International Journal of Dentistry and Oral Health
ISSN 2378-7090 | Open Access

MINI REVIEW Volume 11 - Issue 1

Periodontitis is a Calcium Distribution Problem

Ronald Moebius*

Practice for dental preservation and orthodontics, Master of Science, Specialist Dentist, Brueel, Bergstraße, Germany

***Corresponding authors:** Ronald Moebius, Practice for dental preservation and orthodontics, Master of Science, Specialist Dentist, Brueel, Bergstraße, Germany, Fax: 038483-31539; E-mail: info@moebius-dental.de

Received: 17 Jan, 2025 | **Accepted:** 22 Jan, 2025 | **Published:** 28 Jan, 2025

Citation: Moebius R (2025) Periodontitis is A Calcium Distribution Problem. Int J Dent Oral Health 11(1): dx.doi.org/10.16966/2378-7090.429

People cannot live without calcium but the calcium that is stored in the soft tissue is the cause of many diseases and death. So it is safe to say we do not have a calcium deficiency, but in fact an issue with its distribution and absorption.

We have enough calcium (Ca) in our diet so additional substitution of Ca is not necessary [1]. The problem is Ca absorption and distribution [2]. Ca is water-soluble and very reactive. Provided it reaches the small intestine without forming an insoluble complex which if that is the case is simply excreted, it must then be absorbed through the fatty, oily mucous membrane. The water-soluble Ca needs a calcium system to achieve this, for example, vitamin D. Ca, absorbed through the small intestinal mucosa into the bloodstream, is then transported to and deposited into the soft tissue when the blood flow slows down. There is no active transport from the bloodstream to the teeth (molar-incisor hypomineralization) or the bones (osteoporosis) [3].

Periodontitis is always characterized by inflammation and bone loss. Periodontal bone loss is the number one cause of tooth loss after the age of 30. In recent years, there have been many new findings, techniques, and medications in periodontology for the treatment of periodontal inflammation.

Inflammation is triggered by microorganisms; however, there are no microorganisms that break down periodontal bone. Even if the bone lies in the ground for 100 years, it will not be broken down by microorganisms.

Bone loss in the body occurs exclusively through the body's immunological processes, the ratio of osteoblasts to osteoclasts, specifically due to too many activated osteoclasts. Different causes, microorganisms for inflammation and osteoclasts for bone loss, also require different therapies.

There are many different treatment options for treating inflammation.

The therapy of bone metabolism is largely unknown and takes place in 2 steps [4].

- Osteoid formation (a soft bone substance is created *via* osteoblast and osteoclast activity).

- Mineralization (this soft bone is hardened *via* the subsequent mineralization, the main mineral is calcium).

Only the therapy of bone metabolism, which can be carried out conservatively, nonsurgically, locally, or systemically, stabilizes the bone, strengthens the teeth, and reduces the gum pockets to 1-2 mm [2]. It changes the

Environment, which determines the germs. As a result the microbial composition subsequently changes from deep anaerobic pockets with pathogenic microorganisms to shallow, aerobic pockets with regenerative microorganisms.

It is not the treatment of inflammation that reduces the gum pockets. Inflammation therapy reduces and changes the composition of the microorganisms but as previously mentioned it is not microorganisms that break down or build bone so the old microbial composition would repopulate the existing, unchanged environment, the deep anaerobic pocket [2,5,6].

Reducing inflammation is nevertheless extremely important, it is the first step and the prerequisite but it is not the therapy of bone metabolism. Due to the inflammation with its microorganisms and reactions, the pH value in the periodontal gap drops locally to 4-6.5, depending on the severity of the inflammation, with devastating consequences. The periodontal gap borders directly on the root of the tooth and the bone; both have a pH value of over 12 due to the high calcium content. The constant contact with acid caused by the inflammation leads to demineralization *via* a completely normal acid-base balancing reaction. This causes hypersensitivity in the root of the tooth and the tooth neck area. The surrounding bone loses calcium and consequently stability and hardness.

1. This explains why more tooth neck hypersensitivity occurs in the periodontally inflamed area.

2. This explains why gum pockets form and teeth become loose (Figures 1,2).

The tooth is not only subjected to vertical stress, but primarily horizontal stress. The axis of rotation of the tooth is in the middle of the tooth root in the bone, and the root rotates around this point. Due to the constant inflammation in the gum pocket, the bone demineralizes and loses (Figure 3).

