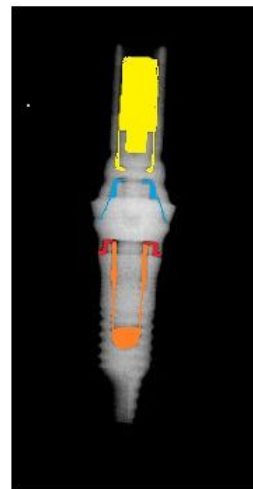


Short Communication



Hygeia , goddess of health

Endoimplantiasis : Description of a silent disease and neglected that can damage your health and longevity of implants



" We see the microorganism infecting the interior of the implants with mental eyes " Huttner 2016

" The oral cavity with endoimplantíase should be considered as a city without basic sanitation " Huttner 2016

Huttner Eder MSc, PhD

Head of Maxilofacial Center, Porto Alegre/ Brazil. Professor of Oral Geriatrics , Geriatrics and Gerontology Institute , PUCRS. Researcher of cytometry and Immunohistochemistry Laboratory, Pathology Service, Hospital Sao Lucas/Brazil

Duval, Vinicius. MDS, Msc, PhD

Head of cytometry and Immunohistochemistry Laboratory, Pathology Service, Hospital Sao Lucas, Medical Faculty, PUCRS, Porto Alegre/Brazil

Giuseppe Cardaropoli.....

Tietz Thaise, CD

Assistent of Surgery, Maxilofacial Center, Porto Alegre/ Brazil.

introduction

The Endoimplantiasis is a mixed infectious disease of bacterial and fungal origin that affects individuals with dental implants that have biological space in their internal structures. Described by Professor and Researcher Dr. Eder Huttner/Brazil et al. in 2016.

Dental implants since the discovery of osseointegration by Branemark in the 60s began a revolution in the rehabilitation of edentulous patients (toothless). implant-supported prostheses are important to good nutrition and just for general health and older adults^{1,2}. (Figure 1).

The presence of bacteria inside the implants began to be studied by Quirynen, van Steenberghe 1993 (2) and since then both in vitro and in vivo have been conducted to verify biological sealing ability of the microgap, abutment in different prosthetic platforms (3,4,5,6,7,8,9). In vitro studies suggest a trend for greater sealing capacity in implants with Morse taper type platform (CM) in relation to the internal hexagon platforms (HI) and the external hexagon (H)^{7,8}.

When the infiltration of bacteria in connection implant / prosthesis and verified with the simulation of the masticatory load is worse performance in sealing ability in all prosthetic platforms in relation to in vitro studies and no masticatory load (4-5). The results of in vivo studies are disappointing from a biological point of view of biosafety, known pathogenic bacteria for periodontal disease and periimplantitis colonize the interior of the implants and abutment and crown^{9,10,11}.

We have strong evidence that oral pathogenic bacteria inside the implants with great frequency and that these can develop a pathological response as mucositis and peri-implantite submerged in the same phase^{9,11,15}.

So far there are no reports in the literature Dental citation of Endoimplantase names and endoimplantose and corresponding in English, endoimplantiasis and endoimplantose. These words were searched on 11/4/2015 in Google Scholar, PubMed, Scielo, Bireme and Science. This fact contributes to confirm the term novelty in the Dental literature.

Facing the facts: a) There is no denying the presence of pathogenic bacteria inside the implants b) These bacteria cause a pathological response of the host , through fistulas , periimplantes and mucositis C) The internal infection of implants have signs , symptoms , etiology, radiographic signs , different treatment of other oral pathologies (periimplantitis and mucositis), we should consider this infection as a new disease and not a simple contamination. This disease is suggested call Endoimplantiasis or Endoimplantose (Figure 2).



Figure 1 - Protocol type Branemark ceramic



Figure 2 - Straight Minipilares after removal of the protocol , the presence of organic matter and microorganisms (endoimplantase in suprapilar region) .

Nomenclature

The World Health Organization (WHO) using the standardized nomenclature of parasitic diseases (SNOPAD) recommends for naming infections the IASE or OSE terms, and ose and a more commonly used term, but in veterinary infections (eg Zoonoses) also Ose and a term which also indicates degeneration, eg Arthrosis¹³. Thus it is suggested that the term Endoimplantiasis being endoimplantose also accepted.

Classification and nomenclature of diseases are complex and there is no consensus, but the name of the disease should seek to portray the location, nature and the etiologic agent. So we propose the term Endoimplantiasis. Endo = Latin "from within", from the Latin Implant "plantare" fix, insert and IASE = suffix recommended by WHO for infectious disease¹³.

Etiology

The endoimplantiasis a chronic infectious disease that occurs due to the presence of pathogenic microorganisms (bacteria and fungi) in the biological space in the internal dental implants, crown and abutment (Huttner 2016).

Pathogenic bacteria most commonly found are *Aggregatibacter actinomycetemcomitans*, *Porphyromonas gingivalis*, *Tannerella forsythensis*, *Treponema denticola*, *Prevotella intermedia*, *Peptostreptococcus micros*, *Fusobacterium nucleatum*, *Campylobacter rectus*, *corrodens* *Eikenella* and *Candida*^{10,11,12}.

The microgap between implant and prosthetic connection platform allows the flow of bacteria, saliva and micro-nutrients between oral cavity and the interior of the implants (Endoimplanto, Fig 5)¹⁶. The low oxygen and toilet inability of the patient becomes the interior implant an environment conducive to proliferation of anaerobic bacteria. The Endoimplanto should be considered a repository of oral pathogenic bacteria with communication to the oral environment^{10,11,12}.

