

PASTE F.S.

Endodontic Experiences and Applications

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English Translation

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INTRODUCTION

In this book I wish to capture all my experiences and those of multiple colleagues, with the formula that I have called PASTE F.S. It is my intention to transmit each and every one of these investigations, each and every one of the achievements in some fields of dentistry, especially in endodontics, with: a) the application of my formula in root canal fillings as a single material or as a cone sealant, and b) in the quick and simple solution of all endodontic problems such as: discolorations, pediatric endodontics, tortuous and inaccessible canals, fractured instruments, iatrogenic perforations, intraradicular posts, root fractures, root resorption, intraoral and extraoral fistulas, retreatments, failures, and accessory canals. In operative dentistry, as cavity liners, pulp capping, and pulpotomies, as well as emergency treatments. In surgery, to avoid traumatizing and deforming interventions. In exodontics, to prevent and treat alveolitis, and in periodontics for its indications in infected periodontal pockets. In the medical field, very important experiences have been carried out in the treatment of osteomyelitis, varicose ulcers, leukemic lesions, antro-oral communications, and sinusitis. The application of PASTE F.S. in medicine is found in the final part of this text.

I understand that the reader who has not experienced PASTE F.S. may surely believe that I am boasting and presenting my product as a kind of panacea that solves everything; and they have every right to think that way, since there is no formula in dental pharmacopeia with so many applications. But if they advance in the careful examination of my research, they will become convinced of the scientific reality. As my colleagues will appreciate as they progress through the reading of this book, I have not followed endodontic orthodoxy; on the contrary, I have departed from traditional norms, convinced that only by seeking new paths can new things be found; the routes of science cannot have defined parameters nor be static with what is known, but rather dynamic and evolving in the investigation of the unknown.

In my inquiries I have demanded the maximum therapeutic value of PASTE F.S., from the treatment of small lesions to unsuspected pathologies not recorded in previous texts. From complete root canal fillings to minimal or exaggerated overfills, as well as from modest underfills to the extreme of placing PASTE F.S. only in the pulp chamber. In each and every one of these situations, biological recovery of the destroyed tissues has always been achieved. I verified these situations throughout this book with the thousands of unique cases from my scientific archive, from which I have extracted those of greatest interest.

I clearly warn that the majority of cases whose radiographic and histopathological sequences I publish are study cases only, research cases to verify the therapeutic scope of the PASTE F.S. formula. At no point do I indicate that treatments should be done in this manner. The professional should perform the endodontic procedure in the most ethical way possible, always seeking to achieve complete canal filling, which is the radiographic and aesthetic ideal. The dentist is free to apply their own techniques when working with PASTE F.S. Nothing they know is contraindicated; thus the highly specialized endodontist may find in this formula a complement to their personal practice.

Let a single example serve as clarification: I recommend PASTE F.S. as the sole root canal filling material, but if the professional wishes to place cones of any nature and use PASTE F.S. as a sealant, they may do so; this approach is correct and the results will be optimal. In this book my theories are exposed and demonstrated; exposed and demonstrated, for I do not launch hypotheses but rather

prove what I affirm. To speculate is to walk in the clouds; to demonstrate is to have one's feet on the ground. I would say that this book opens no controversy, for the indubitable cannot be controversial. May my investigations and my experience of more than 45 years serve to guide colleagues of good will along the now uncomplicated paths of an easy, fast, and safe endodontics.

Chapter 1 - A Bit of History

What happens to most dentists is exactly what happened to me regarding endodontics: at the university I received complete and detailed instruction on all the necessary steps to scientifically perform a root canal treatment; I then began the practice of my profession, most of the time in places far from the comforts of the city, and here the problems of endodontics begin for the non-specialized; consequently, I abandoned this branch and devoted myself to less complicated practices; endodontics has thus been relegated to the endodontist. But since patients cannot always be attended by a specialist, their teeth will inevitably end up being extracted. We all know that millions of extractions are carried out daily around the world for this reason.

In the summaries of the 1984 Paulista Congress of Endodontics in Sao Paulo, Brazil, I read the following: "It is unwise and unreasonable to think that scientific endodontics should not be considered together with the possibility of reaching patients with limited resources, facilitating a simple, low-cost technique. Furthermore, no one has scientifically demonstrated that the more complex techniques produce better results."

