

Dental Anesthesia for the Hemophilic Patient

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In the dental treatment of hemophilic patients the use of anesthesia is never routine. The hemorrhagic diathesis of such patients varies from mild to severe and dental procedures entail different degrees of tissue trauma, pain, and hemorrhage. When anesthesia is indicated, each patient must be evaluated on the basis of his medical and dental history before deciding on the most suitable anesthesia. In our experience, general anesthesia has never been required for restorative procedures. Injection of local anesthetics, too, can be largely dispensed with by careful dental technics and skillful use of modern instruments. Even for elective oral surgery, pericemental anesthesia can be substituted for nerve block. In cases of emergency extraction due to acute infection, general anesthesia is advisable, but intubation can be avoided.

The Implicit Dangers in Hemophilia

Hemophilia is a congenital, hereditary blood disease in which the severe forms appear exclusively in males. It is relatively rare (occurring in less than one in 10,000), but the incidence is increasing as more patients survive to middle age, marry, and produce offspring. In hemophilia, sufficient amounts of intrinsic thromboplastin,

required for early blood coagulation, are lacking because of a defective X chromosome. The degree of the defect may vary from patient to patient. Severely deficient patients pose greater risks than those with milder defects. All female children of a hemophiliac are carriers and the chances are 50-50 that their sons will be affected.

Hemophilia is usually detected during early childhood, often at circumcision or when it is noted that bruises or scratches do not heal within a normal period. Thus, the dentist will rarely be confronted with a patient having undiagnosed hemophilia. The inherent danger in the disease is that any break in the external or internal surfaces of the body—as little as the prick of a needle—may lead to hemorrhage. Spontaneous bleeding within the body resulting in an accumulation of extravasated blood can be even more threatening than external hemorrhage. Hemorrhagic effusion into joints, for example, causes articular lesions which produce the deformities characteristic of the disease. In the oral region, accidental injury to the tongue may induce profuse bleeding which is particularly difficult to control. Undetected bleeding into the deep tissues of the mouth occasionally

extends into the neck and may result in severe embarrassment to the air passages. From these general observations it is evident that anesthesia must be limited as far as possible—a policy which calls for the most careful and confident handling of a patient already alarmed by the prospect ahead.

Technics and Precautions

The following discussion is based mainly on experiences gained in the course of the Hemophilia Rehabilitation and Demonstration Project at the Los Angeles Orthopaedic Hospital.* During the years 1964 to 1967 we treated 98 patients under the age of 21; in addition, 31 adult hemophiliacs received dental care as required.¹ Of the 98 pedodontic patients, 76 had classical hemophilia (type A) which is the most severe form of the disease.

At the outset, a detailed medical and dental history was obtained for each patient. Following the usual examination and full-mouth roentgenograms, a diagnosis was made and the treatment plan formulated. Patients in whom the type and severity of hemophilia were unknown were referred to the Coagulation Research Laboratory to ascertain this information. In the event that a specific dental procedure was questionable because of the patient's past history or present condition, the problem was discussed with other members of the Project team before adopting the final treatment plan.

Restorative procedures were usually required because hemophiliacs are even more likely than other patients to neglect the oral cavity. This stems partly from the parent's fear of exposing the child to even minimal danger of bleeding. Unfortunately, neglect

may later necessitate pulpal procedures or extraction and increase the danger of hemorrhage during treatment. In the restoration of teeth with gross caries beneath the gingiva as well as when a stainless-steel crown was placed on a severe hemophiliac with a history of prolonged bleeding, plasma therapy was given before starting the procedure. Even in cases of severe hemophilia in which plasma therapy was not required, the use of rubber dam clamps, matrices, and wedges did not result in significant bleeding.

Plasma replacement and chemotherapy were instituted before and after oral surgery. Most patients who required extraction of permanent teeth were hospitalized. The decision to hospitalize the patient or to perform extractions on an out-patient basis depended on the number of bleeding sites anticipated and on the estimated degree of trauma.

