Root Canal Therapy

by Robert Gammal February 1997

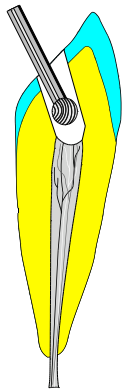
A brief description of the disaster called Root Canal Therapy

Dr George Meinig was one of 19 FOUNDING members and a long standing president of the American Society of Endodontics. After reading the work of Dr Weston Price, he realized the dangers of Root Canal Therapy – and wrote a book called the "Root Canal Cover-up". Dr Meinig defines root therapy as:

> '…the story of how a "cast of millions"
> become entrenched inside the structure of teeth and
> end up causing the largest number of diseases
> ever traced to a single source.'

What Root Canal Therapy?

The aim of Root Canal Therapy is to 'save' a tooth which has become infected or dead, in an attempt to make it functional and pain free.



After scraping out the inside of the tooth the dentist will attempt to disinfect the tooth and the canals to eliminate any source of infection. The canal is then filled with a combination of cement and Gutta Percha in an attempt to completely occlude these canals. This is supposedly to prevent any microorganisms from entering the tooth either through the crown or the root.

If you consider pain control, mechanical function and aesthetics to be the limit of good dental treatment, then you will have "SAVED" the tooth.

If systemic effects are included in your concept of dentistry, than you must understand that all that has happened, is that you have kept dead, infected tissue, buried in the bone, within a couple of inches from your brain.

For some obscure reason we are all conditioned to think that teeth are not a part of the body, but that they are inert calcified material, and that they are sort of dead anyway. Dentistry is the only one of all the medical & para-medical professions that thinks it is a good idea to keep dead, gangrenous tissue in the body. The way to do this is to perform a Root Canal Therapy.

One eminent Endodontist says:

> "It is wrong to speak of (Root Canal Therapy) as a dead tooth; it is more correct to describe such a tooth as nonvital or, better, pulpless. Even though the central blood supply to the tooth has been lost, the tooth itself still retains its connection to the body via the periodontal membrane and the cementum."[i]

This is like saying that even though the blood supply to your leg may be completely cut off, it would be wrong to suggest that the leg is dead, because it is still connected to your body by your hip joint! The Oxford dictionary defines 'non-vital' as "Fatal To Life". It defines 'Dead' as "No longer Alive".

The Ritual Of False Beliefs

There are many presumptions about Root Canal Therapy which are based in myth rather than science. The philosophy underlying the teaching of dentistry limits it's practice to mechanics, pain control and aesthetics. The systemic effects of dental treatment are rarely considered.

Dr. Weston Price was the leading dental researcher at the turn of the century. He was the head of the American Dental Association and wrote numerous papers on subjects as diverse as the role of nutrition on dental health to the effects of dead teeth and root canal therapy on systemic health. Dr. Price researched the effects of Root Canal Therapy for over twenty years. He was able to correlate different disease states with the types of pathology seen around dead teeth.

He demonstrated thousands of times, the creation of diseases from non-vital teeth. He demonstrated how every belief about Root Canal Therapy, held by the dental community at the time, was based on a complete lack of scientific research. They were myths which developed and were then believed. These beliefs have now become set in concrete as truths by the current dental communities.

If you think that the research is out of date, you should realise that the techniques, most of the materials, and some of the instruments that were used then are identical to those used today. The medicaments used to 'sterilize' teeth then, are still being used today - Camphor, Phenol, Formaldehyde, Menthol.

Recently published research completely supports that done by Dr Price. Specially that of Dr. Patrick Störtebeker, Assoc. Professor of Neural Surgery at Karolinska University in Sweden[ii,iii,iv,v] and the work of Dr. Eugene Ratner[vi],[vii] in the United States.

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Some of the myths that are still perpetuated include:

1 You can see infection on an x-ray.!

FALSE! Only if the angle is correct you may see some bone loss on an x-ray. It is impossible to demonstrate infection with an x-ray as dental radiographs only 'see' hard tissue. They do not see soft tissue or infections. Due to the shadow cast by the root it may also be impossible to see the bone loss.

