal surface; pink, in-tact mucosa on ventral surface
Floor of mouth	No tenderness to palpation or evidence of swelling
Saliva	Appears adequate
Dentition	Partially dentate Mx and Md Supereruption of Md incisors 32, 33, 42 Drifting of teeth Md and Md midlines not coincident, Mx dental midline L of facial midline

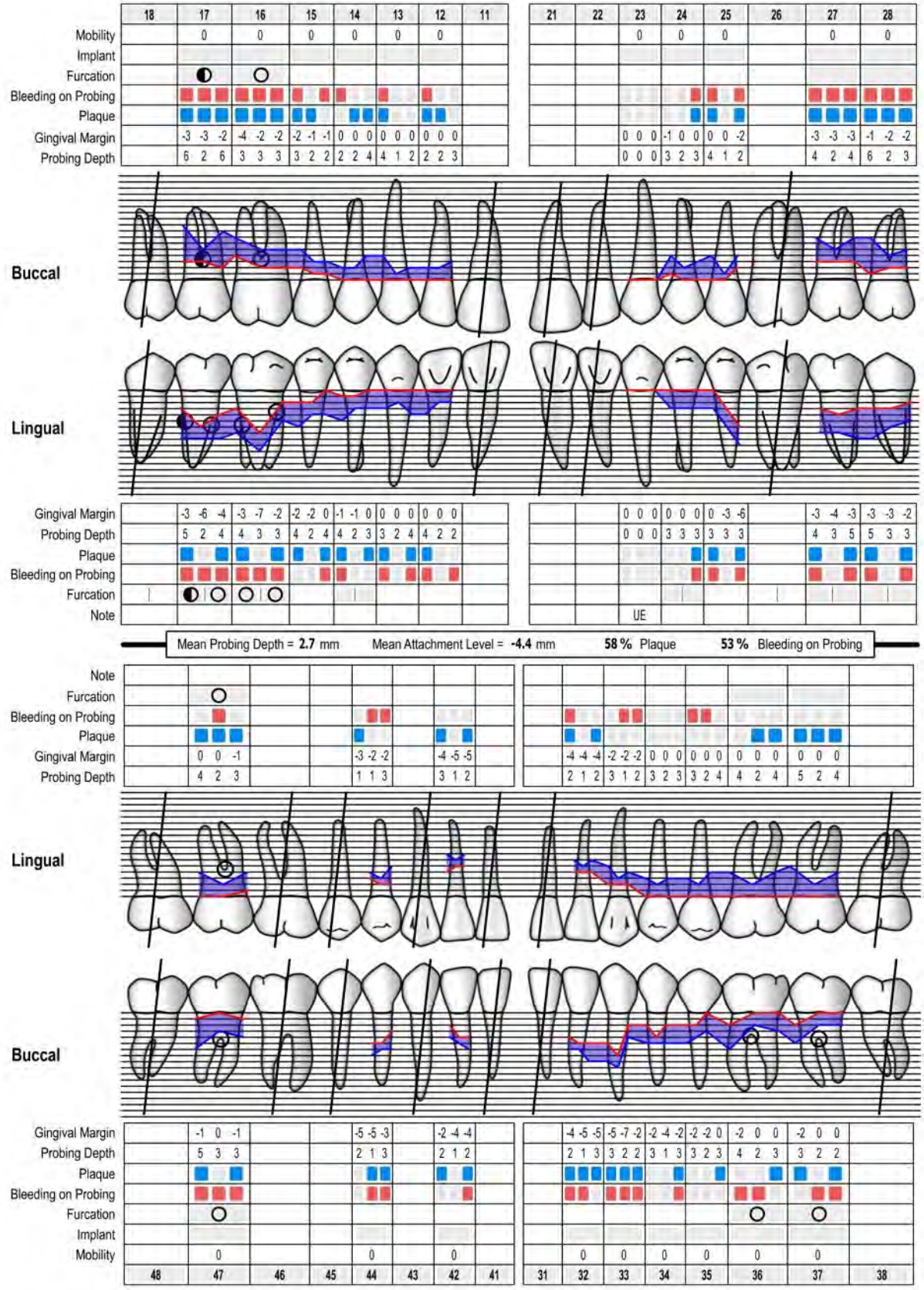
5.9 Occlusion



Right lateral	Frontal	Left lateral
Stable posterior contacts	VDR 78mm VDO 75mm	Stable posterior contacts
Open bite Overjet 4mm Overbite 2mm	Non-coincident Mx and Md midlines Missing Mx and Md anterior teeth	Open bite Overjet N/A Overbite N/A
Canine rship N/A	Max opening 40mm Max opening (active stretch) 44mm	Canine rship N/A
Molar rship N/A	No deviation or deflection on opening	Molar rship N/A
R laterotrusive movement 7mm Posterior guidance 14,44	Protrusion 4mm Anterior guidance 11, 41	L laterotrusive movement 5mm Posterior guidance 25,34

