SVOA Dentistry

ISSN:2753-9172

ScienceVolks Open Access

Case Report

Management of a Large Erupting Mandibular Complex Odontoma

John Henry Watt[1*], Adenike Bawor-Omatseye[2], Marta Cabral[2] and Julian Page[3]

[1,2,3] *OMFS Department, Musgrove Park Hospital, Taunton, England*

***Corresponding Author:** Dr. John Henry Watt, OMFS Department, Musgrove Park Hospital, Taunton, England.*

***Received:** July 07, 2022 **Published:** July 27, 2022*

Abstract

Complex odontomas are a benign odontogenic tumour commonly found in the posterior region of the mandible and prevalent in young adults. They are often incidental findings on routine radiographic dental examinations. Although they rarely erupt and are usually asymptomatic, they can be of significant importance when they prevent normal eruption of teeth and dentists should refer to the local maxillofacial team for management. The treatment of choice is often surgical removal with the specimen submitted for histologic diagnosis. We present a case of a large complex odontoma of the mandible in this report.

***Keywords:** Complex odontomas, cysts, compound odontomas, Oral surgery*

Introduction

An odontoma is a hamartomatous odontogenic tumour composed of pulp tissue, cementum, dentine and enamel which may be arranged in the form of a tooth [1]. Odontomas develop from pathologic proliferation of enamel and dentine producing cells [2]. They are classified as hamartomas because they are made up of benign, normal but disorganised dental tissues [3,4,5]. Studies have found overall odontomas are more common in females with a higher incidence in the maxilla [6]. Although there are variants with some discrepancy in epidemiology. The two main classifications of odontomas, based on radiographic and histologic features are the compound and complex odontomas [3]. However, they can be found in combination as complex-compound odontoma, albeit rarer [3,7]. Compound odontomas are composed of multiple teeth-like structures contained within a sac [8]. Complex odontomas on the other hand appear as an irregular mass of dental tissue consisting of enamel, dentine and cementum with no resemblance to normal tooth form and appear later in life [3,9]. Although usually incidental findings and rarely symptomatic, odontomas may be associated with dental issues including impaction of teeth, swelling, mal-positioning, aplasia. [2,10].

The aetiology of odontomas is not fully understood. Predisposing factors include local trauma, infection and genetics (hereditary and sporadic mutations). Odontomas have also been linked to syndromes e.g Gardner's syndrome, Hermann's syndrome cleidocranial dysplasia, familial colonic adenomatosis and naevoid basal cell carcinoma syndrome [3,9]. Other causes such as neoplasm, autoimmune disease and radiotherapy have also been implicated [11-15]. The clinical significance of odontomas are shown that without appropriate treatment, odontomas can cause devitalisation, displacement, resorption and malformation of adjacent teeth [2,7,10,16].

Case Report

A 26-year-old Caucasian female patient was referred to the Oral & Maxillofacial Surgery Department by the Accident and Emergency (A&E) Department at Musgrove Park Hospital. The patient presented with left-sided facial pain and inability to eat for the past three days and was reviewed the next day as an outpatient by our department after her initial presentation. Previously she had been seen by their general dentist for probable pericoronitis of the lower left second molar (37) over the past year. The clinic examination revealed normal sensation to the lower lip and tongue, no teeth were tender to percuss, an inter-incisal opening of 30mm and tenderness on palpation of the left jaw joint and muscles of mastication.

Intra orally there was a white-grey mass just visible through the mucosa in the lower left third molar region. A panoramic radiograph taken (Figure 1) showed an unerupted horizontally impacted lower left wisdom tooth (38) with a dense radiopaque mass overlying it. Both appear to involve the IDN canal with loss of cortication and there was darkening.

A CT scan was carried out, a 3-D reconstruction is seen in Figure 2 and also buccal and lingual bone expansion demonstrated in the axial and coronal view (Figure 3).

