GAETANO**PAOLONE**

SALVATORE**SCOLAVINO**

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ANTERIOR DIRECT RESTORATIONS

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WeRestore.it (http://werestore.it) is an international educational project founded by Gaetano and Salvatore.
The project aims at excellence, at the development of ideas, articles, videos, texts, materials, procedures, and research.
The authors constantly carry out training courses in English and Italian in Rome or Milan and all over the world on request.
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To Isabella, Chiara and Edoardo

Gaetano

To my sister Anna…
because those who live in the memory of those who remain never die

Salvatore

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Foreword

When two 'young' authors, colleagues, and friends you have known and appreciated since their first steps into the world of restorative dentistry, ask you to present their book, there are two questions that naturally and automatically spring to mind: (1) Why me?; and (2) How is it possible to represent such a completely exhaustive work on the subject in just a few words? Having been called to write this presentation makes me proud; it honors me because this is nothing more than the transposition of what colleagues like Gaetano and Salvatore represent for our profession. Still young, with commitment, determination, and a lot of hard work they manage to realize and pass on their dreams; they are clinicians who can show how fascinating conservative dentistry is when applied to the sector with the highest esthetic value. They are rigorously trained clinicians, experts, and responsible for sharing the teachings acquired from others and all that they themselves have experienced. A fantastic example of what many of us have always pursued and which, today more than ever, must still represent a creed for growth and making excellence the result to be achieved every day in our work.

Scrolling through the contents of this second 'effort' by Gaetano Paolone and Salvatore Scolavino gives the idea of the completeness of their work. Thanks to the contribution of friends and talented colleagues, such as Alessandro Vichi and Giovanni Sammarco, the authors take the reader on a wonderful and rewarding journey through the fascinating world of direct esthetic restoration of the anterior teeth. Every single technique is described in detail, enriched by suggestions derived from rigorous professionalism and consolidated experience.

All of this is extraordinarily represented and characterized by impeccable scientific and clinical rigor but, at the same time, presented in a very easy understanding and transferability into daily practice, in search of that operational optimization that every operator should aim for.

To conclude this brief introduction, I sincerely congratulate to Gaetano, Salvatore, and all those who have contributed to the realization of this work, and extend my heartfelt thanks for having made available to those who love this marvelous branch of dentistry an instrument that communicates not only a message of absolute operational rigor but, above all, a wonderful enthusiasm and infinite passion for our profession. All this makes my 'young friends and colleagues' two absolute protagonists and points of reference for young professionals and all those who choose to aim for excellence, having understood that this should no longer be considered an advertising slogan, but the most powerful marketing strategy possible today.

Prof. Francesco Mangani
Professor of Restorative Dentistry Università degli Studi di Roma 'Tor Vergata', President of the Italian Academy of Conservative Dentistry 2020–2021

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Introduction

The dental profession has undergone considerable changes in the last two decades, with an important shift from the analog world to the digital one. However, regardless of the rapid development of modern digital technologies and their proven benefits in solving technical problems, simplifying the management of 'complex' cases and providing an obvious contribution to esthetic treatment planning, one should not think that that 'direct composite restorations' have consequently become a topic of minor interest. On the contrary! We have all heard of possible changes in the treatment of carious processes in the anterior sectors or esthetic deficiencies using three-dimensional printing, with an optical impression that can simultaneously detect the color of the tooth, which is then automatically reproduced by the machine. First, as yet there is no machine capable of printing a highly filled composite in a nongeometric, retentive cavity configuration; even if it were, would the eventual cost of a restoration produced from this technology be advantageous compared to that of direct composite restorations? In the coming years, not only will 'good' hands prevail over machines in such directions, but we will perpetuate the remarkable pattern of humans serving and caring for other humans! There are many indications within the smile frame where direct composites are a simple, yet effective, reliable, and cost-effective solution, with an overall pleasing esthetic outcome. Caries or fractures are still best treated with direct restorations, being the only conservative solution for these clinical situations. Young patients are also good candidates to benefit from no-preparation corrections or improvements instead of or in combination with orthodontic treatments. In a world with so much attention paid to esthetics and as modern technologies have not yet brought about alternative treatment solutions for the aforementioned indications, it is of fundamental importance to excel in the mastery of direct restorations. However, as always, success does not happen by chance; it is the natural consequence of repeated and well-controlled procedures and an adequate selection of materials. The book by Drs Gaetano Paolone and Salvatore Scolavino is undoubtedly a valuable and complete source of information for anyone wishing to achieve excellence in the treatment of direct restorations in the anterior sectors. Whether you need to update or refresh your knowledge of shade and anatomy or want to explore detailed clinical protocols for several classes of restorations, shape corrections, and treatment of endodontically treated anterior teeth, you will find what you need in this textbook. The meticulous and inspiring documentation also supports the several layering modalities applicable to the above clinical situations, with full details of the instrumentation to be used. The many years of experience and the remarkable skills of the authors are reflected in all the chapters, and are highlighted by an exceptional photographic iconography. The whole treatment is presented in a systematic, attractive, and clinically oriented way; this textbook will undoubtedly become a classic and 'must have' in the library of any keen restorer. It has been an honor and a particular pleasure to write the preface to this outstanding textbook. With a firm belief that the pursuit of excellence is a contagious virtue, I wish all readers an inspiring and engaging learning experience!

