

CASE REPORT

Necrosis of the Crestal Bone Caused by the Use of Toxavit

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Acute pain of pulpal origin is often encountered and calls for immediate palliative measures. Sometimes, in cases of mandibular molar pulpitis, it is not possible to obtain effective anesthesia even after several attempts, including mandibular block, long buccal infiltration, direct injection into the periodontal ligament, and intrapulpal anesthesia. It may become impossible to extirpate the involved pulp without considerable discomfort to the patient.

Devitalization of the pulp prior to extirpation is not a new idea. In fact it was suggested in 1836 by Spooner. For that purpose Spooner (1) used arsenic which enjoyed widespread acceptance. Arsenic was found to produce damage to periapical tissue, destruction of supporting bone, and loss of teeth when left in the pulp chamber for a long period of time.

Another disadvantage in using arsenicals is the difficulty in limiting their uncontrolled spread and leakage and the fact that they are non-self-limiting (2, 3). As a result of its tangible dangers arsenic is rarely used.

At the beginning of the century "mumification paste" based on tricresol, creolin and trioxymethylene was introduced by Gysi (4). Gysi's Triopaste became popular for mortal pulpotomys. In 1924 a new pulp devitalizing agent—paraformaldehyde—was adopted and gained wide acceptance (5). Later it was used and described by Holst (6), Kronfeld (7), Orban (8), Munch (9), Strindberg (10), and Grahn and Hansen (11).

Today paraformaldehyde in its various chemical forms is a constituent in different preparations and



FIG 1. Radiograph of area showing extent of dental decay in maxillary second molar.

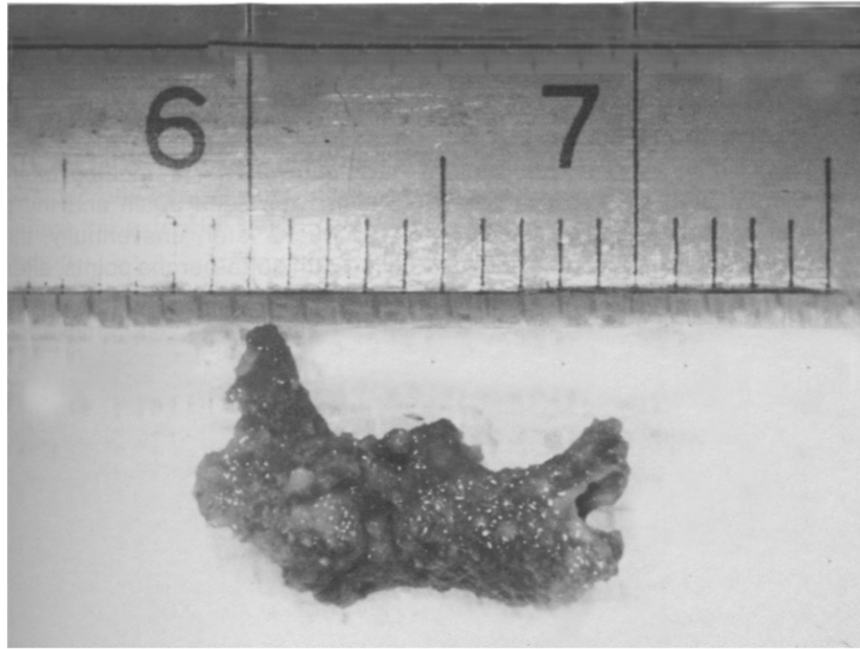


FIG 2. Picture depicting size and shape of sequestrum.

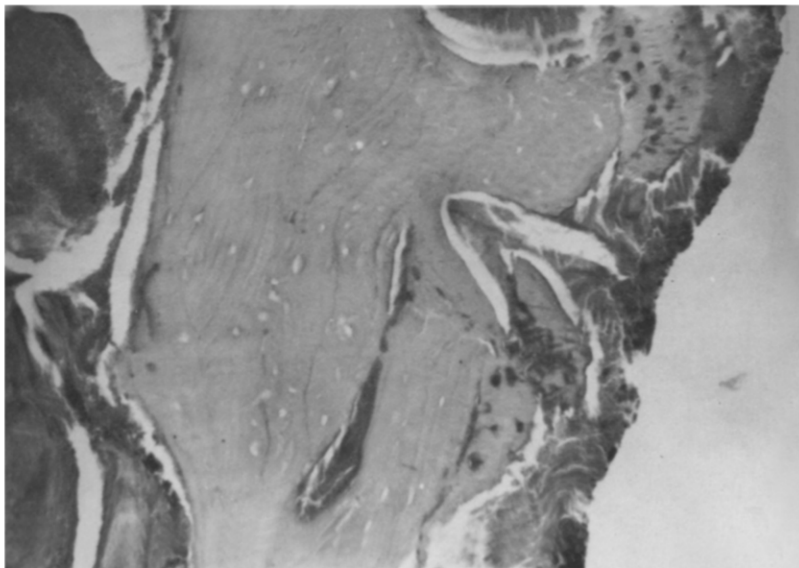


FIG 3. Histological section of removed sequestrum. Hematoxylineosin; $\times 13$.

medications used for root canal therapy, such as N_2 , Formocresol, Endomethason, etc.

