



ISSN Print: 2394-7489
ISSN Online: 2394-7497
IJADS 2023; 9(4): 36-39
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www.oraljournal.com
Received: 19-07-2023
Accepted: 21-08-2023

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Multiple Impacted teeth, an indicator for early detection of hypoparathyroidism: A report of two cases

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DOI: <https://doi.org/10.22271/oral.2023.v9.i4a.1846>

Abstract

Teeth that cease to erupt before emergence to their functional position in the oral cavity are termed as impacted. Impaction of teeth can result firstly from local biomechanical impediments, and secondarily from childhood maxillofacial or dentoalveolar trauma, reconstructive surgery of the facial skeleton, malpositioning of an adjacent tooth, thickened overlying osseous or mucosal tissues, insufficient maxillofacial skeletal development or a low correlation between maxillofacial skeletal development and tooth maturation, eruption disturbances and owing to direct or indirect effects of cysts or neoplasm. In permanent dentition, third molars are the most frequently impacted teeth followed by the canines. When few teeth are impacted, the condition is localized, but multiple teeth are impacted, the condition becomes generalized and is often associated with some derangement of the normal physiological processes. Therefore, factors causing impactions may be localized, pertaining to the area or, systemic or, generalized including bone disorders such as cleidocranial dysplasia and/or some sort of endocrinological disturbance such as hypoparathyroidism. Hypoparathyroidism is a rare endocrinological disorder accompanied by anomalies of various systems including bones and teeth. The dental defects due to hypoparathyroidism may present as hypocalcaemia, aplasia and/or hypoplasia, defects of mineralization, short and blunted roots, delayed eruptions, and clinically missing or impacted teeth. This report presents two interesting cases, where multiple impacted permanent teeth and retained primary teeth, wear accompanied by clinical manifestations in two female patients of 27 and 51 years of age which called for further investigations and, eventually, aided in the early diagnosis of hypoparathyroidism.

Keywords: Hypoparathyroidism, cleidocranial dysplasia, multiple impacted permanent teeth

1. Introduction

Hypoparathyroidism, an uncommon endocrinological disorder is identified either by the absence or abnormally low sera levels of parathyroid hormone (PTH) secondarily leading to abnormally low sera levels of calcium and/or elevated sera levels of phosphorus in the blood. It presents as a major therapeutic challenge which includes an effectual management of the balance between treating the hypocalcaemia and simultaneously avoiding hypercalciuria. The exact aetiology of this disorder is attributed to hereditary (autosomal dominant, recessive, and X-linked), autoimmune, and various other acquired aetiologies^[1, 2]. Hypoparathyroidism has known adverse effects on the development of teeth and bones including their eruption. This manifests as multiple impacted permanent teeth and retained primary teeth accompanied by numerous other clinical manifestations, impaired upper and lower jaw growth, alteration of facial dimensions and a shortfall of coordination in lower jaw growth which affects the overall development of the dentition and the final state of occlusion achieved^[3]. It may also present brown tumours apart from eruption delays and teeth with short and blunted roots^[4]. A tooth is termed as impacted if it fails to proceed from its developmental location inside the jawbone to its eventual, functional location in the oral cavity. Various factors at genetic, molecular, and cellular levels interplay in a successful tooth eruption^[5]. It is not a rarity to find impaction of a single tooth but a rarity to find multiple impacted teeth. Impactions can be seen secondary to physical reasons such as insufficient space, early closure of space, crowded arches, thickened overlying bone, soft tissues, or a plethora of systemic conditions including syndromes, metabolic and hormonal derangements, and rarities^[6].

As hypoparathyroidism presents early in the form of diverse oral manifestations, an oral healthcare physician can play a major role in early diagnosis and a multidisciplinary management approach of this disorder. Two rare cases where multiple impacted permanent teeth and retained primary teeth, eventually, aided in early diagnosis of hypoparathyroidism are presented here.

Case report 1

A 27-year-old lady reported as an outpatient to the Department of Oral Medicine and Radiology with a chief complaint of pain in the upper left anterior region of the jaw since 4-5 months.

She was of short stature (Fig.1), brachycephalic with an inverted triangular face, broad temple and tapering chin, with hypertelorism and a flat nasal bridge. The patient had hypermobility of the shoulders (Fig.2). No other abnormalities were observed in relation to her physical or

mental features. Intraoral examination revealed over retained deciduous teeth with multiple missing permanent teeth in mandibular arch. Based on the clinical presentation, a provisional diagnosis of cleidocranial dysplasia was made while the list of differential diagnoses included hypothyroidism, hypoparathyroidism and Gardner's syndrome. A series of radiographic and serological examinations were planned.

