The use of PTFE tape in restorative dentistry

PTFE tape has a number of useful applications in dentistry.

The use of polytetrafluoroethylene (PTFE) tape in dentistry is growing in popularity worldwide, due to its ease of use, low cost and multiple applications. PTFE tape can be purchased from dental suppliers at a low cost, and comes in a variety of different brands and thicknesses, the most common being 0.02mm or 0.075mm (**Figure 1**).

Benefits include its moisture resistance, tear resistance, and the ability to adhere to and be adapted to different surfaces. Due to its high melting point (over 300°C), it can be autoclaved to ensure that it is sterile before use. For longer sections, it can be wrapped around a tongue depressor (**Figure 2**).

PTFE tape can be used for a multitude of different procedures, including restoration of implants, where it is often utilised to seal an abutment screw before sealing the access openings. In guided tissue and bone regeneration techniques, PTFE membranes act as a mechanical hindrance to prevent invasive proliferation of connective tissue cells, while protecting the wound from mechanical disruption and salivary contamination. Some restorative uses of PTFE tape will be discussed in this article. Please note that this list is not exhaustive.

Some of the most common applications of PTFE tape in general restorative dentistry include:

1. Isolation during composite fillings.
2. Isolation when fitting indirect restorations (crowns, veneers, etc.).
3. In lieu of retraction cord during restorative treatment.
4. As an intermediate restoration between endodontic appointments.
5. Block out material for impression taking.

1. Isolation during composite bonding

One of the best-known uses for PTFE tape in restorative dentistry is for isolating a (usually anterior) tooth in order to prevent restorative materials, such as etchant and bonding agents, encroaching on the adjacent teeth (**Figure 3**). It can result in better contours and tighter contacts than those traditionally achieved using mylar or clear strips. Some tips include:

- ensure the adjacent teeth are dry to improve adhesion to the tape; and,
- use a microbrush to remove folds that may form.

2. Fitting indirect restorations

Another use of teflon tape is the isolation of adjacent teeth during the seating of a crown or other indirect restoration. Similar to the method described above,

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FIGURE 1: Different brands of 0.075mm PTFE tape are available.

FIGURE 2: Lengths of PTFE tape wrapped around tongue depressors prior to sterilisation.

FIGURE 3: Anterior tooth isolated from adjacent teeth with PTFE tape.

the PTFE tape can be placed on adjacent teeth in order to prevent excess cement bonding to them. It can be wrapped closely around adjacent teeth and can be stretched up to twice its original length without splitting. This will result in less time needed to clean off excess cement post fit.

3. In lieu of retraction cord

PTFE is hydrophobic and haemostatic; therefore, placing it in the gingival sulcus can provide great isolation (**Figure 4**). It has the added benefit of not catching and spinning out if caught by a bur, which sometimes happens with a cord.

Tip:

- Roll and pack the tape into the sulcus with firm pressure, using a flat plastic or similar to pack it. Wetting the instrument before packing can help to avoid the material being lifted during packing.

4. Spacer between endodontic appointments

Historically, a cotton pellet or sponge would be placed under a temporary restoration between two endodontic appointments. PTFE can be used as an alternative, as it is easy to place and remove. Unlike cotton, it does not adhere to the restoration or leave fibres behind. Even more importantly, PTFE is antimicrobial and has been proven to allow significantly less bacterial growth than cotton (Olsson *et al.*, 2017).

Tip:

- Place calcium hydroxide as an intra-canal medicament, followed by an approximately 6cm length of sterile PTFE into the pulp chamber as a spacer. Finally, place an intermediate restoration such as Cavit (**Figure 5**).

5. Block out material for impression taking

One area of impression taking that can cause some difficulty is the blocking out of impression material from unwanted areas, for example, in areas of hard or soft tissue deficiencies, such as black triangles. If the material is retained in these sites, the impression can be torn, and a new impression may be needed. This will result in longer appointment time and a potentially unpleasant experience for the patient.

Commonly used materials to 'block out' these areas include beading wax or temporary fillings. However, the removal of these post impression can be time-consuming and messy.

Tip:

- Condense PTFE tape in areas where there is a small defined undercut (**Figure 6**). The removal afterwards is straightforward.

Conclusion

PTFE tape is a very useful product to have in your dental practice. Although it may take some practice initially, its adaptability and ease of use can result in superior restorative outcomes.

Recommended reading

Olsson, T., Chan, D., Johnson, J.D., Paranjpe, A. *In-vivo* microbiologic evaluation of polytetrafluoroethylene and cotton as endodontic spacer materials. *Quintessence Int* 2017; Jul 20: 609-614.

FIGURE 4: Rolled PTFE tape being used as a retraction cord.

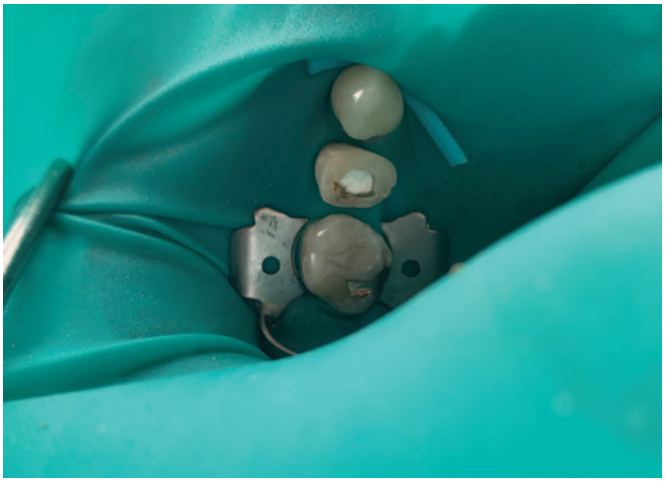

FIGURE 5: Sterile PTFE tape in a pulp chamber, prior to Cavit placement.

FIGURE 6: PTFE tape in situ in the black triangles between UR1, UR2 and UR3, prior to impression taking.