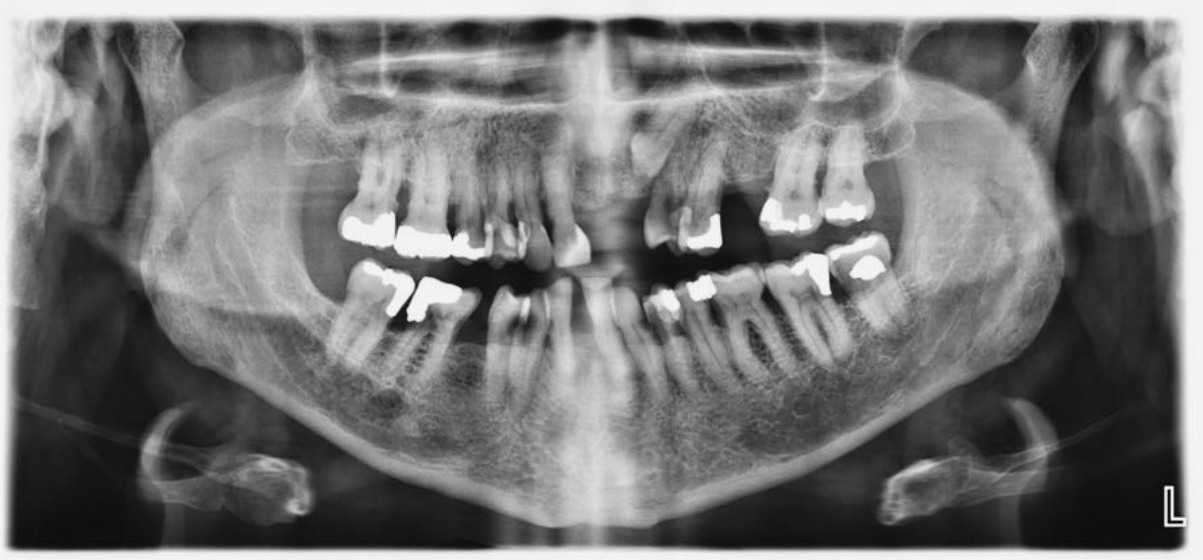
5.10 Tooth charting

5.11 Periodontal charting

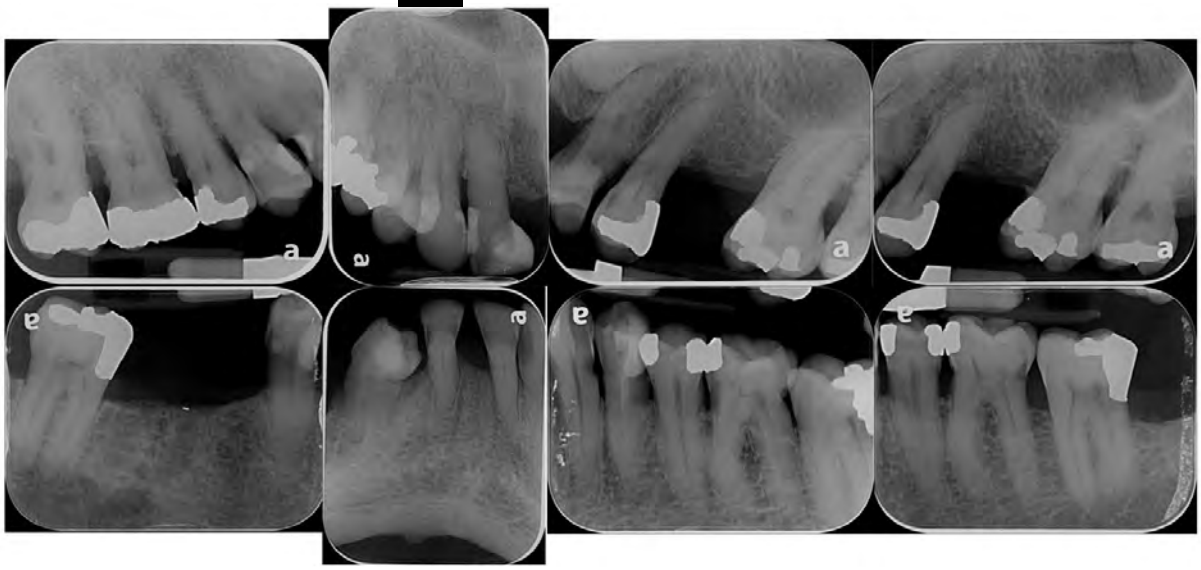


5.12 Radiographs

- OPG taken 3rd July [redacted]
    - Heavily restored dentition, multiple carious lesions, calculus, radiographic evidence of bone loss
    - Impacted 23
    - 34 incomplete RCT



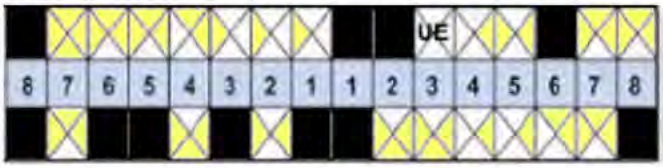
- 8x PAs taken 8th March [redacted]



5.13 Caries risk assessment (Evans et al, 2008)

- **Diet assessment** (Usual 24h snacking questionnaire)
  - Breakfast toast & eggs with coffee
  - Lunch bread roll with cheese & luncheon meat
  - Dinner fish or chicken with vegetables
  - Occasionally savory biscuits
  - Drinks lemon and barley water with ¼ tsp Stevia

- **Plaque score -** 56% (45/80)



