

Dr. Suhas Lele is a 1980 graduate of University of Mumbai. He is founder of 'Vision Invisible' Dental academy. 'Vision Invisible' envisage to train practicing dental professionals and young graduates to master dental procedures to perfection. He received his Accreditation in 2001 of American Academy of Cosmetic Dentistry. As the featured dentist on television channels, he has helped bring need-based dentistry to national recognition. He maintains private practice at 'Smiles Forever' in Mumbai.

Dr. Madhu Bendre is a 1990 graduate of University of Mumbai. He is co-educator in 'Vision Invisible' dental academy since its inception. Sustaining member, pursuing Accreditation to American Academy of Cosmetic Dentistry. He teams up with wife, Dr. Seema, a prosthodontist, to treat complex and comprehensive cases. Having special focus on restorative and esthetic dentistry, he enjoys give & take of different concepts, innovations & other creative ideas based on established fundamental principles. He maintains private practice at "Dr. Bendre's Oral Care" in Thane.



Dr. Suhas Lele



Dr. Madhu Bendre

CASE I CLASS II RESTORATION

Introduction

Restoring proximal carious lesions is one of the most common treatment modalities encountered in general practice.

Similarly, diagnosing potential decay in deep pits and fissures is also gathering a lot of interest as it entails ultraconservative procedures of Fissurotomy, whereby extensive restorations of healthy teeth can be prevented at a later stage.

This article will discuss the case of an upper right first molar with a deep carious lesion in the mesioocclusal aspect. The same molar revealed potential pits and fissures which needed to be restored with the help of sealants.

Treatment Plan and Rationale

After detailed examination, it was planned to restore the tooth with direct composite resin (**Tetric-N-Ceram, Ivoclar Vivadent**)

The restoration was planned to be in only one or two shades with a lining of flowable resin (**Tetric-N-Flow, Ivoclar Vivadent**). It is not very critical to have a perfect shade match in posterior restorations. The occlusal anatomy of posterior teeth is quite complex and variable. If the clinician sculpts the restorative material to a good form, the shade will generally blend in, owing to the natural reflections created by the cusps, fossae, valleys and the grooves in the restorations.

What would be more significant would be understanding the needs of a restoration which occupies a proximal contact area. For success with posterior composites it is important to be aware and alert about the below mentioned factors:

Pulpal Health

Selection of appropriate burs proper speed and cooling of dental drills, good excavation, cutting techniques all contribute to maintaining the status quo of dental pulp.

Structural Durability

Case Selection: Conservative approach and design of cavity

preparation is of utmost importance. Cavity design should be such that there are no stresses at the cavosurface margins, line angles and point angles. All these stress bearing areas should be softened and rounded off to reduce polymerization shrinkage stresses on a tooth.

Marginal Integrity

Peripheral seal is the key to success. Properly sealed margins ensure no micro leakage and its sequelae of secondary caries and discolorations. Marginal integrity can be further enhanced by re-etching the restoration margins and use of surface sealants (ref. to pics)

Occlusal Function And Stability

Recreation of occlusal anatomy to create the original stable contacts puts the restorations in occlusal and functional harmony. This leads to great chewing efficiency and minimal or no breakages.

A Tight Anatomically Contoured Flossable Contact

Which helps to create a snap sound. "It is often tempting to chronicle esthetics as a measure of performance, but in reality it is the restorative integrity, which is the true measure of performance." (Dr. William Liebenberg, Vancouver B.C)

Slide no 0379



Preoperative view revealing a mesioocclusal carious lesion. The central and distal occlusal areas reveal deep fissures with potential subsurface decay. Optimal isolation with rubber dam and caries detecting dye applied.

Slide no 0383



Deep fissures are explored with three Fissurotomy Burs (SS White Fissurotomy diagnostic and finishing kit no. Lakewood, N. J). Early detection keeps restoration small. These Fissurotomy burs offer techniques of minimal preparation and maximum patient acceptance.

Slide no 0397



Total etch technique used with the help of 37% phosphoric acid , the enamel etching is done for 20 seconds, the dentin is etched for not more than 5-10 seconds . Customize the sectional matrix band by burnishing on to the neighbouring natural contact.