Its use and importance in modern endodontics has been an issue of heated controversy over the past decade. Those negating its use in root canal therapy justify their position by quoting numerous reports showing considerable damage caused by using preparations containing paraformaldehyde (12-16).

Toxavit (Lege Artis Manufacturing Co., Stuttgart, West Germany), which was introduced and mainly used in Europe, is a paraformaldehyde preparation which is applied to the inflamed painful pulp mostly in those cases when local anesthesia is not sufficiently

effective. This preparation contains in 1 g of paste, 460 mg of paraformaldehyde, and 370 g of lidocaine. Toxavit should be applied in close contact to the pulp after as much decayed tissue as possible is removed. A cotton pellet is placed over the Toxavit, and a tight temporary seal is placed. The paste should be allowed to remain in contact with the pulp for about 2 wk.

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A Caucasian male, 44 yr old, was seen at the dental hygiene clinic at Hadassah Dental School in November 1979 for routine scaling and prophylaxis. The

dental hygiene student, during her scaling procedures, encountered a "foreign body" in the interproximal area between the maxillary third and second molars. Clinically, the "foreign object" was hard, movable, possibly bone or possibly a misplaced deciduous root tip, although this later possibility was very remote. The patient had no pain or discomfort in the area. Indeed, the patient was unaware of the foreign object. Upon questioning the patient and examining his dental file, it was discovered that in April 1979, he had severe pain in the maxillary left molar region and

received palliative treatment, using Toxavit dressing, as a palliative agent. Over the Toxavit was placed a zinc oxide-eugenol temporary restoration. In Fig. 1, notice the extent of decay on the distal surface on the maxillary left second molar.

In June 1979, 2 months after his first visit, the patient was seen again and the pulp was removed. Two weeks later, uneventfully, the pulp canals were filled with gutta-percha points, after which an amalgam restoration was placed.

The hard tissue was removed with a cotton pliers,



FIG 4. Radiography manifesting loss of interproximal bone.

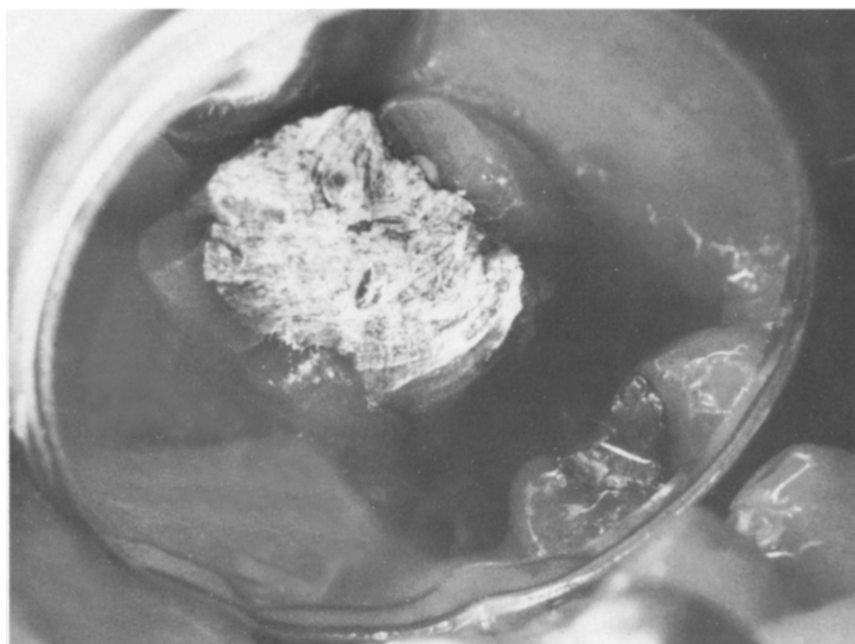


FIG 5. Clinical view of the area between the maxillary second and third molars.

placed in 10% formalin solution, and sent to the Department of Oral Pathology at the Hadassah School of Dental Medicine for a pathological report. The removed tissue was approximately 10 mm × 4 mm in size and had jagged edges (Fig. 2).

The pathological report was received and stated that the specimen was necrotic bone tissue (Fig. 3).

Figs. 4 and 5 manifest the extent of destruction in the area of sequestration.

DISCUSSION

Apparently the use of paraformaldehyde preparations in root canal therapy is not without danger. True, in our case, the paraformaldehyde was left in the tooth for more than the suggested period of time. Furthermore, the depth and involvement of the dental decay in the tooth in question, indeed, made a "leak-proof" temporary restoration difficult at best.

We conclude that utmost care must be taken in the length of time this preparation can remain in the tooth. The need for the placement of a temporary restoration which minimizes leakage is essential. Severe consequences may occur if these directions are not followed.

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