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The Schilder Technique of Vertical Compaction of Warm Gutta-Percha

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Many endodontists are convinced that they must know several techniques of canal obturation, since each technique is indicated in certain situations, but not others.

Nguyen Thanh Nguyen³³ is of this opinion. He states: "to be married only to one obturation technique or material is to limit one's ability to undertake a diversity of complex cases".

Frank, Simon, Abou-Rass, and Glick¹⁵ are also strongly convinced that there can be no single, rigid obturation technique that can meet all endodontic needs.

Franklin Weine⁵⁶ takes the same view. He discusses the various techniques of gutta-percha use, emphasizing that vertical compaction is to be preferred in certain, well-defined cases, namely "when the fitting of a conventional master cone to the apical portion of a canal is impossible, as when there is a ledge formation, perforation, or unusual canal curvatures, internal resorptions, or large lateral canals. The vertical compaction method then affords the operator a chance to achieve success in a case that might fail if any other kind of treatment were used".

It is interesting to note that those who share these opinions have adopted the "lateral condensation technique", yet to achieve success even in difficult cases, feel the need to make use of techniques which require heat softening and vertical compaction. The converse does not occur: those who are conversant with the technique of vertical compaction never need to resort to the lateral condensation technique to resolve easy cases...

The vertical compaction technique of warm gutta-percha, conceived and described by Schilder⁴³ in 1967, combines a reasonable ease of execution with maximal efficacy in obturating both simple and more complex canals.⁴⁶

Just as one vertically compacts the plastic amalgam

within a first-class cavity, gutta-percha softened by heat is vertically compacted into the conically shaped canal preparation.

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Without a doubt, the instruments used in this technique for compacting the gutta-percha are similar to amalgam compactors. However, they differ in being longer and thinner, since the cavity in which they must work is longer and thinner.

These instruments are referred to as compactors or "pluggers" (Fig. 24.1). Serrations at five millimeter intervals help to know the working depth of the various instruments. In contrast to the lateral condensation technique, in which the spreaders touch the dental walls in order to make space for the auxiliary cones, in vertical compaction the metal instruments never touch the canal walls, but are only sunk into

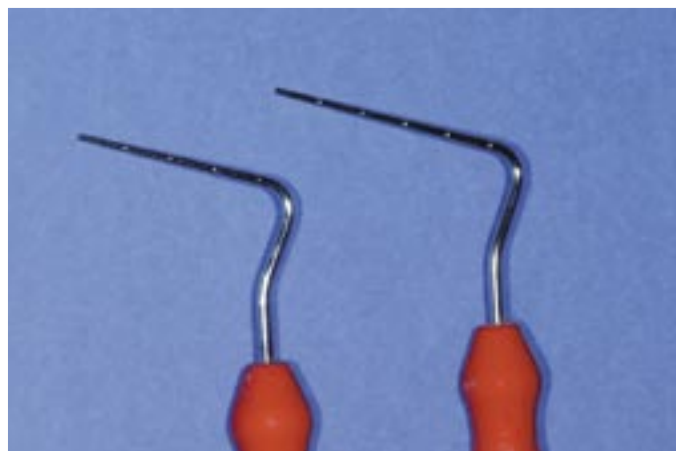


Fig. 24.1. On the left, a plugger of the "Posterior" series, for teeth of 25 mm or less. On the right, a plugger of the "Anterior" series, for teeth of 30 mm.

the mass of previously heated gutta-percha. The serrations on the surface of the pluggers are specifically made to control the working depth and to prevent them from coming into contact with the dentin.

The other instrument that this technique calls for is the “heat carrier” (Fig. 24.2). This is nothing more than a spreader; however, it is not used cold to create space among the cones, but rather warm to deliver heat to the gutta-percha cone in the root canal.

With this technique, it is therefore not correct to speak of “spreaders”, but of “heat carriers”, although the two instruments are completely identical.

Both the compactors (pluggers) and heat carriers are available in a long (30 mm) and a short (25 mm) series. Instruments of the long series are usually (Dentsply, Maillefer), marked by the letter “A” (Anterior), those of the short series by the letter “P” (Posterior). In clinical practice, the short series is routinely used, for both the posterior and anterior teeth, while the long series is only used in exceptionally long teeth (e.g., 30 mm canines).

The pluggers are available in a graded series of working end diameters, ranging from 0.4 to 1.5 mm. They are distinguished by a conventional numbering system from 8 to 12 with half sizes (Fig. 24.3), so that a number 8 has a diameter of 0.4 mm at the working end, an 8½ of 0.50 mm, and so on for a total of 9 instruments (Tab. I).

Table I

CORRESPONDENCE BETWEEN INSTRUMENT NUMBERS AND TIP DIAMETER

# plugger	diameter (millimeters)
8	0.40
8½	0.50
9	0.60
9½	0.70
10	0.80
10½	0.90
11	1.10
11½	1.30
12	1.50

Thus, a wide assortment of pluggers is available to operate in root canals of any size. It is advisable to have the complete series in the office, even though pro-

per execution of the technique never requires the use of all 9 instruments. Usually, 3 or at most 4 are sufficient.

The heat carrier is also available in two different calibers, designated “O” (larger) and “OO” (thinner). In this technique, heat can be supplied by the flame of a Bunsen burner. Alcohol burners are not recommended, since the heat they provide is inadequate. After many years a flameless heat source is commercially available, like the Touch’n Heat. These electric devi-

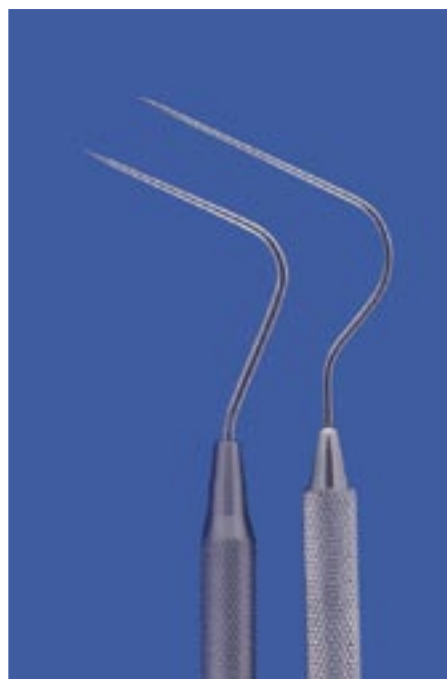


Fig. 24.2. The heat-carrier is identical to the spreader used in the lateral condensation technique. On the left, an OP heat-carrier. On the right, an OOP heat-carrier, which is thinner.

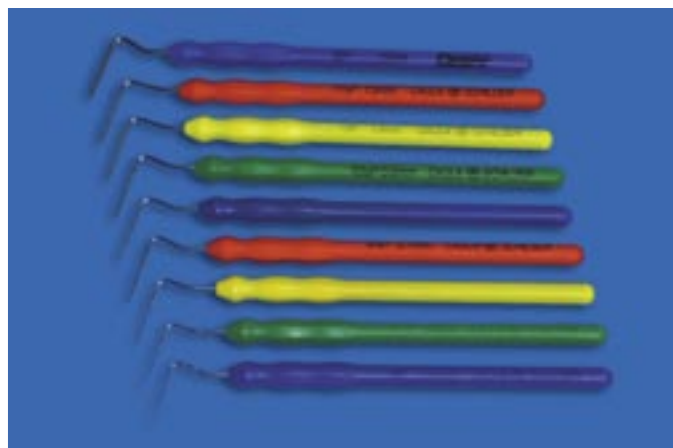


Fig. 24.3. The complete series of 9 pluggers Posterior.