CASE REPORT

Idiopathic multiple impacted unerupted teeth: Case report and discussion

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ABSTRACT

Multiple impacted permanent teeth are usually related to syndromes, metabolic and hormonal disorders. However, in some cases, impaction of multiple teeth is not associated with any syndrome. In this report, we present a case of 17-year-old male patient with missing teeth. Radiographs revealed multiple impacted permanent teeth, though medical and family history along with physical examination was not suggestive of any syndromes. If other investigations are negative, an idiopathic case of multiple impacted teeth is suggested to be the possible diagnosis. The objective of this report is to increase awareness of such cases especially in the absence of hereditary/genetic/metabolic factors usually inherent in such scenarios. The patient management in such cases needs to be planned specifically from a multidisciplinary standpoint.

Key words: Impacted, missing, multiple teeth, syndrome

INTRODUCTION

Eruption is the axial or occlusal movement of the tooth from its developmental position within the jaw to its functional position in the occlusal plane.[1] Teeth that cease to erupt before emergence are known as impacted teeth. The common and important reasons attributed to delayed eruption are usually insufficient space, early loss of primary teeth with eventual closure of space, crowding of arches and rotation of tooth buds. Excessive fibrous tissue over an erupting tooth is also one of the most common causes, with eruption cysts being relatively rare.[1]

Complete lack of eruptive force can be the reason for unerupted tooth when the normal number of teeth is present radiographically, although this is debatable, since few workers have debunked this claim.[2,3] Syndromes, metabolic, and hormonal disorders are also other causes of multiple impacted permanent teeth. Finally crowding and rotation of tooth buds can also lead to impacted teeth.[4]

The objective of the study is to increase awareness of cases of multiple unerupted teeth in which multiple etiologies need to be discussed and investigated.

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CASE REPORT

A 17-year-old male patient reported with a chief complaint of multiple missing teeth and compromized esthetics. The patient was of normal build with no previous medical or dental history. He had no relevant family history and this was his first dental visit. On further enquiry the patient revealed that he had loss of deciduous teeth with no eruption of permanent teeth.

On examination, a total of 18 teeth were present in the patient's oral cavity. The patient had multiple retained deciduous teeth with only the permanent maxillary central and lateral incisors, mandibular central incisors, right maxillary first molar and left mandibular first molar present. The incisal length of the maxillary central incisors appeared reduced (partial eruption) and the patient had a high arched palate [Figure 1].

The patient was advised OPG, chest x-ray and skull x-ray. OPG revealed the presence of impacted, unerupted, and missing permanent teeth [Figure 2, Table 1]. Few teeth showed enamel hypoplasia and calcifications in the pulp space. Skull and chest x-rays did not reveal any other obvious deformities [Figure 3].

The patient did not report for investigations and was unresponsive. As this case was rare, it has been reported without further investigations.

DISCUSSION

Epidemiological studies have reported dental impactions to affect 25% to 50% of the population.[5] Multiple impactions

Figure 1: Intraoral view of patient showing retained deciduous molar and permanent first molar. High arched palate along with reduced incisal length is also visible

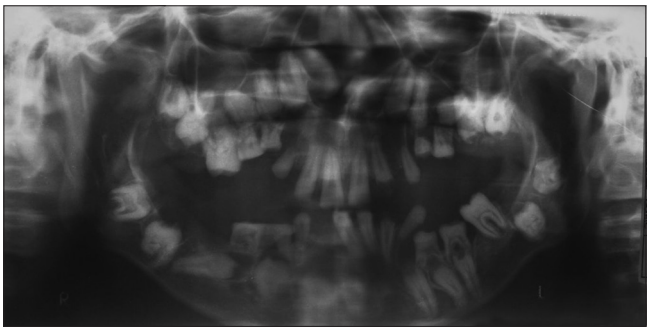

Figure 2: Panaromic radiograph of patient showing retained deciduous teeth and multiple impacted permanent teeth

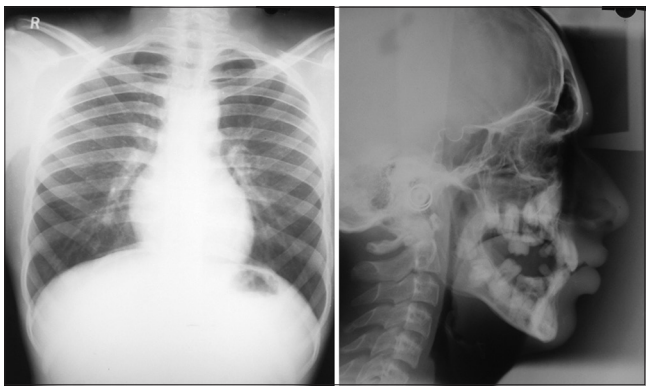

Figure 3: Skull and chest xrays which do not reveal any obvious deformities

Table 1: Missing, unerupted, and impacted teeth

Missing teeth	Unerupted teeth	Impacted teeth
28, 46	14, 15, 24, 26, 27, 33, 34, 35, 37, 38, 47, 48	13, 18, 23, 25, 42, 44, 45

are seen rarely and are usually associated with systemic conditions. Guided eruption of many teeth with the help of coordinated multidisciplinary management is needed for patients with multiple impactions.[6]