Prof. Didier Dietschi, D.M.D, PhD,
Lecturer, University of Geneva (Switzerland) and Case Western Reserve University (USA)

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Preface

We promised ourselves that we would not write another book because the making of a book takes a lot from you, both physically and mentally, taking away time for social and family relationships.
The feeling of embodying some of those writers described by Mark Twain, who manage to write two books at the same time, the first and the last, prevailed over this promise, and here we are with our second volume. Its contents, while standing on their own, find their maximum expression in synergy with the previous edition.

In a world where everything is increasingly impalpable, ephemeral, and elusive, a physical book has the purpose of giving concreteness and consistency to the professional path, of being a 'chairside' reference which, through step-by-step techniques and many clinical cases (some with follow-ups over 10 years) described, is proposed as a source of comparison with the professional experience of everyday clinical practice.

The clinical cases featured in this volume were performed with composites and adhesive systems from several different companies. However, it is not about the materials, it is about the knowledge and techniques.

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Maria Giacinta Paolone and Roberto Kaitsas, for their synergy and common vision.

The Italian Academy of Conservative and Restorative Dentistry (AIC) for the passion, integrity, and professional rigor that it manages to convey. In a dental panorama polluted by misleading media messages, the AIC, together with other scientific societies, remains a point of reference for enthusiasts of restorative dentistry.

Authors' resumes

GAETANO PAOLONE

Since 2014, Dr Paolone is a Research Professor in Restorative Dentistry, Università Vita Salute San Raffaele, Milan. He has a PhD in Dental Biomaterials (Portsmouth University, UK). He is an associate member of the American Academy of Restorative Dentistry and an active member of AIC.

Dr Paolone served on the board of AIC (as Secretary) in 2018–2019, and on its the scientific committee (2020–2022). He has his own private practice in Rome. He is a Lecturer on the Master in Esthetics and Restorative Dentistry, University of Bologna, Italy and on the Diploma in Esthetic Dentistry at Montpellier University, France. He is the author of the book 'Restauri diretti nei settori posteriori' (Direct Posterior Composite Restorations) published in 2018, which has been translated into English, German, and Chinese. He is the author of the book 'Restauri diretti nei settori anteriori' (Direct Anterior Restorations), published in 2020. He is also the author and co-author of several publications in international scientific journals and contributions in several textbooks. He has lectured on national and international courses and congresses.

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Dr Scolavino graduated with honors from the Federico II University of Naples, and has been an adjunct professor in Conservative Dentistry at the University of Milan for the academic year 2019–2020. He is an active member of AIC.

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He is the founder of the WeRestore.it (http://werestore.it) project and author of the book 'Posterior Direct Restorations'. He is a Lecturer on the Master in Esthetics and Restorative Dentistry at the University of Bologna and a lecturer on the postgraduate Master in Restorative Dentistry and Aesthetic at the University of Turin.

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He regularly carries out training activities related to restorative dentistry in Italy, abroad, and on online platforms.

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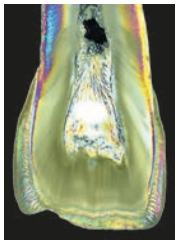
Contents

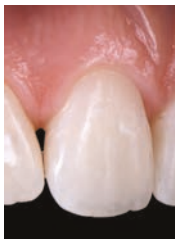
Foreword by Prof. Francesco Mangani IV
Introduction by Prof. Didier Dietschi V
Preface VI
Acknowledgments VII
Authors' resumes VII

CHAPTER 1
SHAPE AND ANATOMY OF THE ANTERIOR TEETH 2
The three-dimensionality of form 7
Cervico-incisal curvature 8
Mesiodistal curvature 9
Edges and their radius 9
Transition lines and areas 11
Coronal twist 13
Surface details 16
Vertical anatomy 17
Horizontal anatomy 19
Superficial texture (perikymata) 20
Embrasure 24
Changes in incisal edges 24
Escape routes 28



