

COMPOUND ODONTOMA: A CASE REPORT ON 42 DENTICLES HODGEPODGED IN MAXILLA

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ARTICLE INFO

Received : 22 March, 2022

Accepted : 22 August, 2022

Published : 15 November, 2022

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CR 49

DOI: <https://doi.org/10.3126/bjhs.v7i2.49310>

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Citation

Compound Odontoma: A Case Report On 42 Denticles hodgepodged In Maxilla. Sneha Shrestha, Amita Rai, Bandana Koirala, Mamta Dali, Ashish Shrestha. BJHS 2022;8(2)18. 1830-1833.

ABSTRACT

Compound odontomas are the commonest benign odontogenic tumours of jaws affecting mostly children and adolescents. These developmental malformations display many tooth-like structures or denticles that consist of well-defined dental tissues with diverse morphologies. Majority of these lesions occur as intraosseous masses in the maxillary anterior region and are incidental radiographic findings. These are primarily associated with retention of primary teeth and delayed eruption of permanent teeth. The preferred treatment for these lesions is conservative surgical excision followed by a histopathological diagnosis. This case report presents a rare case of compound odontoma displaying numerous denticles (42 in number) in the maxillary anterior region of a 12-year-old male child and its surgical management.

KEY WORDS

Compound odontoma, delayed eruption of teeth, denticles, odontoma, retained deciduous teeth



INTRODUCTION

Odontogenic tumours are rare jaw lesions affecting 1%-19% of the population.¹ Odontomas are the most common odontogenic tumours of jaws showing a wide range of prevalence (35%-76%).² However, owing to their self-limiting nature, these are considered as hamartomas rather than true neoplasms.³ These lesions are ecto-mesenchymal in origin and their occurrence has been linked to factors such as lesion-site trauma or infections, odontoblastic hyperactivity, genetic mutations and syndromic ailments.^{2,4} Odontomas consist of abnormal collection of calcified dental tissues, viz, enamel, dentin, cementum and pulp, displaying diverse tooth morphologies.² These may show three different clinical presentations: intraosseous, extraosseous, and erupted, of which intraosseous is the commonest presentation.²

Odontomas have been classified into compound and complex types.⁵ The compound odontoma occurs more frequently than the complex variety.⁵ Compound odontomas represent approximately 10% of all the odontogenic tumours with incidences ranging from 9% to 37%.⁵ These lesions comprise of denticles with more orderly patterned dental tissues than complex odontomas.⁵ Occasionally detected during the first and second decades of life, these malformations can be considered as lesions of childhood and adolescence.⁵

These asymptomatic growths occur more commonly in the maxillary anterior region and are usually detected as incidental radiographic findings or with clinical presentations of primarily retained deciduous teeth and delayed eruption of permanent teeth.⁶ The preferred treatment for these lesions is conservative surgical excision followed by a histological diagnosis.^{2,3} Early routine dental visits would have helped detect the lesion on time and decreased the need for comprehensive interdisciplinary approach in future.⁷ Following report presents a case of surgically managed compound odontoma consisting of large number of denticles (42 in number) in a 12-year-old male child.

CASE REPORT

A healthy, 12-year-old male child reported to the department of Pedodontics and Preventive Dentistry with a painless swelling on the upper right gum region for the last six months. History of pain, discharge or previous trauma associated with the lesion were all negative. Extraoral clinical examination showed no asymmetries. On intraoral examination, non-tender hard swellings of 2x2 cm² on labial and palatal gingiva of over retained 52, 53 and 14, respectively were observed. Presence of crowding in upper and lower arches were evident with unerupted 12 and 13 (Figure 1).

