Adhesive dentistry

Over the past few years patient demand for better aesthetics has been met with an amazing spectrum of new materials and techniques. Nowhere has the revolution in dental materials been more apparent than in the field of adhesive dentistry. The attraction of minimal tooth preparation, coupled with highly aesthetic restorative materials is appealing to patient and dentist alike. However, there is often a price to be paid for these benefits, and one which may not be obvious to the patient unless the dentist takes the time to explain all the advantages and disadvantages of the various options.

Problems frequently arise in adhesive dentistry when the dentist has heavily emphasised the benefits of these materials and techniques without warning the patient of the limitations.

Composite restorations

Patients are demanding tooth-coloured fillings either for aesthetic reasons or because of their own concerns about mercury toxicity in amalgam restorations. In the first instance, there is no doubt that composites provide a more aesthetic solution than amalgams. However, where a patient is requesting the removal of amalgams to cure a medical problem e.g. multiple sclerosis or allergies, the dentist must be wary of representing the proposed composite restorations as a cure, since the evidence to substantiate these claims, is, at best, inconclusive.

The decision to restore a tooth with a composite restoration will be dependent on a number of factors, including:

- Patient preference
- Size and shape of the cavity
- Occlusion
- Ability to isolate the tooth to keep it moisture free
- Cost and time

The choice of a composite restoration by a patient should be on an informed basis and some of the problems previously encountered by dentists can serve to highlight areas that should be discussed with patients, perhaps with the help of a simple information leaflet.

Common problems with composite

Postoperative sensitivity

Amalgam is generally a well tolerated material and is less prone to cause postoperative sensitivity than directly placed composite fillings. Sensitivity can be caused by a variety of factors and a study of the literature will show a number of techniques that attempt to overcome the problem.

The risk of postoperative sensitivity is difficult to eliminate however. So it makes sense to warn a patient of the possibility, even if only to reassure them of its transitory nature. The patient should be advised to return if the sensitivity fails to resolve, and this should be recorded in the clinical notes.

Wear characteristics

Many composites have a wear characteristic that is poorer than amalgam especially in load-bearing areas. Where larger restorations are placed or when patients have a bruxing habit, particular care should be taken. In these cases consideration should be given to the use of alternative materials or even a fixed restoration – particularly when replacing more than one cusp on either premolar or molar teeth.

Discoloration

Unlike porcelain, most composites absorb stains and this can very quickly compromise the aesthetics of an otherwise

![Fig. 1](image1.jpg)

![Fig. 2](image2.jpg)

Fig. 1: Aesthetic problems with composite usually relate to marginal integrity and surface roughness

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成功的结果。患者应被告知烟草、红酒、咖啡或茶可能使新复合修复体变色。其他食物物质（例如亚洲食物中的姜黄）也可能使修复体变色。当设计前牙复合修复体时，这些因素应被考虑，并向患者解释，以便他们做出知情选择，以确保他们的口腔卫生。

粘固剂
对患者来说，补牙常被认为是永久的解决方案。在牙体组织较少，咬合力量较大或存在磨牙习惯时，患者应被告知其复合材料可能失败。前牙切缘和角通常用复合修复体修复，当医生采用微创技术时，采用粘结剂和蚀刻技术，这些修复体可能存在问题。风险应被解释给患者，以便做出知情决定。

上述列出的问题看似不可接受，但毫无疑问，复合材料仍将持续存在，且当使用适当时，非常有效，且通常是其他更激进的治疗方案的极好替代方案。

常用问题
粘结桥
粘结桥或树脂桥在第一座罗塞特桥被发展的过程中取得了很大的进步。这些技术在陶瓷或种植体上被更现实地考虑。尽管有关粘结剂寿命的研究证据，它们也可能不可预测。选择提供粘结桥时，应向患者解释，以便他们理解并接受可能的不良结果。

在治疗前要考虑几个因素，以便提供粘结桥。

位置
前上部口腔是最受欢迎的修复部位。
the placement of these bridges and often the most successful. Posterior bridges have a poorer long-term success.