CHAPTER 2
COLOR 30
Chromatic properties 34
Achromatic properties 36
Optical phenomena 39
Light quality 40
Resin-based composites for anterior restorations: which ones? 41

CHAPTER 3
TOOLS 44
Tools to isolate the anterior sector 46
Ligatures 50
Tools to photograph the anterior teeth 54
Color detection tools 64
Clinical procedure: Case 1 68
Instruments for modeling composites 71



CHAPTER 4
WHITE LESIONS 72
MINIMALLY INVASIVE TREATMENTS OF WHITE DYSCHROMIAS IN THE ESTHETIC AREA
Diagnostic criteria 75
Minimally invasive procedures 78

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CHAPTER 5
TRAUMATOLOGY: FRAGMENT REATTACHMENT 94
Type of fracture and impairment of pulp vitality 98
Fragment storage and hydration 98
Diagnostic phase 99
Fragment cleaning and rehydration 101
Clinical procedures 101
Tooth reattachment in the presence of diastemas 103
Clinical protocol 104
Preparation of the tooth 104
Fragment preparation 105
Reattachment of the fragment 105
Preparation of the fracture gap 106
Silicone matrix-guided reattachment 108
Clinical case 108
… and what if you expose the pulp? 118
Clinical procedure 119
… and what if the fragment detaches? 123

CHAPTER 6
CLASS III ANTERIOR INTERPROXIMAL LESIONS 128
Classification 130
Classification of class III cavities according to Paolone and Scolavino 131
Preparation 133
Class III layering 140
Division I layering 140
Division II layering 141
Division III layering 143
Division IV layering 146

CHAPTER 7
RESTORATION OF THE ANTERIOR TEETH INCLUDING THE INCISAL EDGE: CLASS IV 156
Shape 157
Transferring the shape information 158
Calibra 164
Translucencies 168
Preparation 171
To bevel or not to bevel the margin? 173
Preparing the margin: advantages, disadvantages, and trade-offs 174
Layering with low-CAP dentin 175
Marking boundaries on the index 176
Palatal wall and incisal edge molding 177
Solution A (recommended) 177
Solution B 179
The interproximal walls 181
Frame modification: ‘pre-finishing’ 183
Dentinal body 185
Translucent shade 189
Modeling liquids 193
Layering with high-CAP dentin 194
Clinical cases 197

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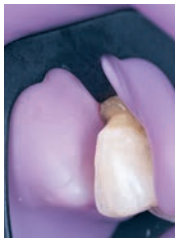
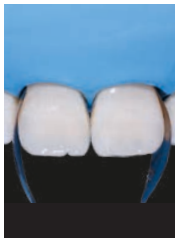
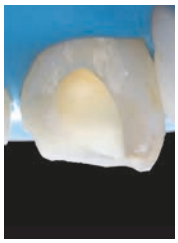


CHAPTER 8
CERVICAL LESIONS 278
Cavity preparation 283
Combined restorative and periodontal strategies 305
Clinical evaluation 305
Treatment plan 305
Restorative procedures 310
Periodontal procedures 310



CHAPTER 9
DIRECT VENEERING, DIASTEMA CLOSURE AND SHAPE MODIFICATIONS 312
Shape modifications with composite materials 316
Diastema closure 319
Direct veneering 325
Clinical cases 334
Interactions between orthodontics and restorative dentistry 374
Clinical cases 376



CHAPTER 10
POST-ENDODONTIC RESTORATIONS 394
Internal whitening 395
Use of fluorescent materials 397
Texture 397
Residual structure and posts 397
Clinical cases 399

CHAPTER 11
FINISHING AND POLISHING 430
Tool for finishing 433
Finishing 434
Pre-Finishing: The scientific background and how-to procedure 435
Final finishing 436
Tips… 437
Contouring 438
Modification of the outline 439
Definition of the lines and transition areas 440
How to move or change a transition line 442
Definition of incisions and developmental grooves 443
Reproduction of perikymata 445
Smooth surface finish 446
Let us practice together 448
Transition lines 448
Reproduction of the engraving at the incisal edge of the developmental grooves 450
Drip depression 451
Distal depression 452
Definition of horizontal depressions 453
Perikymata 454
Selective rubbering 455
Polishing tools 457

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Chapter 6

Class III anterior interproximal lesions

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Class III cavities affect the proximal surface of the anterior teeth without involving the incisal edge. Given the difficulty in chromatically camouflaging a small composite restoration in an area where the tooth–restoration transition has a very limited extension, these cavities may represent a very complex esthetic challenge for the clinician.