YURI KUTTLER says: "Current endodontics is to dentistry what internal medicine represents in the medical field. One can be a magnificent physician without knowing orthopedics, physiotherapy, or obstetrics; but it is impossible to consider oneself a physician without sufficient knowledge of cardiology, pulmonology, and gastroenterology. Similarly, one can be a good dentist without practicing orthodontics, dental surgery, or prosthodontics; but today a dentist without endodontics is inconceivable. Because this branch is fundamental. It is part of the daily practice of the dentist, even without realizing it, because in the mere act of cutting enamel, or when disinfecting or protecting dentin, one thinks of the pulp and performs preventive endodontics."

The primary function of endodontics is the salvation of teeth, preserving them in their functionality, and this requirement is an obligation of every dentist; in other words, every dentist is obligated to be able to practice endodontics. This problem was precisely what drove me to search for a solution. At the university I had been taught that to fill a canal it had to be disinfected, but when could I know it was sterile without the help of a laboratory? That is how one day this simple reasoning surfaced in my mind: if to fill a canal you have to disinfect it, why not fill it with something that disinfects it at the same time? But this something did not exist; it had to be created. Thus the PASTE F.S. formula was born.

After five years of consultations, research, and evaluations, I arrived at the formulation of the current formula. During this period, I managed to balance its elements until obtaining the proportions of each one to achieve the purposes of consistency, plasticity, molecular release for bactericidal and especially bacteriostatic actions, as well as the rate of absorption by macrophages and multinucleated giant cells in cases of accidental or intentional extrusions, or the avascular fibrous encapsulation of excess material.

Subsequently, for 20 years I worked in my private practice compiling a numerous scientific record of all types of problems, with the help of radiology, histology, and bacteriology laboratories and the human population of the Social Security Institute and some hospitals. Only then, certain of the clinical effectiveness and viability of the formula, I decided to make it available to the dental profession in 1966. From then to today, practically by the sole merits of PASTE F.S., its use has spread to a considerable

number of countries on four of the five continents.

The most demanding worldwide scientific body in the control and quality of elements used by humans is the Food and Drug Administration of the United States. The scientific panel of this entity, after studying the case, granted registration No. 8040153 as Endodontic Pulp Canal Filling Material to PASTE F.S. or ENDOFLAS F.S., the latter name for English-speaking countries. Likewise, the FDA Doc A-313801 of Laboratorios Sanlor, the manufacturer of the product, is on file.

According to JOHN IDE INGLE (1), in the United States, out of 120,000 dentists there are only 542 endodontists. This alarming figure has motivated the current trend of bringing endodontics to the general dentist. PASTE F.S. can be used as a sealer or as a single filling element, and the disinfection of the canal can be entrusted to the bactericidal and bacteriostatic qualities of its formula.

To conclude this chapter, I wish to express that in my professional practice I consider myself a general dentist; I do not claim to be an endodontist. However, for 20 years I performed endodontics at the Social Security Institute with an average of five root canal fillings daily, which gives a figure of 28,000 completed treatments. If to this is added my endodontic activity during 12 years in the Air Force health service and my private practice, one easily reaches the amount of 50,000 root canal fillings with my product. Neither in periodic follow-ups of up to twenty-five years on the same patient, nor in any report from any colleague, has a single failure been recorded. As SENECA said: 'We would never discover anything if we were content with what has been discovered.'

Chapter 2 - Pharmacognosy

In the process of formulating the PASTE F.S. formula, a large number of medicinal elements were used and underwent exhaustive scientific evaluation. Finally, the following components of the definitive formula were selected: Zinc Oxide, Barium Sulfate, Triiodmethane, Calcium Hydroxide, Zinc Acetate, Eugenol, Paramonochlorophenol. With this formula, several million root canal treatments have been performed in more than 20 countries.

ZINC OXIDE

This element is widely known by the profession. When combined with the eugenol of Paste F.S., it forms zinc eugenolate. PASTE F.S. can be defined as a medicated zinc eugenolate. Of all dental cements, zinc eugenolate is the one that best adapts to the cavity that receives it (GABRIEL TOBON and FRANCISCO VELEZ, 2). After setting, its pH oscillates between 6.6 and 8.0, making it compatible with the vital structures of the tooth (ANDERSON, 4). Histological studies of specimens with zinc eugenolate pulp cappings show an absence of necrosis in pulp tissues. In bacteriological studies after 10 days, no bacteria were found in contaminated cavities that were covered with zinc eugenolate (BRANNSTROM AND NYBORG, KRAKOW, 10-11). This demonstrates the bacteriostatic effect of this compound (QVIST, 12). In experimentally induced pulpitis in monkeys, after 83 days a favorable prognosis could be established in more than half of the animals treated with zinc eugenolate; none showed signs of pulp necrosis (TRONSTAD AND MJOR, 14).