2 You can gauge the extent of infection by the amount of bone loss on an x-ray.

FALSE! It is assumed in dentistry that the extent of bone loss is a direct indication of the amount of infection present. This is a false assumption because the bone loss may take time to develop. The extent of the bone loss about the end of the root is also a function of the body's immune system being able to isolate the infection process. It has little to do with the degree of infection.[viii]

Sometimes there is no bone loss, but instead, a condensation of bone about the end of a dead tooth. We are taught in dentistry that this indicates a lack of infection. The reality is that teeth showing a 'Condensing Osteitis' are demonstrating that the body's immune system is incapable of quarantining the infection locally.[19] These are often the teeth which cause the greatest systemic effects. This is put neatly by Dr Josef Issels 1995 (translated direct from German):

"If the local resistance is already so weakened that the inflammatory focus no longer can become encapsulated, the inflammatory toxins will infiltrate without hindrance into the pulpa and the whole organism.

If an inflammatory process can no longer be localised and encapsulated, it proves, as emphasised by Pischinger and Kellner that the organism has become largely non reactive. On an X-ray, these teeth normally show no translucence. This is characterised as X-ray negative .

In our cancer patients, such non-encapsulated focus, and therefore X-ray negative teeth, do frequently exist. This indicates the enormity of low resistance of these patients."[ix]

3 You can determine the length of a tooth by x-ray.

FALSE!
Dentistry teaches that a root canal must be filled to within 1mm of the root apex. The apex of a root canal is only rarely determinable by X-ray. Thus most root canals are worked too short, or so long that the root filling will protrude through the end of the tooth and into the bone. This is born out by research published in the dental literature:

"Thirty two canals in four mongrel dogs were treated endodontically. The mandibular third and fourth premolars were selected for study because their apices were widely spaced and could be studied individually without danger of confusion"

"Examination of the histologic sections revealed that in some cases root canal instrumentation had been terminated slightly short of the anatomic apex. Moreover some canals which appeared reontgenographically to be filled slightly short of the apex actually were associated with extrusion of some particles of sealer into the periodontal ligament space"

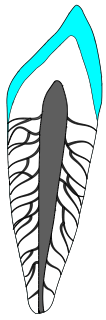
"In the canals which were overfilled, the extruded materials were always associated with advanced destruction of the surrounding tissue and liquification necrosis"[x]

It is not possible with an x-ray to see

- the end of the root canal
- the angle of the root canal
- the number of canals or
- the various branches of each canal

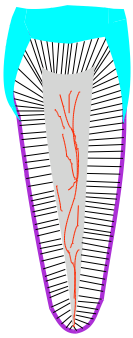
4 It is possible to actually treat all of the hollow areas of the tooth. This is assumed to be limited to the actual root canals.

False!



It is assumed that the only part of the tooth which contains soft tissue is the actual root canal. Even in the latest Australian Dental Association handout on root therapy they state "All root canals in the effected tooth must be treated". [xi] Unfortunately the root canals are the smallest area of the tooth which contains nerves, blood vessels and connective tissue.

The root canals are really like the tap root of a tree - one main root with hundreds of branches coming off it and opening to the edge of the root all the way along its length. It is impossible to treat these accessory canals.



As well, the dentine is not a solid structure. It is made of tubules which extend from the surface of the root canal to the enamel of the crown and to the cementum on the root surface. Each tubule is estimated to be able to contain 8 bacteria across its diameter. In a front tooth which has only one root there is over three kilometers of tubing. This equates to billions of microorganisms in just one tooth.

In comparison to the volume contained in the accessory canals and the dentine tubules, that of the root canal is actually quite small. It is not possible to remove dead infected soft tissue from whole of the tooth. When only the root canals are treated there remains a massive amount of gangrenous tissue which is infected by anaerobic microorganisms.

Dr Issels puts it this way: (note that this is a translation from German and directly quoted) [9]

"Altmann, Doepke and Pritz, as well as Fischer, Hess and other researchers have become involved with the fine structure of the tooth. They have found that the hard substance of the tooth in no way resembles an nonvital structure but maintains an active metabolic process with the pulp and dental periosteum. The pulp cavity and the external surface of the root are connected with each other via very fine canals. They are again connected via the mesenchymal fissures and capillary of the central periosteum with the canal system of the jaw bone and its pulp spaces and therefore with the general organism. This knowledge has refuted the concept, which had existed for decades, that the tooth, after removal and sealing off the pulper cavity, would be an isolated, nonvital structure no longer maintaining further exchange transactions. Even the most perfect preservation will only reach the most vertical intermediary trunk of the root canal system. In no way will it reach the lateral branches or the numerous dental canalculi, which likewise takes its exit from the root canal. Even after the most precise preparation of the root canal, there will always remain protein in the adjoining areas. This protein is usually infected and denaturated by filling materials, whereby toxic decomposition products will be formed. It was demonstrated by MEYER (Goettingen), that the dental canaliculi exhibits an exuberant bacterial flora. The decomposition toxins produced by these microbes can, with a dental root filling, no longer empty into the oral cavity. They can only be derived via the cross connection and the unsealed branches of the root canal finally reaching the pulper spaces of the jaw and thereby the flowing systems of the organism. Because of the devitalising and preservation procedures, the tooth has become a "toxin factory" by which the organism will be continually damaged."