Orthopantomograph (OPG) revealed multiple impacted permanent teeth with retained deciduous teeth in both the arches at various levels of impactions. The maxillary left posterior region displayed an altered bone density with fine trabeculae giving mild ground glass appearance (Fig.3). Chest x-ray revealed bilateral clavicular hypoplasia (Fig.4). Serological investigations presented normal serum calcium, phosphorous, serum alkaline phosphatase, Thyroid function and vitamin D profile, except PTH which was elevated to 298.8pg/ml.



Fig 1: Short stature of the patient.



Fig 2: Hypermobility of the shoulders.



Fig 3: Panoramic radiograph showing retained deciduous teeth in lower arch with multiple impacted permanent teeth in both the arches.

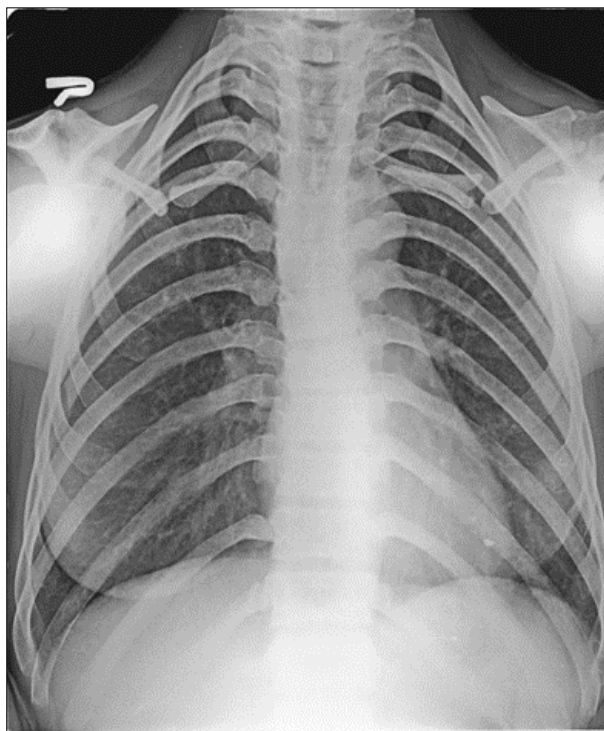


Fig 4: Chest X-ray showing Bilateral clavicular hypoplasia.

Case Report 2

A 51-year-old lady reported with the chief complaint of pain in lower right posterior region of the jaw of 4 days duration. She had undergone endodontic treatment 10 years back and

had a prosthesis. She gave a medical history of hypoparathyroidism for 10 years and was on treatment for the same. Intraoral examination revealed all 28 teeth present. OPG revealed multiple impacted supernumerary teeth.



Fig 5: Front Profile of the patient.



Fig 6: Panoramic Radiograph shows presence of multiple impacted teeth and fused supernumerary teeth bilaterally in the premolar region of the maxillary arch.

Discussion

Impacted teeth are those which are prevented from eruption by some physical barrier in the path of eruption. The common local aetiologies cited for single or isolated impactions of a group of teeth can be physical reasons such as insufficient space, early closure of space, crowded arches, thickened overlying bone, or due to soft tissues. There can be idiopathic reasons such as abnormal eruptive forces, trauma to the developing tooth buds, and intrinsic defects in the mechanism of eruption process [7]. Insufficient eruptive force in such cases could be due to either general, endocrinal, neurogenic, mucosal or bone disorder. Retained teeth are commonly found in hemifacial atrophy, hypopituitarism, hypothyroidism, cherubism, gingival fibromatosis, cleft palate and preceding syndromes.

Multiple impacted teeth by itself are a rare condition and often found in association with syndromes such as Cleidocranial dysplasia, Gardner's syndrome, Down syndrome, Aarskog syndrome, Zimmerman-Laband syndrome and Noonan's syndrome, although some other features were observed in our case [12].

Hypoparathyroidism is identified either by the absence or abnormally low sera levels of PTH and has varied aetiology including genetic, autoimmune, surgical/iatrogenic, and/or certain systemic diseases and syndromes [8]. The present case revealed disturbances in the eruption pattern of the permanent teeth with multiple retained primary teeth.

Babu *et al.* stated that the exact cause and the significance of multiple impacted supernumerary teeth remain an enigma to us.

Multiple supernumerary teeth without any associated systemic conditions or syndromes are not common and often associated with various syndromes^[13]. Most of the cases reported in the literature state that there is a predilection of non-syndrome multiple supernumerary teeth that occur in the mandible^[14]. G Santosh Reddy *et al.* reported a case in a 16-year female patient, with multiple impacted permanent and retained primary teeth in both the arches, on bilateral feet examination revealed an abnormal decrease in the size and diameter of the third, fourth, and fifth phalanges in the feet, being almost half of the adjacent fingers. Her hand-wrist radiograph in relation to right hand revealed alteration in the bone architecture with mild changes in the trabecular pattern and in the thickness of the cortices. This probed the clinicians for further investigations which, eventually, aided in the early diagnosis of hypoparathyroidism^[1].