BARIUM SULFATE

Precipitated barium sulfate is a white powder whose density varies between 4.3 and 4.5; it is used in medicine as a radiographic contrast material. This same property is utilized in PASTE F.S.

TRIIODMETHANE (IODOFORM)

Triiodmethane, better known as iodoform, is a drug extensively used in dentistry for many years, especially in Europe. INGLE AND BEVERIDGE (15) report as one of its advantages that it is absorbable in cases of overfilling. ANDREW (16) demonstrated the safety of iodoform use in 143 deciduous molars with necrotic pulps. Iodoform has a long history as an antimicrobial. The activity of iodoform is primarily bactericidal and then bacteriostatic. In animal research with mice and guinea pigs (PROMBO AND TILDEN, 21), iodoform at two percent and saponified cresol at five percent were the most effective and fastest-acting bactericidal agents.

In a third molar that I treated 45 years ago, I observed a yellow powder with a strong odor: it was iodoform. This finding was the starting point for the subsequent study that would lead me to include this drug as the main element of my formula.

A group from Loma Linda University agrees that iodine-based compounds are among the most effective antiseptics. INGLE (25) concludes: "If all factors are considered, it is evident that the most effective and safe intracanal antiseptic is a two percent concentration of potassium iodide."

ZINC ACETATE

This element appears separately in PASTE F.S. to be added to the mixture only in cases of pulp capping, pulpotomies, cavity liners, and alveolitis to obtain rapid setting; in no case in root canal treatments.

EUGENOL

Eugenol is perhaps the most versatile drug in dental therapeutics. It is a constituent of most root canal sealants. Despite having a high irritation potential histologically, it clinically appears to be a frank sedative of vital tissues, through a blocking mechanism on irritated nerve endings (WEINE MOSBY, 37). The PASTE F.S. formula received FDA registration as toothache medication with Over The Counter (OTC) status. Eugenol acts as a mild irritant of soft tissues in vivo; but directly on dentin or bone it behaves as an anodyne, sedative, and soother.

PARAMONCHLOROPHENOL

It was introduced in oral therapeutics by WALKHOFF in 1891 and is currently the most widely used topical drug in endodontics, especially in the United States. Its antiseptic activity lies in its phenolic function and in the chlorine ion which, in its 'para' position, is released slowly. GURNEY reports it (47) with a broad and efficient antibacterial spectrum and low toxicity. All authors recommend its use in diluted concentrations. In PASTE F.S. it is diluted in eugenol.

GENERAL CONSIDERATIONS

The formula of PASTE F.S. is composed of elements deeply known by the dental profession. All have antiseptic properties. The action of PASTE F.S. is permanent; it does not temporalize its effects. I have sought to bring together in my formula this series of known and safe drugs in order to deliver to the dentist a contribution to an equally safe endodontics.

Chapter 3 - Root Canal Obturation

ASEPTIC STATE

BLASKAR and RAPPAPORT (52), after the biomechanical preparation of root canals of dogs, left them without endodontic obturation, having verified that there was no modification of importance. SELTZER, SOLTANOFF, SINAI, GOLDENBERG, and BENDER (53), in monkeys and humans, instrumented canals and left them without obturation, having observed apical repairs. GROSSMAN (54) says: 'The obturation of the root canal is an accepted phase of endodontic treatment despite the fact that repair of a periapical lesion can occur in an unfilled canal.' All this is true; it is possible but requires a perfectly aseptic condition. Outside of the bacteriological verification of the laboratory, it is not possible to know the aseptic state of a canal. If we call empiricism the filling of a canal without the absolute certainty that it is sterile, this empiricism will cease to be so if we fill it with an element like Paste F.S., which is what will disinfect it. This scientific truth is precisely what revolutionized current endodontics.

In Madrid, Spain, at the 1978 World Congress of the FDI, one attendee said: "After what we have seen and heard from the Colombian speaker, we are going to have to teach our university students that the history of endodontics is divided into two stages: before and after PASTE F.S."

Chapter 4 - Endodontic Sealing Pastes and Single Material

The great variety of pastes for endodontic obturation is well known. Absolutely all of them require the aseptic state of the canal. The diametrical difference with PASTE F.S. is that the latter does not require the absence of bacterial life, since its components have bactericidal and bacteriostatic values that will destroy microbial residues. In other words, PASTE F.S. has been formulated to act in a septic field. At the Colombian Social Security Institute, I verified hundreds of bacteriological tests, not having found any organism of the root canal flora resistant to PASTE F.S.