The bone cannot compensate for the horizontal thrust forces that are transmitted to it *via* the tooth and is expanded. Marginally, gum pockets form and can be seen apical on X-rays as diffuse osteolysis.

The treatment of the inflammation reduces the excessive blood flow to the region, the tissue becomes paler, the swelling goes down, the tissue becomes firmer, the existing pain disappears and the tooth can be loaded again. But the cause, the existing gum pocket, remains. For this, the treatment of bone metabolism is required.

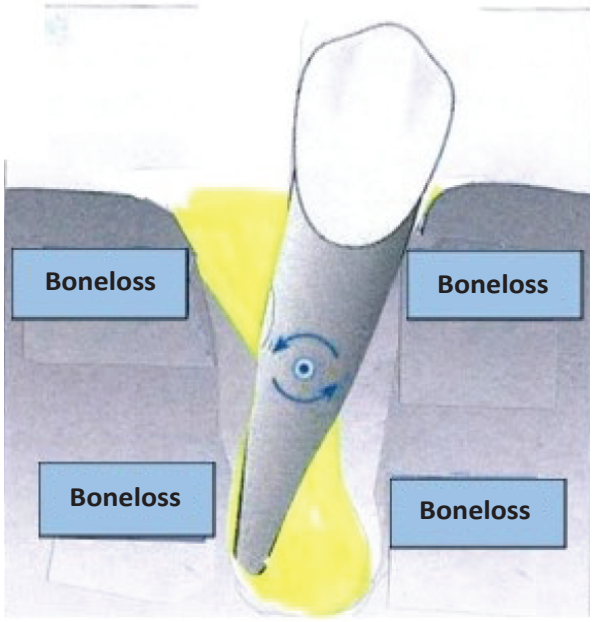

Figure 1: Horizontal force left-Boneloss.

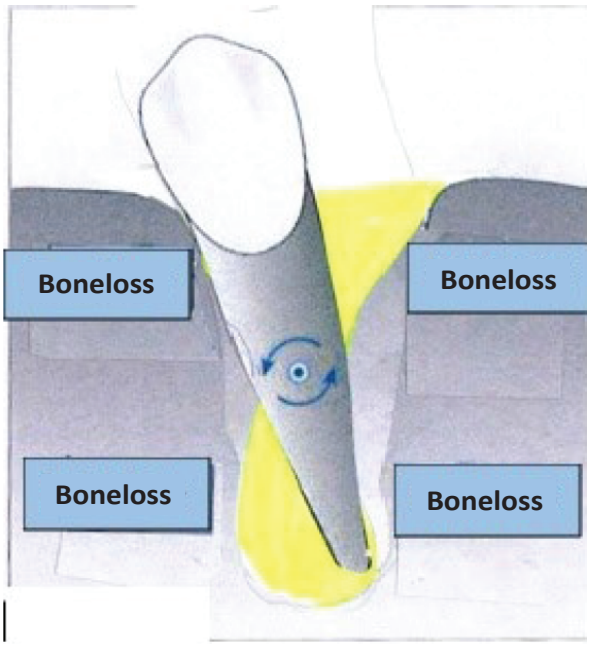

Figure 2: Horizontal force right-Boneloss.

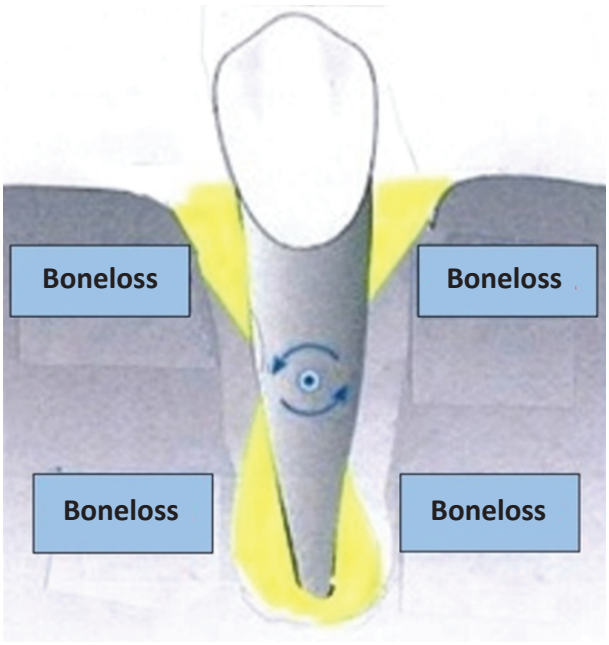

Figure 3: Tooth loses grip and becomes loose.

