

Compelling Comments

Cocaine and the Local Anesthetic

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The first use of local anesthetics dates back to the 16th century when Bernabe Cobo, a Spanish missionary, noted that toothaches could be alleviated by chewing coca leaves.¹ However, the active component remained a mystery until 1860 when German chemist, Albert Niemann, isolated and termed the component 'cocaine'.¹ The discovery of cocaine sparked great interest within the medical community. Amongst those interested was founder of psychoanalysis, Sigmund Freud. Freud experimented with cocaine, erroneously reporting that cocaine produced no compulsive desire to reuse the substance.² During this same time period, Dr. Carl Koller, a Viennese ophthalmologist and acquaintance of Freud, pioneered the use of cocaine as an anesthetic through his experiments focused on the cornea of dogs and guinea pigs.¹ Cocaine was used for a nerve block for the first time in 1884 by William Halsted, one of the founders of John Hopkins School of Medicine.²

Advancements were made using cocaine as an anesthetic, including the first spinal anesthesia performed by James Corning.² However, the toxicities and addictive potential of cocaine were identified, leading to decreased use as an anesthetic. Researchers were prompted to experiment with other agents. An early breakthrough came in 1905, when Alfred Einhorn, a

German chemist, synthesized procaine. A derivative of paraaminobenzoic acid, procaine gained popularity due to its wide safety margin, but carried the risk of allergic reactions in patients.³ In 1943, Nils Löfgren and Bengt Lundqvist from Stockholm University developed lidocaine, a long-acting anesthetic agent without the propensity of allergic reactions.¹ Lidocaine gained popularity amongst clinicians and became the ubiquitous drug that it is today in dermatology. Dermatologists commonly administer intradermal injections of lidocaine for skin biopsies, lesion excisions, and soft tissue augmentation. Although cocaine is no longer used for numbing effects, it paved the way for the development of local anesthetics still used today.

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