These bacteria are the most common in root canal flora; despite being resistant to various antibiotics and sulfonamides, none has been resistant to PASTE F.S. This antimicrobial power guarantees total permanent disinfection of the canals, as its actions have no expiration time.

Chapter 5 - Complete Obturation

In the filling of any root canal only one of three situations can occur: complete obturation, overfilling, or underfilling. All authors agree that complete obturation of the radicular space is the ideal obturation. We simply believe that complete obturation is ideal from the radiographic and aesthetic point of view, since ideal is any root canal filling that preserves the treated tooth permanently fulfilling all its functions.

Multiple clinical cases presented in this chapter demonstrate that with PASTE F.S., complete tissue regeneration was achieved in all cases, including large cystic lesions. SAMUEL SELTZER (96), in seven cases of endodontically treated cysts, found repair in three. BHASKAR (98) studied 2,500 lesions and concluded that cysts can be cured with endodontic treatment. We not only think this but prove it, as can be observed throughout this book.

OBTURATION TECHNIQUE: PASTE F.S. is placed at the coronal entrance of the canal and pressed into the canal with an enlarger wrapped in cotton. Radiographic controls are taken to verify progress. This technique is extremely simple. When treating molars, the material is pressed with cotton pellets.

Chapter 6 - Overfilling

By overfilling or extrusion is understood that situation in which the filling material goes beyond the apical foramen. All authors condemn overfills as chemical and mechanical irritants. This is the universal concept, and my concept as well when materials other than PASTE F.S. are used. PASTE F.S. allows the overfilling of any amount of material without failures. PASTE F.S. is absorbed by dispersion and initial solubilization in fluid preparations, and by phagocytosis after initial setting. The time of phagocytosis depends on the amount of extruded material but above all, on the phagocytic capacity of the patient. I have observed phagocytosis in 90 days, while similar amounts have taken more than 20 years or remained unaltered in 25-year controls.

INTRAORAL PATHOLOGICAL FISTULAS: Any fistulized pathological process of endodontic origin constitutes the easiest of all treatments when the PASTE F.S. formula is used. Any fistulous process treated endodontically with PASTE F.S. will heal within 30 days without irrigations, iontophoresis, cauterizations, or any surgical procedure.

Chapter 7 - Underfilling

By underfilling is understood any root canal filling that remains distant from the apical foramen. Many authors condemn larger underfills as the primary cause of endodontic failures. However, BHASKAR and RAPPAPORT, SELTZER and others demonstrated in dogs, monkeys, and humans that canals left without any obturation after surgical preparation showed no modifications of importance or even apical repairs, but always in aseptic conditions.

DISTANCE EFFECT: I have defined with the name "distance action" the emission of volatile iodine elements that PASTE F.S. permanently releases, carrying its medicinal effect to distant locations. Through this action, bacterial life cannot exist either in contact with or distant from PASTE F.S. Because this release of bactericidal agents is permanent, recurrences become impossible. To push these demands to the maximum, I present cases where PASTE F.S. was left only in the pulp chamber, with canals completely empty, and still achieved resolution of periapical lesions.

Chapter 8 - Overfilling and Underfilling

Cases are presented in which overfilling and underfilling situations occur simultaneously in the same patient. In all cases, regression was achieved regardless of whether the canal was overfilled or underfilled. No endodontic specialist, no author or researcher, to date has dared to guarantee one hundred percent the root canal treatment of an infected canal with an apical lesion. All admit a considerable percentage of failures. Although it may seem implausible, I have not found any, nor has any failure been reported to me.

Chapter 9 - Endodontic Problems

DISCOLORATIONS: PASTE F.S. generates discolorations caused especially by iodoform that pigments dentin and enamel a brown color. I have solved this problem completely with the NEW CANAL TECHNIQUE: 1) Clean all carious tissue from the coronal cavity. 2) Fill the coronal cavity with a colorless material (porcelain, resin), introduce an enlarger during setting to create a new canal isolated from crown tissues. 3) Using the new canal, proceed with the root canal filling with PASTE F.S. with absolute certainty that no pigmentation can occur.

Chapter 10 - Theory of Latent Infection

DENTINAL TUBULES: Dentin constitutes the largest part of the tooth. The existence of dentinal tubules has been studied with scanning electron microscopy, averaging 50,000 per square millimeter with an average lumen of four microns. Odontoblastic extensions penetrate into the enamel through the amelodentinal junction. These findings are fundamental to understanding how infection can remain latent within the tooth structure and how the volatile components of PASTE F.S. can reach these locations.