Bone is the only tissue in the body that renews itself without cell division. There is no mitosis in bone, it only has one metabolism, and this functions like the stomach. If you eat a lot, you get a fat stomach, if you eat little, you get a slim stomach, bone works the same way. If it is heavily loaded, the bone is stable, if the bone is not loaded, the bone is very delicate. Only if the bone breakdown is as high as the bone formation does the bone mass remain constant [4].

In the body, all processes, procedures, and reactions are hormonally controlled. Bone metabolism is controlled by 7 hormones: parathyroid hormone, calcitonin, vitamin D, stanicocalcin, estrogen, testosterone, and T3 [7]. There is only one control and only one bone metabolism. Periodontitis/periodontosis is simply the dental term for negative bone metabolism in the jaw. It is what we dentists see every day on the orthopantomogram. The bone structures are becoming darker and darker in large areas, which means that the bone structure is loosened and has lost mineralization and with that its hardness. Bone metabolism requires oxygen so if you see shadowed maxillary sinuses on the orthopantomogram, it is a clear sign that it is not working sufficiently. The reason for that is that nasal breathing, pineal gland, pituitary gland, and hypothalamus do not function optimally. If you see the styloid process on the orthopantomogram, the patient has Eagle syndrome, and the Ca is rarely transported to the bone but rather mainly stored in the soft tissue. The calcification of the soft tissue is accompanied by the deposition of cholesterol and the additional deposition of calcium, this hardens the tissue which loses flexibility and becomes rigid [8]. The process, which can be assessed on every orthopantomogram, is an X-ray indication of the Ca distribution problem. The process has a special affinity for Ca.

Periodontosis, osteoporosis is not a sign of aging, but a widespread, serious disease. The connection with age only arises because Ca metabolism decreases with age.

Currently, 5.2 million women and 1.1 million men aged 50 and over are affected in Germany, although the number of unreported cases is a lot times higher and the onset of the disease is shifting to younger and

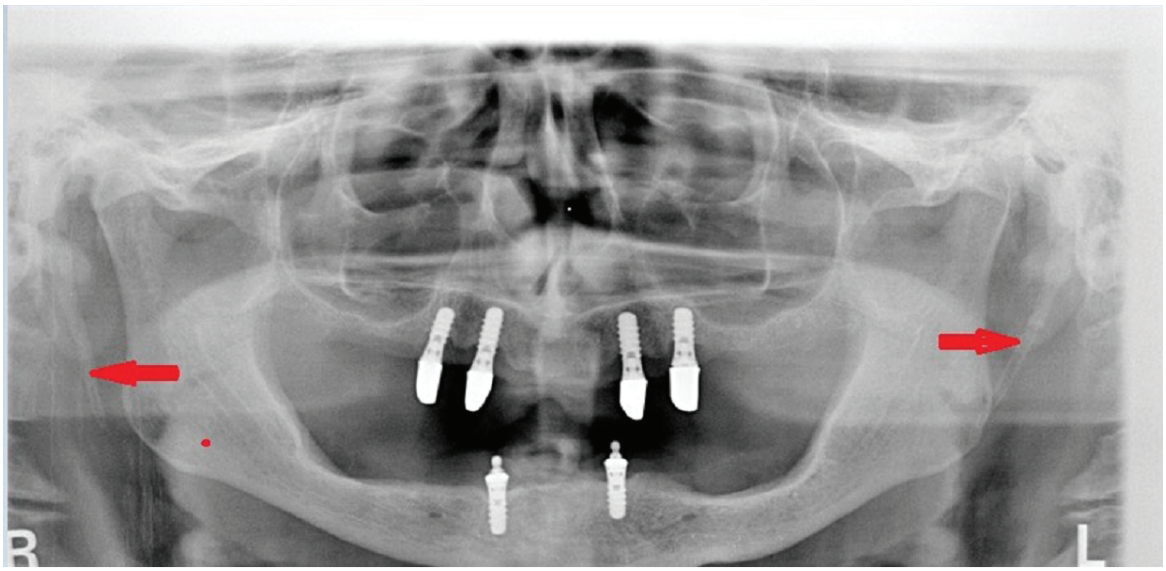

Figure 4: Egel syndrome: processus and ligamentum stylohyoideus slightly ossified.