It is claimed by most dental authorities that the bodies immune system will take care of what is left over. This is an assumption based in fantasy. If the blood supply of the tooth has been removed (which is what happens when the root canal is 'cleaned out') the cells of the immune system cannot get there.

Often during or before root therapy is started the dentist will administer antibiotics. This may lead to a rapid reduction in pain. Unfortunately both the dentist and the patient assume that the infection has been eradicated. The reason that the pain disappears is only because there is a reduction in pressure from around the end of the root. The antibiotics do not effect the organisms which reside within the tooth which are the original and continuing source of microorganisms and their toxins. As there is no blood supply to the tooth it is impossible to get the antibiotics in there either.[xii]

" In the case of an acutely infected tooth there is no natural process of drainage and there is no mechanism by which the antibiotics which have been administered can reach the bacteria inside the tooth" [1]

5 It is possible to sterilize the canal by using medicaments placed inside the canal.

FALSE!
It is impossible to sterilize the canals. The medicaments and antibiotics used do not penetrate the dentine tubules. Dr. Price was even able to culture bacteria from teeth through which he had poured fuming formaldehyde. Even the recent dental literature reflects this:

"It is now known that complete sterilization of an infected root canal is very difficult to achieve and complete removal of all pulp tissue remnants frequently is not possible." [xiii]

6 Bacteria that penetrate the canals and tubules are usually the 'aerobic' type found in the mouth. When the canal is sealed and the oxygen supply cut of, these bacteria die.

FALSE!
The bacteria, yeasts and other organisms which enter the tooth do not die when the oxygen supply is reduced (as happens inside the root canal system). They undergo what is called a pleomorphic change[xiv,xv] and become 'anaerobic' bacteria. They literally change form and

become bacteria that do not need oxygen to live. It is now known that dead teeth are usually heavily infected with gram negative anaerobic bacteria. [xvi] Sundqvist, in 1976 isolated 88 species of bacteria out of 32 root canals with periapical disease.[xvii] "Only 5 of those bacteria could grow in air. Strict anaerobic bacteria must have played a decisive pathological role although a limited number of facultative species have been show to induce periapical lesions..."

Long standing populations of infected root canals do contain a mixture of strict anaerobes. Low grade but chronic periapical inflammation is the result that may last for years."

Other organisms such as yeasts, funguses and 'cell-wall-deficient forms' (Lida Mattman) also inhabit this tissue.[xviii] The dead teeth thus become a focus of infection which can cause numerous disease states throughout the body. Anaerobic bacteria produce incredibly potent neurologic and hemolytic toxins. A true "Toxin Factory".

7 If it does not hurt it must be OK!

FALSE!

Weston Price's comments are most succinct:

"Local comfort... may constitute both what is probably one of the greatest paradoxes and one of the costliest diagnostic mistakes through injury to health, that exists in dental and medical practice .... the absence of this local reaction and the consequent destruction by the infection products, permits them to pass through the body to irritate and break down that patient's most susceptible tissue."

Lack of pain around the tooth is usually taken to mean a successful root therapy. Unfortunately it does not rule out the possibility of systemic effects.

8 Systemic effects need not be thought of in relation to dental disease.

FALSE!

All researchers from Weston Price[xix], Billings, Rosenow, Stortebecker, Ratner and many others, have demonstrated the spread of systemic disease from infected teeth and gums. It is only the dental profession, who are not trained in medicine, that refuse to accept this basic concept. The research of Steinman [xx] in the 70's conclusively demonstrates the relationship of metabolic dysfunction and dental disease.