- **Saliva assessment -**

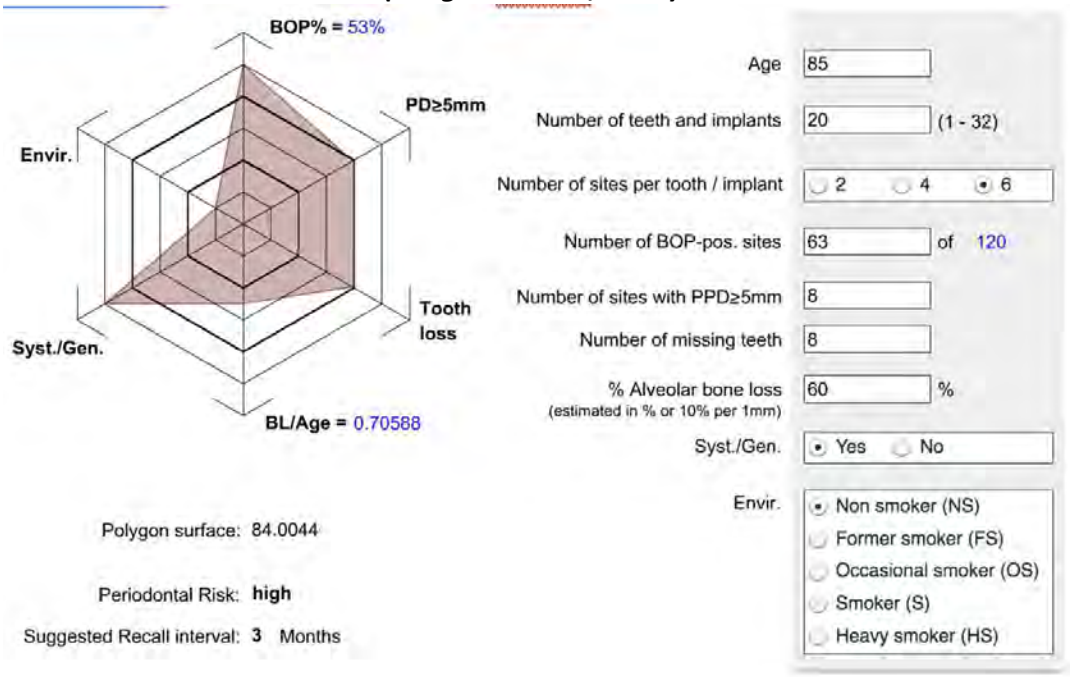
Resting saliva		
Hydration	**Viscosity**	**pH**
>60s	Sticky/stringy	5.0-5.8
30-60s	Frothy/bubbly	6.0-6.6
<30s	Watery/clear	6.8-7.8

Stimulated saliva		
Quantity	**pH**	**Buffering**
<3.5mL	5.0-5.8	0-5pt
3.5-5.0mL	6.0-6.6	6-9pt
>5.0mL	6.8-7.8	10-12pt

- **Clinical examination / radiographic assessment -**
  - Multiple untreated frank cavities
  - Multiple restorations with secondary caries
  - Radiographic bone loss

- **Caries risk: HIGH**

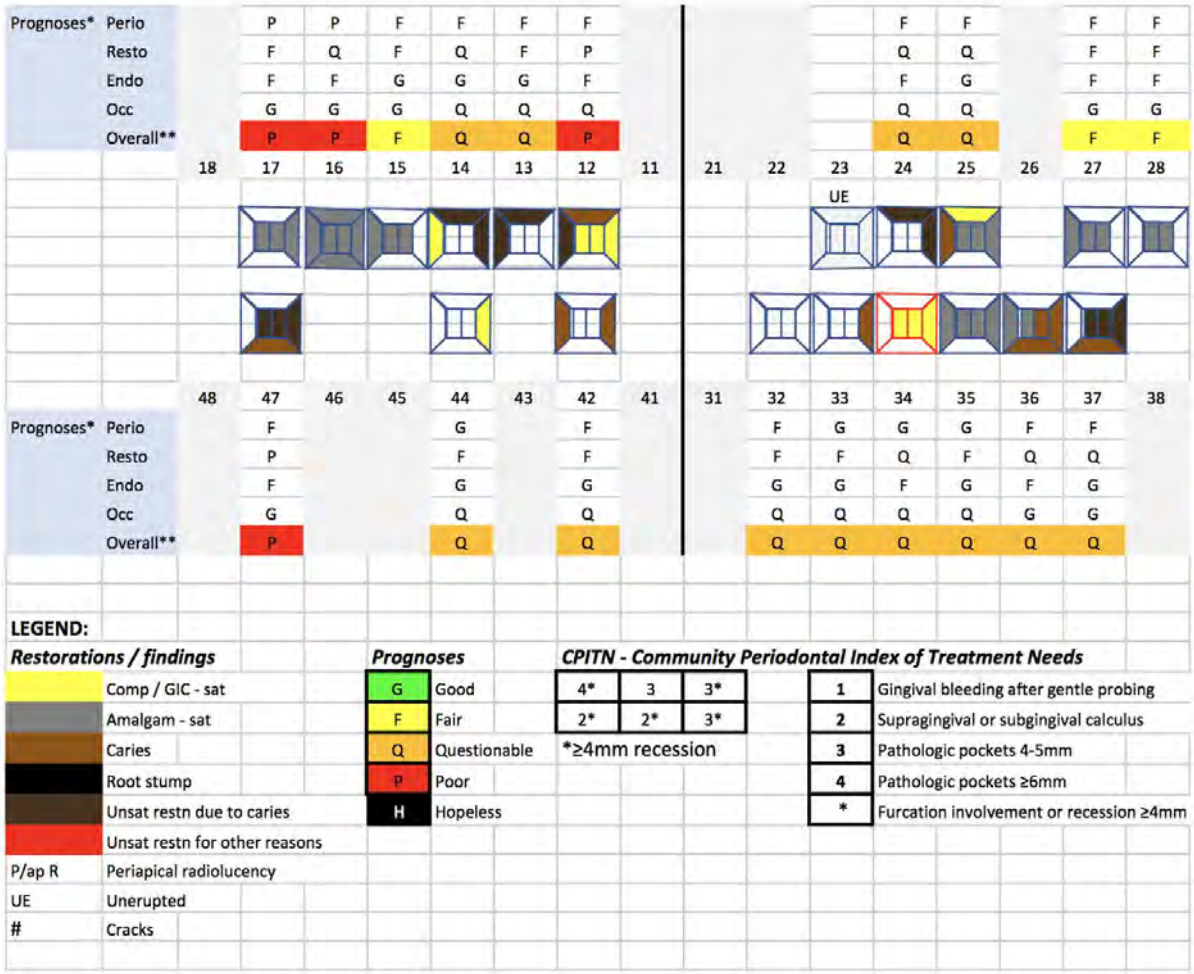
5.14 Periodontal risk assessment (Lang & Tonetti, 2003)



