

Oncology Clinical Treatment between Dentistry and Physician in Relationship with Antiresorptive Drugs

Case Report

Volume 1 Issue 1- 2020

Author Details

Picardo Silvana N^{1*}, Rodriguez Genta Sergio A², Gonzalez Lorena R³, Rey Eduardo A⁴

¹Head of Practical Works Chair in Oral and Maxillofacial Surgery II School of Dentistry, University of Buenos Aires and Department of Dentistry Favaloro Foundation University Hospital, Argentina

²Head of Practical Works Chair in Oral and Maxillofacial Surgery II School of Dentistry, University of Buenos Aires, Argentina

³Head of Practical Works Chair in Oral and Maxillofacial Surgery I School of Dentistry University of Buenos Aires, Specialist in Maxillofacial Surgery School of Dentistry of Buenos Aires University, Specialist in Legal Odontology School of Dentistry of Buenos Aires University, Head of Dentistry and Maxillofacial Surgery Service Ignacio Pirovano General Acute Hospital Buenos Aires Autonomy City, Argentina

⁴President of the National Academy of Dentistry, Consultant to the National Academy of Medicine, Former Professor of Oral and Maxillofacial Surgery School of Dentistry University of Buenos Aires, Argentina

*Corresponding author

Picardo Silvana N, Head of Practical Works Chair in Oral and Maxillofacial Surgery II School of Dentistry, University of Buenos Aires and Department of Dentistry Favaloro Foundation University Hospital, Argentina, Tel: +541165666424;

Article History

Received: October 21, 2020 Accepted: December 22, 2020 Published: December 21, 2020

Abstract

Oncology patients whose are diagnosed with hypercalcemia malignant and related events associated with bone metastases and they are prescribed with antiresorptives such as bisphosphonates, denosumab or antiangiogenics drugs. Those patients could be affected with MRONJ [Medication Related Osteonecrosis of the Jaw] expressed in their different Stages: Stage 0, Stage 1, Stage 2, Stage 3.

Most of them attend your dental citation on Stage 3 when MRONJ caused irreversible pain as pathological fractures, anesthesia of the lower dental nerve, bucco-sinus o bucco nasal communication, skin fistulas vaguely in maxilla or jaw.

The objective of the authors is developing a clinical oncology case report with a chronical buccal sinusal communication.

Abbreviations: MRONJ: Medication Related Osteonecrosis of the Jaw; AR: Antiresorptive drugs; BPs: Bisphosphonates; DS: Denosumab

Introduction

American Association of Oral and Maxillofacial Surgeons AAOMS in 2014, determines the concept Medication Related Osteonecrosis of the Jaw associated with antiresorptive and antiangiogenic drugs as "necrotic bone area exposed to the oral environment with more than eight weeks of permanence, in the presence of chronic treatment with bisphosphonates in the absence of radiotherapy in head and neck" [1].

According to the clinical characteristics, the AAOMS classified it into 4 groups considering the clinical and radiological appearance of the osteonecrotic lesion.

Stage 0: osteonecrotic lesion without evidence of necrotic bone in patients with antiresorptive drug use.

Stage 1: Osteonecrotic lesion with clinical signs and absence of clinical symptoms.

Stage 2: Osteonecrotic lesion with evident clinical signs and symptoms.

Stage 3: Osteonecrotic lesion with an evident sign and symptoms that compromise noble structures: pathological fractures, anesthesia of the lower dental nerve, bucco-sinus or bucco-nasal communication, skin fistulas [2].

It is known that both anti resorptives drugs [AR]: Bisphosphonates [BPs], denosumab [DS] have the purpose of inhibit bone reabsorption, for this reason, in low concentrations it is used in the treatment of pathologies of bone metabolism, such as osteopenia and osteoporosis, but in high doses its purpose is reducing disorders of oncological pathologies such as hypercalcemia malignant [3,4].