Radiographic examinations (orthopantomogram and maxillary occlusal view) revealed horizontal displacement of impacted 12 and collective tooth-like radiopaque masses with irregular thin radiolucent margins apical to 52, 53 (Figure 1). The clinical and radiographic findings were suggestive of compound odontoma. After ensuring the patient's normal haematological parameters and with due assent plus informed consent obtained from the child and

his parents, respectively, a conservative surgical enucleation of the lesion under local anaesthesia was planned. The highly displaced and horizontally impacted 12 was left untouched and is under follow up. Extraction of 52 and 53 was performed and a full thickness mucoperiosteal flap was raised in the right upper incisor-cuspid region. Minimal bone removal was achieved with a bone-cutting bur and the lesion enucleated en total. A total of 42 denticles were obtained and sent for the histopathological examination. Wound closure was done with 3-0 silk suture (Figure 2). Post operative oral and written instructions specifically related to the maintenance of appropriate oral hygiene, intake of cold and soft meals and antibiotics and analgesics were prescribed. Histological examination report confirmed the diagnosis of compound odontoma. The subsequent visits on one week, one month and three months showed adequate wound healing with no changes in the impacted lateral incisor (Figure 3). Patient was further referred for the orthodontic correction of the malocclusion and kept under follow-up for the unerupted lateral incisor.

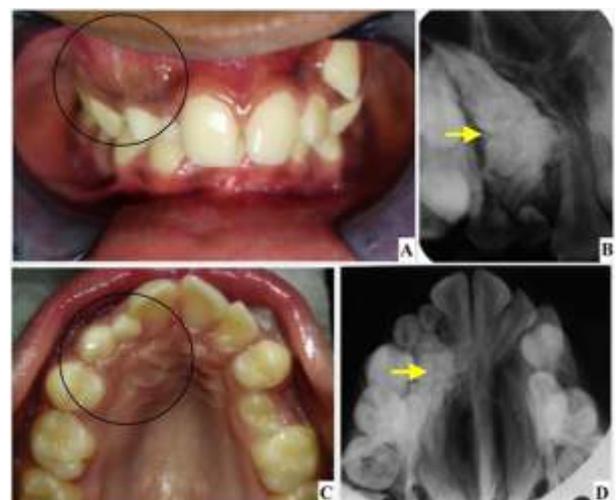


Figure 1. Preoperative intraoral photographs and radiographs
1A. Frontal view 1B. IOPAR
1C. Maxillary view 1D. Maxillary occlusal radiograph

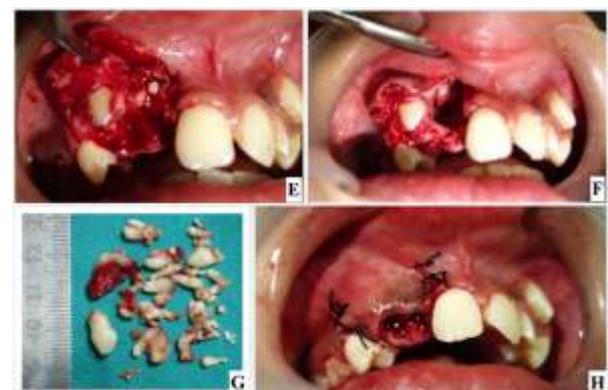


Figure 2: Intraoperative intraoral photographs and radiographs
2E. Intraoperative photograph
2F. Intraoperative photograph
2G. Photograph displaying enucleated denticles
2H. Immediate post operative photograph