Class III restorations are the restorations with the highest longevity,[1,2] probably because they are placed in low-stress areas, are generally not large, and the cavity is completely surrounded by enamel.[3]

In this chapter, the classification, preparation, and layering techniques for the restoration of class III carious processes are described.

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Classification

According to the cavity configuration, we classify class III cavities as follows **(Figs 1 to 3)**:

- **division I:** interproximal cavity with preservation of the buccal and palatal walls;
- **division II:** interproximal cavity with palatal access and preservation of the vestibular wall;
- **division III:** interproximal cavity with vestibular access and preservation of the palatal wall;
- **division IV:** passing-through interproximal cavity (loss of palatal and buccal wall).

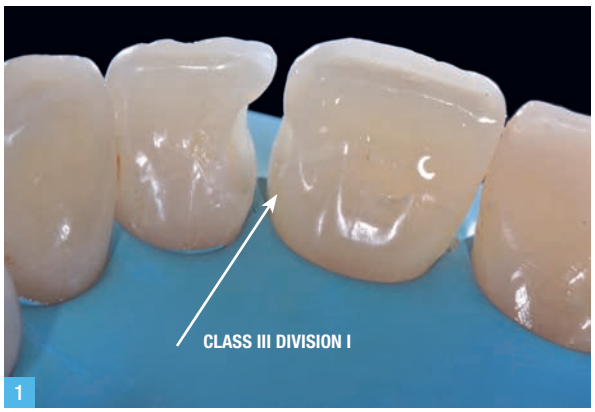

Fig 1. *On tooth 1.1, class III division I.*

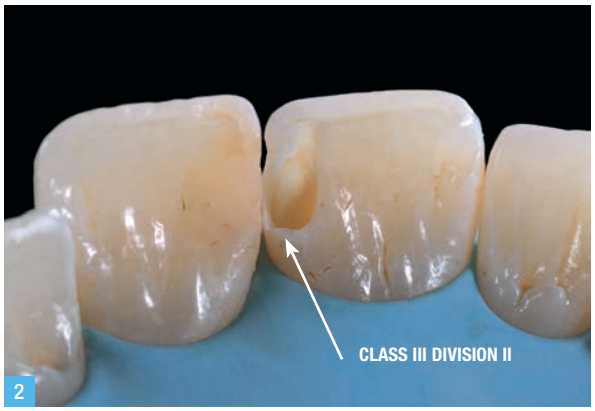

Fig 2. *On tooth 2.1, class III division II.*

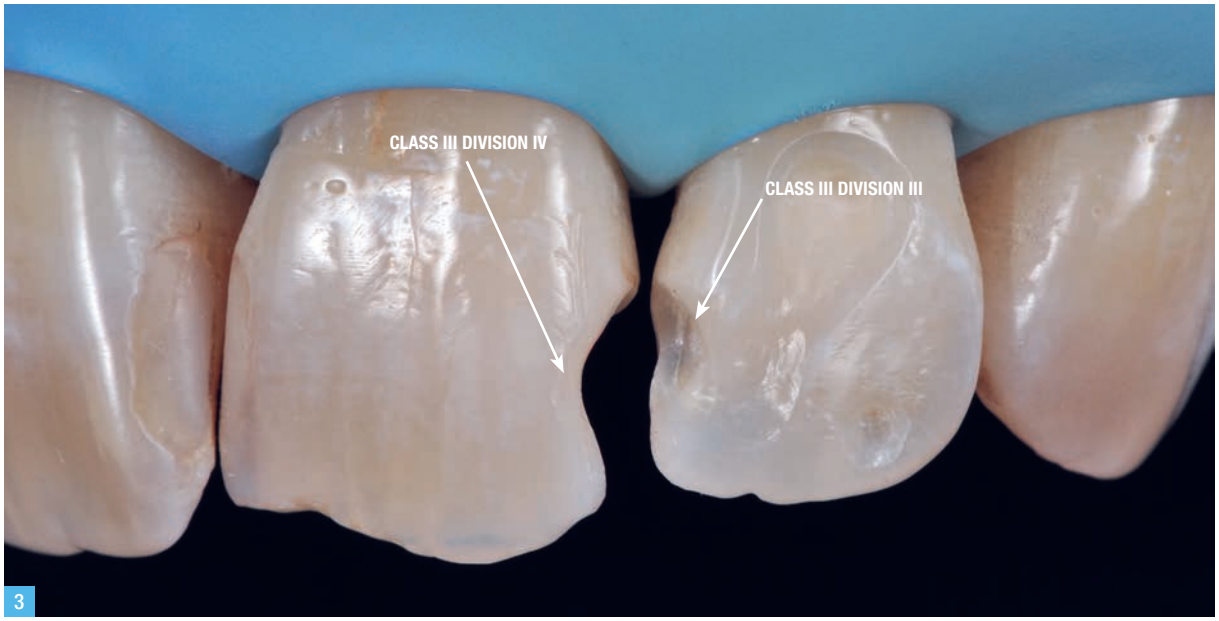

Fig 3. *On tooth 2.1, class III division IV; on tooth 2.2, division III.*

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Classification of class III cavities according to Paolone and Scolavino

