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Case Report

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Odontoma: Rare Case Report

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ABSTRACT

Odontomas are the most prevalent odontogenic tumours, often considered hamartomas due to their limited growth and histological resemblance to normal dental tissues. They are classified into compound and complex types, with the latter presenting as disorganized calcified masses typically found in the posterior mandible. This case report details a rare presentation of a complex odontoma in the posterior maxilla of an 18-year-old male, discovered incidentally during routine radiographic examination. Clinical evaluation revealed Bucco palatal expansion without symptoms, and Cone-Beam Computed Tomography (CBCT) confirmed a well-defined radiopaque lesion extending to the maxillary sinus. Surgical excision was performed under local anaesthesia, and histopathological analysis confirmed the diagnosis. The report underscores the importance of early detection, radiographic vigilance, and surgical management to prevent complications such as impaction, malocclusion, or cystic transformation.

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Introduction

Odontomas are the most frequently encountered odontogenic tumours, accounting for approximately 22% of all such lesions [1,2]. Despite being classified as tumours, they are widely regarded as hamartomas—developmental malformations rather than true neoplasms—due to their limited growth potential and histological resemblance to normal dental tissues [3,4]. These lesions are composed of varying proportions of enamel, dentin, cementum, and pulp tissue, arranged either in an organized tooth-like fashion (compound odontoma) or as a disordered mass (complex odontoma) [1].

Complex odontomas are characterized by a radiopaque mass of dental tissues in an irregular arrangement, lacking the structural organization seen in compound odontomas. Histologically, they consist of enamel matrix, dentin, cementum, and pulp tissue in a haphazard configuration, often surrounded by a fibrous capsule [3]. These lesions are most commonly located in the posterior mandible and may be associated with impacted teeth, cortical expansion, or root resorption of adjacent teeth [5]. Unlike compound odontomas, which resemble miniature teeth, complex odontomas appear as dense, amorphous calcified masses on radiographs [1,5].

Typically asymptomatic, odontomas are often discovered incidentally during routine radiographic examinations [1]. However, their clinical significance lies in their potential to interfere with normal odontogenesis. They may obstruct the eruption of permanent teeth, cause displacement or resorption of adjacent structures, and occasionally present with localized swelling, pain, or secondary infection. The anterior maxilla is the most common site for compound odontomas, while complex variants are more frequently found in the posterior mandible [2,5].

Radiographically, odontomas exhibit well-defined radiopaque masses with a surrounding radiolucent halo, reflecting the fibrous capsule [1]. Their appearance varies depending on the degree of calcification and the stage of development [3]. Advanced imaging modalities such as Cone-Beam Computed Tomography (CBCT) can aid in precise localization and surgical planning [5].

Given their benign nature and excellent prognosis following surgical excision, early detection and intervention are essential to prevent complications such as impaction, malocclusion, or cystic transformation [6,7]. This article presents a case of a mandibular odontoma with clinical, radiographic, and surgical correlation, highlighting the importance of recognizing these lesions in routine dental practice [7].

Case Report

An 18-year-old male patient reported to our outpatient department (OPD) for a routine dental check-up. Upon examining the diagnostic intraoral periapical radiograph, a radiopaque mass was noticed distal to the 16. Intraoral examination revealed buccopalatal expansion of the alveolar ridge extending from the distal of 16 to the 18 regions. No signs of inflammation, discharge,

or sinus opening were evident. The overlying mucosa appeared healthy and was non-tender upon palpation.

Cone Beam Computed Tomography (CBCT) was performed, which revealed a well-defined radiopaque mass, homogeneous in density to the dentine of the adjacent tooth, and surrounded by a thin radiolucent halo. The lesion extended anteroposteriorly from the distal aspect of 16 to the maxillary tuberosity region, and superoinferiorly from the alveolar crest to the lateral wall and floor of the maxillary sinus. The mass covered the 2nd and 3rd molars (teeth 17 and 18), with mild elevation of the sinus floor but no breach.

