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Case Report

A Complex Odontoma in a Paediatric Patient with Hypodontia: A Case Report and Review of the Literature

Simran Mann[1]*, Laura Stacey[2] and Julian Page[3]

[1,2,3] *Oral and Maxillofacial Department, Musgrove Park Hospital, Taunton, England.*

***Corresponding Author**: Simran Mann, BDS, MFDS RCSEd, PGCert (Dent Ed), Dental Core Trainee 3 in Oral and Maxillofacial Surgery, Musgrove Park Hospital, Taunton, England.*

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Abstract

The complex odontoma is a benign odontogenic tumor of the jaw, consisting of a disorganised mass of dental tissue with unknown aetiology. They are often asymptomatic and usually identified incidentally upon radiographic examination. However, they have the potential to cause displacement and resorption of adjacent teeth as well as affecting tooth eruption, therefore early identification is important. We report a case of a 12 year old male who was referred to our department with an incidental finding of a complex odontoma in the mandible.

Keywords: *Oral Surgery, Odontoma, Odontogenic Tumours*

Introduction

Odontomas are developmental tumour-like masses of the jaw that consist of tooth tissue, making them odontogenic hamartomas.[1] There does not appear to be a gender predisposition and they tend to occur in the second and third decades of life.[2,3] Depending on their radiographic and histological resemblance to a tooth, they can be classified further as compound or complex, with compound odontomas being more common.[2,4] The aetiology remains unclear and there have been reports of a potential association with trauma or infection, as well as a genetic component.[5,6,7] Furthermore, there have been links to hereditary conditions such as Gardner's Syndrome and Hermann's Syndrome, in which multiple odontomas may be found.[1,3]

A complex odontoma is described as a disorganised arrangement of dental tissues and can be seen as well-formed enamel, dentine, cementum and pulp radiographically and histologically.[3] Predominantly, these lesions are found in the mandibular molar region, sometimes in place of a tooth but more often, in association with the crown of an unerupted tooth.[3]

Clinically, gradual slow expansion of the jaw may be observed. It is usually asymptomatic unless it becomes infected and therefore it is frequently identified incidentally upon radiographic investigation of an unerupted tooth or retained primary tooth.[3,4] Radiographically, a complex odontoma appears as a predominant radiopaque lesion; however in its early stages, a well-defined radiolucent area may also be seen.[3,8]

Case Report

History

A 12 year old male was referred to the Orthodontic Department at Musgrove Park Hospital, Taunton, England regarding an infra-occluded lower left second primary molar (LLE) with no permanent successor. An Orthopantomagram (OPG) demonstrated this as well as an incidental finding of a mixed density radiopacity and radiolucency located in the right mandible, distal to the developing lower right second molar (LR7) (Figure 1). He was subsequently referred to the Oral and Maxillofacial Department for further investigation and for extraction of the LLE.

The radiological report of the OPG described the lesion as a predominantly sclerotic mixed attenuation abnormality with a cystic component with apparent fluid levels. Further imaging was advised.