- **Periodontal risk: HIGH**

5.15 Prognosis (Samet & Jotkowitz, 2009)

- **Individual tooth prognosis -**



* Prognosis categories are based on a classification proposed by Samet & Jotkowitz (2009), where overall prognosis is the worst of periodontal, restorative, endodontic and occlusal prognoses. Anatomic, iatrogenic and patient factors modify the overall prognosis.

** Overall tooth prognosis modified downward by patient factors - poor OH, cariogenic diet, smoking, aesthetics as motivation for treatment, and high aesthetic expectations.

- **Overall dentition prognosis** **QUESTIONABLE TO POOR**

5.16 Problem list

- Frank cavitation of 12, 13, 14, 24, 25, 33, 36, 37, 42, 47 (presenting complaint)
- Poor smile aesthetics due to missing anterior teeth 11, 21, 22 (presenting complaint)
- Host related
    - Metastasis of prostate cancer to lower vertebrae
    - Essential tremors
    - Major depression
    - Well controlled T2DM
    - Osteoarthritis
    - Hypertension
- Pathology
    - Moderate to severe generalized chronic periodontitis modified by diabetes (AAPD, 1999) / Periodontitis Stage IV Grade B modified by diabetes (Papapanou et al, 2017)
    - 34 incomplete root canal treatment with no signs of infection with clinically normal periapical tissues (Abbott & Yu, 2007; Abbott, 2004)
- Morphology
    - Missing teeth 26, 31, 41, 43, 45, 46
    - Mx Kennedy Cl III Mod 1
    - Md Kennedy Cl III
    - Drifting of teeth
    - Problematic spacing
    - Anterior open bite
    - Fibrous hyperplasia of hard palate (gingival overgrowth associated with amlodipine use?)

5.17 Diagnoses

- Caries (presenting complaint)
- Poor smile aesthetics (presenting complaint)
- Restoration breakdown
- Periodontitis
- Incomplete endodontic treatment
- Mx Kennedy Cl III Mod 1
- Md Kennedy Cl III

5.18 Treatment options

1. **Establish dental health and restore aesthetics:**

   Foundational phase involving

   - SRD
   - Restoration of 12, 13, 14, 24, 25, 33, 36, 37, 42, 47
   - Endodontic treatment of 34

   Definitive phase involving

   - Acrylic P/ replacing missing Mx anterior teeth

Advantages	Disadvantages
• Addresses pt's presenting complaints • Appropriate focus on restoration of oral health in a sustainable manner • Prioritises restoration of facial appearance by replacing missing Mx anterior teeth, thus restoring dignity, self-respect and improving the patient's quality of life in his remaining years (Wiseman, 2000) • Pt has successfully adapted to a P/- previously	• P/- is a removable option and may worsen periodontal condition

2. **Establish dental health and replace missing teeth:**

   Foundational phase involving

   - SRD
   - Restoration of 12, 13, 14, 24, 25, 33, 36, 37, 42, 47
   - Endodontic treatment of 34

   Definitive phase involving

   - Acrylic P/P replacing missing teeth

Advantages	Disadvantages
• Offers increased posterior support in Q4 and potentially improves masticatory function	• Costs outweigh the benefits - pt is not interested in additional financial cost for -/P and has no issues with masticatory function

3. **Establish dental health and replace missing teeth with a fixed prosthesis ± orthodontic treatment:**

   Foundational phase involving

   - SRD
   - Restoration of 12, 13, 14, 24, 25, 33, 36, 37, 42, 47
   - Endodontic treatment of 34

   Definitive phase involving

   - 12 to 24 4 unit FPD
   - ± Orthodontic treatment to align teeth more favourably
   - ± 25 to 27 3 unit FPD
   - ± 44 to 47 4 unit FPD

Advantages	Disadvantages
• Addresses pt's presenting complaints • Offers 'ideal' treatment as occlusal problems can be addressed and fixed prostheses provided	• Costs outweigh the benefits - high financial cost and extended period of time required for orthodontic treatment and fixed protheses • Pt's diagnosis of metastatic prostate cancer implies a shorter life expectancy - exuberant treatment time and cost is contraindicated, especially since it conflicts with the pt's desire to quickly establish a state of oral health with acceptable aesthetics so he can expect minimal dental complications over his remaining years (Wiseman, 2000)

- Patient decided on treatment option 1 Establish dental health & restore aesthetics, due to:
  - Simplest course of treatment to restore dental health and establish good aesthetics
  - Relatively low cost of tx
  - Pt was not interested in extending tx time any longer than necessary

