

## Case Report

# Odontogenic Keratocyst - A Case Report Keeping in View the WHO Classification

Dhanrajani P<sup>1\*</sup> and Chung P<sup>2</sup>

<sup>1</sup>Department of Oral Surgeon, HCF Dental Centre, Australia

<sup>2</sup>Consultant Anaesthetist, MbBs (1<sup>st</sup> Class Hons), Fanzca, Concord Repatriation General Hospital, Australia

**\*Corresponding author:** P Dhanrajani, Department of Oral Surgeon, HCF Dental Centre, Level 3, 403 George Street, Sydney, Nsw 2000, Australia

**Received:** April 08, 2020; **Accepted:** April 29, 2020;

**Published:** May 06, 2020

## Abstract

The latest (4<sup>th</sup>) edition of World Health Organisation of head and neck tumors has made number of significant changes. This review summarises changes in odontogenic and maxillofacial tumors by reintroducing a chapter on odontogenic cysts.

This edition restores the odontogenic keratocystic tumors as odontogenic keratocyst based on lack of evidence suggestion as true neoplasm.

This paper presents one of a case reports from the series thirty-two cases treated successfully with enucleation.

## Introduction

The latest 4th edition of the world Health Organization classification of Head and Neck tumours has recently been published with a number of significant changes [1-4].

The most discussed change is reintroduction of the subtitle “odontogenic cysts” in the classification. The previous classification (2005), excluded any nontumorous lesions such as odontogenic and non-odontogenic cysts [4]. Hence, odontogenic keratocysts were classified as odontogenic keratocystic tumors. The decision of the recent reclassification of odontogenic cysts as odontogenic keratocyst was based on lack of evidence supporting its neoplastic potential.

We present one of the thirty-two cases of odontogenic keratocyst successfully treated with simple enucleation. This supports the view of present classification on odontogenic keratocyst as cystic lesion not tumors [1].

## Case Report

A 49 years old man presented to the oral and maxillofacial clinic referred by his general dental practitioner. Referral letter read asymptomatic radiolucency in associated with tooth number 16, right upper molar, a chance finding on orthopantomography.

Medically he was fit and well and regularly visited his dentist. On clinical examination there was buccal expansion in the 16-region firm and smooth (Figure 1). 16 was filled and non-tender to percussion. Orthopantomogram (OPG) revealed well defined 2×3 oval shaped radiolucency associated with 16 extending to right maxillary sinus. According to the referring dentist vitality of 16 was inconclusive.

The patient was referred for further investigation to get Cone Beam CT (CBCT) scan. Aspiration was not done as there was no thinning of cortex.

CBCT revealed a large multilocular radiolucent lesion in the right maxilla (35mmH X 36mmW X 40mmD). Posteriorly, extending to the posterior wall of the left maxillary sinus (Figure 2).

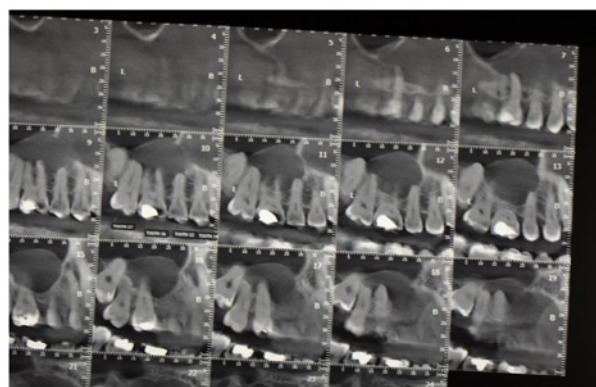
Based on clinical and radiographic findings a differential diagnosis of Radicular cyst was postulated. At this point it was

decided to explore the area surgically and if required to remove tooth 16. The patient consented to have it done under general anaesthetics.