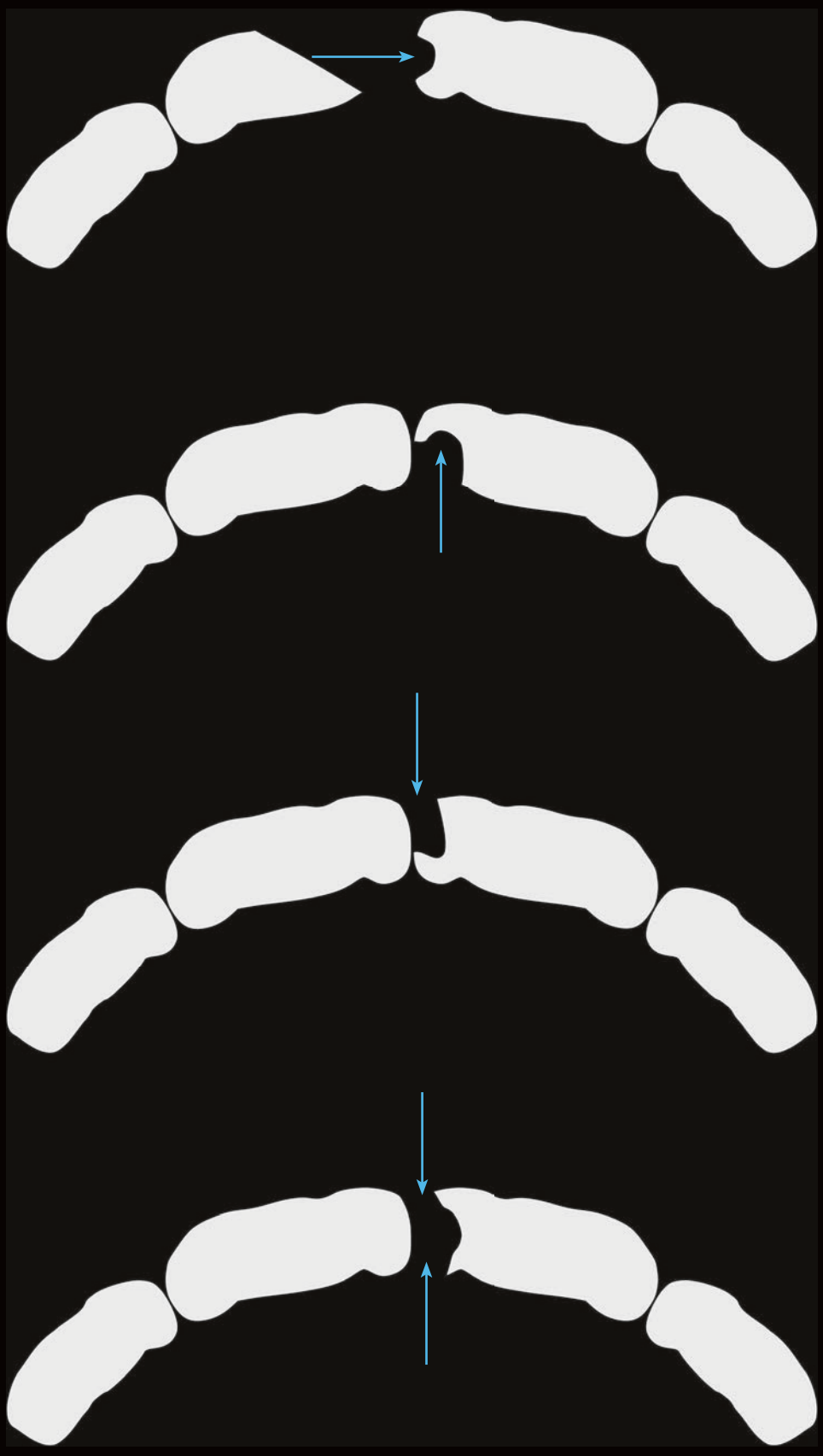

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***Fig 4**. Diamond flame bur (friction grip [FG] connection).*