Patrick Stortebecker and others have demonstrated the transport of all materials, microorganisms and their toxins directly from the tooth back to the brain via the blood and by transport along the nerve fibres.[2,3,4,5] Many other research articles have shown that whatever you put in a tooth can be transported to the rest of the body.[xxi,xxii,xxiii,xxiv]

As Schondorf states "A root canal treatment which does not plant a focus, does not exist"

Focal Infection Theory

The concept of focal infection has been around for well over 150 years. Since the time of Pasteur the medical and dental authorities have claimed that the concept of focal infection firstly cannot exist and secondly does not hold relevance to dead teeth which have been root therapied. Lately the dental associations are stating that to promote this theory is to set dentistry back by 150 years. Many researches over the years have successfully demonstrated that dead, root therapied teeth can in fact release organisms and their toxins into the body. These can then initiate disease states in other parts of the body. Stortebecker has even demonstrated that these organisms and their toxins can be transported directly back to the brain via the blood and also by transport along the nerve fibers. Other researchers have demonstrated that parts of the brain can be directly infected from dead teeth[xxv,xxvi,xxvii,xxviii]

There is also research which demonstrates the presence of Tumor Necrotising Factor at the end in the apical area of infected roots.[xxix,xxx,xxxi,xxxii] Tumor Necrotising Factor is capable of causing; Chronic wasting syndrome, Anorexia & Weight Loss, Bone resorption (by it's osteoclast activating potential), Inflammatory disease states.

"A *Focus of infection* has been defined as a circumscribed area infected with microorganisms which may or may not give rise to clinical manifestations.

A *Focal Infection* has been defined as sepsis arising from a focus of infection that initiates a secondary infection in a nearby or distant tissue or organs."

"The concept of focal infection in relation to systemic disease is firmly established. The origin of many toxic or metastatic diseases may be traced to primary local or focal areas of infection." (Reimann and Havens)

Two mechanisms can produce focal infection:
1- an actual metastasis of organisms from a focus,
2- the spread of toxins or toxic products from a remote focus to other tissues by the blood stream. [xxxiii]

Also in the Journal of the American Dental Association we read:

"If the bacteria pass the barrier (of the abscess wall) a number of things may happen:

(Appleton)

- The bacteria may be discharged from the focus onto a free surface whence, conveyed by mechanical means, they determine an extension of the disease by re-inoculation.
- The bacteria escaping from the focus may be conveyed to distant parts of the body by way of the lymphatics or blood. Once the bacteria leave the focus they may be arrested by the nearest lymph nodes. A lymphadonitis gong on to abscess formation may develop. If the bacteria pass this barrier three things may happen (a) they may multiply in the blood setting up an acute or chronic septicemia. (b) they may be carried live to a suitable nidus where they infect the surrounding tissue. (c) they may produce a slow but progressive atrophy with replacement fibrosis in various organs of the body.
- Products of bacterial metabolism or of the interaction of bacteria and the cells …….may reach remote parts of the body.
- The bacteria at the focus may undergo autolysis or dissolution. Some of the products of this dissolution, diffusing into the blood or lymph , may sensitize in an allergic sense various tissues of the body. A later diffusion of these products on reaching the sensitized tissue may call forth an allergic reaction"

There is a suggestion in dentistry that if the infection is 'quarantined' it will not pose a danger to the rest of the body. The quarantining is regarded to be in the form of a Dental Granuloma (an encapsulated abscess). Unfortunately this position is not supported by the dental literature:

"the capsule contains a meshwork of capillaries among its fibers and is penetrated abundantly by larger vessels; thus direct communication is established in the inner part, or seat of inflammation and the circulation……"

In 1931 Freeman reported " there is no question that bacteria or their toxins are not limited by the fibrous capsule." [33]

To ignore the reality of focal infection is to allow dentistry to operate in the dark ages.

Also from the dental literature, we find an approach which defines loosely the type of people who will be effected by focal infections"

"A patient becomes susceptible to infection if any of these mechanisms *(immune function and reticuloendothelial system)* decrease in function, or if an organ is damaged to the extent that microorganisms can localize and produce an infection."

"Patients with rheumatic heart disease, congenital heart disease, heart valvular prosthesis, or patients with an inadequate defense mechanism are susceptible to severe consequences if they are subjected to a bacteremia. Inadequate defense mechanisms to resist bacteremias may result in cases of; debilitation or dehydration, exposure to radiation, diabetes, cancer, blood dyscrasias, malnutrition, vitamin deficiency, leukemia, multiple myeloma, diseases of the liver or kidney, and in patients undergoing prolonged therapy with antibiotic, corticosteroids, immunosuppresives, and antimetabolites."[xxxiv]

This is just about everyone who undergoes any stress in their lives. Increase in the amount and variety of types of stress produces a severe drop in immune function.