There are numerous eruption-regulating molecules having similar and overlapping functions, which ensures that even the absence of a single factor does not interrupt the event of eruption.[1] But defect in some genes may be responsible for this condition. EGF, EGF-R, CSF-1, CSF-1R, IL-1, IL-1R, c-Fos, NFB, MCP-1, TGF-β1, PTHrP, Cbfa-l (now called Runx2), OPG, RANK/RANKL are the major tooth eruption molecules. Stellate reticulum is the site for few molecules with the majority of the eruption molecules residing in the dental follicle.[6]

While most eruption defects are part of a genetic syndrome, they can also be nonfamilial, as in the case in primary failure of eruption (PFE). In PFE localized failure of eruption of permanent teeth exists with no other systemic involvement. Candidate genes for primary failure of eruption would be the molecules that function solely in the pre-eruptive phase and that are expressed in cells of the dental follicle and surrounding structures. Hence, it is likely that genes like CSF-1, NFB, and c-fos are the genes responsible for the eruption defect.[3]

The causes of tooth impaction are divided into generalized and localized. Cleidocranial dysplasia is the most common syndromal cause of tooth impaction. Common reasons like lack of space, prolonged retention or early loss of deciduous tooth, abnormal position of tooth bud, presence of alveolar cleft, ankylosis, cystic or neoplastic formation, alveolar or dental trauma, and dilacerations of teeth falling into the localized category.[7,8] Prolonged retention of deciduous teeth was found in our case.

Multiple impacted teeth are usually present in syndromes. The differential diagnoses in case of syndromes are Cleidocranial dysostosis, Gardners syndrome, Gorlin–Sedano syndrome, and Yunis–Varon Syndrome.

In the case of cleidocranial dysplasia the patients usually exhibit high-arched palate with prolonged retention of the deciduous teeth leading to subsequent delay in eruption of the deciduous teeth. Though both the intraoral features were present in our case the abnormalities of skull and shoulder girdle along with multiple supernumerary impacted teeth were absent. Gardner's syndrome that also presents with multiple impacted teeth was ruled out as associated signs like multiple epidermoid cysts and other lesions were absent. Gorlin–Sedano syndrome represents as short hands, foot bones with short and straight collar bone along with multiple impacted teeth. Features of Yunis–Varon syndrome are agenesis or hypoplasia of clavicle, severe micrognathia, digital anomalies, hypodontia, spinal defects, and impacted teeth. Both the syndromes presented with multiple impacted teeth but were ruled out from our case as other symptoms were not present.

In the case of hormonal disorders hypothyroidism, hypoparathyroidism, and Pseudo hypoparathyrodism are to be considered.

Estimation of T3, T4, and TSH is required for diagnosing hypothyrodism where there is low serum T4 and elevated TSH. Evaluation of total serum calcium concentration and serum parathyroid hormone is required for hypoparathyrodism and pseudohypoparathyroidism. There is decrease of serum calcium in both and elevation of parathyroid hormone in pseudo hypoparathyroidism and decrease of hormone in hypoparathyrodism.

Metabolic disorders like Vitamin D deficiency rickets are also associated with impacted teeth. In our case, further investigations were needed to rule out metabolic and hormonal disorders. Failure of eruption could also be due to crowding of supernumerary teeth[4] but in our case that was not observed.

In this case, dental history and radiographic examination ruled out partial anodontia. The medical and family histories along with extraoral examination were not suggestive of any syndrome or metabolic disorder.

Only a few cases of nonsyndrome multiple impacted teeth were reported.[9-13] In those studies the predominant explanation was that some physical barrier led to impaction and noneruption of teeth.[14]

Duration and results of treatment in less frequent cases of multiple impactions is a major concern when compared to more frequent single impaction cases.[15] Multidisciplinary approach would be the appropriate choice as treatment involves esthetics, functional, and oral health problems.[16] In case of unerupted teeth, orthodontic extrusions may be attempted. In view of the pathological potential of the impacted teeth, surgical removal is recommended. Rehabilitation of the patient with fixed dentures needs to be planned with the help of a prosthdontist and implantologist. Obtaining stable results along with enhanced esthetics, oral health, and function would be the objective of the treatment.[17]

CONCLUSION

Evidence supports the role of genes in many dental anomalies.[17] Hypodontia and eruption problems are mainly focused on genes such as CSF – 1, NFαB, and c-fos.[1]

Radiographs reveal the presence of multiple impacted teeth but additional investigations are needed to rule out systemic and metabolic conditions. A decision about the management is truly based on the underlying medical condition. These patients require multidisciplinary approach to guide eruption of teeth.

In our case since the patient was regrettably lost to follow-up, genetic, and other studies could not be performed. The authors are unable to postulate a syndromal or metabolic pathogenesis. Therefore, an idiopathic case of multiple impacted teeth could be the only possible diagnosis, since the term idiopathic refers to unknown cause, which is the case in this particular scenario.

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