***Fig 5**. Red contra-angle diamond round bur (FG connection).*

***Fig 6**. Blue contra-angle round multi-blade bur (CA connection).*

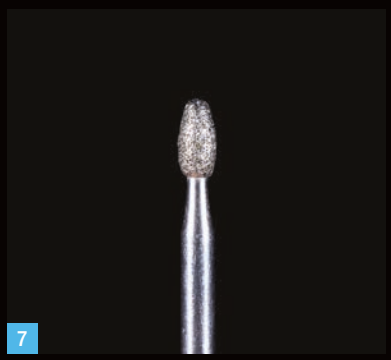

***Fig 7**. Diamond olive (FG connectio).*

***Fig 8**. Arkansas bur (FG connection).*

***Fig 9**. Silicone rubber flame (FG connection).*

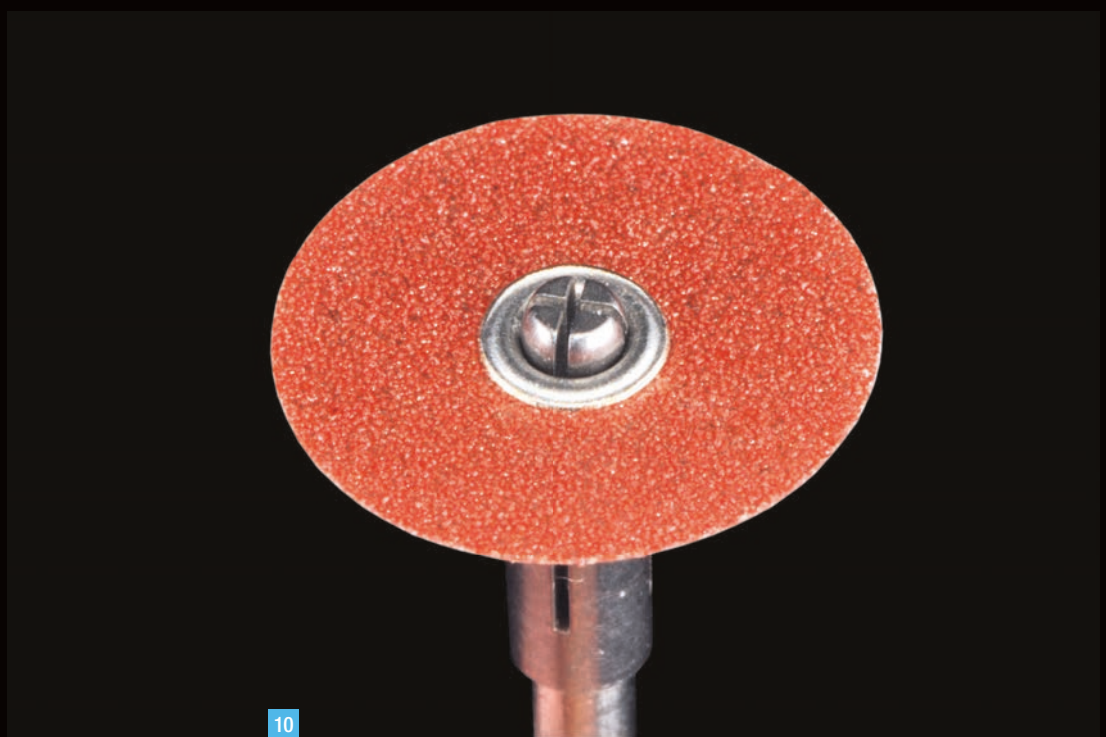

***Fig 10**. Coarse abrasive disc.*

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Preparation

The choice of bur to prepare a class III restoration depends on the extent of the carious process. For small cavities, as in the clinical case described in **Figs 11 to 18** (class III, division III), it is advisable to carry out access using a flame diamond bur **(Figs 4 to 15)**; once the affected enamel has been removed, it will be possible to remove the carious dentinal tissue using a multi-blade round bur **(Fig 6)** whose dimensions will be chosen according to the cavity width.

***Fig 11**. Class III division III carious process on tooth 1.2. **Fig 12**. Isolation of the operative field. **Fig 13**. Palatal enamel preservation and the initial buccal cavity suggest to proceed with buccal access.*

***Fig 14**. Protection of contiguous teeth from iatrogenic damage using a metal strip. **Fig 15**. Access performed with a flame diamond bur and cleaning of the cavity with a multi-bladed round bur. **Fig 16**. Restoration performed with body shade A3.*

