Direct Restoration of a Wide Prep MOD Cavity with Extensive Proximal Wall Loss

Dr. Enzo Attanasio

Dr. Vincenzo Attanasio graduated with honors in Dentistry and Dental Prosthetics in 2008 from the University of Catanzaro "Magna Graecia." He has pursued advanced postgraduate education with a strong focus on endodontics, adhesive dentistry, and minimally invasive restorative techniques.

In 2009, Dr. Attanasio completed a postgraduate course in Use of Lasers and New Technologies in the Treatment of Oral and Perioral Hard and Soft Tissues at the University of Florence. That same year, he attended Professor Arnaldo Castellucci's Endodontics course in Florence, further strengthening his expertise in nonsurgical endodontic treatment. In 2012, he completed advanced training in Surgical Microendodontics at the same center.

Continuing his dedication to adhesive and restorative dentistry, Dr. Attanasio attended Riccardo Becciani's theoretical–practical course on Anterior and Posterior Adhesive Restorations in 2017, followed by the advanced course From Restoratives to Prosthetics: The Think Adhesive Approach. He is a Member of the Think Adhesive Board and serves as a Master Tutor for Think Adhesive.

Dr. Attanasio is a Silver Member of Style Italiano and a member of the Italian Academy of Conservative Dentistry. He is the author of several scientific articles and is a national speaker on adhesive dentistry. He practices privately in Lamezia Terme, with a clinical focus on endodontics and aesthetic conservative dentistry.

CASE STUDY

Dr. , DDS

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Background

The patient presented for examination with a large, incongruous mesio-occluso-distal restoration on tooth 1.6, with clear evidence of secondary caries infiltration. Due to the patient's limited financial resources, it was decided to manage the tooth with a direct freehand restoration (Figure 1).

The quadrant was isolated using a rubber dam (Figure 2).

Removal of the old restoration and softened tooth structure revealed a very large MOD cavity with substantial loss of tooth substance. Not only were both proximal walls missing, but part of the palatal wall was also lost, particularly in the mesiopalatal area. The interproximal space between the cervical step of the boxes and the proximal walls of the adjacent teeth was notably wide (Figure 3).

Figure 1:

Figure 2:

Figure 3:

To obtain an optimal seal at the level of the two deep cervical margins, and given the significant distance between the cervical steps and the proximal walls of the adjacent teeth, it was decided to use a Firm Band matrix system. Thanks to its specific radius of curvature and pronounced convexity, this system allowed the recreation of proper emergence profiles without the need for additional instruments.

The concavity present at the distal cervical margin, which could have caused difficulties in adapting the matrix to the cervical profile, was managed using an orange 3D Fusion wedge. The expandable silicone fins allowed for a perfect seal of the gap between the matrix and the cervical margin in its central portion, corresponding to the anatomical concavity of that area. The loss of tooth structure affecting the palatal wall in its mesial portion was managed using a green Strata G separating ring. This ring was able to embrace the tooth perfectly, including the palatal aspect, ensuring optimal adaptation of the matrix to the axial walls of the mesial box (Figure 4).

Figure 4:

Once the mesial wall had been reconstructed, the mesial matrix was removed and a blue Strata G separating ring was adapted to manage the distal interproximal wall (Figure 5).

After reconstructing both interproximal walls, recontouring of the walls was performed using a coarse grit disc to re establish a correct outline of the tooth prior to composite layering and occlusal anatomical modeling (Figure 6).

The remaining cavity was filled using horizontal layering with a highly filled flowable composite, leaving approximately 1.5 mm of space at the occlusal level (Figure 7).

Figure 5:

Figure 6:

Figure 7:

Occlusal anatomical modeling was then performed cusp by cusp using a highly filled, nanofilled packable composite. The addition of brown and white stains allowed the restoration to integrate more biomimetically within the surrounding dentition, emulating the esthetics of the adjacent teeth (Figure 8).

The restoration was finished and polished, with a 2 year follow up (Figure 9).

Figure 8:

Figure 9:

Conclusion

Sometimes indirect restorations aren't possible, for economic reasons or simply because they weren't anticipated. In cases where cusps or entire walls are missing, silicone end rings, combined with the right Garrison matrices, can simplify an otherwise very complicated restoration process.