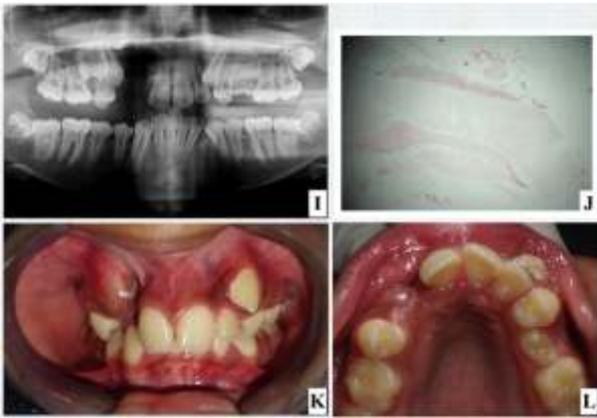


Figure 3

3I. Post operative orthopantomogram after 3 months

3J. Histopathology image

3K and 3L. 3 month follow up

DISCUSSION

Compound odontomas usually present with asymptomatic intraosseous mass of numerous denticles in the maxillary anterior region during the first two decades of life.²⁻⁵ Consistent with the literature, our report presents a 12-year-old male child with a large number of intraosseous well-defined denticles in the right maxillary incisor-cuspid region. Some authors report higher prevalence in females while others show male preponderance.² Literature reports have revealed compound odontomas with number of denticles ranging from 4-38 displaying diverse morphologies.^{4,8} In our case, compound odontoma with a rare occurrence of large number of denticles (42 in number) exhibiting all forms of fusion, dilaceration, particulate and denticule were observed (Figure 2).

Odontomas are primarily associated with retained deciduous teeth, impacted permanent teeth, displaced teeth and, rarely with cortical expansion of bone, cystic and ameloblastic changes.⁴⁻⁶ In the present case, the asymptomatic lesion produced evident labial and palatal swellings on the right maxillary anterior region (mainly in the palatal region) that helped to detect it. Retention of upper deciduous right lateral incisor and canine and palatal displacement of the impacted right permanent lateral incisor due to the lesion were also observed. Considering the age of the patient and the concerns of the parents, a conservative surgical enucleation of the denticles under local anaesthesia was performed. The patient was kept under follow up and were told about the complications of unerupted tooth and the need for surgical, orthodontic and prosthetic treatment later.^{5,13} The spontaneous eruption of an impacted tooth after removal of odontoma depends on several factors, such as distance of the apex of the impacted tooth relative to its estimated position, depth of impaction, angle of impaction relative to the midline, time of surgery relative to the expected eruption time of the impacted teeth, and loss of space.⁷ An immediate orthodontic traction

concomitant with the first surgery to remove the odontoma gives better prognosis.^{7,9}

Conventional routine radiographic examinations such as Intraoral periapical radiographs, occlusal technique and orthopantomogram (OPG) help with early detection of these lesions. However, literature reveals newer techniques such as microradiography and cone-beam computed tomography (CBCT) also as useful adjuncts.¹⁰ In accord with the literature, the radiographs in the present case revealed well-organized malformed tooth-like structures in a radiolucent cyst like lesion. Nevertheless, CBCT can be considered the best option to assess the position, prognosis and management of the unerupted teeth as well as the lesion especially in complicated cases.

The management of these intraosseous lesions include surgical enucleation followed by histological examination for diagnosis. Compound odontomas are easy to enucleate as the lesions are encapsulated in a fibrous sac and no recurrence has been reported yet. However, the possibility of relapse exists when resection is carried out in the non-calcified stage of the lesion.¹¹ In our case, a favourable prognosis was expected with less chance of recurrence after enucleation as the lesion was in its final stage of calcification.² Histologically, odontomas comprise of all the dental tissues in variable amounts. However, mature enamel undergoes decalcification during processing and is not seen in conventional haematoxylin and eosin-stained slides.¹² Similar findings were observed in our case in which numerous tooth-like structures comprising dentinal tubules surrounding the pulp tissue, which consisted few inflammatory cells, predominantly lymphocytes and numerous endothelial cells lined blood vessels engorged with red blood cells were observed.

CONCLUSIONS

This report presents an interesting case of compound odontoma with numerous denticles (42 in number) and associated retained deciduous teeth along with impacted upper lateral incisor. The preferred treatment of conservative surgical enucleation was performed and no recurrence was observed in the subsequent visits. However, early detection of the lesion through regular dental visits and subsequent routine radiographic examinations would have set better prognosis of the impacted permanent lateral incisor otherwise.

PATIENT CONSENT

Informed consent was taken from the patient prior to the procedure.

CONFLICT OF INTEREST

None

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