Chapter 11 - Virulence

By virulence is understood the degree of pathogenicity of a microorganism according to its host. A microorganism can trigger intense pathogenic problems in an individual, and the same one can remain inactive in a different host. This indicates that there are hosts prone to infection. Cases are presented where small lesions caused exaggerated exacerbations, and treatment with PASTE F.S. in septic conditions achieved complete normalization.

Chapter 12 - Failures in Endodontics

Failure in endodontics: when no rarefaction existed and one develops; when the rarefaction zone persists; or when the radiolucency increases. OSTRANDER (156) attributes failures to lack of aseptic technique. SELTZER, BENDER, et al. (157) say poor instrumentation is the cause. MATSUMIYA and KITAMURA (159) say complete elimination of microorganisms appears to be a difficult and perhaps hopeless task. Cases are presented from the literature showing correctly performed endodontic treatments that failed resoundingly, demonstrating the limitations of conventional materials.

Chapter 13 - Endodontic Complications and the Law

Based on the article published in the Journal of Endodontics, Vol. 13, No. 4, April 1987, by Stephen Cohen and Stephen Schwartz. There is a growing number of malpractice claims related to endodontics, primarily against general dentists. Endodontics is now number one in terms of frequency of malpractice claims. Key issues discussed include: Standard of Care, Rubber Dams (mandatory during endodontic treatment), Pastes with Paraformaldehyde (the ADA warns against their use), Broken Instruments, Informed Consent (patients must understand the 5-10% failure rate), Root Perforations, Home Care Instructions, Dentist Available for Emergencies, and When in Doubt, Refer to a specialist.

Chapter 14 - Pulp Capping

INDIRECT PULP PROTECTION: Indicated in deep cavities caused by caries or fractures that have not involved the pulp tissue. PASTE F.S. fulfills all requirements of the ideal material, as it is a zinc eugenolate with calcium hydroxide and disinfectants including iodoform. It destroys bacteria surviving in the residual dentin layer that cannot be eliminated by mechanical means.

DIRECT PULP PROTECTION: Placed in contact with pulp tissue for vital preservation. A high success rate has been verified with PASTE F.S., including cases of infected cavities with carious processes. In none of the thousands of cases treated was there even a single failure, regardless of age or size of the pulp exposure.

In conclusion, in cases of bacterial invasion, neither calcium hydroxide nor zinc oxide-eugenol alone has the antimicrobial capacity to generate a definitive aseptic state. PASTE F.S. achieves the same biological effects while its bactericidal and bacteriostatic properties guarantee destruction of bacterial strains. PASTE F.S. is the ideal material for direct or indirect pulp protection.

Chapter 15 - Pulpotomies

Pulpotomy refers to the partial amputation of vital pulp tissue, generally in the coronal part. INDICATIONS: Mainly when the young tooth has not completed root-apical formation, or when pulp exposure is very large. CONTRAINDICATIONS: Only irreversible pulpitis and pulp necrosis. With the PASTE F.S. formula, a 100% success rate is achieved regardless of the aseptic or septic state of the pulp surface, since the formula contains calcium hydroxide, zinc oxide-eugenol, triiodmethane, paramonochlorophenol, and others that combat the existing bacterial state.

Chapter 16 - Implantology

At the 1969 World Congress of Implantology in Maracaibo, Venezuela, I presented the possibilities of PASTE F.S. in implantology. Cases are presented including an unerupted canine that was extracted, filled with PASTE F.S., and reimplanted in place of a lateral incisor, with perfect bone regeneration observed one year later.

Chapter 17 - Alveolitis

By alveolitis is understood the inflammation of a dental alveolus after extraction. BENDER, SELTZER, et al. (204) found positive cultures in 84.9% of patients immediately after traumatic extractions. As routine, if there is hemorrhage I control it with a plug of PASTE F.S. with setting accelerator placed inside the alveolus. For established alveolitis, soft portions of PASTE F.S. with accelerator are placed inside the alveolus. The analgesic effect is practically immediate. This achieves: the analgesic effect, extermination of the bacterial process, and formation of better bone trabeculation stimulated by the zinc in the formula.

Chapter 18 - Periodontics

Experiences with PASTE F.S. in periodontics have shown notable results in infected periodontal pockets. The technique involves: preparing a soft mixture of PASTE F.S., saturating cotton portions, introducing them deep into the infected pocket, removing after three days for root planing, then introducing PASTE F.S. with setting accelerator as deep as possible. This achieves disinfection of the periodontal pocket. Multiple radiographic cases demonstrated tissue recovery.