Experiences With Dental Anesthesia

Local anesthesia by pericemental injection along all four quadrants of the tooth was used for extractions. Block anesthesia was never necessary. The tooth was extracted with as little trauma as possible. Surgicel® and thrombin powder were placed in the socket and gauze pressure packs applied. Splints were *not* used following extractions.

In three patients, acute infection necessitated emergency extraction. After administering plasma, a general anesthetic (Brevital® Sodium, IV, with nitrous oxide by nasal mask) was administered without intubation. None of these patients needed to be hospitalized.

Exfoliation of primary teeth may lead to prolonged oozing of blood. It is preferable to correct the hēmo-

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static condition and extract the tooth or root. If local anesthesia were necessary for the extraction, a pericemental injection was used. All pulpal tissue beneath the primary tooth was curetted to remove granulations and promote good healing. Hospitalization was never necessary for extraction of over-retained primary teeth.

Indirect pulp capping of vital primary and permanent teeth, which permits removal of carious dentin before pulpal exposure, was well tolerated by hemophiliacs. Little or no pain was experienced and local anesthesia was not required. For patients with totally necrotic teeth involving a fistulous tract, two-appointment formocresol pulpotomy was performed, also without anesthesia. Whenever pain control was necessary due to exposure of the vital pulp, the anesthetic solution was injected directly into the pulp whether or not the patient had previously received plasma therapy.

No complications traceable to dental anesthesia were encountered in this series. Possible dental complications in hemophiliacs include postsurgical hemorrhage, periodontal bleeding secondary to placement of stainless-steel crowns, and hemorrhage due to trauma to the soft tissues.

Special Needs of the Hemophilic Patient

Since dentists may not have the special medical knowledge necessary for treating hemophiliacs, the cooperation of a physician with the appropriate experience is essential before undertaking any dental treatment. Teamwork between physician and dentist means consultation on every patient before and during the entire course of dental treatment. If an unforeseen complication arises, the hematologist must be notified immediate-

ly so that the necessary steps to stabilize the situation can be taken without delay.

Clinically, there is no morphological nor anatomical difference in dentition between a hemophiliac and a "normal" patient. Preventive and restorative dentistry are of particular importance to the hemophiliac since early dental treatment minimizes the need for later oral surgery. Every restoration in a hemophiliac eliminates a potential extraction. The dentist need not compromise the standard of dental service because the patient is a hemophiliac. Poor dentistry does not prevent complications; it merely postpones them.

In the evaluation and treatment of hemophiliacs, the psychosocial aspect should never be underestimated. For example, since the hemophiliac's schooling is often interrupted because of bleeding episodes,² special consideration must be given to arranging treatment time convenient to the patient. The dentist must be alert to the emotional problems of the young hemophiliac as well as to the over-concern of the mother. Emotional disturbance is a contributing cause of spontaneous hemorrhage.³ The dentist should accept the responsibility of keeping the patient's tension and fear to a minimum. A schedule of frequent short sessions is recommended. Sedatives or tranquilizers may be helpful in reducing anxiety. Hypnosis has been used as an adjunct to anesthesia or as a substitute when block anesthesia is contraindicated in patients subject to hemorrhages not readily brought under control^{4, 5}.

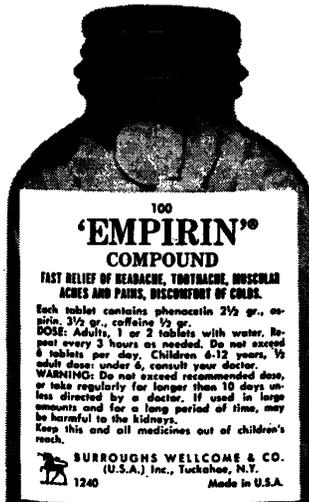
Statistical research carried out during the Hemophilia Project⁶ showed that mouth neglect and dental disease are among the hemophiliac's most urgent problems. Modern medical sci-

ence and clinical experience have made dental treatment feasible for hemophiliacs. Their affliction calls for

careful selection of the appropriate anesthetic and the utmost skill in its application.

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