CLINICAL AIDS

The Conservative Retrieval of Silver Cones in Difficult Cases

Remocion de los Conos de Plata en Casos con Dificultades

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The retrieval of silver cones from root canal spaces is often complicated when no "handle" is present in the chamber. Two techniques are presented that utilize the ultrasonic scaler to aid in dislodging the silver cone.

La remoción de conos de plata de los dientes tratados endodonticamente es algunas veces complicada por numerosos factores. El uso del excavador ultrasonico sólo y en combinación con otros dispositivos para la remoción de conos de plata ofrece las siguientes ventajas:

1. Conservación de la estructura remanente del diente.

2. Evita el tratamiento quirúrgico.

3. Ahorro de tiempo de la sesión para rehacer el tratamiento.

Retreatment of teeth that have been obturated with silver cones has caused much concern since the time these were first introduced as a core material. The poorly adapted or loosely cemented silver cone with a handle in the chamber usually poses no problem in removal. The tightly fitted, well-cemented silver cone that is flush with the canal orifice is a challenge to remove. Recently, it has been suggested to use the ultrasonic scaler to aid in the removal of cemented posts and silver cones (1, 2). The authors pointed out the ease of removing cement around the cone(s) with-



Fig 1. Lower molar with silver cone at the orifice of mesial canal.



Fig 2. Hedstrom file correctly placed and withdrawn while ultrasonic scaler is activated.



Fig 3. A, Preoperative radiograph of lower left canine with silver cone. B, Working length radiograph showing silver cone removed. The Hedstrom file and ultrasonic scaler were used. C, Final fill with gutta-percha, Grossman's cement, and lateral condensation.

out the fear of gouging the cone(s). The authors theorized that the vibration of the tip of the ultrasonic scaler insert was directly imparted to the silver cone. This

would presumably result in the cement bond being broken.

Clinical discussions with other endodontists have



Fig 4. Lower molar with silver cone below the orifice of a mesial canal and round bur used.



Fig 5. Gates-Glidden bur used to expose silver cone.

suggested four factors that complicate the removal of silver cones. These are:

- Zinc phosphate cement may have been used to cover the exposed portion of the silver cone in the chamber and may have been forced apically to further lock the silver cone in place.
- 2. Some cement sealers may have been modified by the individual dentist and subsequently have no known solvent.
- Corrosion products may "lock" silver cones into the canal space.
- 4. Silver cones may be sectioned at or below the level of the canal orifice which further complicates their removal.

The transmission of energy combined in a washed field may help overcome all but the last of the factors described above. Because many of the "easy" removal



Fig 6. Trepan bur in place and rotated to create a trench around the cone.



Fig 7. Masserann tube extractor and ultrasonic scaler in correct position for removal of silver cone.

cases become complicated due to separation of the silver cone in the canal space while using other techniques, it could be argued that the use of the ultrasonic scaler in silver cone retreatment cases should be considered as a primary method rather than a secondary method.

In retreatment cases involving silver cones intentionally twisted off to allow for post space or silver cones without a handle, two modifications for silver cone removal will be reported.



Fig 8. A, Upper right canine with large silver cone and trepan bur in place. B, Working length radiograph showing silver cone removed. C, Final gutta-percha fill with post space.

SILVER CONES WITH A HANDLE

As previously suggested (1), the basic technique to be used with the ultrasonic scaler is to set the unit

at full power, tune the tip, and apply moderate pressure to the cement covering the silver cone(s). After the cement has been removed and a silver cone has been exposed, simply place the ultrasonic tip on the silver cone until the silver cone "backs out." This technique will work in many cases without the necessity of grasping the cone to remove it.

SILVER CONES WITHOUT A HANDLE BELOW THE LEVEL OF THE CHAMBER

In retreatment cases involving sectioned silver cones or silver cones without a handle, the combination of the ultrasonic scaler with other silver cone removal techniques has been successful. If a silver cone is flush with the canal orifice (Fig. 1), a size 15 to 20 file should first be used to explore the interface between the silver cone and canal walls. As soon as a size 25 file can be worked apically 3 to 4 mm along the side of the silver cone, a size 25 or 30 Hedstrom file should replace the standard file. The Hedstrom file is given a guarter-turn so that the flutes engage both the silver cone and dentin. The Hedstrom file is then grasped while the ultrasonic scaler is placed on the shank of the file. The ultrasonic is activated and the Hedstrom and silver cone are withdrawn with a steady force (Fig. 2). It may be necessary to repeat this step several times until the silver cone loosens sufficiently to be removed. Figure 3 illustrates a retreatment case of a lower left canine utilizing this technique.

If a silver one has broken off below the orifice and there is no "stick" with a size 15 to 20 file between the silver cone and dentin, a modification of the Masserann technique may then be utilized. A small round bur is used to open the canal orifice (Fig. 4) to enable a Gates-Glidden drill to be introduced to the depth of the most coronal portion of the silver cone (Fig. 5). The canal is opened until the appropriate size Trepan bur in the Masserann kit (Medidenta International, Woodside, NY) may be introduced. The hollow, end-cutting, Trepan bur is rotated counter clockwise to cut a trench around the silver cone. The silver cone itself is used as a guide for the Trepan bur (Fig. 6). After the canal has been sufficiently enlarged, the appropriate size tube extractor is placed so that the silver cone can be grasped. The ultrasonic tip is then placed against the tube extractor. While the ultrasonic tip is activated, the tube extractor is pulled coronally (Fig. 7). Figure 8 illustrates a retreatment case which combined the Masserann technique with the ultrasonic scaler to successfully remove the silver cone.

CONCLUSION

The retrieval of silver cones from endodontically treated teeth is sometimes complicated by several different factors. The use of the ultrasonic scaler alone and in combination with other silver cone retrieval devices offers the following advantages: (a) conservation of remaining tooth structure; (b) avoidance of surgical treatment; and (c) time saved during the retreatment appointment.

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References

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