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Trevor Burke

Introducing the composite issue

Readers may be surprised to read, as I remember my thoughts when first introduced to amalgam in the phantom head room in Belfast Dental School, that I can recall asking the question, 'Why are we filling white teeth with something that is silver?'. You may guess the response – there is nothing else – but the fact that we were filling (white) teeth with something which was a very poor colour match has remained in my psyche ever since. Fast forward to 1985, when the first dedicated posterior composite was released by ICI Dental (Occlusin, mentioned elsewhere in this issue), I had a waiting list in my practice for patients who wanted a white filling in their back teeth. Actually, it was not so much that they wanted the filling to be white, but to be mercury free. This is even more relevant today, given the Minamata Agreement.

Soon after its introduction, composite, now termed resin composite, had a number of setbacks. The principal one was that early ('macrofilled') materials contained filler particles with sizes of up to 100 microns and, worse, these were not bonded to the resin. As a result, the filler detached easily from the resin under any form of occlusal loading, resulting in very poor wear resistance and a rough surface which readily collected stains.[1] Accordingly, early in their history, composites had a bad press because of their poor wear resistance, with one particular paper published in 1973 by Ralph Philips and colleagues which included 56 pairs of a macrofilled composite and amalgam, indicating that only 14% of composites rated A for anatomic form, compared with 90% of amalgams: the paper also demonstrated severe occlusal wear and also wear on interproximal surfaces, where these existed.[2] The authors concluded that 'until improvements in the material have provided a solution to surface wear, the routine use of composite resins in Class II restorations would appear to be contra-indicated except where aesthetics is the primary consideration'. This paper effectively damned composites for more than 20 years. Manufacturers and researchers therefore realized that the fillers had to have their own innate wear resistance and that it was necessary to bond the fillers to the resin using a silane chemical coupling agent. Accordingly, by the 1990s, papers were appearing which reassured clinicians that composite wear resistance was now satisfactory, an example being one which concluded that 'the investigated ultrafine compact-filled composites can be considered as amalgam alternatives as far as wear resistance is concerned'.[3] Resin composite is therefore now a material that can be trusted in loadbearing and non-loadbearing situations. In addition to its use as a restorative material, readers of the current issue will appreciate its current wide range of applications.

Given my enthusiasm for the material, I responded with delight when Editorial Board member Louis MacKenzie suggested an issue of *Dental Update* dedicated to composite and its applications. Louis has spent much time and energy gathering together the excellent group of authors in this issue, all of whom are accomplished in their use of resin composite, as readers will see. It is therefore appropriate for me, and the Editorial Board, to thank Louis for his herculean efforts in getting this issue together – many thanks indeed: he describes what is on offer in this superb issue in his own Editorial.

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