

Comprehensive  
**ESTHETIC**  
Dentistry

FLORIN LĂZĂRESCU, Editor

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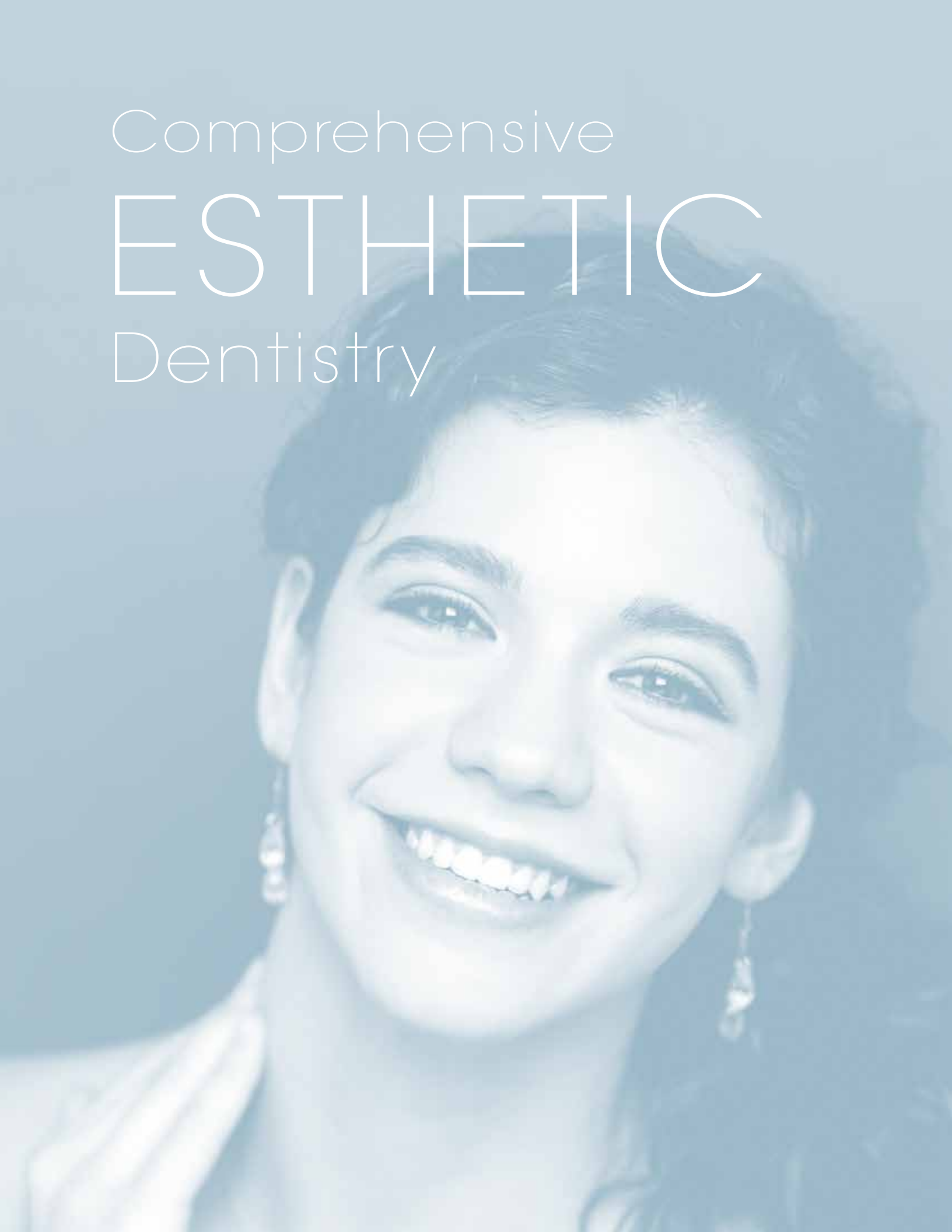
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# Foreword



*In our modern society, the value of a smile is becoming increasingly important. Smiling is one of our most powerful communication tools and can influence people's first impressions significantly. It has a fundamental impact, not only on esthetics, but also on facial expressions, masticatory function, phonetics, and verbal expression.*

*A healthy smile showing bright white teeth represents a combination of the perception of "beauty" and "health." A common request from patients all over the world nowadays is for dental treatments that optimize esthetics and function in order to help them enhance their self-esteem and improve their professional and personal relationships.*

*The challenge for the modern dentist is to balance the esthetic and functional objectives, and seek to achieve the best result through minimally invasive dental procedures that respect the biological parameters.*

*The authors of this book have made a valuable contribution to our profession by putting together, in a clear, efficient, understandable, and logical way, all the concepts related to dental esthetics, explaining them from both an academic and a practical point of view.*