Occlusion
When planning for the bridges ensure that there is a favourable occlusion both in static and dynamic relationships. This is best examined with the help of articulated study models.

To prepare or not prepare?
The decision to prepare teeth with a guide plane, rest seats or pins or to leave it unprepared is a clinical one and will reflect the clinician’s experience and training. It is essential to discuss the relative merits of both approaches with the patient. If the tooth is prepared in any way, it no longer becomes a ‘reversible’ option even if it is minimally prepared. It is important to establish this with the patient because if the bridge fails, the patient is automatically committed to remedial treatment of the prepared tooth or teeth. The patient should be aware of this before giving their consent to the procedure.

One wing or two?
When replacing a single anterior tooth research now seems to indicate that a single wing is the treatment of choice and a cantilever design should be planned. Sometimes there is differential movement of the teeth in occlusion so when two wings are used there is a distinct risk of one of them debonding. If this goes unnoticed, caries could develop behind the loosened wing. Clearly this is something that needs to be discussed with the patient and whichever design is chosen, the patient should be aware of the implications for its maintenance and the need for regular attendance to check it.

Common problems with veneers and dentine bonded crowns
These adhesive restorations have transformed millions of smiles around the globe and continue to do so successfully. However, they need careful planning and to be aesthetically successful, some tooth substance usually needs to be removed. Again they cannot be viewed as being a ‘reversible’ option since their failure will always necessitate further treatment even if only to replace the porcelain veneers with composite facing.

There is a danger that veneers will be promoted to patients as an ideal alternative to crowns, and a quicker and cheaper route to a film star smile. It is easy to see how patients might view veneers as a win/win option, so it is vital that any dentist contemplating providing veneers or dentine bonded

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Crowns for a patient should discuss their particular needs very carefully. Pre-operative photographs and study models are helpful in communicating with the patient, but they also form a vital part of the patient record. In addition a meticulous note of all the relevant conversations held with the patient should be entered in the record.

Case study
A young male patient in his early twenties requested a dentist to close his midline diastema. He was getting married the following month and wanted this done before the wedding day. It was quite a large gap of some 4mm between the upper central incisors but the dentist confidently assured the young man that he could close the gap and produce ‘a perfect smile’ ready for the wedding photos.

At the next visit the patient returned, asking the dentist to prepare the two lateral incisors as well as the centrals. This was duly done and an impression was taken before the patient re-booked to return in two weeks.

At the fit appointment the two central veneers were tried in and the patient agreed they looked fine. However the dentist had not shown him all four veneers in place and had not tried them in using the try-in paste that came with the bonding kit.

The dentist went ahead anyway and cemented them in. When he looked in the mirror, the patient was surprised at the result and not at all happy with the size of the central incisors. He also felt the veneers were quite bulky under his lip. The dentist reassured him and asked him to return in a couple of weeks. The patient phoned the next day having shown the veneers to his fiancé. Both were very upset with the result as they felt the front teeth were far too prominent and dominated his smile too much. With the wedding taking place in less than a fortnight the dentist agreed to replace them at his own cost. The patient had lost confidence in the dentist by now and instead went to another dentist who replaced the veneers for a considerably higher fee.

Conclusion
The size of the diastema was quite large and to mimic the final effect of the veneers, composite applied to the teeth without etching would have given the patient and the dentist a quick and reversible guide as to the final result.

Diagnostic wax-ups in advance of treatment might also have allowed both patient and dentist to anticipate the likely size and shape of the finished veneers.

The patient should have been warned that the veneers would feel slightly bulky under their lip and that the sensation would soon pass.

The patient should have been warned about the possible changes in speech and the potential to lisp in the early days after the veneers were placed.

Many veneer kits come with a try-in paste and where appropriate this could be used to establish how the final result would look, before finally cementing them.

The entire problem could have been prevented by more careful planning and better communication with the patient before the treatment started, about what to expect.

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