He was operated using a naso-endotracheal tube. 2% Xylocaine with adrenaline 1: 80,000, 4.4 ml was infiltrated bucco-palatally to minimise the bleeding during the procedure. A gingival crevicular incision with bilateral extension from tooth 14 to 27 was made and mucoperiosteal flap was reflected. The buccal cortical bone was intact, and aspiration revealed deep inspissated white material consistent to keratocystic fluid which was confirmed with microscopic examination



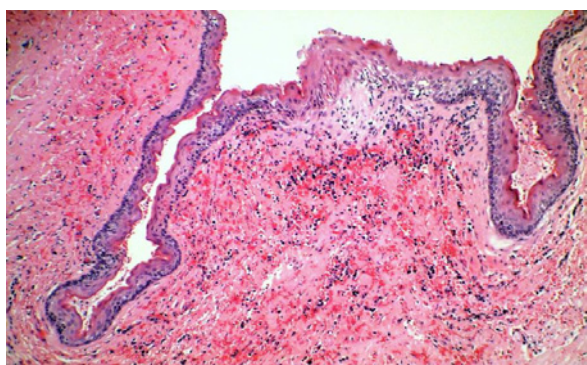
**Figure 1:** Orthopantomogram showing large radiolucency involving right maxillary sinus associated with 16.



**Figure 2:** CBCT axial cuts showing dome shaped radiolucency with 16.

**Table 1:** Chronology of evaluation and changes in WHO Classification.

Year	Author	Classification	Main Points
1869	Pierre Paul Broca	Monograph on tumor classification, included odontogenic tumors	Term Odontome for all tumors arising from odontogenic Apparatus based on stage of tooth development at the onset of the abnormality
1885	Malassez	Brocas classification with minor modifications	Made some changes on Broca's classification
1888	Bland & Sutton	Odontogenic Tumors	Based its classification on the specific cells of the tooth germ that gave rise to tumors and induced odontogenic Cysts and fibrous Osteogenic tumors
1914	Gabell et al	Modified and elaborated Bland-Sutton Classification	Classified odontomes into epithelial, composite and connective tissue odontomes
1930	Ivy & Churchill	Odontome was replaced with more compatible pathological terms	Multilocular odontogenic cyst came to be known as Ameloblastoma Composite odontomes were called as odontomes or odontomas Connective tissue odontomes were called fibromas/cementomas based on their structure
1946	Thoma and Goldman	Excluded odontogenic cysts from bland-sutton classification	This classification was adopted by americal academy of oral pathology with minor changes
1958	Pindborg & Clausen	Classification based on interaction of odontogenic epithelium and mesenchyme	This classiciation devided odontogenic tumors primarily in two epithelial and mesenchymal
1961	Gorlin et al	Modified Pindborg and Clausen classification	This had key role in WHO publication of Histological typing of odontogenic tumors
1971	Pindborg et al	1st edition standard classification was agreed upon odontogenic tumors	Titled: Histological odontogenic tumors, jaw cysts and allied lesions
1992	Kramer et al	2nd Edition Elaborated the previous classification	Titled: Histoogical classification of tumors: Histological typing of odontogenic tumors
2005	Barnes et al	3rd Edition main was odontogenickeratocyst designated as keratocystic odontogenic tumor 4th edition Obejectives were simplicity, Scientific accuracy, reproducibility and utility for clinicians	Exclusion of odontogenic cysts however bone related and tumor like lesions kept intact
2017	Takata et al		Main finding reinstating odontogenic keratocyst as cyst not tumor

**Figure 3:** Photograph showing ortho keratinised corrugated surface cystic lining and prominent basal layer.**Figure 4:** Immediate post-operative OPG.

as pathologist was available on site. It was decided to extract tooth 16 and enucleate the cyst. The cystic lining was carefully separated and sent for histopathological examination. The surgical area was carefully inspected for any daughter cyst or cystic linings before primary closure.

**Figure 5:** Two years post-operative OPG showing resolution of cyst and good healing.

The patient was discharged on oral Amoxicillin 500mg every eight hours for 5 days and ibuprofen and Panadol alternating every 6 hours and mouth wash.