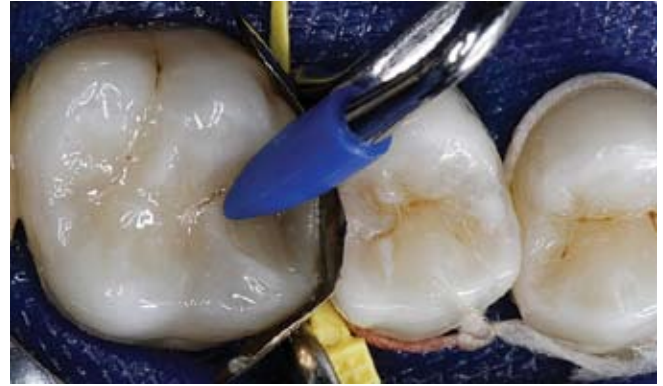
Nano optimized bonding system (**Tetric-N-Bond, Ivoclar Vivadent**) is used on applicator tip in conjunction with total etch technique. This is used for 20 seconds. **Tetric-N-Flow** is applied in deeper areas of cavity as a liner. **Tetric-N- Flow** is a radiopaque, flowable nano – hybrid composite which is ideal for use as a cavity liner, for restoring small and class five cavities and for extended fissure sealing. Cavo surface margins of mesioocclusal preparation are softened with the help of 10 fluted carbide bur. (**Safe End Series Trimming and Finishing Bur Kit, SS White**). This abrasion of cavo surface margins eliminates the sharp line angles which would otherwise bring in the stresses of polymerization shrinkage. All these sharp line angles and point angles of cavity preparation are softened for similar reasons. This also allows for seamless blending of composite with cavo surface margins. A proximal increment of **Tetric-N-Ceram A2** is applied and sculpted to create proximal contact. It is polymerized for 40 seconds

CASE II - Fissurotomy

The Fissurotomy System

The Fissurotomy Burs are innovative tools of conservative dentistry. The bur size and shape are designed specifically for treating pit and fissure lesions. The head length of the bur is 2.5mm, limiting the preparation just below the DEJ. The bur`s tapered shape means that the cutting tip encounters very few dentinal tubules

Slide no 0398



Sculpting occlusal anatomy is made easy with `optrasculpt ` (ivoclar –vivadent) slightly elastic modeling tips which help reduce the stickiness associated with handling composites as these modeling tips are made of elastomer. Composites can then be contoured easily and accurately.

Slide no 0405



Finishing and trimming with the help of 10 and 20 fluted carbide burs (Safe End series – finishing bur kit, SS White Lakewood N. J) these burs help in removing the extra resin flash with no or minimal damage to sound tooth structure .

Slide no 1136



A final polished restoration looks very natural and blends in with neighbouring dentition.

Slide no 1394



Great White Gold Series Carbide Burs for preparation.

and minimizes heat build – up and vibration . Since the Fissurotomy bur cuts mostly enamel, patient’s discomfort is minimized and local anaesthetic is unnecessary. Comparing Fissurotomy and standard 330 burs demonstrates the decreased invasiveness of the new design. Traditional cutting burs, accessing deeper caries remove far more enamel at any cutting depth than Fissurotomy burs, which have been anatomically – designed to enlarge fissures, eliminating small caries without removing healthy enamel and dentin. Conservative cavity preparation must be matched with suitable restorative material. Today the best direct enamel replacement is a composite resin. Since the typical Fissurotomy preparations are long and irregularly deep cavities, it is essential that the restorative material flows into all nooks and corners. Almost half of these cavities have a narrow, fluoride hardened occlusal opening, masking the size and extent of defect to an explorer. Radiographs will not always reveal dental caries. This is a phenomenon known as hidden caries, where the tooth appears caries free clinically and/or radiographically but is found to be carious by other diagnostic means. Sophisticated technologies for example **Diagnodent** offer around 90%+ accuracy in detecting such lesions. In the absence of it, a sharp explorer and a close examination would help clinicians to treat such initial lesions.

These burs help in recontouring the fissures and pit anatomy for greater access and visibility. This allows better penetration of the caries detecting dyes which helps in complete and conservative caries removal.

Slide no 1198



Reveals application of caries detecting dye on occlusal surface of premolar & molar.