*The entire dental community will benefit greatly from the contents of this book.*

**Mauro Fradeani, MD, DDS**

# Acknowledgments

I could not have imagined, a decade ago, that the Romanian Society of Esthetic Dentistry would have reached such a high standing and be so widely appreciated. Through our activity over the 10 years of our existence, we have succeeded in putting together, step by step, a solid organization, whose anniversary we are now celebrating in a distinctive way. The motto describing us is associated with the name of our society and is meant to be a constant reminder of our duty: “Dedicated to excellence in esthetic dentistry.” Our entire activity has revolved around this motto. Everything we have undertaken, from the organization of conferences and courses, to editing books, guidelines, newspapers, or special journals, to setting up campaigns or press conferences, has been related to the promotion of the values of esthetics in dental medicine.

This book represents the pinnacle of the work done by the Romanian Society of Esthetic Dentistry. It is a great achievement; the result of passion, knowledge, skill, dedication, and days and nights of hard work. I coordinated a team of extraordinary authors, who placed quality above all, and who aimed to share their knowledge, accumulated through years of work and study. I wish to thank all the authors, as well as all those involved in producing this book.

This English edition follows a Romanian edition of 10,000 published and distributed copies, which represents a solid foundation for the education of Romanian dentists in the field of esthetic dentistry.

This publication represents the first Romanian book published in English by the prestigious Quintessence Publishing, and this is both a great honor and a great responsibility.

I would like to express my gratitude to Dr George Freedman and Dr Mauro Fradeani, as well as other true leaders in esthetic dentistry, for their friendship and continuous support.

Many thanks to Ovidiu Tabacaru, who helped me with the photographs and figures, and who succeeded in setting such a high standard for the imagery in this book.

And finally, a very special thank you to my parents, who taught me the moral values and opened up for me the path to knowledge, then helped me to remain straight on it, always looking ahead. And, of course, many thanks to my “girls”, Magda and Alexandra, from whom I stole big chunks of dedicated time.

**Florin Lăzărescu, DMD**






FLORIN LĂZĂRESCU

# Chapter VI

ULTRACONSERVATIVE DENTISTRY





## 6.1 MODERN ESTHETIC DENTISTRY

Systematic respect for the original tissue, a concept that can be applied to all aspects of dental medicine, is the foundation of ultraconservative dentistry; the common denominator is preservation or minimal removal of dental tissue.

Advanced specialization in various fields of dental medicine (for instance, prosthodontics, periodontics, orthodontics, endodontics, pediatric dentistry, dental implantology, etc) may benefit the patient who enjoys high-quality health-care. The drawbacks may be a sometimes narrow approach to the case, and lack of perspective in the absence of comprehensive treatment planning, which should take into account the overall health of the patient and the ultraconservative character of the restoration, as well as issues related to pain, mastication, and esthetics.

Patients' expectations of the healthcare system are completely different today to what they were a few years ago, and are constantly changing due to the ease of access to online information, the growing awareness of general health (regular medical checkups, healthy diets, balanced lifestyles), and patients' wishes for dental restorations that will last – and have a warranty for – a lifetime. Often, a dentist has to deal with patients who ask for a second or third opinion before they agree on a treatment plan, patients with health issues associated with tooth disorders (temporomandibular joint [TMJ] or muscle disorders, bad habits, etc), or patients with psychological disorders. In many such cases, a highly subjective approach should take priority over objective clinical and paraclinical examinations.<sup>1</sup>

Taking all the aforementioned aspects into consideration – and considering that people often come to the dentist chiefly to improve their looks – it is extremely important for dentists whose practice is primarily focused on cosmetic dentistry to have a broad and comprehensive overall perspective of the patient's clinical condition, as well as a multidisciplinary approach to treatment planning. The ultimate purpose is to achieve an ultraconservative and esthetic functional restoration that satisfies the patient, has a long lifespan, and is in agreement with the principles of modern dentistry.

Nowadays, patients are guided by the ultraconservative principle and are reluctant to agree to a treatment plan that does not take this principle into consideration.

### **6.1.1 Magnification, illumination, and isolation in ultraconservative dentistry**

Visibility within the oral cavity is often limited because the dentist's vision can be restricted by various structures. It can therefore be difficult to access a tight space. In order to gain the best access and visibility inside the oral cavity, the dentist often assumes unnatural and stressful body positions, which in time lead to posture-related musculoskeletal problems and even impaired mobility and working capacity.

The lesser the amount of tooth structure removed during preparation and the smaller the operative site, the greater the amount of equipment needed to assist the dentist in current practice.

