

DISCUSIÓN

El QOG es una lesión rara que corresponde al 0.012% de los quistes en los maxilares según López y su equipo;¹¹ el presente reporte coincide con lo reportado en la literatura en cuanto a las características clínicas del QOG como un aumento de volumen asintomático,¹ de localización preferentemente en la sección anterior de la mandíbula, como una lesión radiolúcida multilocular con bordes bien definidos;^{6,9} según Fowler y colaboradores,¹² el QOG se localiza en la mandíbula en el 80% de los casos y el sector anterior representa el 60%. Asimismo, el presente caso evidencia lo ya descrito localizándose en diferentes cavidades, lo que ocasiona erosión de los huesos maxilares y reabsorción radicular,¹³ e interesantemente concuerda con el reporte de Byung-Do y su grupo de investigadores,⁶ que informa que el QOG puede presentarse incluso en los pacientes que cursan la séptima década de vida.

Los hallazgos histológicos de nuestro caso concuerdan con los criterios sugeridos por Kaplan y colaboradores,¹⁴ algunos criterios están presentes en todos los casos: (1) grosor variable en el epitelio de revestimiento del quiste, dos a tres o más capas de células cúbicas o planas; (2) capa luminal de células cúbicas a columnares, llamadas células *hobnail*, al menos focalmente presentes. Otros criterios están presentes en la mayoría de los casos: (3) microquistes intraepiteliales; (4) metaplasia apocrina de la células luminales; (5) células claras en los estratos basal y parabasal; (6) proyecciones papilares «penachos» en el lumen; (7) células mucosas. Otros criterios microscópicos para el diagnóstico son: (8) esferas epiteliales similares a las que se observan en el quiste periodontal lateral, las cuales se identifican frecuentemente; (9) cilios, los cuales son vistos ocasionalmente; y (10) arquitectura multiquistica o multiluminal, la cual algunas veces está presente.

Respecto a las características microscópicas observadas en la recidiva, Fowler y su equipo¹² mencionan que en ocasiones no se observan muchas de las características del QOG primario, lo cual se evidenció en nuestro caso.

Además, en el diagnóstico diferencial del QOG, la identificación de epitelio ciliado y estructuras ductales con células mucosas permiten distinguirlo del quiste periodontal lateral y del quiste odontogénico botriode. No obstante, el QOG puede compartir algunas características microscópicas con el carcinoma mucoepidermoide central; sin embargo, el QOG es consistentemente negativo para rearrreglos del gen MAML2, lo que sugiere que son entidades separadas, pero actualmente no se puede excluir la posibilidad de que el

carcinoma mucoepidermoide central podría desarrollar un QOG preexistente.^{1,15,16} En nuestro caso, no se observó una proliferación sólida con espacios microquísticos que mostraran los componentes celulares que caracterizan al carcinoma mucoepidermoide.

Interesantemente, AbdullGaffar y colegas¹⁷ proponen que observar hemosiderina intraepitelial podría tener un valor en el diagnóstico del QOG, al observarse el pigmento en el revestimiento epitelial del quiste sin hemosiderófagos estromales; aunque este hallazgo podría reflejar una hemorragia intraluminal espontánea inespecífica, puede ser una clave diagnóstica adicional del QOG en casos difíciles, ya que este fenómeno no se ha reportado en otras lesiones que simulan quistes.

El tratamiento es controversial debido a que el QOG es considerado agresivo y debe ser realizado dependiendo de su extensión clínica y radiográfica.¹⁸ A diferencia de los casos reportados por Boffano⁷ López¹¹ y Faisal¹⁹ junto a sus respectivos equipos de investigadores, cuyo tratamiento fue enucleación y curetaje, nuestra investigación reportó persistencia de la lesión 15 meses después de ser tratado de igual forma; no obstante, el caso de López y colaboradores¹¹ se presentó como una radiolucidez unilocular, lo cual posiblemente contribuyó a una enucleación menos compleja y a no tener recurrencia. Por otro lado, Oliveira y su grupo²⁰ reportaron un caso tratado con curetaje e informaron recurrencia después de un seguimiento de nueve meses.

