

Control Pain with Quadrant FiniSense

There are various preparations on the market at the present time which protect against "sensitive teeth". These preparations are briefly explained and compared below.

Theory

A myriad of tiny channels runs from the pulp through the dentine ("dentinal tubules"). These channels are filled with liquid. Temperature fluctuations or chemical or mechanical stimulation can cause this liquid to flow backwards and forwards and so pass on stimuli via the odontoblastic processes to the nerve in the pulp ("hydrodynamic theory").

Sensitivity/hypersensitivity of the elements is often caused by exposed dentine. This is due to the disappearance of the protective coating of enamel or cement (through brushing, drilling, bruxism, etc.), which causes the dentinal tubules to become exposed. When a cold drink is consumed, for example, a flow of liquid will arise inside the tubule which will cause a painful sensation.

Treatment methods

All treatment methods have the same aim: re-closing the open dentinal tubules. The best-known methods are:

- Special toothpastes (usually containing strontium)
- Local fluoride application
- Precipitation in the tubules of sparingly soluble salts
- Sealing of the surface with synthetic resins
- Precipitation of the proteins present in the tubules (Quadrant FiniSense)

Effect

The pain-reducing effect of special toothpastes and fluoride is disputed. When synthetic resins are used, a layer will remain behind on the element. This layer cannot be used under indirect restorations.

The sparingly soluble salts are potassium nitrate, benzalkonium chloride and benzethonium chloride. After the application, chasing in and rinsing off, a pellet of precipitated salts remains which seals the tubule. The effect of this treatment, however, is short-lived. (< 6 months).

Quadrant FiniSense

The active ingredients of Quadrant FiniSense are glutaraldehyde and HEMA. The HEMA ensures that the glutaraldehyde can fully penetrate the tubules. Glutaraldehyde coagulates the plasma proteins in the tubules. This helps create small partitions in the tubules that ensure that they are sealed at various places (see illustration). Thanks to the fact that the tubules are so well sealed, Quadrant FiniSense also has a long treatment durability: at least 12 months. S.E.M. image of the septa in the dentinal tubule. Prof. F. Lutz et al; Eur J Oral Sci 1997; 105:414-421