Dental magnification loupes and microscopes are really helpful in this respect. The most significant advantages are the following:<sup>2</sup>

- Visibility is improved.
- Illumination is improved.
- Isolation is controlled.
- Preparation is controlled.

### 6.1.1.1 Magnification

Dental loupes and microscopes improve ergonomics and ensure that the dentist maintains correct posture, affording more productive and less stressful work sessions, thereby alleviating muscle pain and improving comfort at work (Figs 6-1a and 6-1b).

At the same time, esthetic preparations require precision down to the micron level. One can be certain that a barely visible effect magnified to 2.5 with loupes, or even higher with a microscope, cannot be detected by the human eye.<sup>2</sup>

While loupes and microscopes were originally used strictly in cosmetic dentistry, they have



Fig 6-1a

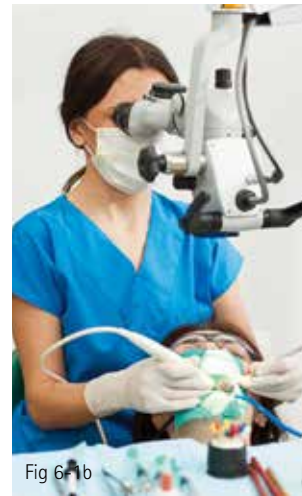


Fig 6-1b

**Fig 6-1 a** Correct body posture of a dental practitioner using loupes.

**Fig 6-1 b** Correct body posture of a dental practitioner using a microscope.

become indispensable tools in endodontics and periodontics (Figs 6-2a to 6-2d).

Whereas loupes were employed by elderly dental practitioners in the past, they are now being used as early as dental school. A survey of 332 dentistry students, 50% of whom used loupes, recorded the number of preparations per time unit and the time required for one preparation. The investigated preparations on dental phantoms comprised class I, II, III, and V cavi-



Fig 6-2a

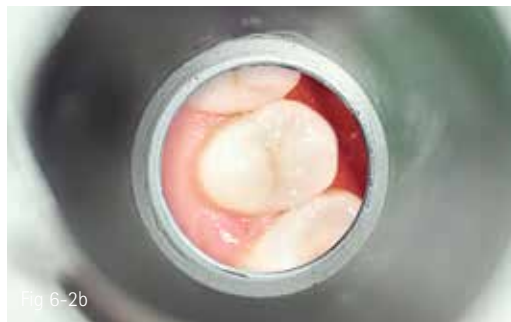


Fig 6-2b



Fig 6-2c



Fig 6-2d

**Fig 6-2 a** 1:1 ratio visualization of preparation.

**Fig 6-2 b** 2.5:1 ratio visualization of preparation with dental loupes.

**Fig 6-2 c** OPMI pico – ZEISS surgical microscope.

**Fig 6-2 d** 21:1 ratio visualization of preparation with the optical microscope. (Photo courtesy of Dr Monica Voiculescu.)

**Fig 6-3 a** Dental loupes with LED headlight.

**Fig 6-3 b** Visualization of operative site by means of an external LED source.



ties. The results were statistically significant in favor of the students who used loupes, both for the number of prepared teeth per time unit and for the cavity preparation speed per procedure for all types of cavities. The study also revealed a high degree of student acceptance of the use of magnification, because in this way they could better self-evaluate their performance.<sup>3</sup>

Hand in hand with the technological development of dental materials (porcelain, bonding agents, composite resins, and cements) that has made ultraconservative dentistry possible, self-evaluation due to magnification has significantly enhanced performance and the quality of preparations, which has consequently led to better patient satisfaction.

#### 6.1.1.2 Illumination

It is now inconceivable for a dentist to acquire dental equipment without a fiber optic illumination system to light the operating site. However, sometimes a wider visibility area is required. The development of LED technology, and its as-

sociation with dental loupes by direct attachment to glasses without special support systems, has led to it becoming extremely popular in dental practice (Figs 6-3a and 6-3b).

#### 6.1.1.3 Isolation

During dental procedures, teeth or soft tissues are sometimes not visible enough. Apart from the presence of saliva, the tongue or cheeks may obstruct the operative field. The four-handed technique is quite useful when dealing with this problem.

Yet again, technology has provided helpful tools: for instance, the Isolite isolating system, which consists of a single-use flexible mouth-piece that can be inserted into the oral cavity and is bitten down on by the patient. The system allows the patient to feel relatively comfortable, even during a lengthy treatment. The operative field is illuminated by an LED source. Aspiration is possible both in the oral and facial sides of the field (Fig 6-4).<sup>2</sup>

**Fig 6-4** Isolite system.  
(Courtesy of Isolite Systems - <http://www.isolitesystems.com>.)

**Fig 6-5** Rubber dam isolation of the operative field for cementation of eight porcelain veneers.