Slide no 1199



After rinsing with water, minimal areas have taken up negligible dye.

Slide no 1201



After opening up with Fissurotomy burs, premolar exhibits caries stained by dye.

Slide no 1204



The affected area is carefully excavated with Fissurotomy Burs.

Slide no 1211



Completed sealants of Tetric – N – Flow.

Slide no 1389



Fissurotomy kit.

Fissurotomy case:

CASE III - Class V Restoration

Slide no 662



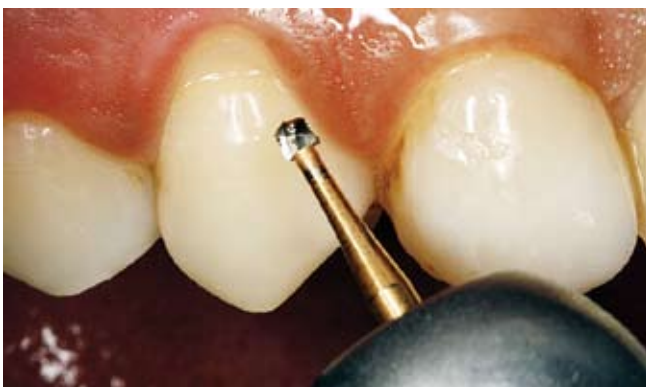
Class V defect in upper right 1st premolar. Optragate (ivoclar vivadent) is applied to retract cheeks. It gives the clinician and patient great comfort during the procedure. The correct size of opragate or opradam is essential for unrestricted function and perfect fit during treatment.

Slide no 668



Cervical lesions may be a result of many factors acting independently or in combination, including caries, abrasion, erosion and occlusal disharmony. Flexure of teeth during function, with resultant stress concentration at the cementsoenamal junction, has been implicated in the etiology of Class V cervical defects. Adjustment of occlusal interferences prior to restorations of such areas is therefore prudent. Use of nanofill or microfill composites in cervical areas allows for optimal soft tissue response due to high polishability of these materials. Their lower stiffness, compared to hybrids, is also thought to be advantageous in restoring displacement during tooth flexure.

Slide no 0673



A round carbide bur (GW- 4R, S. S. White Burs) is used to create surface roughness on dentine and enamel to enhance adhesion. A gingival retraction cord is placed in the gingival sulcus.

Slide no 0675



A carbide bur (G W – 1557, S. S. White Burs) is used to create small bevel.

Slide no 0685



"Mock – restoration " gives an exact idea of the thickness and the type of composite shade required. A retraction cord placed can be perceived in the gingival sulcus.

Slide no 0695



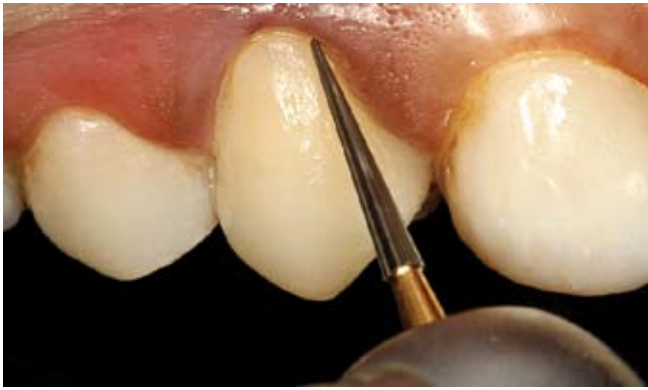
A 3.5 opaque Tetric-N-Ceram small increment applied.

Slide no 0708



Artist brush # 0 is used to achieve a natural contour.

Slide no 0714



10 fluted carbide bur (Safe End Kit, SS White Burs) is used to do the gross finishing.

Slide no 0716



20 fluted carbide bur (Safe End Kit, SS White Burs) is used to refine and define sub-gingival margins, Being "safe-ended" these burs are very kind to the gingival tissue, while working in the sulcus. An even, smooth surface is achieved which allows for excellent luster while polishing

Slide no 0725



Astrobrush is a polishing brush impregnated with a polishing paste. These are applied after using Astrapol points and cups to have high gloss.

Slide no 1048



End result after few weeks. The restoration integrates harmoniously with hard and soft tissue

Slide no 1393



Safe End Finishing Burs.