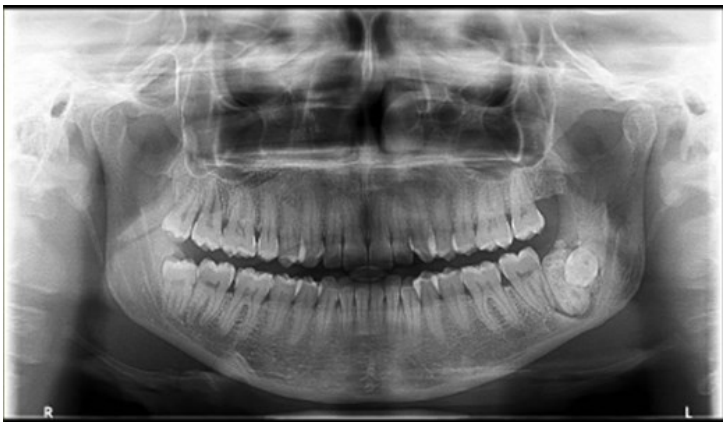

Figure 1: *Routine radiograph (panoramic radiography) presenting radiopacity lesion involved with the unerupted 38*

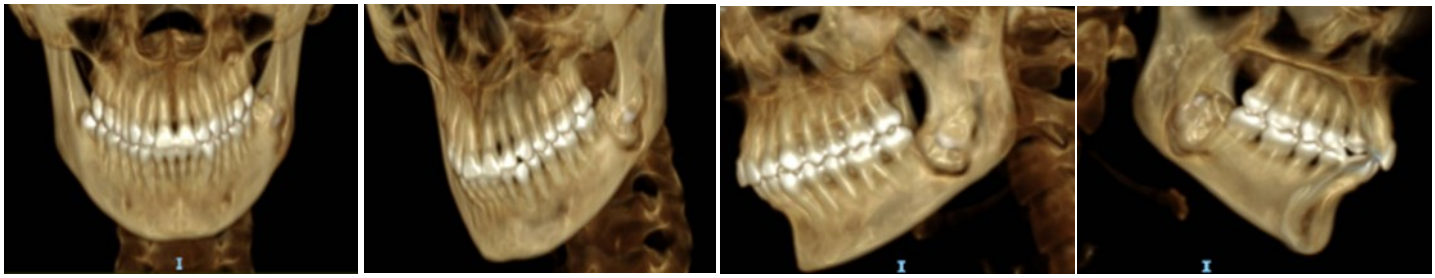

Figure 2: *CT reconstruction views showing, left to right (A.) Front view (B.) Right half profile (C.) Right half view (D.) Lingual view*

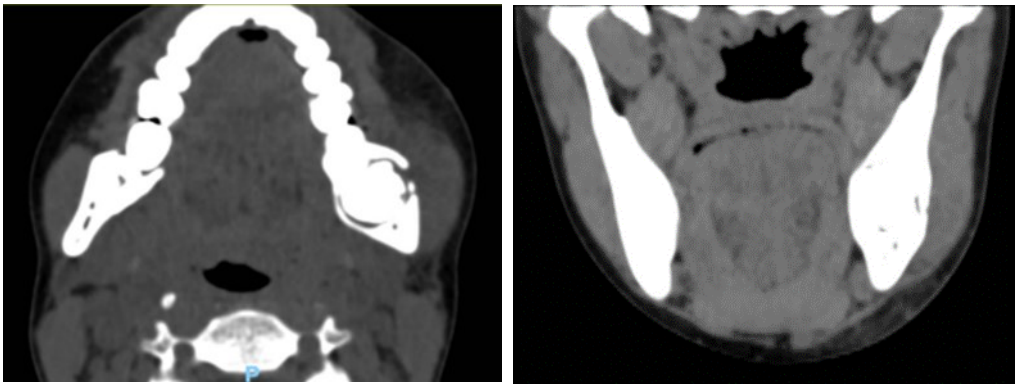

Figure 3: *Showing a hypodense image with lingual and buccal bone expansion from CT. Left to right (A.) axial view and (B) coronal view*

Following full examination and investigation the patient was listed for surgical removal of the odontoma under general anaesthesia (GA). Having obtained informed consent and material risks including particularly altered sensation to her lip and tongue, the risk of jaw fracture and potential further treatment were discussed.