We reported two cases, one a 27-year female patient with characteristic features of cleidocranial dysplasia and elevated PTH level. The next case is of a 51-year female patient who was a known case of hypoparathyroidism and whose panoramic radiograph showed multiple impacted teeth which aided in the diagnosis of hypoparathyroidism with multiple impacted teeth.

The variations in formation and the eruption pattern of teeth can be critical in guiding additional investigations in the disorder^[9]. Dental procedures can be started as per the specific need of the patient under proper medical supervision and with periodic recalls for follow-up of the changing needs of the patient under treatment.

Conclusion

Hypoparathyroidism is a disorder that shows early dental manifestations and it requires a careful evaluation through clinical, radiological, and laboratory examinations.

An oral healthcare dentist must be vigilant enough to check for early dental manifestations including multiple impacted permanent and retained primary teeth and radiological observations of enamel hypoplasia, poorly calcified dentin, abnormally wide pulp chambers, and short and blunted roots. The concept of treatment of this case contains examination of primary teeth, removal of the supernumerary teeth, assisting the eruption of the permanent teeth by orthodontic traction or surgical exposure and any impacted tooth which couldn't erupt after surgical or orthodontic methods needs extraction and replacement.

To conclude, an early detection of the disorder is a key to successful management, and dentist plays a vital role in maintaining oral health care in such cases.

Acknowledgements

No acknowledgements.

Conflicts of interest

Authors declare no conflicts of interest.

Financial Support

Not available

References

1. Reddy GS, Chalapathi KV, Reddy DS, Rana S, Kalyan M, Kartheeki B, *et al.* Multiple impacted permanent teeth, an indicator for early detection of hypoparathyroidism: A rare case report. *J Family Med Prim Care.* 2018 Sep-Oct;7(5):1096-1099.
2. Bilezikian JP, Khan AA, Potts JT. Jr Guidelines for the

management of asymptomatic primary hyperparathyroidism: Summary statement from the Third International Workshop. *J Clin Endocrinol Metab.* 2009;94(2):335-9.

3. Bedi R, Brook AH. Changes in general, craniofacial and dental development in juvenile hypothyroidism. *Br Dent J.* 1984;157:58-60.
4. Triantafillidou K, Zouloumis L, Karakinaris G, Kalimeras E, Iordanidis F. Brown tumors of the jaws associated with primary or, secondary hyperparathyroidism: A clinical study and review of the literature. *Am J Otolaryngol.* 2006;27(4):281-6.
5. Wise GE, Frazier-Bowers S, D'Souza RN. Cellular, molecular and genetic determinants of tooth eruption. *Crit Rev Oral Biol Med.* 2002;13(4):323-34.
6. Yildirim D, Yilmaz HH, Aydin U. Multiple impacted permanent and deciduous teeth. *Dentomaxillofac Radiol.* 2004;33(3):133-5.
7. Bayar GR, Ortakoğlu K, Sencimen M. Multiple impacted teeth: Report of 3 cases. *Eur J Dent.* 2008;2(01):73-8.
8. Maeda SS, Fortes EM, Oliveira UM, Borba VC, Lazaretti-Castro M. Hypoparathyroidism and pseudohypoparathyroidism. *Arq Bras Endocrinol Metab.* 2006;50:664-73.
9. Garfield N, Karaplis AC. Genetics and animal models of hypoparathyroidism. *Trends Endocrinol Metab.* 2001;12(7):288-94.
10. Jensen SB, Illum F, Dupont E. Nature and frequency of dental changes in idiopathic hypoparathyroidism and pseudohypoparathyroidism. *Scand J Dent Res.* 1981;89(1):26-37.
11. Mankin HJ, Jupiter J, Trahan CA. Hand and foot abnormalities associated with genetic diseases. *Hand (New York, NY)* 2011;6(1):18-26.
12. Marcucci G, Cianferotti L, Brandi ML. Clinical presentation and management of hypoparathyroidism. *Best Practice & Research Clinical Endocrinology & Metabolism.* 2018 Dec 1;32(6):927-39.
13. Bayar GR, Ortakoglu K, Sencimen M. Multiple impacted teeth: report of 3 cases. *Eur J Dent.* 2008 Jan;2(1):73-8. PMID: 19212513; PMCID: PMC2633158.
14. Babu V, Nagesh KS, Diwakar NR. A rare case of hereditary multiple impacted normal and supernumerary teeth. *J Clin Pediatr Dent.* 1998 Fall;23(1):59-61. PMID: 10023236.
15. Yusof WZ, Awang MN. Multiple impacted supernumerary teeth. *Oral Surg Oral Med Oral Pathol.* 1990 Jul;70(1):126. DOI: 10.1016/0030-4220(90)90190-4. PMID: 2371041.

How to Cite This Article

Kale AS, Das D. Multiple Impacted teeth, an indicator for early detection of hypoparathyroidism: A report of two cases. *International Journal of Applied Dental Sciences.* 2023;9(4):36-39.

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