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Trevor Burke

WARNING: Crowns *are* bad for the health of (incisor) teeth

In a recent editorial,[1] I strongly suggested that the results of recent publications, analysing a massive dataset,[2] suggested that crowns could be bad for the lifespan of posterior teeth in all but patients in older age groups. I also confessed to some bias, because I was co-author, along with Dr Steve Lucarotti, of a series of papers analysing the dataset,[3] consisting of General Dental Services' patients, this being obtained from all records for adults (aged 18 or over at date of acceptance) in the GDS of England and Wales between 1990 and 2006. The data consisted of 10 million restorations followed for 16 years, and its size allowed the analysis of how long restorations lasted, but also how long the restored tooth survived. When the results are examined with respect to crowns on anterior teeth, the recent publications[3,4] indicate very strongly that crowning anterior teeth, in any age group, is detrimental to the lifespan of the restored tooth.

In more detail, when incisor teeth were specifically examined,[4] there were 2,526,576 teeth in the analysis, of which 400,230 received crowns and 1,747,379 received a resin composite direct-placement restoration, so the data are robust. When time to re-intervention on the restoration was assessed, 48% of crowns and 33% of direct-placement resin composite restorations had survived. However, when time to extraction of the restored tooth (arguably a more relevant criterion) was analysed, 84% of the teeth restored with the direct composite had survived, compared with 75% of the crowned teeth, with only Glass Ionomer performing worse, as it did throughout the dataset.[5] As with molar teeth, the explanation is that a direct-placement restoration may be replaced or repaired when it fails, but a crown is more likely to fail catastrophically. Why? Perhaps the (generally complete) removal of the stiff layer of enamel plays its part.

Readers will all be aware that patients are increasingly requesting excellent aesthetics in their visible teeth and that crowns may be considered the ultimate answer to that. However, with increasingly good bonding techniques[6] and resin composite materials of excellent physical and aesthetic properties, clinicians should try to resist such patient demands, if patients actually care about how long their restored tooth/teeth is/are likely to remain functioning in their dentition.

The data also indicate that younger dentists provide direct-placement restorations of greater longevity than older dentists. However, (and at the risk of upsetting both younger *and* older readers at the same time!) dentists under the age of 30 years and over the age of 60 years provide crowns on incisor teeth of a significantly reduced lifespan. An explanation – perhaps some experience is needed to achieve the necessary resistance and retention form for crowns, while the older dentists may have reduced visual acuity and/or may be treating older patients with worn teeth and reduced tooth substance which are more difficult to repair.

Finally, the comments of one of dentistry's greatest commentators, Gordon Christensen, [7] provide support for my comments. He states that patients' desire for aesthetic upgrading is a common motivation for crown placement, with some practitioners being eager to satisfy patients' requests without considering alternatives or telling patients about conservative treatment

plans. He adds, 'it is impossible to estimate the percentage of crowns placed which could be considered unnecessary'. Christensen also provided observations on why some dentists place crowns instead of alternative conservative treatments, namely, that dentists consider crowns to be 'easy treatment', and that 'the revenue produced by crowns is among the highest in dentistry'. When asking 'why do dentists place so many crowns?', he states that the answer might vary from dentist to dentist, but concluding that consideration be given to less aggressive procedures when clinical situations follow them. Christensen asked the question – 'Are dentists placing too many crowns in the United States?', the answer is 'yes', adding that 'dentistry has yet to find a restorative material that serves better than human enamel and dentine'. The results from the massive dataset concur with these views and therefore serve as a ***warning***: that crowning an incisor tooth in patients of all age groups is ***not*** good for the lifespan of the tooth. Therefore, the least invasive treatment, involving the least removal of (sound) tooth substance, should always be considered.

As we approach the end of another year of *Dental Update*, I wish all readers, everywhere, Season's Greetings and a happy and peaceful 2020, and also to thank you, the readers of *Dental Update*, for continuing to subscribe to our journal – I hope that you have enjoyed this year's issues, including the two outstanding themed issues on 'composite' and 'periodontology'. I wish also to thank the Editorial Board for their input and wisdom, our superb authors for sifting through the voluminous dental literature and telling us what it means by way of the review articles that they write, our peer reviewers for their advice and, finally, all the excellent team at Guildford, ably led by Angela Stroud, Lisa Dunbar and Stuart Thompson, for producing each super issue.

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