OPG of the Patient showing the Odontoma

The radiopaque mass appeared to exert pressure on the adjacent structures, although no root resorption was evident in 16. The radiographic features led to a provisional diagnosis of complex odontoma.

As the patient presented no contraindications for surgery, he was operated on under local anaesthesia. The tumour was surgically excised via an intraoral approach. A vestibular incision was given from 13 to 18. A full-thickness mucoperiosteal flap was raised, and the donor site distal to 16 was revealed. It was excised using rotary instruments and copious saline irrigation. The excised specimen was sent for histopathological examination, which confirmed the diagnosis of complex odontoma. Iodoform dressing was placed in the surgical site to promote bone fill and healing. 3.0 black braided silk sutures were used for closure. Antibiotics and analgesics were prescribed. Regular follow-up advised

Histopathological Examination revealed an Irregular conglomerate of enamel, dentin, cementum, and pulp tissue, and no evidence of malignancy.

Final Diagnosis: Complex Odontoma

Discussion

Odontomas are benign odontogenic tumours composed of dental tissues such as enamel, dentin, cementum, and pulp [2]. They are broadly classified into two types: compound and complex odontomas [8]. Compound odontomas consist of multiple small tooth-like structures and are most commonly found in the anterior maxilla [9]. In contrast, complex odontomas present as an irregular, disorganized mass of dental tissues and are typically located in the posterior mandible [10].

Complex odontomas are characterized by a single, dense, radiopaque mass composed of enamel, dentin, cementum, and pulp tissue arranged in a chaotic, non-anatomical fashion [2,10]. Unlike compound odontomas, they do not resemble teeth morphologically and often appear as a solitary calcified lesion surrounded by a radiolucent halo, representing the fibrous capsule [8,11]. These lesions are usually larger than compound odontomas and may exert pressure on adjacent structures, leading to cortical expansion, tooth displacement, or root resorption [10,12]. Histologically, complex odontomas show a haphazard mixture of dental tissues without the organized layering seen in normal tooth development [2,13].

The etiology of odontomas is multifactorial, involving developmental anomalies, trauma, infections, and genetic syndromes such as Gardner's syndrome [14]. Clinically, these lesions often manifest as delayed eruption of permanent teeth, swelling, or expansion of the cortical bone [15,16]. In some cases, they may be associated with pain or secondary infection, although many remain asymptomatic and are discovered incidentally during routine radiographic evaluation [17].

Intraoperative picture showing the odontoma after raising the flap

Intraoperative picture showing the excision of odontoma

Intraoperative picture post-excision of the odontoma

Diagnosis primarily relies on radiographic examination, which reveals characteristic radiopaque masses suggestive of dental tissue [8,11]. Cone-beam computed tomography (CBCT) is particularly useful in assessing the lesion's size, extent, and relationship to adjacent anatomical structures [10,18]. Histopathological analysis is essential for confirming the diagnosis, demonstrating either organized tooth-like structures in compound odontomas or a haphazard arrangement of dental tissues in complex odontomas [2,13].

The treatment of choice for odontomas is surgical excision [10,19]. This approach is typically curative, with an excellent prognosis and minimal risk of recurrence [19]. Early detection and management are important to prevent complications such as impaction, malocclusion, or displacement of adjacent teeth [12,15].

Conclusion

Odontomas, particularly complex variants, are benign yet clinically significant odontogenic tumors that can disrupt normal dental development and occlusion. Their disorganized histological architecture and posterior mandibular predilection often lead to impaction, cortical expansion, and displacement of adjacent teeth [9,14]. Although frequently asymptomatic, their incidental discovery during routine imaging underscores the importance of radiographic vigilance in dental practice [11]. Cone-beam computed tomography (CBCT) enhances diagnostic precision and surgical planning by delineating lesion boundaries and proximity to vital structures [18]. Histopathological confirmation remains essential for definitive diagnosis and differentiation from other odontogenic lesions [20]. With surgical excision offering an excellent prognosis and minimal recurrence, early detection and intervention are key to preventing long-term complications and preserving oral health.

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