A full thickness mucoperiosteal flap was raised with mesial and distal relieving incisions. The lesion was immediately partly visible, bone removal carried out and lesion excavated and removed and sent for histologic analysis, the impacted 38 was also removed in the process.

A small part of the ID nerve was visible at the base of the socket but was intact. The surgical site was irrigated with 0.9% saline solution and simple interrupted sutures placed using 3/0 vicryl rapide. The patient received an intraoperative dose of Co-amoxiclav 1.2g stat and was discharged same day once deemed fit with a 5-day course of Co-amoxiclav 625mg and co-codamol prn. She developed post op complication three days later with swelling, trismus and pain which subsided over the next few days. A histologic diagnosis of benign complex odontoma was made. No atypical or malignant cells were seen (Figure 4). The patient is being followed up on an outpatient basis.

SOUTHWEST PATHOLOGY SERVICES

MUSGROVE PARK HOSPITAL

Specimen:
Lesion lower left 8 region.

Clinical History:
? Clearance. Complex odontoma ?? diagnosis.

REPORT
Macro:
Molar teeth 22 x 20 x 15mm + soft tissue fragments together 10mm.
Fragments of tooth together 20mm.
1AP.

Micro:
The soft tissue component of this lesion contains inflamed fibrous tissue and non-keratinising squamous epithelium which shows hyperplastic and regenerative changes.

Together with the macroscopic findings of rudimentary tooth structures, the features are those of a complex odontoma. No atypical or malignant cells are seen.

Reported by: Dr. S. Holwill

Authorised by: Dr. S. Holwill
Consultant Histopathologist

HISTOPATHOLOGY

Page 1 of 1

Figure 4: *Histology result of complex odontoma*

Discussion

Odontomas represent between 21-67% of all odontogenic tumours [5]. They arise from the abnormal proliferation of cells of the enamel organ that give rise to ameloblasts and odontoblasts which produce enamel and dentine [5,6,8,11,17]. Compound odontomas appear more frequently within the anterior aspect of the maxilla at a median age of 14.8 years old [6,8,18,10]. Complex odontomas unlike their compound counterpart tend to develop slightly later in life within the posterior region of the mandible with the average age of 20.3 years of age and can grow several centimetres in size [5,6 19-21].

The lesion in this case was described radiographically as a completely radio-opaque lesion as the body, representing the masses of dental tissue with a radiolucent surrounding zone, making up the connective tissue capsule [5,11]. Although Odontomas often appear radiographically to be closely associated with an adjacent tooth, these tumours are often separated from the teeth by a septum of bone [11]. Few cases have been reported showing fusion between the complex odontomas and the associated tooth with normal morphology [6,11]. The association of odontomas with dentigerous cysts is also rare [22].

The differential diagnosis of complex odontomas include; calcifying epithelial odontogenic tumour, adenomatoid odontogenic tumour, cementoblastoma, osteoid osteoma, and fibro-osseous lesions such as cemento-ossifying fibroma and periapical cemento-osseous dysplasia and a more serious odontoameloblastoma which appears in the similar age range and clinical location of the odontoma [23,24]. Periapical cemento-osseous lesions are however, generally located deep within the alveolar bone whilst complex odontomas are located towards the crest of the alveolar ridge.[25]. It should be noted neoplastic tumours often have clinically aggressive growth which can assist in diagnosis [8, 26-28]. Further special investigations, histologically show complex odontomas exhibiting mature tubular dentine forming a homogeneous mass rounding empty spaces [5].

The prognosis is very good following surgery of complex odontomas as they do not tend to recur [5]. They rarely destroy significant portions of the alveolar bone or cause significant external resorption in the adjacent dentition [8].

Conclusion

Complex odontomas although rare can reach significant size, causing expansion of bone and can also prevent eruption of teeth with resultant malocclusion. They rarely erupt and in cases like this where it is partially erupted can cause significant pain and infection to the patient, mimicking pericoronitis causing the patient to repeatedly see her dentist for management. This case highlights the need for dentist to be familiar with appearance of complex odontomas and undertake adequate radiographs to investigate dental symptoms where necessary and refer promptly to their local hospital if required for further management.

