

Prevalence of Maxillary Sinus Jaw Mucuous Cysts in University Dental Radiology Service

ORIGINAL

Joaquim Lira Saraiva Neto¹, Lidia Audrey Rocha Valadas Marques¹, Edilson Martins Rodrigues Neto², Barbara Betty de Lima¹, Francineudo Oliveira Chagas¹, Ana Cristina de Mello Fiallos³, Henrique Clasen Scarparo¹, João Hildo de Carvalho Furtado Junior¹, Lúcio Mitsuo Kurita¹, Patricia Leal Dantas Lobo⁴, Allana Bezerra Capistrano¹, Erika Saboia Guerra Diogenes¹, Rávilla Alves da Silva¹, Paulo Arthur Mendonça Bruno⁵, Sebastião da Silva Santos¹, Márcio Glauber Lopes de Aguiar¹, Carlos Ricardo de Queiroz Martiniano¹

Abstract

Background: Mucosal cyst of the maxillary sinus or antral pseudocyst is one of great importance injury, being the pathology that affects more the maxillary sinus. Their discovery, in most cases, it is for the interpretation of the images in routine panoramic radiography.

Aims: The research aimed to evaluate the prevalence of mucous cyst in maxillary sinus in radiology clinic at Ceara Federal University.

Material and Methods: To this study conduction, were analyzed 1996 panoramic radiographs from a digital file obtained between April 2011 to April 2013.

Results: Aspects as gender, affected side and teeth absence next to the cyst in the respective quadrant were evaluated. It was observed in the sample the occurrence of 45 patients with suggested images of mucous cysts in maxillary sinus, making a prevalence of 2.25%. From them, 26 (57.8%) were female and 19 (42.2%) were male. 48 maxillary sinus were affected with the wound, from which 28 (58.3%) it was in the left side and 20 (41.7%) in the right site. Three patients presented the wound in both sides, what represents 6.7% of the affected patients. From those 48 Mucous retention cyst, 40 (83.3%) were not related to an edentulous area in ipsilateral quadrant and 8 (16.7%) were shown next to an edentulous area.

- 1 Department of Clinical Dentistry, Federal University of Ceará.
- 2 Department of Physiology and Pharmacology, Federal University of Ceará/Pharmacy School, Catholic University Center of Quixadá.
- 3 Department of Restorative Dentistry, Federal University of Ceará.
- 4 Dentistry School (Sobral)/Federal University of Ceará.
- 5 Medical School, Federal University of Paraíba.

Contact information:

Edilson Martins Rodrigues Neto.

 edilsonmrneto@hotmail.com

Conclusion: The conclusion was that the cyst of retention mucous in the maxillary sinus had prevalence in males and in the left side of the maxillary sinus. It was not found a relation between the cyst and the edentulous area.

Keywords

Mucous Retention Cyst;
Prevalence; Panoramic
Radiography; Maxillary Sinus
Jaw Cysts.

Introduction

Mucosal cyst of the maxillary sinus or antral pseudocyst is one of great importance injury, being the pathology that affects more the maxillary sinus. Their discovery, in most cases, it is for the interpretation of the images in routine panoramic radiography [1-5].

The process of formation of this cyst usually consists of an inflammatory exudates that has accumulated under the mucosa of the maxillary sinus and caused a rise sessile. It is a condition that affects more the maxillary sinus and the aetiology is unknown, but may be attributed to allergic and inflammatory processes of the nasal sinus mucosa, trauma, and periapical periodontal infections, relative humidity and temperature decrease [1, 2, 3, 5].

Radiographically appears as a slightly lesion, well-defined, homogeneous, oval-shaped or dome, the insertion base can be wide or narrow. The panoramic radiograph allows the maxillary sinus floor display, especially in its lower wall, which allows to clearly identify the presence of mucous cyst. This image has been proven very effective in the diagnosis of this injury [6-8].

According to Rodrigues et al., 2013, the radiographic image analysis gives opportunities for dentists to detect changes in the maxillary sinus. The maxillary sinus mucous cyst has unique characteristics that make it a classic lesion is diagnosed, but the differential diagnosis, one can cite the Dentigerous cysts, malignant and hyperplasia [1].

Works analyzed, show that in panoramic radiographs, this lesion presents between 2% and 10%

of samples, especially in Caucasian patients were male. It is also seen that the age group 20-30 years is the most prevalent, with no preference for the side of the affected breast, with the characteristic, and in most unilateral cases [3].

Usually, this lesion is asymptomatic requiring only the radiographic monitoring of the same, since in many cases it spontaneously regresses [7, 9]. A few clinicians prefer confirm your radiographic impressions and delete a tumor by puncture and drainage of the inflammatory exudates. In symptomatic cases (headache, fatigue, facial neuralgia and vertigo extreme cases) surgical intervention is necessary by Caldwell-Luc surgery, allowing easy access and viewing of foreign bodies [3, 6]. Its growth is slow and does not affect the integrity of the cortical bone of the sinus floor [1, 6]. Their size varies from the size of a grain of corn to that of a walnut, and occasionally can grow so much to completely fill the antral cavity [7].