***Fig 17**. Class III restoration completed, finished, and polished under the rubber dam. **Fig 18**. Palatal view.*

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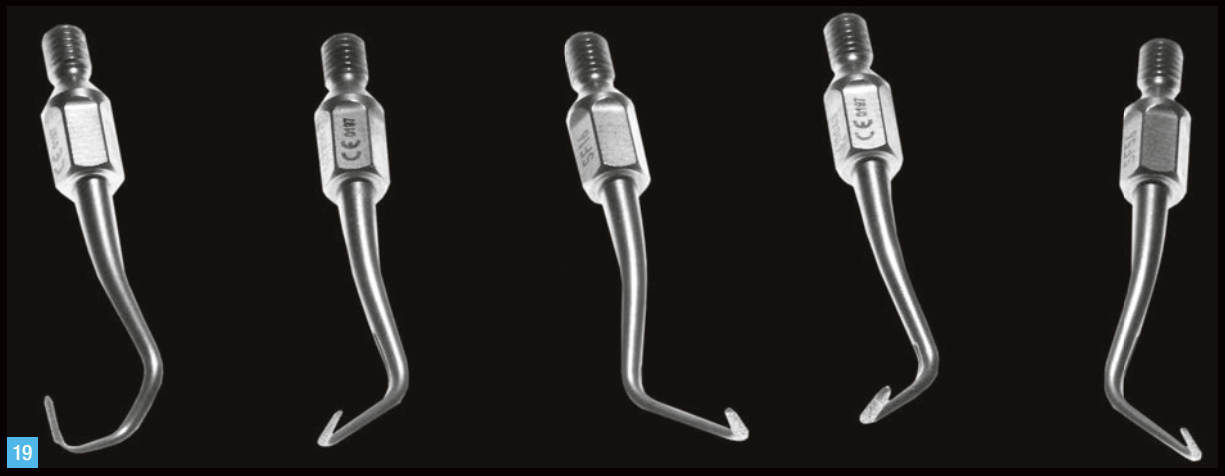

Fig 19. Sonic diamond inserts for endodontic purposes may serve as cavity preparation.

Sometimes, difficult access to class III cavities may require the use of sonic tips **(Figs 19 and 20)** which depending on the various angles of the working tips and of variable shapes and sizes, allow reaching the most hidden and narrow areas, to be able to draw a correct finishing margin. The preparation of slot-type cavities (division I) is possible only when there are two adjacent cavities, as in the case described in **Figs 21 to 26**, where two class III are involved: division I on tooth 1.1 and division IV on tooth 1.2.

In these cases, it is always preferable to first prepare the largest cavity (ie, tooth 1.2), to then find an easier access to the slot preparation on tooth .

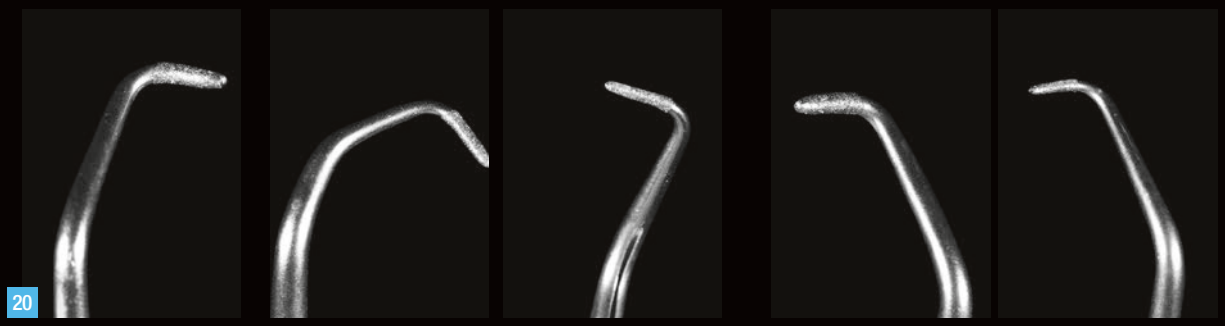

Fig 20. Sonic diamond inserts for cavity preparation.

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***Fig 21**. Initial clinical situation of a case with classes III of teeth 1.1 and 1.2.*

***Fig 22**. Isolation of the operative field.*

***Fig 23**. Once the largest cavity was opened (the one mesial to tooth 1.2), it was possible to access class III division I of tooth 1.1.*

***Fig 24**. To perform a slot preparation on tooth 1.1, a sonic insert was used, which simplifies access and allows for a minimally invasive approach.*

***Fig 25**. Buccal preparation of tooth 1.2 completed by creating a 45-degree bevel along the entire preparation line, which has the function of increasing the enamel available for adhesion and enhancing the tooth and restoration camouflage.*

***Fig 26**. Appearance of the finished preparations.*

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The buccal preparation line of medium-to-small cavities is completed by executing a 45-degree bevel **(Fig 27)**, performed using a flame-coated diamond bur, mounted on a red ring 1:5 multiplier handpiece.