The mechanism of action of the medication related in this article, it has been studied and It has been determined which is the relationship between osteoblasts-osteoclasts, the consequence relapse over the remodeling metabolism in maxillary bone where the vascular nutritional contribution altered indeed. As a consequence, hyper mineralized bone formed microfractures or exposure oral environment with the



consequent over-aggregation of microbiological infection, in this case, MRONJ could be diagnosed in their clinical Stages [5,6,7].

It is known Anti resorptives suffered bone accumulation, so their administration could not be interrupted in order to solve diagnosis MRONJ, because their action falls on osteoclastic activity and their half-life is long [8].

Dental anamnesis must contain Anti resorptives history to get differential diagnosis between MRONJ, osteomyelitis and osteoradionecrosis in order to establish the appropriate therapy [9].

Clinical Case

Female patient, 65 years old, from Buenos Aires [Argentina], she was diagnosed with breast CA and lung metastasis, treated with denosumab 60mg/ml/20 days during 6 years of treatment, which she had never interrupt. Patient died because of SARs CoV 2, November 2020.

She had spontaneous bilateral bucco-sinus communication without dental inductions as extractions, surgeries treatments, etc. (Figure 1 & Figure 2). She had been presented with Computed Tomography showing a radiopaque bilateral sinuses images with clinical references: painless, suppurating without systemic compromise but she had over contaminated bone exposures (Figure 3).



Figure 1: Spontaneous lesion in maxilla, quadrant I.



Figure 2: Spontaneous lesion in maxilla, quadrant II.

Atraumatic treatment rinses with chlorhexidine 0,12%, Povidone-iodine 10% and Beta lactam antibiotic: Amoxicillin 500mg + clavulanic acid 125mg each 8 hours for 7 days, was decided to prescribed with otorhinolaryngology physician by interdisciplinary way in the opportunity moment of clinical inflammatory symptoms.

MRONJ was accompanying your two systemic clinical exacerbations [lymphadenopathy, fever, tumor] during her pathological process [10].

Patient was diagnosed MRONJ Stage 3 [irreversible Stage because buccal-sinus bilateral communication]. She expelled a little bone sequestration from right maxilla, reconfirming MRONJ diagnosis with the support of the Laboratory of Pathological Anatomy [11].



Figure 3: Computed Tomography showing pathology bilateral bucco-sinus communication, quadrant I and II.

Patient was attending dental consultation every 6 months or in the case she had needed dental attention in order to control clinical dissemination working with otorhinolaryngology physicians.

Discussion

Atraumatic treatment like mouthwashes and antibiotic therapy must be prescribed if it is needed and it is the best choice to not manipulate necrotic bone with MRONJ diagnosis. Removable prostheses must be evaluated in order to avoid pressures through oral mucosa, plastic restorations, supra-gingival periodontal treatment and endodontic treatments are not contraindicated [9,13,14].

It is recommended, antibiotic prophylaxis prescription according to the American Heart Association in oncology patients, when patients are diagnosed MRONJ avoiding develop infective endocarditis, if it would be necessary according dental treatment [15].

The expectant and conservative dental behavior should be attended. On the other hand, in a recurrent infectious event, microbiology dissemination would be present and physical condition could be aggravated so, bone manipulation could expand the necrotic bone lesion as a consequence that is not recommended by the authors [16]. When patients with diagnosis MRONJ: Stage 3 [irreversible lesions], suffer resective therapies because of patient morbidity it provides a palliative solution MRONJ as a treatment but bone necrosis do not solve [17,18].

Publications support prescribing mouthwashes changing them fifteen days long in order to produce the reflux of the inflammatory content: 0.12% Chlorhexidine and 0.05% Rifamycin, 10% Povidone Iodine and 0.5% Cetyl pyridinium chlorid [19].

The supply of drugs related to pain, the family of NSAIDs [Ibuprofen 600mg/6 hs] are adequate according to the tolerance of the patient.