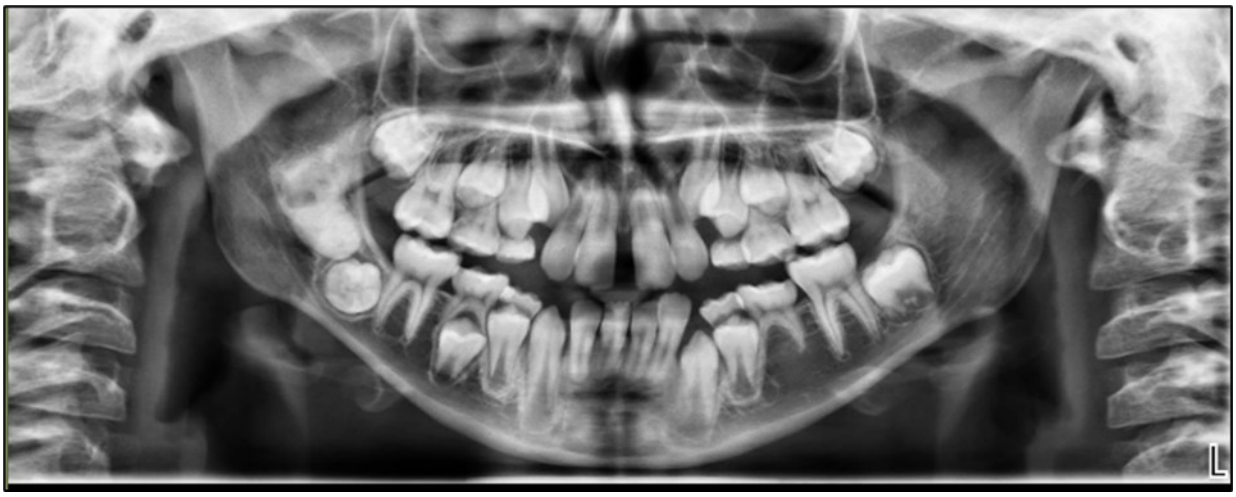

Figure 1: *Pre-operative OPG showing a mixed density radiopacity and radiolucency located in the right mandible, distal to the developing LR7.*

A subsequent CT mandible (Figure 2, 3) described a lobulated, ill-defined, predominately sclerotic focus with some areas resembling dental enamel. There was mild expansion of the mandibular ramus and the inferior alveolar canal was closely related to the posteromedial aspect of the lesion. There was no interruption of the canal wall or any significant displacement. The report concluded the lesion was likely to be a complex odontoma.

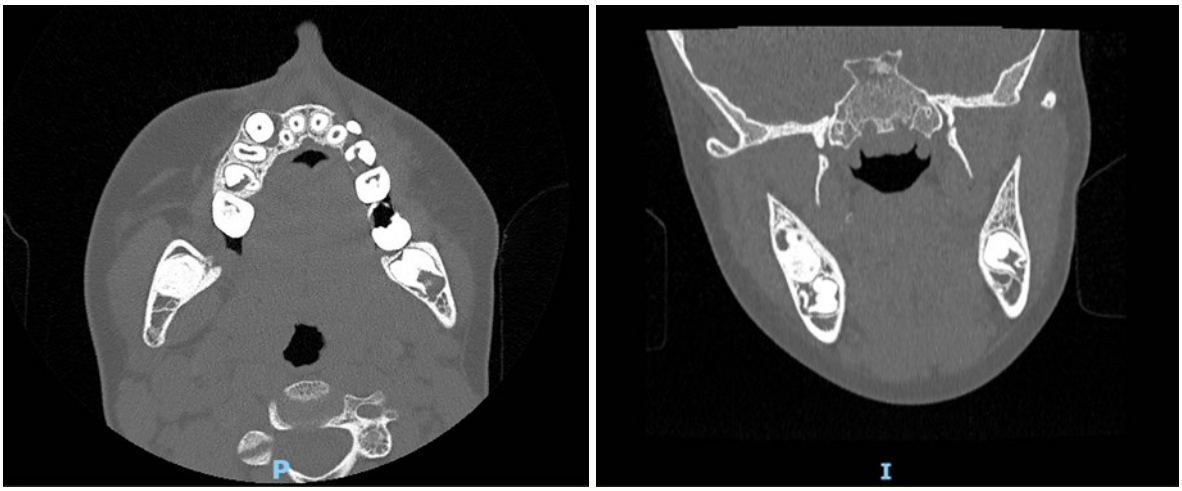

Figure 2: *Pre-operative CT mandible showing a sclerotic mass in the right mandibular ramus with mild expansion (axial and coronal views).*

