

## Multiple impacted teeth associated with radicular cyst in a non-syndromic patient: A rare case report

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### Abstract

Incidence of multiple impacted teeth is a rare entity. Impacted teeth not only impedes with the function may be associated with numerous pathological lesions. Multiple impacted teeth could be related to varied etiology such as syndromes, hormonal and metabolic disorders. It could also be due to infection, cyst or traumatic etiology without any syndromic association. Many literatures show a linear relationship between multiple impacted teeth and cystic changes. Radicular cysts are the most commonly affecting cystic lesions of the jaw and comprise about 52% to 68% of all the cysts which affects the human jaw. There are both therapeutic and prophylactic indications for surgical extraction of the impacted teeth. This article describes a case of management of multiple impacted teeth associated with radicular cyst in a non-syndromic patient.

**Keywords:** Multiple impacted teeth, Radicular cyst, Non syndromic patient.

### Introduction

In normal eruption sequence, permanent teeth will erupt uneventfully and replace their predecessor. However, sometimes teeth are unsuccessful to erupt.<sup>1</sup> The teeth eruption is defined as the movement of the teeth in occlusal or axial position from its developmental position within the jaw to its functional position in the occlusal plane.<sup>2</sup> Failure of eruption could be due to metabolic disorders such as deficiency of Vitamin D and non-metabolic causes such as discrepancies in either arch length or tooth size discrepancies resulting in crowding of the arch or presence of supernumerary teeth.<sup>3</sup> Multiple molecules and signalling cascades are involved in the eruption of teeth, so failure in the molecular function of any one molecule effects the parallel functioning of adjuvant molecules thereby facilitating the uneventful eruption of the tooth into its actual place in occlusion.<sup>2</sup> But some genes defects may be responsible for this condition. EGF, EGF-R, CSF-1, CSF-1R, IL-1, IL-1R, c-Fos, NFB, MCP-1, TGF- $\beta$ 1, PTHrP, Cbfa-1 (now called Runx2), OPG, and RANK/RANKL are the major molecules in eruption of teeth. A major proportion of eruption molecules reside in dental follicle and few in stellate reticulum.<sup>4</sup>

Amongst hormonal disturbances, both hypothyroidism and hypopituitarism are characterized by delayed eruption rate of permanent teeth along with retainment of primary teeth beyond normal shedding time.<sup>5</sup> Radiography is still the gold standard diagnostic tool in diagnosing the multiple impacted teeth.

### Case Report

A male patient aged about 33 years reported to the department of Oral and maxillofacial surgery, KVG Dental College and Hospital, Sullia, with a chief complaint of pain and swelling over the chin area since 3-4 days and with associated numbness over lower lip. Patient gives history of pain in the past 4 days in the lower anterior tooth region

which erupted a month ago with associated numbness in the right side of the lower lip region.

On inspection a diffuse swelling was noted on the parasymphysis region extending upto the body of mandible on right side. Skin over the swelling was normal with mild tenderness on palpation and no draining sinus was present. [Fig. 1 and 2] Paraesthesia of lower lip was present. Intraorally vestibular obliteration is present irt 31, 41, 42 partially erupted 41, no draining sinus was present retained 73, 84, 85 is seen. FNAC was done for culture and protein estimation.

After clinical examination OPG was taken which showed radiolucent lesion of size 40mm X 26.5mm in mandibular anterior region teeth are displaced towards periphery of the lesion. [Fig. 3] Surgical extraction of the impacted teeth and enucleation of cyst associated with the impacted teeth was planned under GA.



Fig. 1: Frontal view



**Fig. 2:** Profile view



**Fig. 3:** OPG revealing multiple impacted teeth with radicular cyst in the mandibular anterior region

### Discussion

Molar impaction is a common clinical scenario, whereas a condition of multiple impacted teeth is relatively rare. As per the available literature, impaction of tooth occurs due to the physical barrier or may be associated with certain syndromes such as cleidocranial dysplasia, Gardner's syndrome, Zimmerman Laband syndrome and Noonan's syndrome.<sup>6</sup> Epidemiological studies report 25% to 50% of population affected with impacted teeth.<sup>7</sup> Diagnosis and treatment of this condition is still challenging for surgeon. These conditions may go unnoticed often due to the lack knowledge of the dental eruption sequence to the patient.<sup>8</sup>

Pathologies commonly associated with impacted teeth are cysts. Amongst all the true cysts dentigerous cysts make up to 24% of all true cysts of the jaw.<sup>9</sup> Supernumerary teeth are usually impacted and mostly inverted in position but in our case, few were occlusal and transverse in position. Patients with multiple dental impactions would require multidisciplinary management to guide the eruption of as many teeth as possible. These conditions would normally be associated with pathologies which should be managed during disimpaction procedure. In our case, FNAC of the lesion was done with protein estimation. The straw-coloured

aspirate revealed an elevated cystic fluid protein which was 8.0g/dl

The common causes for the inflammatory swelling of the jaws turns out to be cystic lesions and studies have shown that these lesions are mostly radicular cyst attributing to its pathogenesis. Our patient had developed this condition in his third decade of life which is in accordance to many other studies, however the common site of incidence would be maxillary anterior region, whereas our case had the lesion in Mandibular anterior teeth region.<sup>10</sup> Based on WHO histological classification of Jaw cyst in 1992, Radicular cyst is classified as cyst of inflammatory origin which presents initially as a slowly enlarging swelling with gradual bone erosion and eventually presents as a fluctuant lesion when the bony covering is totally eroded. Radiographically, these cysts appear as a round or ovoid swelling surrounded by radio-opaque margin.

Treatment of radicular cyst is usually enucleation. If the lesion is small, then it is decompressed followed by enucleated with primary closure. If the lesion is large, then the cyst is marsupialized followed by decompression and open packing with iodoform gauze. In our case, we enucleated the cyst along with the removal of associated impacted teeth [Fig. 4] and chemically cauterised the site with freshly prepared Carnoy's solution and absorbable gel sponge was placed to achieve haemostasis and was closed primarily. Few teeth were left behind with an intention of guided eruption orthodontically [Fig. 5] and the excised tissue [Fig. 6] was examined histopathological which revealed cystic cavity lined by proliferating epithelium in arcading pattern and also in few areas in quiescent pattern supporting connective tissue wall consist of delicate collagen fibres and extensive extravasated RBCs suggestive of radicular cyst.



**Fig. 4:** Surgical Site post enucleation of cyst, disimpaction of multiple impacted teeth and chemical cauterization





**Fig. 5:** Post-operative OPG revealing the defect following the enucleation of the cyst and few impacted teeth left behind with intention of guided eruption



**Fig. 6:** Enucleated cyst

### Conclusion

Multiple impacted teeth is a relatively rare condition which may or may not be associated with any pathologies or syndromic conditions. Optimal evaluation and timely intervention would be necessary in such conditions. Proper treatment planning is important and multidisciplinary approach is beneficial to save the teeth and to achieve better masticatory function.

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### Conflict of Interest

None.

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