5.19 Management plan

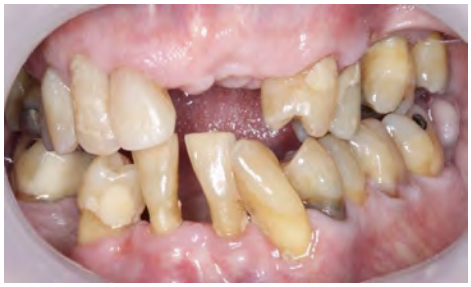
Foundational phase

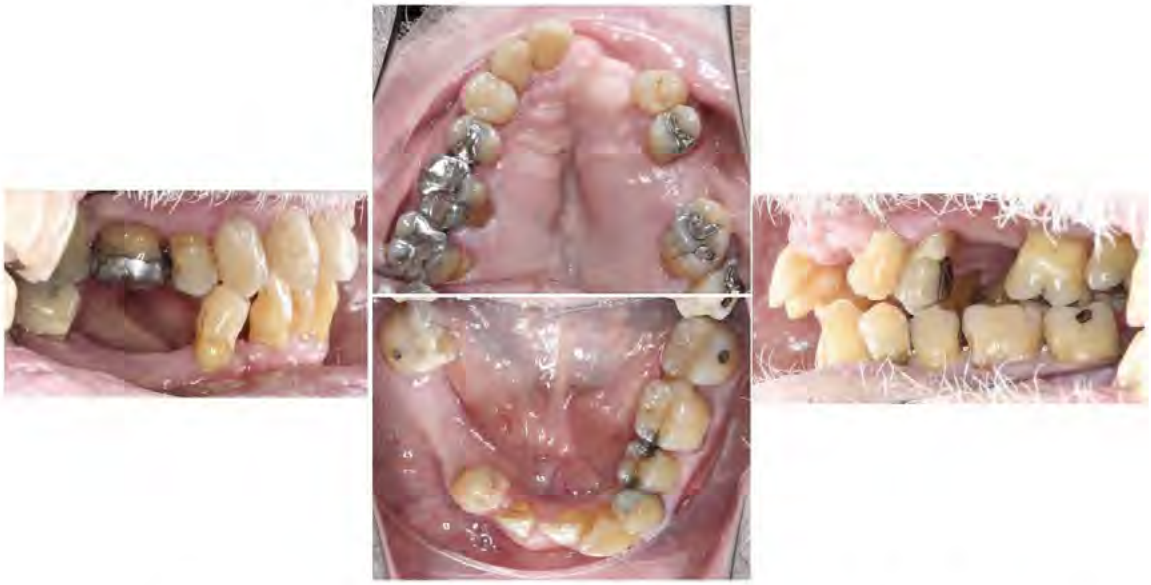
- **Address the presenting complaint**
  - Express an understanding of the patient's situation and aims of dental treatment. Explained we will need to establish a foundation of oral health before proceeding to fabrication of acrylic P/ .

- **Counselling on required changes in lifestyle factors / OH routine (7/3/[redacted])**
  - **Diet** (Evans et al, 2008)
    - Reduce intake of sugary drinks since frequent exposure increases caries risk. Try to limit sugary drinks to mealtimes and have a glass of water afterwards.
  - **Oral hygiene and dental visits** (Evans et al, 2008)
    - Toothbrushing 2x/day in the morning and at night using Neutrafluor 5000 Plus toothpaste.
    - Floss or use interdental brushes 1x/day at night before brushing.
    - Attend scheduled dental appointments where possible. We will arrange dental appointments to fit around pt's medical appointments.

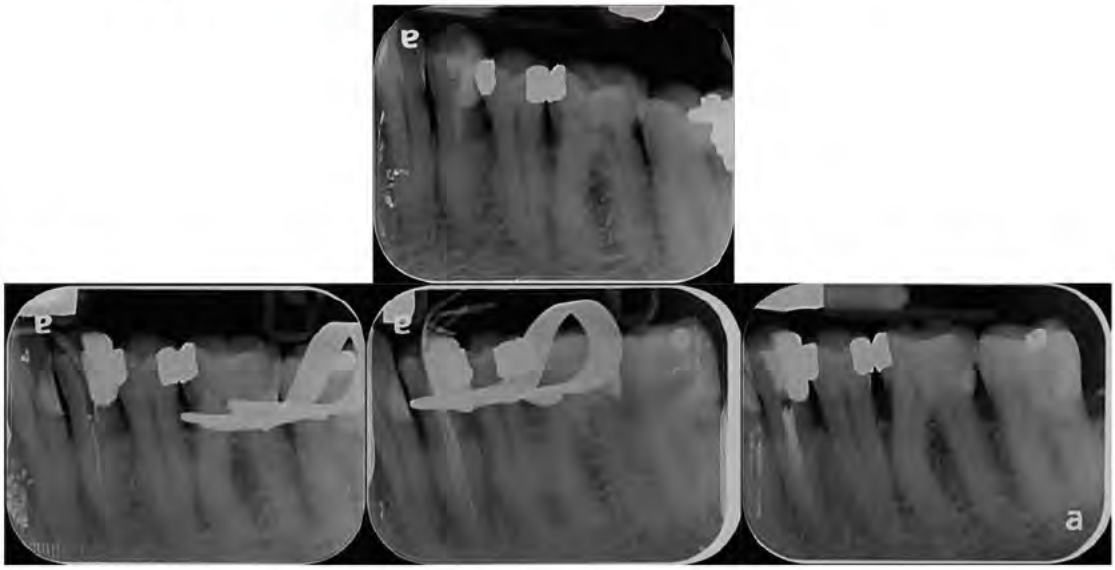
- **Scaling and root debridement (15/3/[redacted] - 19/3/[redacted])** under LA over two visits. Fluoride varnish (5% NaF Duraphat) applied to all carious lesions.