Chapter 19 - Antro-Oral Communications

An anecdotal case of a military aviation aspirant with an accidental antro-oral communication led to the discovery of PASTE F.S.'s ability to heal such perforations. The communication was plugged with PASTE F.S., and within 60 days perfect bone trabeculation was observed. The patient was accepted into the Air Force and today is a Colonel. This success led to further research into sinusitis treatment. Multiple cases are presented showing complete bone regeneration of antro-oral communications treated with PASTE F.S.

Chapter 20 - Sinusitis

Dr. Hugo Moncaleano, otorhinolaryngologist, reports on the use of PASTE F.S. in sinusitis treatment. **TECHNIQUE:** Local anesthesia over the first molar region, perforation of the external sinus wall with a No. 6 round bur, injection of PASTE F.S. through a No. 16 needle. No suture or additional surgery required. **RESULTS:** 216 maxillary sinuses treated with a 94% positive result. The original PASTE F.S. caused neuralgias due to setting; this was solved with REINFORCED PASTE F.S. using olive oil instead of the eugenol liquid. Multiple spectacular cases are presented including patients with years of failed conventional treatment.

Chapter 21 - Osteomyelitis

This study is due to Dr. Raul Ramirez Benitez. A 30-year-old patient developed osteomyelitis after a third molar extraction. Over 34 months, she underwent 7 surgeries under general anesthesia and 35 under local anesthesia, developing a pathological mandibular fracture. After all surgical and therapeutic options failed, PASTE F.S. mixed with olive oil was injected through intraoral fistulas using a No. 16 needle. The results demonstrated the effectiveness of PASTE F.S. in treating even this severe condition.

Chapter 22 - Leukemic Lesions of the Oral Mucosa

By Dr. Norberto Oscar Villace. A 19-year-old patient with acute myeloblastic leukemia developed oral mucosal erosions. PASTE F.S. was placed over exposed bone tissue after washing with physiological saline. The patient reported immediate pain relief. Within approximately one week, the tissue was epithelializing normally and the wound had reduced considerably. This experience demonstrates the healing properties of PASTE F.S. even in severely immunocompromised patients.

Chapter 23 - Large Paraendodontic Lesions

These macroscopic lesions have traditionally been relegated exclusively to surgery with its consequences of physical and psychological trauma. My techniques are within reach of any general practice professional; they are extremely simple and carry no risk. **TECHNIQUE:** 1) Create at least two fistulas with a sharp instrument or high-speed bur. 2) Inject PASTE F.S. through one fistula until it exits through another. The mixture should be REINFORCED PASTE F.S. with olive oil, quite fluid. Generally no additional prescription is necessary, neither analgesic nor antibiotic.

Chapter 24 - Dentigerous Follicular Cyst

An 18-year-old patient presented with massive bone destruction of the left mandible, from the second premolar through the ascending ramus including the condyle. Dr. Carlos Tasama, pathologist at Universidad del Valle, classified it as a dentigerous follicular cyst. Surgical options were discarded as too traumatizing. PASTE F.S. with olive oil was introduced through the biopsy site. At nine months, significant bone regeneration was observed. At five years, the included molar was in occlusion. The neoformed bone appeared wider and more consolidated than the healthy side, thanks to periosteal expansion by the cystic fluid.

Final Note

I believe I have covered all the topics, all the situations and problems of Endodontics. My endodontic approach is for the general dentist and for the specialist who wishes to believe in the reality of my experiences. I have managed to free this branch of dentistry from many mysteries that filled it with harmful esotericism, and this fills me with deep satisfaction, since the search for and discovery of good is the supreme aspiration of mankind. The human mind is governed by the reasoning of philosophies, and the more transparent and less mysterious they are, the greater credibility the dogmatisms of the pragmatic will have. I aspire that my colleagues will find in this summary of my experiences a guide manual for the practice of Endodontics.

The other applications of PASTE F.S. in other branches of dentistry are a valuable contribution, and in medicine they have come -- as I have demonstrated -- to free patients from deforming, limiting, and even lethal traumas. The reader of this work will have made an evaluation of its scientific quality and its values before the dental and medical profession. For my part, I have had no limits in my effort and I consider this book as the scientific heritage of all my research. In delivering it to professionals, I trust that the simplicity and reliability of the techniques presented will contribute to the betterment of the human community.

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