



UNLOCKING THE HIDDEN RADIOOPAQUE GEMS - CASE SERIES

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ABSTRACT

Oral Radiology plays a vital role in diagnosis, treatment planning and follow-up of patients with oral and maxillofacial problems. There have been several advancements in the field of Dental Radiology ranging from intraoral x-ray to extra oral radiographs to specialized radiography with the recent advance being Cone Beam Computed Tomography, yet Orthopantomogram(OPG) also known as Panoramic Radiography has been the most routinely recommended radiograph in modern dentistry. We present case series of patients referred for an OPG which revealed the incidental presence of submerged or ankylosed deciduous tooth, odontome and supernumerary teeth. In all these cases the underlying dental findings which were incidental was revealed by an OPG.

KEYWORDS : Panoramic Radiography, Tooth Ankylosis, Odontome, Supernumerary Tooth

INTRODUCTION

Dental Imaging plays an essential role in oral care¹. An Orthopantomogram(OPG) is a panoramic radiography which provides the view of all the upper and lower teeth and supporting structures in a single film¹.

When a previously erupted tooth becomes embedded in the oral tissue and its intact marginal ridge is more than 0.5mm below the intact marginal ridges of the adjacent normal teeth it is known as submerged tooth or tooth ankylosis commonly seen in primary teeth and diagnosed based on the history, clinical examination and through radiographs^{2,3}. Odontome is a benign odontogenic tumor of epithelial and mesenchymal origin described by Shafer, Hine and Levy in 1974. There are 2 types- compound and complex type⁴. Supernumerary teeth also known as Hyperdontia is a developmental anomaly characterised by an increase in the number of dental buds, mostly asymptomatic and discovered on routine radiographs⁵.

Case Report 1

A 11year old girl was referred for an OPG to the Department Oral medicine and Radiology. OPG(fig1) revealed presence of mixed dentition, submerged right mandibular deciduous second molar which had displaced the corresponding permanent tooth bud and mesially tilted right mandibular permanent first molar.



Fig 1 -OPG reveals submerged right deciduous second molar with displaced permanent second premolar tooth bud

Case Report 2

A 21year old male patient visited the Department Oral medicine and Radiology with a chief complaint of pain in the lower left back tooth region since 1 week. The pain was gradual in onset, mild intensity, dull aching and intermittent in frequency. Intraoral examination revealed presence of partially erupted lower left third molar, OPG(Fig2A) revealed vertically impacted 38 with 'c' shaped radiolucency distally suggestive of pericoronitis and presence of multiple radiopaque tooth like structure in the periapical area in between the left maxillary lateral incisor and canine region and provisional diagnosis of compound odontome was given.

Case Report 3

A 13year old girl was referred for an OPG to the Department Oral medicine and Radiology. OPG(Fig2B) revealed labially placed permanent left maxillary canine, retained maxillary left deciduous canine with multiple radiopaque tooth like structure in the periapical area suggestive of compound odontome.

Case Report 4

A 12year old girl was referred for an OPG to the Department Oral medicine and Radiology. OPG(Fig2C) revealed presence of mixed dentition, retained left maxillary deciduous canine with well-defined multiple radiopaque tooth like structure in the periapical area and developing canine tooth bud and provisional diagnosis of compound odontome was given.

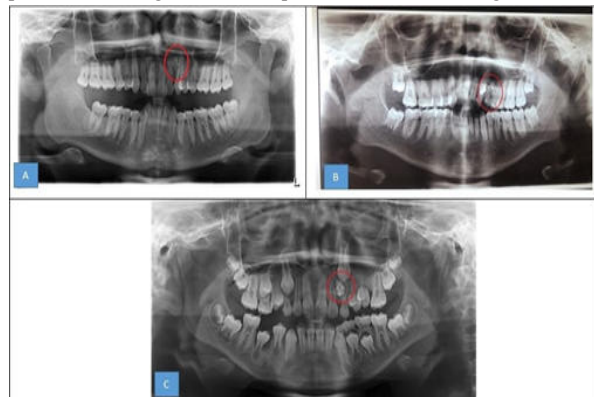


Fig 2 Fig 2A- compound odontome in the periapical region in

between maxillary permanent left lateral incisor and canine Fig2B- compound odontome in the periapical region of retained maxillary left deciduous canine Fig2C- compound odontome in the periapical region of maxillary left deciduous canine

Case Report 5

A 13year old boy was referred for an OPG to the Department Oral medicine and Radiology. OPG(Fig3) revealed crowding in the right mandibular canine and first premolar, developing third molar tooth buds and presence of 2 supernumerary tooth bud in the periapical area of left mandibular first and second premolars.



