Modern and not so modern approaches to clinical management of Tooth Wear
12th Feb 2015, LonDEC
Resin Bonded Adhesive Ceramic crown

Dentine-Bonded Crown

- ‘Ceramic-Veneer’ concept around the whole tooth
- Adhere hopefully to a good amount of enamel (as well as dentine)
- Can use with one or two stage Dahl
- Need significant convergence taper as neo-parallel will threaten # of crown on seat
- Most feel less tooth tissue removed – however you will be surprised
- Usual labial planes of preparation
360° Heavy Veneer Preparation
Rounded Contours

No Undercuts
0.5-1.0mm Circumferential Chamfer
Can use RB Ceramic ‘Hats’ or Crowns – manage what is in front of you
Clinically the use of Retained Retraction cord is essential at time of cementation

Still need to use conventional sense – e.g. good separation of ID margins bit keep enamel
Indirect Palatal Veneers

- Adhesive Type III Cast Gold – where strength and performance essential
- Can use ceramic – where aesthetics important
Adhesive Ceramic Crowns and ‘Hats’
Indirect Palatal Veneers (for TSL)

- Usually most of the preparation done by the tooth wear
- Chamfer palatal margins
- Little IO space as tend to use Dahl
- Ideally bond to combination of enamel and dentine
- Supra-gingival palatal margin
- Up to incisal edge with Gold
- Can increase tooth length with ceramic
Cosmetic issue

Can use anterior and posterior adhesive ceramics with the same concepts
Adhesive Re-cycling
Re-cement failed 10 year old veneer done by me in 2004 – what is the problem?
Adhesive Restorability of UR2

- Remove all restorative material – strip down
- Carefully assess what is left – adhesive restorability
- How much supra-gingival coronal enamel do we have on the labial aspect of the tooth?
- % enamel:dentine?
- Easy to control moisture at cementation?
Enamel check
The Veneer

- Intact or cracked?
- Clear of lute?
- Does it still fit and look good?
- Can I re-activate the fit surface?
Kojet – blasting of the tooth
Hydrofluoric Acid
Silane-Coupling
Avoiding and Managing the Failure of Conventional Crowns and Bridges

Abstract: The replacement of crowns and bridges is a common procedure for many dental practitioners. When correctly planned and executed, fixed prosthesis will provide predictable function, aesthetics and value for money. However, when done poorly, they are more likely to fail prematurely and lead to irreversible damage to the teeth and supporting structures beneath. Sound diagnosis, assessment and technical skills are essential when dealing with failed or failing fixed restorations. These skills are essential for the 21st century dentist. This paper, with treated clinical examples, illustrates the areas of technical skill and clinical decisions needed for this type of work. It also provides advice on how the risk of premature failure can, in general, be further reduced. The article also confirms the very real risk in the UK of dento-legal problems when patients experience unexpected problems with their crowns and bridges.

Clinical Relevance: This paper outlines clinical implications of failed fixed prosthodontics to the dental surgeon. It also discusses factors that we can all use to predict and reduce the risk of premature restoration failure. Restoration design, clinical execution and patient factors are the most frequent reasons for premature problems. It is worth remembering (and informing patients) that the health of the underlying supporting dental tissue is often irreversibly compromised at the time of fixed restoration failure.

Dent Update 2012; 39: 78-84
Advantage to patient & advantage to me?

2004

2015
Veneer or Adhesive cementation

• Retained Retraction cord
• Control of gingival crevicular fluid
• Avoid sub-gingival margins and finish on enamel
Get these things wrong and the patient will not be happy – to resolve need to control the risks before you start.
Cervical discolouration and sensitivity /3
Get these things wrong and the patient will not be happy – to resolve these issues requires careful diagnosis, optimisation and control of the risks before you start.
Full coverage crowns for worn teeth

- There must be more indications
- Should follow trial of less destructive options
- Be driven by the patient
Tooth Destruction

INDIRECT COMPOSITE

DBC

PJC
Aesthetic restorations looking good comes at a biological price

DBC prep = 63% off tooth

PFM prep = 72% off tooth

PFM prep 20% > FGC prep

PFM prep x5 > Porcelain veneer (feathered) x3 > Porcelain veneer (butt joint)


Porcelain Fused to Metal

do not need to use ceramic everywhere

1.5-2.0mm

0.5-1mm
Do not under-estimate the flexibility of PFM - Metal palatal / occlusal

- Good wear properties
- Reduces extent of palatal tooth preparation - allows the lower teeth to be longer
- Less brittle than porcelain
For some para-functional cases even bringing metal right up to incisal edge is not enough I’m afraid
Retrospective Audit of Patients with Advanced Toothwear Restored with Removable Partial Dentures

Nicola J. Woodley*, Brigitte M. Griffiths† and Kenneth W. Hemmings‡

Abstract — The dental records of 50 patients with advanced toothwear restored with removable prostheses were examined. Retrospective data were collected with regard to source of referral, presenting complaint, aetiological factors, clinical features, dentures provided, details of failures and maintenance. The maximum follow up period was three years. The ratio of male to female patients was 4:1 and the age range 31–75 years. Failures were recorded in 38% of patients with provisional and 64% with definitive dentures. The most common failure was fracture or wear of the incisal or occlusal surfaces. The majority of failures were addressed by adjustment of the dentures and the audit confirmed the need for regular maintenance.
Tooth Preparation:
Need to know the size and dimensions of your burs
Need to know dimension of burs - 1.5mm thickness at the tip!
Common faults of tooth preparation of worn teeth that will be bad news for worn teeth

- Under preparation and lack of multi-plane reduction
- Don’t take enough off in the right place
- Wrong margin at the wrong place
• Worn anterior teeth will end-up a little wide at their incisal edges
• Too many margins are ‘lost’ sub-gingivally
Multi-plane Reduction
Two / three plane tooth reduction which relates to crown anatomy. Worn teeth end up thick at incisal tips.
How many of you use Putty?
Helping hands
‘Good, better, best. Never let it rest. Until your good is better and your better is best.’ Tim Duncan

‘A good indicator of the quality of a dentist is their provisional restorations and radiographs’
Peter Briggs 2005
For worn teeth the palatal/lingual axial wall is very important as retention is limited.

Friction point(s) providing resistance form resistance.

De-cementation
Axial Height

Minimum 2mm Ferrule
Remember, remember!!

- Retention - the direction of the path of insertion (occlusal direction)
- Resistance form any other lateral direction
- A function of:
  - Taper
  - Surface area/bulk of preparation
  - Surface roughness

Jorgensen 1955
Parallelism is essential for short teeth.
Ferrule

• Minimum of 2mm dentine axial wall height
• Parallel axial walls
• Metal totally encircling tooth
• Margins on sound tooth tissue
• Try not to invade attachment apparatus

No ferrule = failure!
4. Inter-proximal Reduction

Smaller area for reduction – Less likely to injure neighbouring tooth
Preparation Summary for TSL

**Anterior teeth**
1. Incisal Reduction
2. Labial Reduction
3. Cingulum & Palatal/Lingual Reduction
4. Interproximal Reduction

**Posterior teeth**
1. Occlusal Reduction & Functional Cusp Bevel
2. Buccal Reduction
3. Palatal/Lingual Reduction
4. Interproximal Reduction
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We need to get the palatal chamfer margin right and note how it slides round the outer aspect of the ‘wing’!

Note the difference - in my view it is much more destructive palatally than a PFM

Axial Height
Minimum 2mm Ferrule

Pete Briggs 2015
www.hodsollhousedental.co.uk