Finalmente, Chrcanovic y colaboradores²¹ informaron un análisis de 169 casos de QOG reportados en la literatura, y señaló que aunque la tasa de recurrencia no es tan alta como se consideraba previamente, es un fenómeno relevante (21.6%), por lo que se deberían considerar procedimientos adyuvantes después de la enucleación; ninguna de las características clínicas/radiológicas e histopatológicas evaluadas en su estudio tuvieron un efecto estadísticamente significativo sobre la tasa de recurrencia.

CONCLUSIÓN

El QOG puede presentarse en personas de edad avanzada, en quienes puede ser pertinente un tratamiento conservador, considerando como indispensable el seguimiento clínico radiográfico a largo plazo y un eventual procedimiento adyuvante después de la enucleación.

Clinical case

Glandular odontogenic cyst in an elderly man: case report

Daniel Alberto Cervantes Espinoza,*
 Cynthia Marina Urías Barreras,*[¶]
 Héctor Jovany Inzunza Estrada,[§]
 Efrén Rafael Ríos Burgueño[¶]

* Facultad de Odontología, Universidad Autónoma de Sinaloa, Culiacán, México.

[§] Departamento de Cirugía Maxilofacial del Instituto Mexicano del Seguro Social, Culiacán, Sinaloa, México.

[¶] Servicio de Anatomía Patológica, Centro de Investigación y Docencia en Ciencias de la Salud, Hospital Civil de Culiacán, Universidad Autónoma de Sinaloa, Culiacán, Sinaloa, México.

ABSTRACT

Glandular odontogenic cyst (GOC) is a rare developmental lesion of the jaws, presenting as an asymptomatic slow-growing swelling with a high rate of recurrence. The age range is wide being the mean age of 45.7 years. The case reported is a 76 years old male with a swelling in the anterior mandible, radiographically a multilocular radiolucency was observed that was managed with enucleation and curettage. Histopathological features matched with glandular odontogenic cyst. After 15 months, persistence of the lesion was observed during follow-up.

Keywords: Odontogenic cyst, glandular, multilocular radiolucency, mandible, elderly.

BACKGROUND

The glandular odontogenic cyst (GOC) is a developmental cyst with epithelial characteristics that simulate a salivary gland or glandular differentiation; it is also known as sialo-odontogenic cyst.¹ The GOC was first reported by Padayachee and Van Wyks in 1987.² A year later, Gardner et al.³ suggested the term glandular odontogenic cyst. It is a rare entity that accounts for less than 0.5% of all odontogenic cysts. It occurs in a wide range of ages, with a peak incidence between 40-70 years, without sex predilection. The etiology of GOC is unknown, it is thought to be a developmental cyst arising from remnants of the dental lamina. Clinically, the most common presentation is as asymptomatic swelling.¹ Radiographically, GOC appears as uni- or multilocular radiolucency, with well-defined borders. Dental displacement and root reabsorption are common, but association with an impacted tooth is extremely rare. In 75% of cases it is located in the mandible.⁴⁻⁶ Histological characteristics include a cystic cavity lined by a non-keratinized stratified flat epithelium, with cuboidal or columnar cells, occasionally ciliated cells, presenting thickened areas, glandular differentiation structures simulating small cysts within the epithelium, and a variable number of mucus-secreting cells.^{4,7} These histological characteristics are similar to those observed in other lesions of odontogenic origin, such as botryoid

odontogenic cyst or lateral periodontal cyst; however, GOC is characterized by its aggressive behavior and high recurrence rate.⁸ In addition, microscopically GOC may be confused with a central mucoepidermoid carcinoma, although cuboidal cells, cilia, thickened areas of the epithelium, and intraepithelial microcysts or duct-like structures are not typical of that type of carcinoma.⁹ Treatment is still controversial and varies from curettage to enucleation and surgical resection.^{9,10} Enucleation is the most common treatment, but is associated with a high recurrence rate (30-50%). Recurrence may be late, with an average time of 8 years for the first recurrence; therefore, surgical resection has been recommended especially for large or multilocular lesions.¹ In this report, we set out to describe a GOC case in an elderly man and to carry out a literature review.