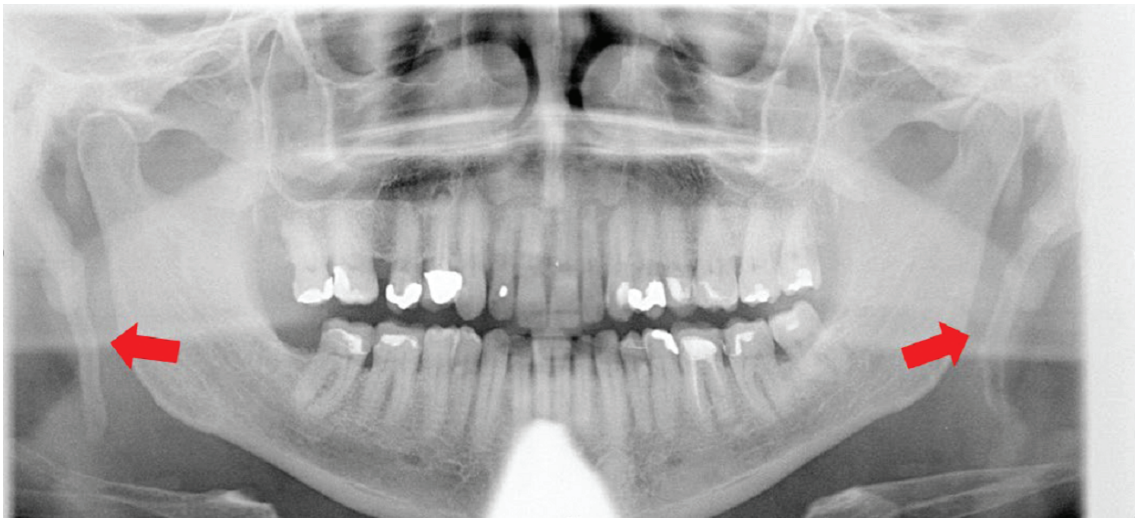

Figure 5: Egel syndrome: processus and ligamentum stylohyoideus massively ossified.

younger years. Within 4 years, almost every second woman and 2 out of 3 men with osteoporosis will have suffered a bone fracture [9], all because the bone lacks the main mineral, calcium [10] (Figures 4,5).

The aim of the therapy is not to treat the calcifications surgically or the consequences of hypercalcification with medication, but rather to gradually bring calcium metabolism back on track. In a functioning calcium metabolism, existing calcifications in the soft tissues, vessels, and also the styloid process will decalcify.

The calcium transported from the soft tissue can now be transported to the bone and integrated into the hormonally controlled calcium metabolism.

However, the prerequisite is that the bone has a need for calcium at all. Anatomy and function always adapt. The bone must be stressed daily so that it develops a calcium requirement.

References

1. Thomas EL (2020) Death through Calcium. Kopp Verlag.
2. Ronald M (2023) Therapy of inflammation is not therapy of bone. Dental Tribune 8: 6-7.
3. Wei FF, Trenson S, Verhamme P, Vermeer C, Staessen JA (2019) Vitamin K-Dependent Matrix Gla Protein as Multifaceted Protector of Vascular and Tissue Integrity. Hypertension. 73: 1160-1169.
4. Lothar T (2008) Laboratory and Diagnosis. 7th edition, TH-Books Verlagsgesellschaft Frankfurt/ Main.
5. Ronald M (2024) Understanding bone metabolism and treating it successfully. DZW P20.
6. Rheaume-Bleue K (2016) Vitamin K2 and the calcium paradox. Kopp Verlag.

7. Berndt R (2017) The Thyroid Gland, Balance for Body and Soul. 12th Edition, Herbig Verlag.

8. Vliegenthart R, Hollander M, Breteler MM, van der Kuip DA, Hofman A, et al. (2002) Stroke is associated with coronary calcification as detected by electron-beam CT: the Rotterdam Coronary Calcification Study. Stroke 33: 462-465.

9. Hadji P, Klein S, Gothe H, Häussler B, Kless T, et al. (2013) The epidemiology of osteoporosis - Bone Evaluation Study an analysis of routine health insurance data. Dtsch Arztebl Int 110: 52-57.

10. Hirscher Petra (2018) The healing power of vitamin K2. Riva Verlag.