- **Restorations (20/3/[redacted] - 25/10/[redacted])**
  - 47 MOBu Equia Forte restoration.
  - 37 DOBu Equia Forte restoration.
  - 36 Bu Equia Forte restoration & resin fissure seal.
  - 24 DOBu Equia Forte restoration.
  - 25 MBu Equia Forte restoration.
  - 13 DBu composite restoration.
  - 14 MBu composite restoration.
  - 33 DLiBu composite restoration.
  - 42 M&D composite restorations.
  - 12 MIncLaD composite restoration.

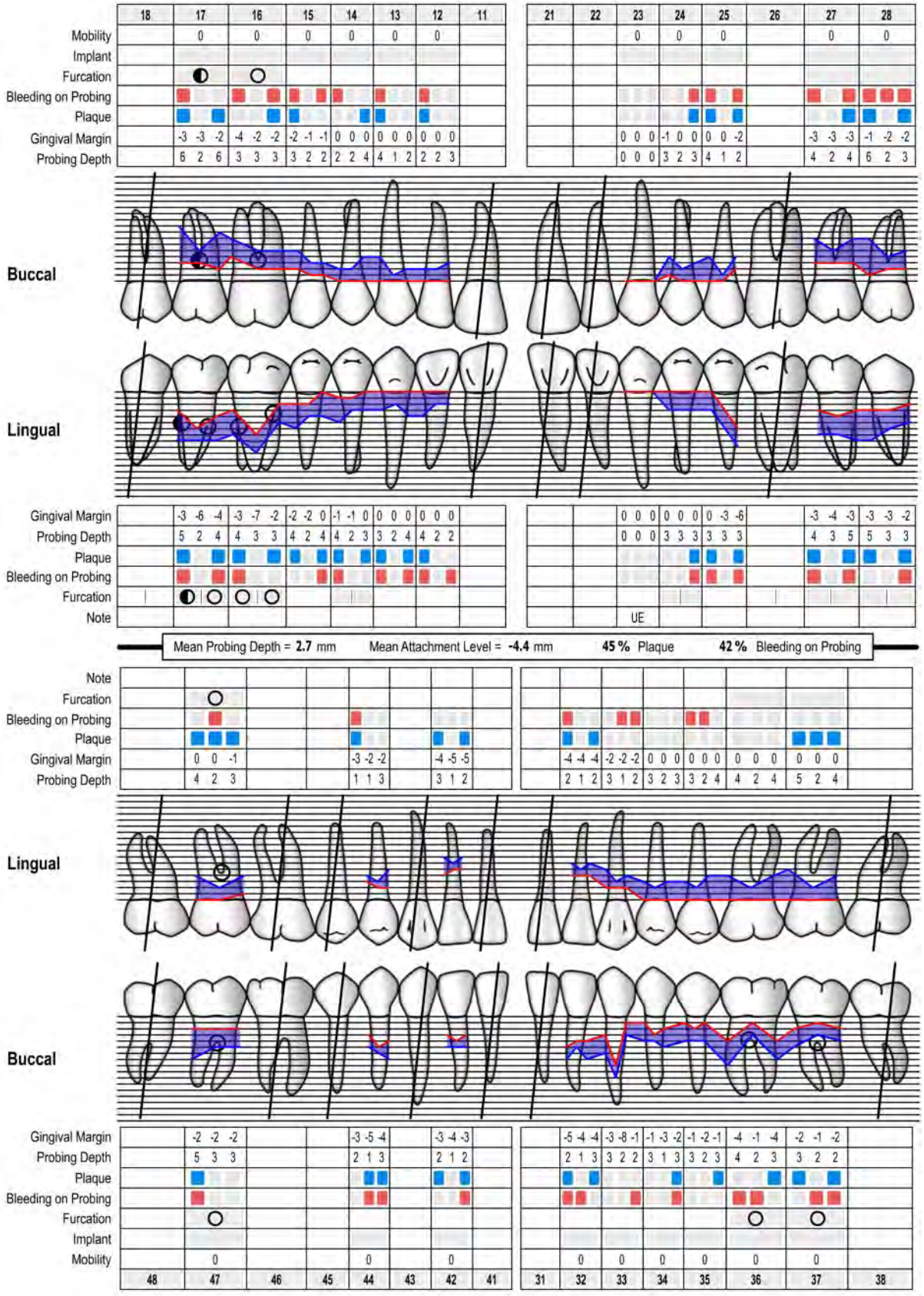




- **34 RCT and DO composite definitive restoration (24/10/[redacted] - 18/6/[redacted])**
  - Dx: 34 incomplete RCT technically unsatisfactory with no signs of infection and clinically normal periapical tissues due to previously started RCT (Abbott & Yu, 2007; Abbott, 2004).
  - Pt opted for RCT over extraction as he was eager to keep the tooth 34 which was asymptomatic.
  - Investigation (24/10/[redacted])
    - Amalgam restoration and caries removed, tooth deemed suitable for restoration with DO composite.
    - Located 3 canals MBu, DBu and Li.
  - Canal preparation (5/2/[redacted])
  - RCF (4/6/[redacted]) via lateral condensation with GP + AH26
  - 34 DO composite restoration (18/6/[redacted])