CASE REPORT

A 76-year-old patient was referred to the Maxillofacial Surgery Department of the Mexican Social Security Institute with an asymptomatic swelling in the anterior region of the mandibular body. On extraoral exploration, a slight facial asymmetry was evident (*Figure 1A*). Intraorally, a volume increase of hard consistency was observed in the mandibular anterior region, without color change in the mucosa (*Figure 1B*).

An orthopantomogram revealed multilocular radiolucent areas in the zone of the lower right second premolar and the zone of the lower left second premolar, with sclerotic borders, causing mild root resorption of the teeth involved (*Figure 1C*).

A conservative treatment consisting on enucleation and curettage was performed and a reconstruction plate (*Figure 1D*) was adapted. The extracted specimen was composed of multiple fragments of dark brown soft tissue, which was subjected to microscopic examination (*Figure 2*).

The histopathological examination revealed cystic wall fragments, partially lined by cuboidal to stratified columnar epithelium, of varying thickness, with some ciliated cells, as well as intraepithelial duct-like structures with mucus-secreting cells and areas of epithelial thickening. The capsule of dense fibrous connective tissue showed inflammatory infiltrate of chronic, moderate, and focal type, with areas of recent and old bleeding and multiple cystic compartments (*Figures 3 A to H*).

The characteristics observed in the histopathological study led to a diagnosis of glandular odontogenic cyst. After 15 months of follow-up, radiographic studies

revealed persistence of the lesion between the lower right premolars and at the level of lower left incisors, canine, and first premolar (*Figures 4 A to B*).

Curettage was performed, with no evidence of bone erosion or cortical expansion, and the removed tissue was sent to histopathological study, which showed fragments of a cystic wall of dense fibrous tissue lined by non-keratinized stratified flat epithelium of variable thickness, with eosinophilic cuboidal cells on the surface exhibiting apocrine changes, with swirling pattern in areas of the epithelium, some mucus-secreting cells, and poor formation of intraepithelial lumina, compatible with persistence of glandular odontogenic cyst (*Figures 4 C to G*).

DISCUSSION

The GOC is a rare lesion that corresponds to 0.012% of cysts in the jaws according to Lopez et al.¹¹ The GOC clinical characteristics that we found in this study agree with those reported in the literature. The GOC presents as an asymptomatic swelling,¹ commonly located in the anterior region of the mandible, and as a multilocular radiolucent lesion with well-defined borders.^{6,9} According to Fowler et al.,¹² the GOC is located in the mandible in 80% of cases, and 60% of them occur in the anterior region. Also, as reported in the literature, we found multiple cavities causing erosion of the jaw bones and root reabsorption.¹³ Noteworthy, consistent with the report of Byung-Do et al.,⁶ the GOC can occur even in patients in the seventh decade of life.

The histological findings of our case accord with the criteria for GOC diagnosis suggested by Kaplan et al.¹⁴ Some criteria are present in all cases: (1) variable thickness in the cyst-lining epithelium, 2-3 or more layers of cuboidal or flat cells; (2) luminal layer of cuboidal to columnar cells, called «hobnail cells», at least focally present. Other criteria are present in most cases: (3) intraepithelial microcysts, (4) apocrine metaplasia of the luminal cells, (5) clear cells in the basal and parabasal strata, (6) papillary projections or «tufting» in lumen, and (7) mucous cells. Other microscopic diagnostic criteria are the following: (8) epithelial spheres similar to those seen in the lateral periodontal cyst, which are frequently identified; (9) cilia, which are occasionally seen; and (10) multi-cystic or multiluminal architecture, which is sometimes present.