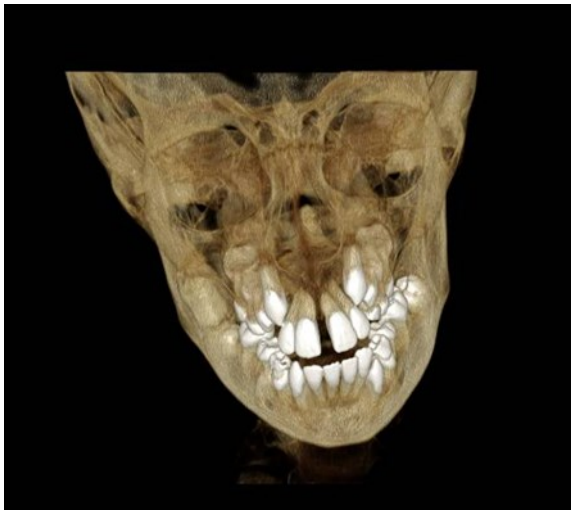

Figure 3: *3D reconstruction of coronal view.*

Examination

On examination, there was no evidence of swelling or expansion of the jaw and normal sensation in the distribution of the inferior alveolar nerve was noted. The LLE was infra-occluded. Informed consent was obtained for extraction of the LLE plus removal of the sclerotic mass in the lower right mandible under general anaesthesia. The patient was warned of risk of injury to the inferior alveolar and lingual nerves as well as risk of fracture of the mandible.

Procedure

Surgical excision of the lesion was performed via intra-oral approach under general anaesthetic. An envelope flap was raised to allow bone removal and expose the lesion (Figure 4). It was then successfully elevated out (Figure 5). The dimensions of the lesion are shown in Figure 6 of roughly 25mm in length. The inferior dental nerve was not visible during the procedure and no fractures of the mandible were identified. The area was closed primarily using resorbable sutures.

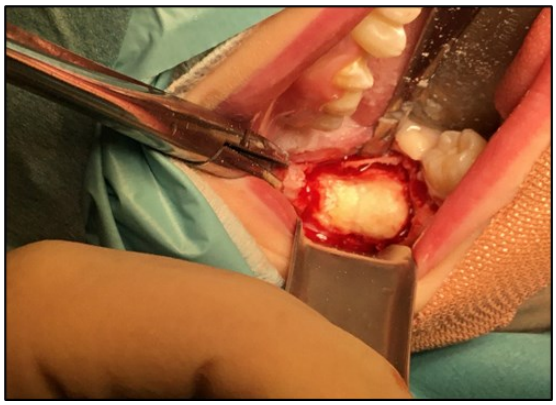

Figure 4: *Surgical exposure of the lesion*

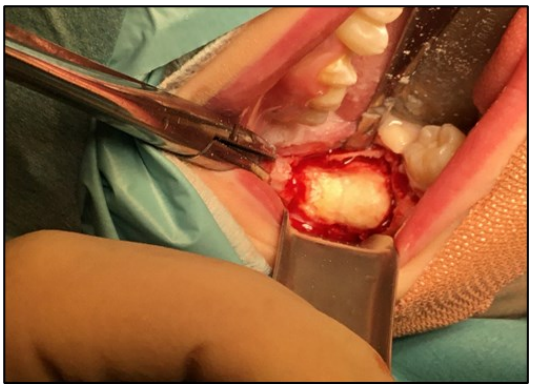

Figure 5: *Elevation of the lesion.*

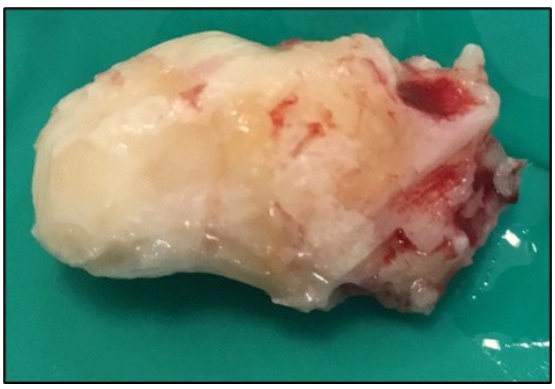

Figure 6: *Lesion completely removed.*

Post-operative

The histology reported fibrofatty connective tissue together with a small amount of calcific material that is probably tooth matrix. There was no overt evidence of a neoplasm or of a cyst and no definitive pathology could be identified.