The Caldwell-Luc access is made in the anterior wall of the maxillary sinus, for it is made a linear incision 0,5 cm above the inserted mucosa in the region between canine and premolars, posterior total thickness of detachment to the infraorbital region, access and removal of foreign body or altered mucosa. Postoperatively it is recommended the use of antibiotics and nasal wash with saline [9].

The panoramic radiograph to be an easy exam and low cost, It has been indicated as a routine in the dental practice, thanks to its viewing range with low amount of radiation in a single examination.

Even the panoramic radiograph showing no maxillary sinus with details, continues to have a significant use by the dental profession to diagnose some diseases as well as some facial abnormalities [3, 7]. According to (Rodrigues et al., 2013), detecting images of mucous retention cysts of the maxillary sinus can help define their characteristics and behaviors, as well as establishing a therapeutic protocol. They also claim that clinical and radiographic examinations are essential to define alternative treatments and rule out other conditions such as mucocele, polyps and sinusitis [1].

Since the importance of epidemiological study and the performance of various dental specialties on the maxillary sinus. It aimed to evaluate the prevalence of mucous cysts of the maxillary sinus in the Clinic of Radiology at the Federal University of Ceara Dental Science Course, Fortaleza-CE- Brazil, through the evaluation of panoramic radiographs.

Materials and Methods

Retrospective and radiological clinical study with a survey of 1,996 digital panoramic radiographs were performed in the radiology clinic at the Federal University of Ceara Dental Science Course, Fortaleza-CE, between April 2011 and April 2013. Were excluded all panoramic radiographs did not provide adequate visualization of the maxillary sinuses, regardless of patient age. The study of two dentist researchers where both reviewed the panoramic radiographs to mucous retention cyst detection, and to enter into agreement, the overview was included in the study. The criterion for judging the existence of the mucous cyst was the presence of a radiopaque image, oval-shaped or dome, on the floor or walls of the maxillary sinus. In doubts about similar anomalies the differentiation was made by computed tomography The data were analyzed according to gender, affected side and absence of teeth next to suggestive of mucinous cyst of the maxillary sinus. Furthermore, a litera-

ture review was conducted to compare the sample submitted to the previously published studies. This study as required by Resolution nº466/12 was approved by the Ethics Committee of the Ceara Federal University an opinion 1.287.565.

Results

It was found that of 1996 patients evaluated radiographically, 38% were male and 62% female, getting this sample depending on the influx of patients to the service of Clinical Radiology of the Ceara Federal University. It was found that of 1996 patients evaluated radiographically, getting this sample depending on the influx of patients to the service of Clinical Radiology at Ceará Federal University.

From those 45 patients, 26 (57.8%) were female and 19 (42.2%) were male. From those patients, 48 maxillary sinuses were suggestive image of mucous cysts of the maxillary sinus, that is, three patients (6.7%) had bilateral lesions, 28 (58.3%) on the left and 20 (41.7%) on the right.

Of the 48 mucosal lesions suggesting cyst of the maxillary sinus 40 (83.3%) were not associated with an edentulous area in the ipsilateral quadrant and 8 (16.7%) presented near the edentulous area with one or more missing teeth. **(Figure 1)**.

Figure 1: Panoramic radiograph with suggestive image of mucosal retention cyst in the left.



Discussion

According to Farman and Nortjé (2002) extensive lesions occupying the maxillary sinus can produce surprisingly few clinical signs [9]. For this reason, the first panoramic radiograph may indicate that other tests the presence of disease in the maxillary sinus, thus fitting the dentist understand panoramic radiological features of the disease and the normal variations of the paranasal sinuses. [10] In cases where the panoramic radiograph occur overlapping images of adjacent structures, indicates the computed tomography [7, 11].

The prevalence of mucous retention cyst of the maxillary sinus found in 45 of 1996 panoramic radiographs analyzed was 2.25%. Convergent result previous studies that found Mucous cysts in 1,5% to 14% of the sample [2, 3]. According to Rodrigues et al., (2009), when a total of 6293 panoramic radiographs were evaluated, they realized that 201 were suggestive of mucosal retention cysts, resulting in a prevalence of 3.19%[4]. Gonçalves and Silveira (1993) analyzed 3.180 reports of panoramic radiographs in which the event occurred in 139 patients with mucous cysts of the maxillary sinus, giving a prevalence of 4.4% [6]. Rodrigues et al., (2013), reviewed 6.000 panoramic radiographs of a digital file, where 185 radiographs were suggestive of mucosal retention cyst of the maxillary sinus or 3.08% of the total [1].

Mucous retention cysts were found in 26 female patients (57.8%) and 19 males (42.2%). Showing a slight predilection for females when dealing with the number of cases, but referring to the total sample, it has a predilection for males, which is in line with other studies that reported a greater predilection for males cyst [2, 3].