This bacterial flora in the oral dimension varies on average between 1.1 and 1,5µm, including *Porphyromonas gingivalis* (0.5 to 2µm), *Actinobacillus actinomycetemcomitans* (0.4 to 1.0 mM) and *Fusobacterium nucleatum* (0.4 to 0,7µm), and bacteria such as spirochetes, 0.1 to 0,5µm. the microgap, local communication between the interior of the implant and the oral environment, has a size between 2 m and 7 micrometre⁶ and more advanced methods of research with electron microscopy can reach 20 µm to 150 µm making internal infection inevitable implant¹⁶.

Recent studies have shown that the prevalence of progression Endoimplantiasis the internal infection of the implants then occurs progressively installed and subjected to mastication after 3 months (21.2%) 4 months (66.6 %) and 12 months (90.9 %) 18. After 5 years independent platforms (HE, HI and CM) all implants should be considered infected internally^{10,11}.

Signals and sintomas

The most common signs are:

- Presence of visible organic material (Fig 1).
- Barely smell to remove the cover or provisional prosthesis (Fig 3).
- Fistulas (Fig 4), swelling and pus and inflammation in supradjacente mucosa to cover the surgical or peri-implant stage (Fig 2).

The most common symptoms reported by the patient are:

- Odor
- like bad
- I like metal
- Pain around the implant
- Swelling



Figure 3 - installed implants 3 years ago featuring organic material inside and mucositis.



Figure 4 - source Fistula deploy submerge phase, internal infection in the implant.

Radiographic Aspects

The image in the panoramic RX or Rx Periapical suggesting an internal biological width of the implant (endoimplanto) Figure 5, presents itself as a radiolucent area in the central region of the implant, size and variable manner according to implant the internal design and screw prosthetic (Fig 4). Computed microtomography allows mellhor view of the internal spaces of the implants (Fig 5). In Figure 6 we can identify the fistulous path toward the implant also in the submerged phase by inserting a cone of gutta-percha.

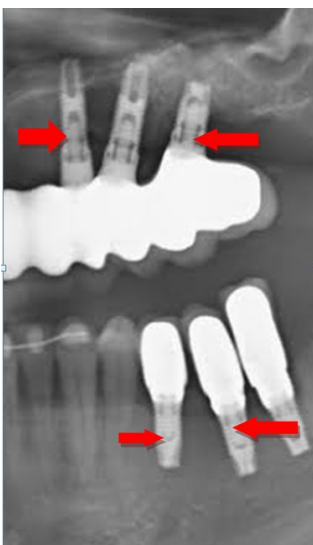


Fig 4 - Radiographic aspect of endoimplantiasis (spaces "empty"). HE 3,75 mm 10 mm (Exopro S/A, P-I Bra°nemark Philosophy, Bauru, Brazil)

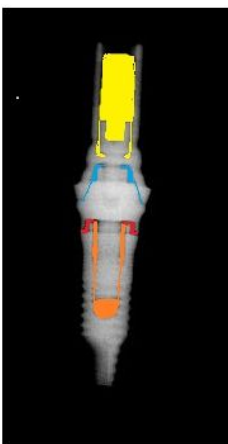


Figure 5 - Illustration of endoimplanto, MicroCT. Implant HE, 3,75 mm 10 mm, Pilar 2mm, UCLA. (Exopro S/A, P-I Bra°nemark Philosophy, Bauru, Brazil)

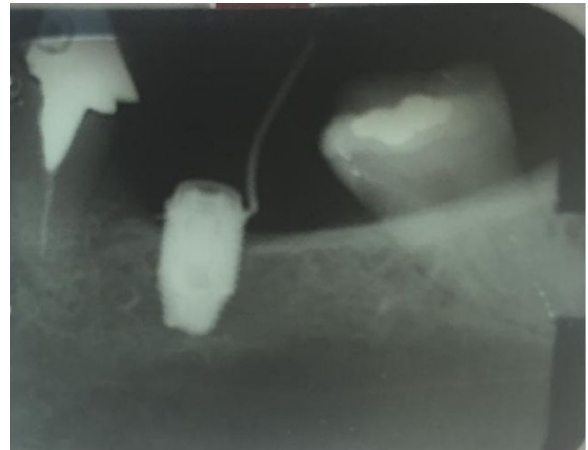


Figure 6 - Radiographic aspect of fistulae of Figure 4. HE, 5.0 mm x 10 mm (Exopro S/A, P-I Bra°nemark Philosophy, Bauru, Brazil)

Treatment

The treatment consists in the use of resources not yet been established to provide the sealing of the microgap, and filling the interior of the implants. First of all, internally disinfect the implant of two parts is a matter of hygiene, a basic principle of health. The presence of pathogenic microorganisms and proven and needs to be handled^{11 12}.

The endoimplantíase if left untreated has the potential to contribute to the development of periodontal infections, which are known in addition to contribute to dental loss and its consequences, can lead to diseases in vital organs such as endocarditis and brain abscess and others 17.

"One should do with the mind's eye germs about to infect the wound through the air. See them clearly how you perceive the flies with physical eyes" (Lister, 1874)

Conclusions

- The presence of pathogenic microorganisms inside the implants is common for all types prosthetic platforms (HE, HI, CM)
- The term Endoimplantíase to describe this "new" disease follows the naming requirements and recommendations.
- The term endoimplantíase and its concept are unprecedented in the specialized health literature
- Urge the need for training of dental professionals for diagnosis and treatment of endoimplantíase.
- The endoimplantíase should be considered a repository of pathogenic bacteria that can operate in the development and perpetuation of mucositis, periimplantitis, gingivitis and periodontal disease.

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