Conflict of Interest

The authors declare no conflict of interest.

References

[1] The Free Dictionary. (n.d.). odontoma. [online] Available at: https://medical-dictionary.thefreedictionary.com/odontoma.

[2] Khanum, N., Shivalingu, M., Lingaraju, N. and Basappa, S. (2014). Compound-complex odontoma: A case report of a rare variant. Journal of Indian Academy of Oral Medicine and Radiology, 26(4), p.463. doi:10.4103/0972-1363.155668.

[3] Khalifa, C., Omami, M., Garma, M., Slim, A., Sioud, S. and Selmi, J. (2022). Compound-complex odontoma: A rare case report. Clinical Case Reports, 10(4). doi:10.1002/ccr3.5658.[4] Abdul, M., Pragati, K. and Yusuf, C. (2014). Compound Composite Odontoma and Its Management. Case Reports in Dentistry, 2014, pp.1–4. doi:10.1155/2014/107089.

[5] Augusto-neto, R., Marinheiro, B., Albergoni da Silveria, H. et al. (2021). Complex Odontoma Restricting Mouth Opening; An Unusual Clinical Presentation And Surgical Management. International Journal of Health Sciences, 15(5), p60-63

[6] Satish, V., Prabhadevi, M.C. and Sharma, R. (2011). Odontome: A Brief Overview. International Journal of Clinical Pediatric Dentistry, [online] 4, pp.177–185. doi:10.5005/jp-journals-10005-1106.

[7] Soluk Tekkesin, M., Pehlivan, S., Olgac, V., Aksakallı, N. and Alatli, C. (2012). Clinical and histopathological investigation of odontomas: review of the literature and presentation of 160 cases. Journal of Oral and Maxillofacial Surgery: Official Journal of the American Association of Oral and Maxillofacial Surgeons, [online] 70(6), pp.1358–1361. doi:10.1016/j.joms.2011.05.024.

[8] www.dentalcare.com. (n.d.). Case #4 Diagnoses: Complex Odontoma - Radiographic Interpretations - Dentalcare. [online] Available at: https://www.dentalcare.com/en-us/ce-courses/ce513/case-study-4-odontoma.

[9] Hidalgo-Sánchez, O., Leco-Berrocal, M.I. and Martínez-González, J.M. (2008). Metaanalysis of the epidemiology and clinical manifestations of odontomas. Medicina Oral, Patologia Oral Y Cirugia Bucal, [online] 13(11), pp.E730-734. Available at: https://pubmed.ncbi.nlm.nih.gov/18978716/ [Accessed 3 Jul. 2022].

[10] Kaneko, M., Fukuda, M., Sano, T., Ohnishi, T. and Hosokawa, Y. (1998). Microradiographic and microscopic investigation of a rare case of complex odontoma. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics, [online] 86(1), pp.131–134. doi:10.1016/s1079-2104(98)90163-9.

[11] Jain, A., Karuna, Y.M., Baliga, M., Suprabha, B.S. and Natarajan, S. (2018). Surgical Management of Complex Odontoma Associated with Agenesis of a Molar. Contemporary Clinical Dentistry, [online] 9(Suppl 2), pp.S388–S390. doi:10.4103/ccd.ccd_789_17.

[12] Kim, S.-M., Lee, J.-H., Kim, H.-J. and Huh, J.-K. (2014). Mouth opening limitation caused by coronoid hyperplasia: a report of four cases. Journal of the Korean Association of Oral and Maxillofacial Surgeons, [online] 40(6), p.301. doi:10.5125/jkaoms.2014.40.6.301.