In 1997 Professor Laurie Walsh published a paper entitled "Serious complications of endodontic infections: Some cautionary tales". Prof Walsh is currently the head of the dental school at Queensland University! He states "While endodontic (dentoalveolar) abscesses can cause significant morbidity, in susceptible individuals they can pose life-threatening problems."

He lists the following as some of the complications that have been associated with dead teeth;

> Osteomyelitis of the mandible,Maxillary sinusitis and orbital abscess, Wound botulism, Ludwig's angina, Necrotizing fasciitis, Cavernous sinus thrombosis, Persistent pyrexia of unknown origin, Septicaemia – Streptococcus milleri and Pseudomonas spp23 Septicaemia with disseminated intravascular coagulation24 Pulmonary abscess, Pyogenic hepatic abscess, Brain abscess, Brain abscess and acute meningitis – Actinomyces viscosus28, Paraspinal abscess and paraplegia, Bacterial endocarditis and splenic abscess, Mediastinal abscess and pneumonia.

See www.bcd.com.au for hundreds of references on Focal Infection in dentistry.

Neural Focal Interference

Till now we have spoken of the effects of Root Canal Therapy in relation to microorganisms. There is another way of looking at the problem of dead teeth. It is related to a concept of medicine which came out of Germany in the 1950's. It was developed by two German doctors called the Heuneke brothers. What they found was that areas of dead tissue, scar tissue, foreign bodies, cystic tissue and infected tissue could interfere with the body's regulatory systems. They called these areas "Foci of Neural Interference."

The German Medical Association for Focal Research and Control defines focus as: "an abnormally localised alteration in the organism, with the capacity to induce distant actions out of its immediate proximity." Any local circumscribed pathogenous organic alteration such as a chronic inflammation, a degenerative alteration, or a scar (independent of its size and location), can be active as a focus or as an "interference field".

The "focus" is defined by Pichinger and Kellner as a "chronic devious localised alteration in the connective tissue, which can cause the most diversive reactions out of its immediate environment and consequently is located in a permanent active relationship with the localised and general immune system."

Any chronic inflammation, any scar, any degenerative or other alteration can obviously satisfy this condition. The focus is embedded in the mesenchymal base tissue and in that way has direct contact with the capillary system of the blood and lymphatic vessels and the neuro-vegetative nerve fiber. This produces the connection to the whole organism. Through any of these conduction systems, it will be able to cause distant actions in other organs. The focal nerve impulse will be first projected into the vegetative centers, where it can cause a vegetative dysregulation which likewise can become retroactive to the whole organism again. On the other hand, focal toxins and bacteria will be infiltrated by the vessel systems where they are able to spread their infectious, toxic and allergenic properties everywhere."[9]

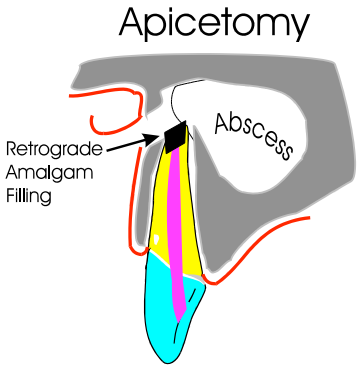
A neural interference field will create an imbalance in the body's regulatory mechanisms, which include the tissue fluid around all of the cells of the body. Dead and infected teeth fulfill all the criteria to become Primary Foci of Neural Interference. The imbalance in the regulatory system will then either create or potentiate disease states in other parts of the body, which are remote from the original focus. These disease states will often coincide with areas of the body that are on the same acupuncture meridians as the primary focus. This has been verified by the work of Voll who was a German physician and electro-acupuncturist. For example we often see disease states in the areas of reproductive system, kidney and knees in relation to non-vital front teeth.

The mouth and teeth are a primary source of focal infection and neural interference fields. No other parts of the body have dead tissue routinely left in place. The only thing which

seems to separate individual reactions is the state of that person's immune system and genetic factors. Consequently other factors which may reduce immune function will allow a greater reaction to the non-vital teeth. (e.g. Mercury from dental amalgam fillings will have a direct and deleterious effect on the immune system.)

Apicectomy & Retrograde Root Fillings

Sometimes, when an infection at the end of a root does not seem to heal, the dental surgeon will perform a surgical technique to clean the abscessed area. This is called an Apicectomy.