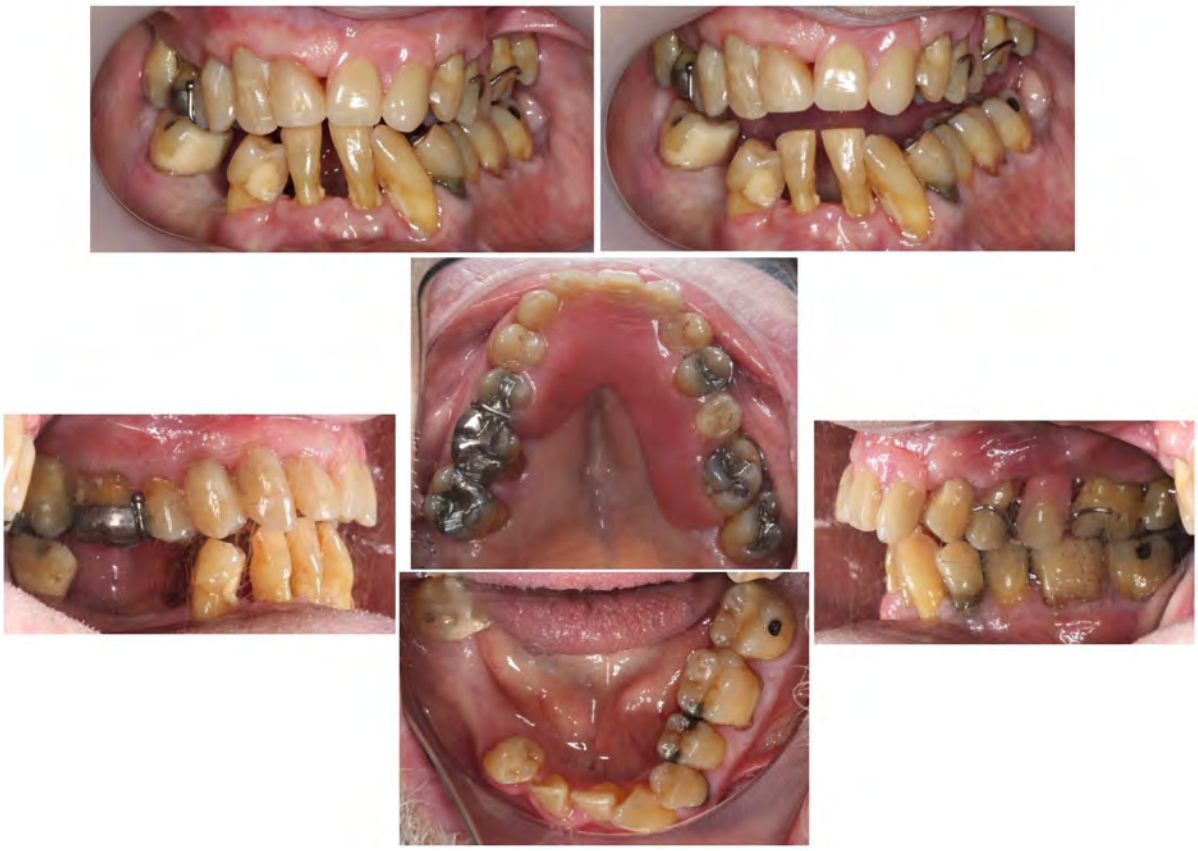
- **Perio review chart (29/1/[redacted] - 21/3/[redacted]) and scaling and root debridement**. Prophylaxis paste applied.



Definitive phase

- **Acrylic P/- work up (25/10[redacted] - 23/1[redacted])**
    - Mx & Md primary alginate impressions → primary casts
    - Mx & Md special tray fabrication → Mx alginate secondary impression → secondary / master cast → mounted master casts
    - Shade selection Vita Classical shade A4
    - Base & rims fabrication → anterior tooth setting → anterior tooth try in to confirm pt happy with aesthetics

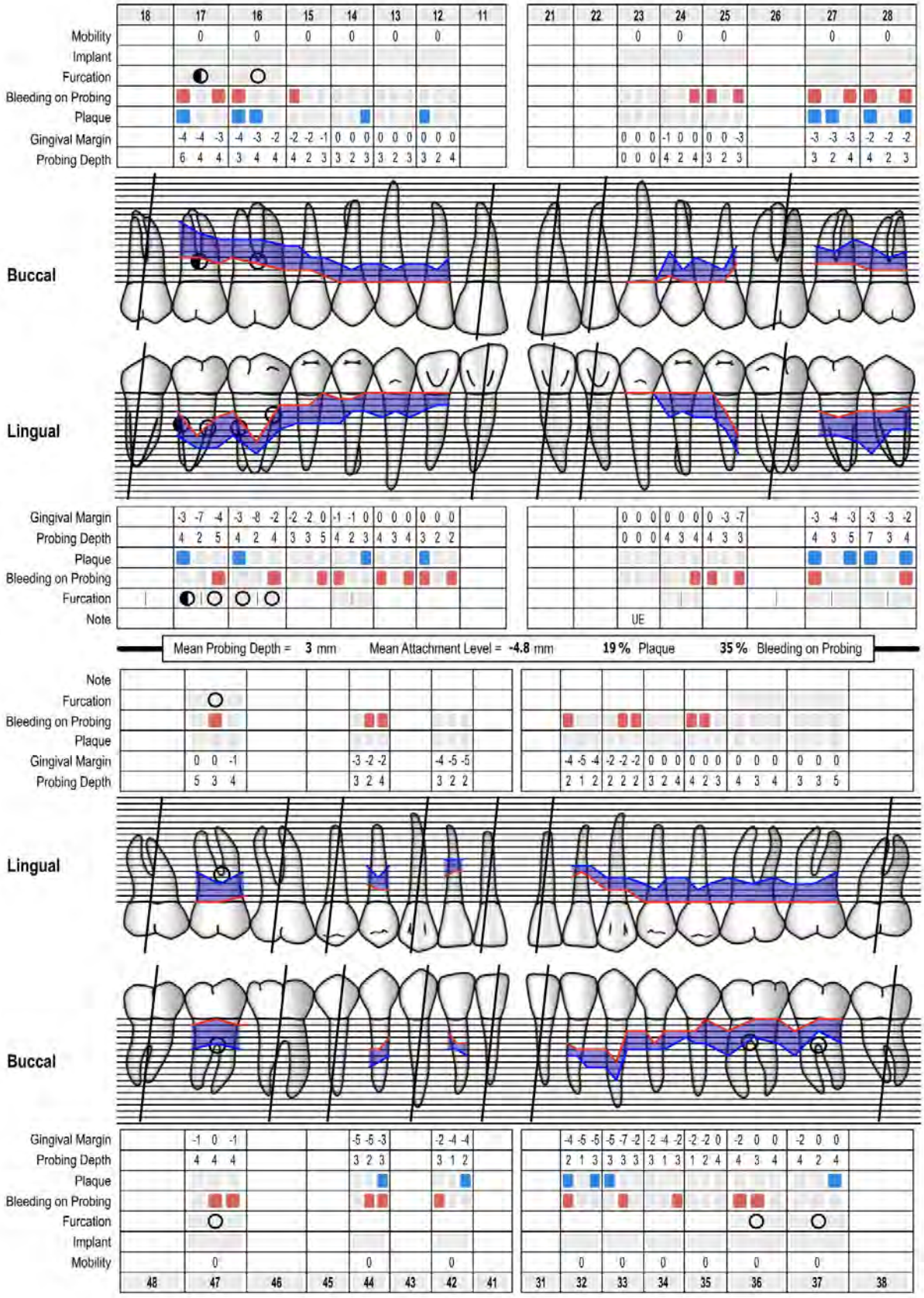
- **Insert of acrylic P/- (22/2/[redacted])** excellent fit, retention and stability for acrylic P/ . Pt extremely happy with result. Occlusal parameters checked no adjustment required. Denture care instructions & case provided. Pt placed on 4mth recall.