[13] Ashmmam, M. and Rhab, M. (2018). Limited Mouth opening causes and its Treatment modalities among Peoples in Al-khoms, Libya. [online] www.semanticscholar.org. Available at: https://www.semanticscholar.org/paper/Limited-Mouth-opening-causes-and-its-Treatment-in-Ashmmam-Rhab/397d480a7a2ff54a2a77ac79dbc7640a41e4491f [Accessed 3 Jul. 2022].
[14] Goldstein, M., Maxymiw, W.G., Cummings, B.J. and Wood, R.E. (1999). The effects of antitumor irradiation on mandibular opening and mobility: A prospective study of 58 patients. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology, 88(3), pp.365–373. doi:10.1016/s1079-2104(99)70044-2.

[15] Poveda-Roda, R., Bagan, JV., Sanchis, JM. and Margaix, M. (2013). Pseudotumors and tumors of the temporomandibular joint. A review. Medicina Oral Patología Oral y Cirugia Bucal, pp.e392–e402. doi:10.4317/medoral.18799.

[16] Kämmerer, P.W., Schneider, D., Schiegnitz, E., Schneider, S., Walter, C., Frerich, B. and Kunkel, M. (2015). Clinical parameter of odontoma with special emphasis on treatment of impacted teeth—a retrospective multicentre study and literature review. Clinical Oral Investigations, 20(7), pp.1827–1835. doi:10.1007/s00784-015-1673-3.

[17] Bengtson, C.R.G., Bengtson, A.L. and Bengtson, N.G. (2013). Therapeutic procedure odontoma in childhood: report of a case. Archives of Oral Research, 9(1). doi:10.7213/archivesoforalresearch.09.001.rc03.

[18] Rana, V., Panthri, P. and Sharma, V. (2019). Compound Odontome: A Case Report. International Journal of Clinical Pediatric Dentistry, 12(1), pp.64–67. doi:10.5005/jp-journals-10005-1575.

[19] Slootweg, P.J. (1981). An analysis of the interrelationship of the mixed odontogenic tumors—ameloblastic fibroma, ameloblastic fibro-odontoma, and the odontomas. Oral Surgery, Oral Medicine, Oral Pathology, 51(3), pp.266–276. doi:10.1016/0030-4220(81)90056-6.

[20] Odell, E.W. and Cawson, R.A. (2017). Cawson's essentials of oral pathology and oral medicine. (9th Ed). Edinburgh: Elsevier.

[21] Coulthard, P., Horner, K., Sloan, P. and Theaker, E.D. (2013). Master Dentistry E-Book : Volume 1: Oral and Maxillofacial Surgery, Radiology, Pathology and Oral Medicine. Churchill Livingstone.

[22] Astekar, M., Manjunatha, B.S., Kaur, P. and Singh, J. (2014). Histopathological insight of complex odontoma associated with a dentigerous cyst. Case Reports, 2014(jan30 2), pp.bcr2013200316–bcr2013200316. doi:10.1136/bcr-2013-200316.

[23]. Vengal, M., Arora, H., Ghosh, S. and Pai, K.M. (2007). Large erupting complex odontoma: a case report. Journal (Canadian Dental Association), [online] 73(2), pp.169–173. Available at: https://pubmed.ncbi.nlm.nih.gov/17355809/.

[24]. Arunkumar, K., Vijaykumar and Garg, N. (2012). Surgical management of an erupted complex odontoma occupying maxillary sinus. Annals of Maxillofacial Surgery, 2(1), p.86. doi:10.4103/2231-0746.95333.

[25] Wood, N.K. and Goaz, P.W., 2007. Differential Diagnosis of Oral and Maxillofacial Lesions. 5 [sup] th ed. St. Louis: Mosby, pp.492.

[26] Bagheri, S.C. (2014). Clinical review of oral and maxillofacial surgery: a case-based approach. St. Louis: Mosby Elsevier.

[27] Weidner, N. (2009). Modern Surgical Pathology (Expert Consult. Online and Print). W B Saunders Company.

[28] Iannucci, J.M. and Laura Jansen Howerton (2017). Dental radiography: principles and techniques. 5th ed. St. Louis, Missouri Elsevier.

Citation: Watt JH, Bawor-Omatseye A, Cabral M, Page J. "Management of a Large Erupting Mandibular Complex Odontoma". *SVOA Dentistry* 2022, 3:4, 196-200.