The bevel will cause:

1. Greater enamel surface available for adhesion.
2. Mimetic tooth–restoration transition.
3. Preservation of anatomical volumes.[4]
   Medium-to-large cavities, which affect a buccal portion, can (as in class IV) be prepared with a diamond ball and then finished with stones and silicone points **(Figs 28 and 29)**.

The enamel can be further refined by passing a brownie rubber **(Fig 9)** with a flame mounted on the red ring 1:5 multiplier handpiece; in this case, to remove silicone debris that could interfere with the adhesive procedures, it is advisable to apply spray powders, such as glycine or erythritol.

***Fig 27**. Buccal 45-degree bevel made with a flame diamond bur on red contra-angle (1:5).*

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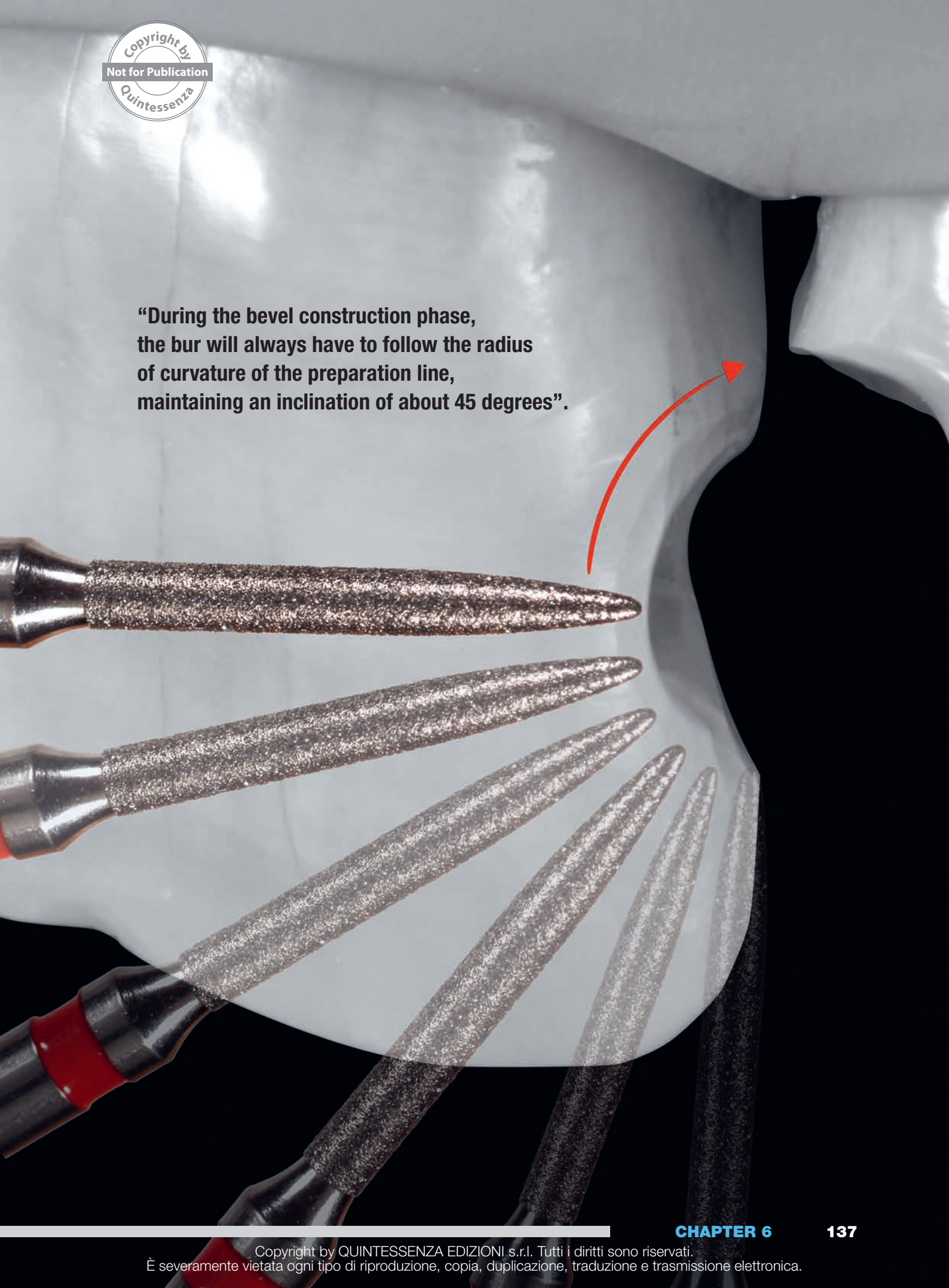

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