Minimal Intervention, Maximum Effectiveness

PARAG R. KACHALIA, DDS
Vice Chair: Simulation, Technology, and Research
Associate Professor of Reconstructive Dentistry
Department of Integrated Reconstructive Dental Sciences
Arthur A. Dugoni School of Dentistry
University of the Pacific

In the days of GV Black dentistry, the watch-and-wait approach actually had a tremendous amount of merit. Clinicians, at times, were able to diagnose caries at an early stage; however, preparation forms for amalgam restorations did not lend themselves to conservative dentistry. Even if caries were diagnosed at an early stage, a significant amount of tooth structure would need to be removed, simply to retain these restorations. Over the last decade, numerous technologies have come to market, allowing practitioners to discover caries at the early stage, and the practitioner now has the ability to treat them through remineralization protocols or minimally invasive surgical intervention.

If practitioners choose to surgically remove the caries from the tooth, they must focus on creating a conservative preparation form and maintaining as much tooth structure as possible. Resin restorations do not require specific preparation parameters, and the goal with these restorations is simply to remove the decay. In the past, the bur of choice for operative preparations was a 557 or 330 bur. While decay can most definitely be removed with these burs, unfortunately, an extensive amount of healthy tooth structure is also unnecessarily removed because of the relatively large size of these burs. In this day and age, one must consider using the smallest instrument possible. Hard-tissue lasers and air-abrasion units can offer a conservative means for caries removal; however, these devices require a large to moderate investment in equipment, and the workflow can become more complicated than necessary. A simpler solution may be to opt for innovative, cost efficient, smaller burs that have been designed for conservative restorations. These burs tend to have appropriate cutting efficiency, yet they are nearly 70% smaller than traditional operative burs at the cutting tip.

One particular bur that accomplishes this task is the 1300FS bur by Microcopy (see figure below). It is a diamond-coated bur with a tapering cutting surface. This shape allows for conservative excavation of a carious lesion at the tip of the bur while creating a funnel effect as caries are removed with deeper bur penetration. The small tip diameter allows for minimal preparations to occur many times without the need for pulpal anesthesia. In addition, the funneling effect allows for proper visualization while creating a path for accurate adhesive and flowable resin placement. Flowable composites have improved drastically over the last few years, and many now have physical properties that rival traditional hybrid composites from just a few years ago.

In the clinical case depicted, the patient is presented with occlusal caries on the lower left second bicuspid. The primary carious lesion was centered in the distal pit with early caries present

Microcopy 1300FS Diamond Bur

- Fine grit
- Thin design
- Finer, more controlled preps

Image 1: Primary carious lesion, pre-removal

Image 2: Post-removal of decay using 1300FS bur

Image 3: Completed restoration

in the mesial pit (see Image 1). The decay was removed in both of these areas with no anesthesia while using a 1300FS bur.

After caries removal and proper isolation (using Isolite), the tooth was restored with a highly filled flowable composite (Gaenial Universal Flow, GC America, see Image 2). The patient was happy that the carious tooth was restored in an efficient manner with zero discomfort and that a vast majority of the healthy tooth structure was maintained (see image 3).

The innovative combinations in rotary instrumentation and resin materials allow clinicians to provide minimal intervention with maximum effectiveness.

Scan the QR Code for more information.

FOR FREE INFORMATION:
800.420.8990 ext. 25380
www.dps.li/a/4RT-380
Circle 380 on the FREE info card following page 90.