Guest Editorial

The biologic approach to restorative dentistry

In a series of articles starting in this issue of *Quintessence International*, Dr Ivar A. Mjör and collaborators will review the basic knowledge pertaining to dentin and pulp that is relevant to a biologic approach to restorative dentistry.

All dental treatments should be based on biologic principles. In restorative dentistry, a number of technical requirements must also be met. A balance between biology and technology leads to optimal dental restorations.

A biologic approach to dental restorations requires knowledge of the structure, physiology, immunology, and pathology of dental tissues. This knowledge forms the basis for an understanding of reaction patterns in dental tissues and the interaction between the tissues.

Reactions in dentin and pulp should be at the center of attention in restorative dentistry. Reactions in enamel are based on fluid flow and ion exchange mechanisms that are particularly important in cariology. Acellular cementum is important because the vulnerable cavosurface margin of crowns and restorations is often found in this tissue. This cementum differs markedly from enamel and dentin, and it has its own unique reaction potentials.

Traditionally, the dental curriculum starts off with a thorough study of basic biologic science, including that associated with dental tissues. It is important that this knowledge is preserved and used in clinical practice. The intentional use of this knowledge raises the level of restorative dentistry from that of a technical trade to a biologic profession. It is important to acknowledge that there is no conflict between technical excellence and biologic proficiency. Both represent challenges that, in combination, optimize restorative dentistry.

The first article of this seven-part series outlines basic structural and physiologic properties of these tissues. It will be followed by a review of the initial reactions of the pulp to cavity and crown preparations and then an outline of the pathophysiology of pulp inflammation. The next article will deal with dentin and pulp reactions to dental caries, revisiting many "established" concepts related to the progression of caries through dental tissue, the associated tissue changes, and the effects on restorative dentistry. The following papers will deal with the biologic pulp and dentin reactions to traumatic injury, ranging from fracture or intrusion of teeth to minor trauma from wear and orthodontic tooth movements.

Reactions to restorative materials will also be addressed with emphasis on defense mechanisms in the tooth, such as obturation of the tubules and its effect on the permeability of the dentin; tertiary dentin formation; and the significance of bacteria at the tooth-restoration interface. A discussion of the controversy between use of resin-based materials or calcium hydroxide in the treatment of exposed pulps will complete the series.

This series of articles will create avenues for revising present concepts and clinical procedures. Not only will these articles guide clinicians to a future that emphasizes a biologic approach to the technical detail associated with restorative dentistry, they will provide a more complete answer to a question we have explored for several years: How can we use basic tissue reactions of dentin and pulp in the management of restorative dentistry?

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