The empirical bactericide antibiotics must be select to avoid anaerobiosis microbiology: amoxicillin 500mg with clavulanic acid 125mg every 8 hours, in case of a lack in the recovery response at 72 hours, metronidazole 500mg could be added. In severe MRONJ situations authors suggest ciprofloxacin 500 mg every 12 hours between 10 days [1,9].

Patients whose are under treatment with antiresorptives or antiangiogenic drugs because their oncological pathology, require clinical dental and physician attention in interdisciplinary way, considering that the professionals who are involved in their therapies must have

fluid and constant communication so, the detection of any abnormal situation could be detected as soon as possible [20,21].

Conclusion

Bone pathologies that involve maxillary tissue must be identified by dentists. For this reason, a close control of the oral health in oncology patients must be developed monthly, indeed if they were prescribed with Antiresorptives or Antiangiogenics drugs that could cause MRONJ. It is well known that radiotherapy in oncology patients would develop cellular damage in osteoblasts and osteoclasts in relation with the intensity of radiation received, generating osteoradionecrosis and patients must be treated in a similar way as patients with osteomyelitis. It is the main differences between MRONJ and the other ones [9,22].

Antiresorptives or Antiangiogenic drugs such as bisphosphonates according to their accumulation should not be suspended because this situation does not contribute any benefit with dental treatment. Denosumab has a reversible pharmacodynamics, but if its administration is suspended bone mass decrease significantly, so authors believe it is not necessary physicians suspend this drug too [23].

We conclude that conservative dental therapies and interdisciplinary ones are essential to achieve success in the treatment of patients with MRONJ.

Acknowledgement

None.

Conflicts of interest

The author declares that there is no conflicts of interest.