Bósio et al., (2009) [5], in a study of 173 orthodontic patients, found a prevalence of 5.8% of cases of maxillary sinus retention cyst, which was no significant difference between men and women. The prevalence of mucous retention cysts in the maxillary sinus is around an average of 5%, but va-

ries from study to study, perhaps due to the population, location and period. The prevalence is about two times higher in men than in women [7].

Of the 45 patients, 48 maxillary sinuses were suggestive image of mucous cysts of the maxillary sinus, that is, three patients (6.7%) had bilateral lesions, 28 (58.3%) on the left side and 20 (41.7%) on the right. Studies show a predilection of the cyst the left. Manhães Jr. (2002) claimed to be the mucous retention cyst, in most cases, unilateral, which draws more attention of the dentist in the analysis of panoramic radiographs by noting the difference between healthy sinus and the other with the injury [3].

Of the 48 lesions suggestive of mucous cyst of the maxillary sinus, 40 (83.3%) were not associated with an edentulous area in the ipsilateral and 8 quadrant (16.7%) presented next to an edentulous area (one or more missing teeth). Those findings testify the studies of Soikkonen et al (1994) cited by Manhães Jr. (2012) they encounter in their work, cysts in dentate and edentulous patients. However in this study, most of the mucosal retention cysts (83.3%) were found in patients without dental absences near the cyst, which makes us think that the etiology of it has no association with edentulous areas [3].

It can be seen that the mucous cysts of the maxillary sinus, in most cases is a radiographic finding, which means that the dentists have to pay attention more precisely to the region of the maxillary sinus lesions in search not only look eyes to the area of the teeth [1].

Conclusion

Although the prevalence of mucosal retention cysts in this study was low, represented by 2.25% of the entire sample, have that the dentist must be attend your event, it is a condition that affects more breasts jaw being associated with allergic or inflammatory processes and are asymptomatic. The data

go against those described in the literature, and males the most affected proportionally, occurring predominantly unilateral, the left side more affected and showing no direct relationship with edentulous areas.

References

1. Rodrigues CD, Silveira MF, Alencar AHG, Silva MAGS, Mendonça EF, Estrela C. Three-dimensional images contribute to the diagnosis of mucous retention cyst in maxillary sinus. *Med Oral Patol Cir Bucal*, 18(1): e151-e157, 2013.
2. Andrade VC, Bacchi A, Salim MAA, Bourguignon Filho AM. Cisto Mucoso De Retenção – Relato De Caso Clínico. *Saber Científico Odontológico*, Porto Velho, 2 (1):66-72, 2012.
3. Manhães Júnior LRC. Cisto mucoso do seio maxilar: importância no diagnóstico radiográfico. [Monografia] Piracicaba/UNICAMP (SP), 2012.
4. Rodrigues CD, Freire GF, Silva LB, et al. Prevalence and risk factors of mucous retention cysts in a Brazilian population. *Dentomaxillofacial Radiology*, 38(1):480-3, 2009.
5. Bósio JA, Orlando T, Rovigatti E, Gruner SK. The incidence of maxillary sinus retention cysts in orthodontic patients. *World Journal of Orthodontics*, 10(1): e7-e8, 2009.
6. Gonçalves RCC, Silveira MMF. Cisto mucoso do seio maxilar: prevalência em radiografias panorâmicas. *Revista odontológica do Brasil central*, 3(8):19-22, 1993.
7. Batista OS, Rosário Júnior AF, Wishinieski C. Contribuição para o estudo do seio maxilar. *Rev Port Estomatol Med Dent Cir Maxilofac*, 52(4): 235-39, 2011.
8. Matheny KE, Dunacavage JA. Contemporary indications for the Caldwell-Luc procedure. *Curr Opin Otolaryngol Head Neck Surg*, 11 (1), 23-6, 2003
9. Farman AG, Nortjé CJ. Pathologic conditions of the maxillary sinus. *Panoramic Imaging News*, 2(3):1-7, 2002.
10. Cury SEV, Cury DPN, Silva BSF, Molina OTF, Araújo JO, Manhães Jr, Oliveira LB. Pseudocisto Antral: Prevalência na cidade de Volta Redonda, Rio de Janeiro, Brasil. Antral pseudocyst: prevalence in the city of Volta Redonda, Rio de Janeiro, Brazil. *Rev Cadernos UniFOA*, 05 (1):69-84, 2013.
11. Castro AJR, Sassone LM, Amaral G. Maxillary sinus changes and the relationship with dentistry problems sources. *Revista do Hospital Universitário Pedro Ernesto, UERJ*, 12 (1):30-5, 2013.

Publish in International Archives of Medicine

International Archives of Medicine is an open access journal publishing articles encompassing all aspects of medical science and clinical practice. IAM is considered a megajournal with independent sections on all areas of medicine. IAM is a really international journal with authors and board members from all around the world. The journal is widely indexed and classified Q2 in category Medicine.