A Bone of Contention

Cavitations vs. Osteonecrosis

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The jaw once again emerges as the focus of intense disagreement. The jawbone is now replacing the jaw joint (TMJ) as a bone of contention in dentistry. Poor blood circulation in bone creates hollowed-out spaces in the marrow called cavitations; the bone begins to soften, eventually resulting in bone death. This disease process is called osteonecrosis.

Cavitations are an osteonecrosis. An osteonecrosis is a cavitation. The term cavitation was first used by one of the most influential orthopedic disease investigators of the century, Phemister (1930) because of the unique ability to "hollow out" bone, producing air filled spaces or cavitations. [1] An osteonecrosis is a disease of ischemia (impaired blood flow) and infarction of bone marrow microcirculation (insufficiency of blood). Recently, a more comprehensive, descriptive term has been applied to this phenomenon in the jawbone (alveolar bone), occurring in the absence of infection (aseptic) that is due to a deficient blood supply (avascular): NICO lesion (neuralgia-inducing cavitational osteonecrosis). [2]

Diagnosis of osteonecrosis materializes in the office of the oral surgeon as an acknowledged medical entity. On the other hand, diagnosis of a cavitation appears in the dentist office, more frequently in the office of a biological/holistic dentist, producing skepticism and dispute. Why is there so much confusion? Is this a semantic battle of diagnosis? Is this a political battle between mainstream dentistry and holistic dentistry? Does this conflict reflect a polarization between oral surgeons and dentists? The bottom line is simple: the patient is the one who suffers -- not only physically, but emotionally, mentally, and financially. As medical consumers, we have a right to information. As patients, we have a right to freedom of choice based on information that should be accessible.

What everyone should know when investigating the questionable diagnosis of 'cavitation' or the more acceptable diagnosis of 'osteonecrosis' seems to be a well-guarded secret. In essence, vital information is inaccessible to the patient. Furthermore, freedom of choice in dental health care is currently at risk in Arizona. Communicating with dentists in Washington and New Jersey and travelling to Nevada,

California and Ohio has given me an all-too-clear panoramic picture of disorder and disagreement Oral surgeons appear to be unaware of current research in their own field not to mention those dentists c currently treating 'cavitations'. Nine months of research, travel, telephone calls, written communication, and utter frustration has finally produced FACT and TRUTH that reach far beyond the jawbone and dentistry.

Robert McMahon, DDS, the oral surgeon who is a primary catalyst behind current investigations, rises above the diagnostic dilemma ingrained in his profession for decades. The first screening that is recommended for diagnosis of osteonecrosis is a thombophilic blood profile. This information is based on a NICO research project headed by Dr. McMahon in coordination with Dr. Douglas Triplett (hematologist), and Dr. Jerry Bouquot (oral pathologist). Since 1989, Dr. McMahon has been the clinical investigator of the RIIB Project (Residual Infection in Bone) at Indiana University Medical Center as well as clinical investigator for the NICO Project (Neuralgia Inducing Cavitational Osteonecrosis) at the Cholesterol Center in Cincinnati, Ohio. Dr. Bouquot, who has done over 4,000 biopsy samples of NICO lesions at the Latvala Inflammatory Bone Registry of The Maxillofacial Center in Morgantown, West Virginia, is coauthor of the bestselling textbook of Oral Pathology and is a reviewer for the New England Journal of Medicine and the Journal of the American Dental Association. Their research speaks for itself, underscoring current findings in hematology in genetic mutations of inherited blood disorders. Medical implications of these investigations not only affect dentistry but also cardiology, gynecology, and orthopedics.

The majority of patients with osteonecrosis have one or more undiagnosed, inherited/acquired clotting disorders.[3] In other words, a blood clot cannot properly dissolve, impairing healing by never allowing complete restoration of the microcirculation of the blood. This inherited/acquired hypercoagulable blood state predisposes patients to not only an osteonecrosis but more importantly to thrombosis. Symptoms may arise in the presence of triggering conditions such as dental trauma (extractions, root canals), surgery, immobilization, pregnancy, infection, menopause, exogenous estrogen, estrogen-containing oral contraceptives, alcoholism and glucocorticosteroids. A listing of some of the systemic blood disorders manifesting in an osteonecrosis of the jawbone is appropriate: elevated levels of antiphospholipid anitbodies (APS), the Leiden Factor V gene mutation, the Prothrombin (Factor II) gene mutation, homocysteinemia, fibrinogen deficiencies and fibrinolytic abnormalities, Protein S and Protein C deficiencies, activated protein C resistance, and antithrombin III deficiencies. The research is current: the Prothrombin (Factor II) gene mutation was only discovered in 1996.

The implications of this research are far-reaching. One ramification could affect approximately 6% of the female population: those women having a Leiden V Factor gene mutation who are given oral contraceptives or estrogen supplementation increase their risk for thrombosis 80 times that of the general population. Preventative measures for these thrombosis-prone women are clear: "…all women, prior to starting postmenopausal estrogen supplementation or oral contraceptives, patches or injections should have APCR/Factor V Leiden determinations. "[4] Clinical, therapeutic, and pathologic experience point to this disease as a common basis for many facial pain syndromes such as temporomandibular joint dysfunction (TMJ), atypical facial neuralgia, trigeminal neuralgia, and other craniomandibular disorders. The researchers hope that their hypotheses will stimulate research, discussion and additional interest in in-depth case-controlled investigations. [5]

I am angry and confused as to why the controversy surrounding the very existence of osteonecrosis/cavitation, is so extreme in the state of Arizona? On December 4, there is an open forum where the public may speak to the State Dental Board. I will be there presenting this current research on osteonecrosis. As ignorance is transformed into awareness, hopefully more people will be spared the frustration, expense and pain that is currently prevalent in dentistry in the State of Arizona.

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[1] Phemister, DB. Repair of bone in the presence of asceptic necrosis resulting from fractures, transplantations, and vascular obstruction. J. Bone Joint Surg 1930; 12:769-778.

[2] This phenomenon popularly called 'cavitation' has been reported with a variety of names including Ratner bone cavity, alveolar cavitational osteopathosis, Roberts bone cavity, trigger point bone cavity, pathologic bone cavity and most recently NICO (neuralgia-inducing cavitational osteonecrosis).

[3] Bouquot JE, McMahon,RE. Ischemic Osteonecrosis in Facial Pain Syndromes; A review of NICO (neuralgia-inducing cavitational osteonecrosis) based on experience with more than 2,000 patients. TM Diary 1996; 8:32-39.

[4] Glueck CJ. McMahon RE, Bouquot JE, Rabinovich B. Thrombophilia, hyprfibrinolysis alveolar osteonecrosis of the jaws. Oral Surgery, Oral Medicine, Oral Pathology, 1996; 81:557-66.

[5] Bouquot JE, McMahon,RE. Ischemic Osteonecrosis in Facial Pain Syndromes; A review of NICO (neuralgia-inducing cavitational osteonecrosis) based on experience with more than 2,000 patients. TM Diary 1996; 8:32-39.