Restoration of a fractured incisor

Conservative dentistry is continually advancing. The most recent composite resin and adhesive systems allow the practitioner who has a serious interest in aesthetic dentistry to obtain optimum results in various clinical situations. Next to working with quality materials and using proper reconstructive techniques it is the dedication to the aesthetic work itself that is a key factor in obtaining good and long-lasting results.

The tooth has been reconstructed with various shades of composite to create the best aesthetic result. To simulate enamel transparency, 3M Z100 MP restorative incisal shade has been applied as the external layer.

After cleaning the dental surfaces and application of rubberdam, the enamel margins were prepared to a shallow chamfer with a diamond bur. Enamel and dentin were acid etched, rinsed and dried and the adhesive system was applied according to the instructions.

A higher magnification shows a characteristic resin tag. The resin-dentine interdiffusion zone is also visible, illustrating the possibility of creating micro-mechanical retention to dentine similar to the adhesion of resin to enamel (SEM X7500).

When 3M Z100 MP restorative does not offer enough transparency or opacity the aesthetic line of 3M™ Silux Plus™ Anterior Restorative can be a useful alternative. This restorative comes in a more extensive range of translucent and opaque colours, including masking agents. (The editor.)

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Materials:
3M™ Z100™ MP Restorative
3M™ Scotchbond™ Multi-Purpose Dental Adhesive System
3M™ Sof-Lex™ Finishing and Polishing System.

DR. ANDREA FRESCI
Via Forte dei Cavalletteri, 26
57100 Livorno
Italy

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Young patient with an uncomplicated crown fracture caused by trauma.

A fractured sample of exposed human dentine after acid etching shows the surface covered with 3M Scotchbond multi-purpose adhesive and penetration of the adhesive into the dentinal tubules and the demineralized layer of intertubular dentine (SEM X2000).

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The composite is applied in two layers to simulate dentine and enamel, with the more opaque internal layer (usually A3) and transparant (Incisal) external layer.

During application of the composite, the restoration is contoured as much as possible to help keep finishing and polishing to a minimum.

Final result after finishing and polishing with 3M Sof-Lex discs and strips.