With regard to the microscopic characteristics of recurrence, Fowler et al.¹² pointed out that sometimes not many of the characteristics of the primary GOC are observed, which was evident in our case.

In addition, in the differential diagnosis of GOC, the identification of ciliated epithelium and duct-like structures with mucous cells allows distinguishing it from the lateral periodontal cyst and the botryoid odontogenic cyst. However, the GOC may share some microscopic characteristics with central mucoepidermoid carcinoma, although the QOG is consistently negative for rearrangements of the MAML2 gene, suggesting that they are separate entities. In any case, currently the possibility that central mucoepidermoid carcinoma could develop from a pre-existing GOC^{1,15,16} cannot be excluded. In our case, no solid proliferation with microcystic spaces showing the cellular components that characterize mucoepidermoid carcinoma was observed.

Interestingly, Abdull Gaffar et al.¹⁷ suggested that the presence of intraepithelial hemosiderin may have a value in the diagnosis of GOC, when the pigment in the epithelial lining of the cyst without stromal hemosiderophages is observed. Even though this finding could reflect unspecified spontaneous intraluminal hemorrhage, it may be an additional diagnostic key of GOC in difficult cases, as this phenomenon has not been reported in other lesions that simulate cysts.

Treatment is controversial because the GOC is considered aggressive and the intervention should be performed depending on its clinical and radiographic extension.¹⁸ Unlike the cases reported by Boffano et al.,⁷ Lopez et al.,¹¹ and Faisal et al.,¹⁹ whose treatment choice, as ours, consisted of enucleation and curettage, our case showed persistence of the lesion 15 months after being treated. However, the case of Lopez et al.¹¹ was presented as a unilocular radiolucency, possibly contributing to less complex enucleation and no recurrence. On the other hand, Oliveira et al.²⁰ reported a case treated with curettage that showed recurrence after a nine-month follow-up.

Lastly, Chrcanovic et al.²¹ published an analysis of 169 cases of GOC reported in the literature and noted that although the recurrence rate is not as high as previously considered, it is a relevant phenomenon (21.6%); therefore, adjuvant procedures should be considered after enucleation. None of the clinical/radiological and histopathological characteristics assessed in their study had a statistically significant effect on the recurrence rate.

CONCLUSION

The GOC may occur in elderly people, in whom conservative treatment may be appropriate, considering the need of long-term radiographic clinical follow-up and an eventual adjuvant procedure after enucleation.