Maintenance phase

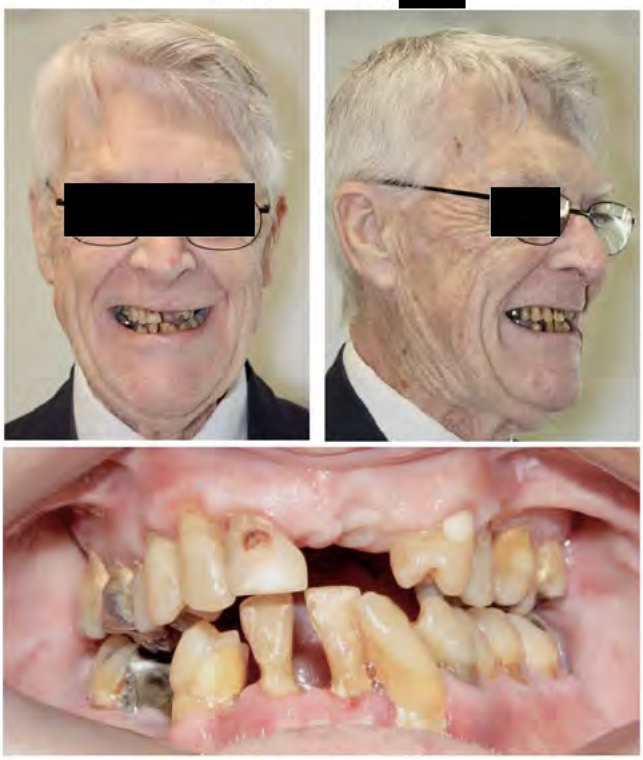
- **Periodic examination (10/7[redacted])**
    - Tooth charting updated to include new restorations. No other significant changes. OH has improved since last visit.

- **Perio review chart & SRD under LA over two visits (10/7/[redacted] - 19/7/[redacted])**
    - Recall in 4mths

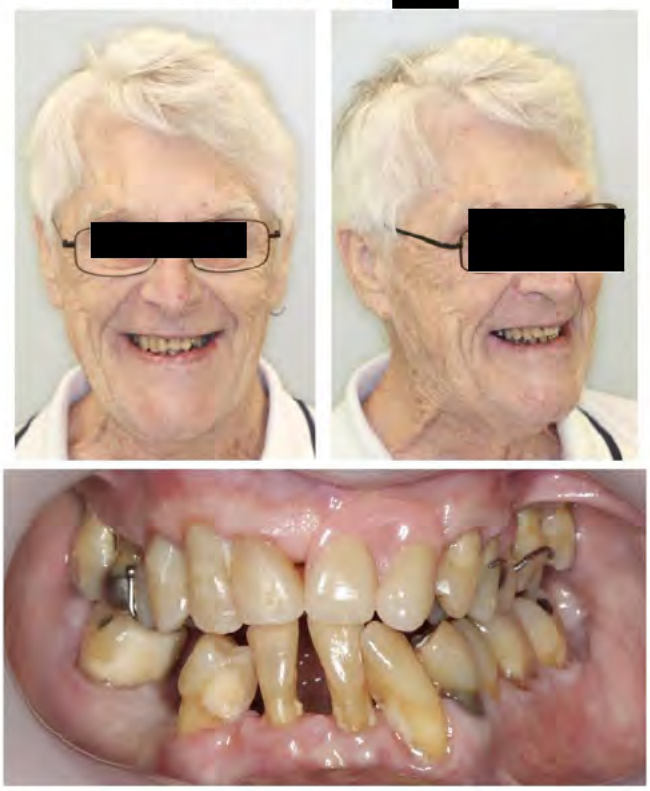


5.20 Before and after treatment photographs

Before - 7th Mar [redacted]



After - 15th Feb [redacted]



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