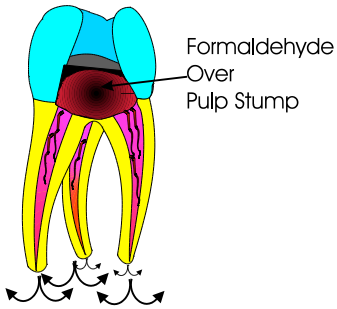
This surgery is based on the belief that infected material escapes only through the end of the root (myth). Therefore as part of this procedure, a filling is often placed at the end of the root. This is called a Retrograde Root Filling. The material of choice which is most commonly advocated by the dental profession is often AMALGAM.

There is not one area of medicine that would condone the implantation of amalgam or mercury into bone. This is in fact what is being done daily in dentistry. It is equivalent to an implant of mercury directly into the brain! This is not an exaggeration. Many researchers have demonstrated that mercury vapor released from dental amalgam will migrate through the palate and the nasal linings to pass directly into the brain. [xxxv] If the mercury is already inside the bone it will migrate freely to the brain.

If you have had this treatment it is important to try to remove all of the amalgam from the bone. Depending on the danger to surrounding anatomy, this may not always be feasible.

Pulpotomy

Due to the anatomy of the end of the root of a baby (deciduous) tooth, it is not possible to do a root therapy.



If a baby tooth is infected or dead the treatment, which is still taught at Sydney University, is called a Pulpotomy. This involves the removal of only the crown section of the pulp while leaving the remainder of the infected pulp in the root of the tooth. This pulp stump is then covered with a material which 'mummifies' the remaining tissue. The mummifying material is in fact a mixture of Formaldehyde and Cresol.

The belief is that this material remains in the tooth. There is NO scientific foundation for this belief! In fact there is published research which demonstrates that Formaldehyde placed in teeth of cats and rats will migrate easily to every tissue in the body[xxxvi]. Formaldehyde is carcinogenic (cancer producing) in minute amounts.

Pulpotomies not only mummify the pulp but

may start to mummify the child as well

Symptoms

The types of disease states which relate to dead teeth are so numerous that it is impossible in an article of this size to discuss them all. They range from head and neck pain all the way through to rheumatism and cancer.

The most common symptom is in the form of head and neck pain. This may range from mild headaches to migraine to Trigeminal Neuralgia.

Sinusitis is very often associated with non-vital and Root Canal Therapied teeth especially if they are in the upper arch. There is a linear relationship between the incidence of sinusitis and that of Multiple Sclerosis.

Price found that most patients with non-vital teeth had some thyroid dysfunction.

A number of researchers and physicians are finding a relationship between cancer and non vital teeth.

Reduced immune function is common.

Eye and Ear problems are common with root therapied teeth.

Rheumatic and Arthritic changes are almost the norm amongst people with dead teeth in their mouths.

Many heart problems and nervous disorders are associated with dead teeth.

Multiple Sclerosis has also been linked to the toxins and organisms from dead teeth.[xxxvii] [xxxviii]

The location of the tooth, the types of organisms inside it and the nature of the person's genetic make up will determine the areas of disease found clinically. The one thing that is certain is that if you are sick you should look very carefully at all non-vital teeth, whether root therapied or not.

Treatment

Dentistry is the only medical/paramedical profession that considers it O.K. to leave dead infected tissue in the body. (Not only is it OK but it is condoned and paid for by the health funds.) No medical practitioner would consider leaving gangrenous tissue in the body.

Unfortunately there are no good alternatives for this situation. The only treatment for dead tissue in the body is to remove it. Therefore the treatment of choice is to extract a dead tooth rather than root fill it. It is also important to remove any infected tissue from around the tooth. This usually requires a very easy surgical approach to access the end of the socket. Although this does not sound attractive, the results usually are, and the actual surgery is usually very easy.

As dentists we are taught to extract teeth with forceps and that any infected tissue left in the bony socket will be dealt with by the cells of the immune system. This does sometimes happen. Often, though, the bone will heal around the infected tissue which remains indefinitely as an infected hole in the bone. These areas are usually colonized by gram negative bacteria.[xxxix] They are called areas of Osteitis or NICO Lesions (Neuralgia Inducing Cavitational Osteonecrosis) NICO lesions[xl],[xli] can act as Foci of Infection and also Neural Foci just as the Root Therapied teeth can. This is the main reason that a surgical approach is used for most extraction.

The next obvious question is 'How do you fill the space?' The solution depends on the location of the space and the condition of the adjacent teeth and or lack of teeth in the area. It will usually involve the creation of some sort of bridge or partial denture. Each person must be assessed individually.

I do not believe that Titanium implants are a suitable solution. The electric currents generated by these devices may also act as a neural interference field.

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