Post-operative phase was uneventful, and he recovered well. He was reviewed on the 5<sup>th</sup> day postoperatively and OPG was done.

Histopathological report revealed the lesion as odontogenic keratocyst with advice of close follow-ups (Figure 4).

He was kept on regular follow-up to check any recurrence with regular OPGs.

He has finished two years of follow-up and showed no recurrence (Figure 5).

## Discussion

The main aim of this study was to present the case report in support of present view of odontogenic keratocyst and chronology of changes made in the World Health Organization classification so far (Table 1) [5-16].

Although in this study the odontogenic keratocyst cases were successfully treated with enucleation and close follow-ups but there are some entities which could be more aggressive and may behave different. Further study and observation are necessary to isolate these cases by genetic and molecular analysis [1-4].

## Conclusion

Odontogenic keratocysts are not unusual, many of these cysts are asymptomatic and are identified incidentally on orthopantomography.

A case of odontogenic keratocyst is presented treated successfully with enucleation.

## References

1. Takata T, Slootweg PJ. Odontogenic and maxillofacial bone tumours. In: El-Naggar AK, Chan JK, Grandis JR, Takata T, Slootweg PJ, editors. WHO Classification of Head and Neck Tumours. 4<sup>th</sup> ed. Lyon: IARC; 2017.
2. Soluk-Tekkeşin M, Wright JM. The World Health Organization Classification of Odontogenic Lesions: A Summary of the Changes of the 2017 (4<sup>th</sup>) Edition. *Türk Patoloji Derg.* 2018; 34: 1-18.
3. Speight PM, Takata T. New tumour entities in the 4<sup>th</sup> edition of the World Health Organization classification of head and neck tumours: Odontogenic and maxillofacial bone tumours. *Virchows Arch.* 2018; 472: 331-339.
4. Wright JM, Vered M. Update from the 4<sup>th</sup> edition of the World Health Organization classification of head and neck tumours: Odontogenic and maxillofacial bone tumors. *Head Neck Pathol.* 2017; 11: 68-77.
5. Jutel A. Classification, disease, and diagnosis. *Perspect Biol Med.* 2011; 54: 189-205.
6. Broca P. *Traite des Tumeurs*. Vol. 2. Paris: Asselin P, Libraire de la Faculte' de Medicine; 1869.
7. Philipsen HP, Reichart PA. Classification of odontogenic tumours. A historical review. *J Oral Pathol Med.* 2006; 35: 525-529.
8. Bland-Sutton J. Odontomes. *Trans Odont Soc (Lond).* 1888; 20: 32-87.
9. Gabell DP, James W, Payne JL. The report on odontomes. London: John Bale, Sons & Danielsson; 1914.
10. Ivy RH, Curtis L. Adamantinoma of the jaw. *Ann Surg.* 1937; 105: 125-134.
11. Thoma KH, Goldman HM. Odontogenic tumours. A classification based on observations of epithelial, mesenchymal and mixed varieties. *Am J Pathol.* 1946; 22: 433-471.
12. Pindborg JJ, Clausen F. Classification of odontogenic tumours. A suggestion. *Acta Odont Scand.* 1958; 16: 293-301.
13. Gorlin RJ, Chaudhry AP, Pindborg JJ. The odontogenic tumours: Their classification, histopathology and clinical behaviour in man and domesticated animals. *Cancer.* 1961; 14: 73-101.
14. Pindborg JJ, Kramer JR, Torloni H. *Histological Typing of Odontogenic Tumours, Jaw Cysts and Allied Lesions*. Geneva: World Health Organization; 1971.
15. Kramer IR, Pindborg JJ, Shear M. 2<sup>nd</sup> ed. Heidelberg: Springer-Verlag; 1992. WHO International Histological Classification of Tumours: Histological Typing of Odontogenic Tumours.
16. Barnes L, Eveson JW, Reichart P, Sidransky D. Lyon: IARC Press; 2005. WHO Classification of Tumours: Pathology & Genetics, Head and Neck Tumours.