A repeat OPG was taken at his 6 month follow up which showed bone infill in this region with no evidence of recurrence (Figure 7).

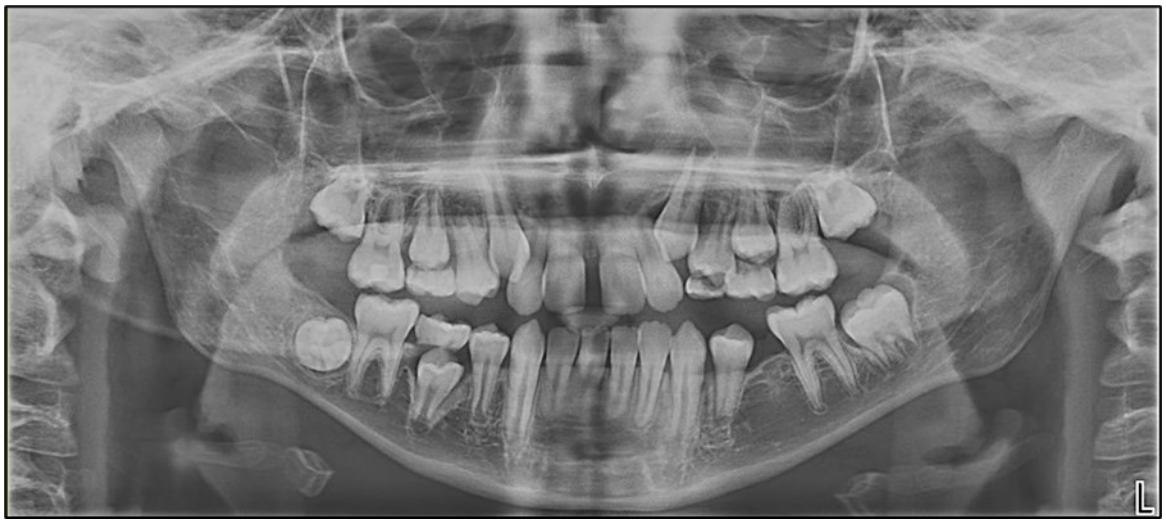

Figure 7: *Post-operative OPG showing bone infill and no evidence of recurrence.*

Discussion

Odontomas constitute around 22% of all odontogenic tumours of the jaw with a 5-30% prevalence of complex odontomas.[1,7] Complex odontomas are frequently located in the posterior mandible and are often incidental radiographic findings, as was seen in this case.[2,3] Furthermore, this patient was in the second decade of life, during which odontomas most commonly occur.

Definitive diagnosis was not possible from radiographic examination alone, however evidence of an irregular radiopaque mass lead to the likely suspicion of a complex odontoma. They can show varying amounts of radiopacity depending on the stages of calcification.[8] Histologically, enamel, dentine, pulp tissue and cementum are haphazardly arranged and ghost cells may be observed.[5,8,9]

They have the ability to cause bone expansion and facial asymmetry but rarely erupt into the oral cavity, however if they do, can lead to pain, inflammation and infection.[3,5,6] Additionally, due to their common association with an unerupted tooth, they may cause impaction/delayed eruption, displacement and/or resorption of adjacent teeth/structures.[6] To avoid such complications, it is important that these lesions are identified early and managed appropriately, usually through surgical excision.[4,5] As the likelihood of recurrence is rare due to the well-capsulated nature of these masses, conservative surgical excision is the preferred approach.[7,8]

Conclusion

Complex odontomas are developmental tumour-like masses of the jaw, with the potential to affect the eruption of teeth; cause displacement as well as resorption of adjacent teeth, in addition to bone expansion. Early detection and diagnosis is therefore key to allow appropriate conservative surgical management.

Conflict of Interest

The authors declare no conflict of interest.

Informed Consent

Informed consent was obtained for display of radiographs and photographs.

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