REFERENCIAS / REFERENCES

1. Speight P, Fowler CB, Kessler H. Odontogenic and maxillofacial bone tumours. In: El-Naggar AK, Chan JKC, Grandis JR, Takata T, Slootweg PJ, editors. *World health classification of head and neck tumours*. Lyon, France: IARC Press, 2017, pp. 203-260.
2. Padayachee A, Van Wyk CW. Two cystic lesions with features of both the botryoid odontogenic cyst and the central mucoepidermoid tumour: sialo-odontogenic cyst? *J Oral Pathol*. 1987; 16 (10): 499-504.
3. Gardner DG, Kessler HP, Morency R, Schaffner DL. The glandular odontogenic cyst: an apparent entity. *J Oral Pathol*. 1988; 17 (8): 359-366.
4. Vega A, Ayuso R, Teixidor I, Salas J, Mari A, López J. Opciones terapéuticas en quistes odontogénicos. *Av Odontostomatol*. 2013; 29 (2): 81-93.
5. Shah M, Kale H, Rangingwala A, Patel G. Glandular odontogenic cyst: a rare entity. *J Oral Maxillofac Pathol*. 2014; 18 (1): 89-92.
6. Byung-Do L, Wan L, Kyung-Hwan K, Moon-Ki Choi, Eun-Joo C, Jung-Hoon Y. Glandular odontogenic cyst mimicking ameloblastoma in a 78-year-old female: a case report. *Imaging Sci Dent*. 2014; 44 (3): 249-252.
7. Boffano P, Cassarino E, Zavattoni E, Campisi P, Garzino-Demo P. Surgical treatment of glandular odontogenic cysts. *J Craniofac Surg*. 2010; 21: 776-780.
8. Chandra S, Reddy ESP, Sah K, Srivastava A. Maxillary glandular odontogenic cyst: An uncommon entity in an unusual site. *Arch Iran Med*. 2016; 19: 221-224.
9. Krishnamurthy A, Sherlin HJ, Ramalingam K, Natesan A, Premkumar P, Ramani P et al. Glandular odontogenic cyst: Report of Two Cases and Review of Literature. *Head Neck Pathol*. 2009; 3: 153-158.
10. Raju SP, Reddy SP, Ananthnag J. Glandular odontogenic cyst of the anterior mandible. *North Am J Med Sci*. 2015; 7: 65-69.
11. Lopez D, Infante P, Acosta M, Hernández J, García A, Gutiérrez JL. Quiste odontogénico glandular: diagnóstico diferencial y manejo de lesiones quísticas maxilares. *Rev Esp Cir Oral y Maxilofac*. 2009; 31: 57-62.
12. Fowler CB, Brannon RB, Kessler HP, Castle JT, Kahn MA. Glandular odontogenic cyst: analysis of 46 cases with special emphasis on microscopic criteria for diagnosis. *Head and Neck Pathol*. 2011; 5: 364-375.
13. Tambawala SS, Karjodkar FR, Yadav A, Sansare K, Sontakke S. Glandular odontogenic cyst: a case report. *Imaging Sci Dent*. 2014; 44: 75-79.
14. Kaplan I, Anavy Y, Hirshberg A. Glandular odontogenic cyst: a challenge in diagnosis and treatment. *Oral Dis*. 2008; 14: 575-581.
15. Nagasaki A, Ogawa I, Sato Y, Takeuchi K, Kitagawa M, Toshinori A et al. Central mucoepidermoid carcinoma arising from glandular odontogenic cyst confirmed by analysis of MAML2 rearrangement: a case report. *Pathol Int*. 2018; 68 (1): 31-35.
16. Greer RO, Eskendri J, Freedman P, Ahmadian M, Murakami-Walter A, Varella-Garcia M. Assessment of biologically aggressive, recurrent glandular odontogenic cysts for mastermind-like 2 (MAML2) rearrangements: histopathologic and fluorescent *in situ* hybridization (FISH) findings in 11 cases. *J Oral Pathol Med*. 2018; 47 (2): 192-197.
17. AbdullGaffar B, Koilelat M. Glandular odontogenic cyst: the value of intraepithelial hemosiderin. *Int J Surg Pathol*. 2017; 25 (3): 250-252.
18. Regezi JA, Sciubba JJ, Jordan RCK. *Oral pathology. Clinical pathologic correlations*. 7th ed., Elsevier, 2017, pp. 252-253.
19. Faisal M, Ahmad SA, Ansari U. Glandular odontogenic cyst - Literature review and report of a paediatric case. *J Oral Biol Craniofac Res*. 2015; 5: 219-225.
20. Oliveira JX, Santos KC, Nunes FD, Hiraki KR, Sales MA, Cavalcanti MG et al. Odontogenic glandular cyst: a case report. *J Oral Sci*. 2009; 51: 467-470.
21. Chrcanovic BR, Gomez RS. Glandular odontogenic cyst. An updated analysis of 169 cases reported in the literature. *Oral Dis*. 2018; 24 (5): 717-724.

Dirección para correspondencia /

Mailing address:

Cynthia Marina Urias Barreras

E-mail: c.marinauriasb@gmail.com