References

- Ruggiero SL, Thomas B, Dodson, John Fantasia, Reginald Goodday, Tara Aghaloo, et al. (2014) American Association of Oral and Maxillofacial Surgeons position paper on medication-related osteonecrosis of the jaw-2014 update. *J Oral Maxillofac Surg* 72(10): 1938-1956.
- Marx Robert E. *Oral and Intravenous Bisphosphonate-Induced Osteonecrosis of the Jaws, History, Etiology, Prevention and Treatment*. Quintessence Publishing Co, Canada: 2007.
- Kim KM, Rhee Y, Dae Kwon Y, Geo-Kwon T, Lee JK, et al. (2015) Medication related Osteonecrosis of the jaw: 2015 Position Statement of the Korean Society for bone and Mineral Research and the Korean Association of Maxillo Facial Surgeons. *J Bone Metab* 22: 151-165.
- Zanchetta MB, J Boailchuk, F Massari, F Silveira, C Bogado, et al. (2018) Significant bone loss after stopping long-term denosumab treatment: a post FREEDOM study. *Osteoporos Int* 29(1): 41-47.
- Cabrini RL. *Anatomía Patológica Bucal*. Editorial Munid. S.A.I.C. y F. Buenos Aires Argentina. 1980.
- Fleisher KE, Kontio R, Otto S (2016) Antiresorptive drug-related osteonecrosis of the jaw (ARONJ)- a guide to research. *AOCMF*.
- Picardo SN, Rey EA (2017) Osteonecrosis of the jaw in patients undergoing long-term treatment with bisphosphonates: incidence and associated characteristics. *J Clin Med Case Stud* 2: 48-54.
- Dhanda J, Pasquier D, Newman L, Shaw R (2016) Current Concepts in Osteoradionecrosis after Head and Neck Radiotherapy. *Clin Oncol (R Coll Radiol)* 28(7):459-466.
- Picardo SN, Rey EA (2017) Clinical Healthcare Protocol For Bisphosphonate Related Osteonecrosis Of The Jaw. *International Journal Of Dentistry And Oral Health* 3: 42-44.
- Pushalkar S, Li X, Kurago Z, Ramanathapuram LV, Matsumura S, et al. (2014) Oral microbiota and host innate immune response in bisphosphonate-related osteonecrosis of the jaw. *Int J Oral Sci* 6(4): 219-226.
- Paparella ML, Brandizzi D, Santini Araujo E, Cabrini RL (2014) Osteonecrosis of the Jaw Associated with Bisphosphonates. A Histopathological Study of 24 Cases. *JMS Dent* 2(3): 1037.
- Khan AA, Archie Morrison, David L Kendler, Rene Rizzoli, David A Hanley, et al. (2017) Case-Based Review of Osteonecrosis of the Jaw (ONJ) and Application of the International Recommendations for Management From the International Task Force on ONJ. *J Clin Densitom* 20(1): 8-24.
- Limones A Sáez-Alcaide LM, Díaz-Parreño SA, Helm A, Bornstein M, Molinero-Mouelle P (2020) Medication-related osteonecrosis of the jaws (MRONJ) in cancer patients treated with denosumab Vs zoledronic acid: A systematic review and meta-analysis; *Med Oral Patol Cir Bucal* 25(3): 326-336.
- Albanese M, et al. (2020) Conservative non-surgical management in medication related osteonecrosis of the jaw: a retrospective study. *Clin Exp Dent Res* 10:1002.
- Nishimura RA, Otto CM, Bonow RO, Blase A Carabello, John P Erwin, et al. (2017) 2017 AHA/ACC Focused Update of the 2014 AHA/ACC Guideline for the Management of Patients With Valvular Heart Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation* 135(25): 1159-1195.
- Wei X, Pushalkar S, Estilo C, Wong C, Farooki A, et al. (2012) Molecular profiling of oral microbiota in jawbone samples of bisphosphonate-related osteonecrosis of the jaw. *Oral Dis* 18(6):602-612.
- Nicolatou-Galitis O, Morten Schiødt, Rui Amaral Mendes, Carla Ripamonti, Sally Hope, et al. (2019) Medication-related osteonecrosis of the jaw: definition and best practice for prevention, diagnosis, and treatment. *Oral Surg Oral Med Oral Pathol Oral Radiol* 127(2): 117-135.
- Adler RA, Ghada El-Hajj Fuleihan, Douglas C Bauer, Pauline M Camacho, Bart L Clarke, et al. (2016) Managing Osteoporosis in Patients on Long-Term Bisphosphonate Treatment: Report of a Task Force of the American Society for Bone and Mineral Research. *J Bone Miner Res* 31(1): 16-35.
- Farzan A, Firoozi P (2020) Common Mouthwashes for Pre-Procedural Rinsing in Dental Practice: Wich One Is Appropriate for Eliminating Coronaviruses? A Mini Literature Review. *Regen Reconstr Restor* 5: 2.
- Campisi G, Mauceri R, Bertoldo F, Giordana Bettini, Matteo Biasotto, et al. (2020) Medication-Related Osteonecrosis of Jaws (MRONJ) Prevention and Diagnosis: Italian Consensus Update 2020. *Int J Environ Res Public Health* 17(16): 5998.
- Ruggiero S, Saxena D, Tetradis S, Aghaloo T, Ioannidou E (2018) Task Force on Design and Analysis in Oral Health Research: Medication-Related Osteonecrosis of the Jaw. *JDR Clin Trans Res* 3(3): 222-225.
- Campisi G, Mauceri R, Bertoldo F, Bettini G, Biasotto M, et al. (2020) Medication-Related Osteonecrosis of Jaws (MRONJ) Prevention and Diagnosis: Italian Consensus Update 2020. *Int J Environ Res Public Health* 17(16): 5998.
- Bone HG, Rachel B Wagman, Maria L Brandi, Jacques P Brown, Roland Chapurlat, et al. (2017) 10 years of denosumab treatment in postmenopausal women with osteoporosis: results from the phase 3 randomised FREEDOM trial and open-label extension. *Lancet Diabetes Endocrinol* 5(7): 513-523