Fig 3- presence of 2 supernumerary tooth buds in the periapical area of left mandibular permanent first and second premolar region

DISCUSSION

X-ray was first discovered by Professor Wilhelm Conrad Roentgen in November 8th 18956. Dr. Friedrich Otto Walkhoff made the first tooth x-ray in 18966. Since then Dental Radiology has undergone several advances with various imaging techniques¹. OPG is the most routinely advised radiograph with advantage of broad anatomical area coverage, low patient radiation dose, less time, no discomfort to the patient, used in patients unable to open their mouth, for patient education as a visual aid and presentation of cases⁵. Disadvantages are fine anatomic details cannot be displayed, overlapping of proximal surfaces of premolars, unequal magnification, geometric distortion, overlapping of structures like cervical spine in the incisor area can hide lesions in that area, distortion of image if the object of interest is located outside the image plane⁵.

The most common submerged teeth are deciduous mandibular second molars, prevalence of 1.3 to 3.5%². Because of over retention, delayed or variable degree of root resorption they become ankylosed and prevent eruption of the corresponding permanent teeth³. The causes could be trauma, infection, disturbed local metabolism or genetic³. Treatment is surgical removal for prevention or development of malocclusion, local periodontal disturbances and for proper eruption of corresponding permanent teeth⁷. In our case considering the age of the patient, severity of tilting of the adjacent teeth with loss of space surgical extraction of the submerged right mandibular deciduous second molar was advised followed by orthodontic correction.

Odontomes are usually asymptomatic, associated with unerupted or impacted teeth, retained deciduous teeth, may be associated with swelling, infection, displacement of teeth and malocclusion⁸. Etiological factors are hyperactive odontoblasts, inflammation, infection, trauma and genetic irregularities^{4,8}. Compound type are seen in the maxillary anterior region with radiographic appearance of radio-opaque masses adopting tooth-like configuration with irregular margins, complex types are seen in the posterior region of the jaw and appears radiographically as disorganized masses of calcified tissues^{4,8}. In our cases the patients were made aware about the presence of odontome and advised for surgical removal.

Supernumerary teeth have unclear, multifactorial etiology mostly due to hyperactivity of dental lamina, genetic predisposition, associated with diverse syndromes, environmental factors and tooth germ dichotomy⁵. The prevalence is 0.3-0.8% for primary dentition and 0.1-3.8% for permanent dentition⁹. They are classified based on the number as single or multiple, based on morphology as supplemental and rudimentary which can be conical or peg shaped, tuberculate and molariform and based on the position as mesiodens seen in between the maxillary central incisors, paramolars which are small in size, located buccally /palatally/ ligually in the interproximal space between upper second and third molars, distomolars known as fourth molar are situated distally or distolingually to third molar and parapremolar is located in the premolar area⁵. They may be present unilateral or bilateral in either of the jaws, may be erupted, impacted, inverted or erupt in an abnormal pathway, may cause over-retained deciduous teeth, delayed or ectopic eruption of permanent teeth, displacement and rotation of adjacent teeth, crowding of teeth, midline diastema, eruption into the nasal cavity, formation of primordially or follicular cysts less frequently with significant bone destruction and adjacent teeth root resorption^{5,9}. Here in our case patient was made aware about the presence of these supernumerary teeth and referred back to the Department of Pediatric and Preventive dentistry for surgical extraction.

CONCLUSION

Dental radiology plays a fundamental role in dentistry. Radiographs enable the dentists to visualize and evaluate the dental issues which may not be visible to the naked eye. OPG is one such radiograph which is widely used in dentistry and will be the mainstay and an indispensable tool for precise diagnosis, treatment plan and follow up for the overall wellbeing of the patient.

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