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Orthodontic management of multiple supernumerary teeth in a non-syndromic patient: A case report

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Abstract
Hyperdontia, also known as supernumerary teeth, is a developmental disorder that affects all dental organs and manifests in the area of the dental arches during the initiation and proliferation stages of dental development. Multiple hyperdontia is usually associated with syndromes such as Gardener's, cleidocranial dysplasia and cleft lip and palate, it can also be present in patients without any systemic condition. The presence of supernumerary teeth leads to functional esthetic disturbances such as retained teeth, delayed eruption or diastemas.
During an examination, radiographic images are a useful tool that aid in early diagnosis. Through this article we will be presenting a case report on the orthodontic management of multiple supernumerary teeth in both dental arches of a non-syndromic patient.

Keywords: Multiple supernumerary teeth, hyperdontia, non-syndromic

Introduction
A supernumerary tooth is an additional tooth to the normal set of teeth [1]. Various malocclusions such as midline diastemas, rotations, delayed eruption, ectopic eruption etc are seen in association with supernumerary teeth [2]. The occurrence of supernumerary teeth varies among different population, studies indicate the value between 1 - 3.5% in permanent dentition compared to 0.3% in deciduous dentition [3]. They are categorized as rudimentary teeth, which may manifest as dysmorphic, tubercular, or conoid, or as supplemental teeth, which replicate the structure of the teeth [4]. Multiple supernumerary are rare in individuals with no other associated diseases or syndromes, the condition commonly associated with an increased prevalence are cleft lip palate, cleidocranial dysplasia, Gardner's syndrome etc. [4]. However supernumerary teeth can be found in non syndromic patients too [5]. The most common supernumerary teeth is mesiodens, present between maxillary central incisors followed by distomolars [6]. This case report aims to document a case of non syndromic multiple supernumerary teeth and discuss the treatment modality.

Case Report
A 18 year old female patient reported to the department of Orthodontics, Coorg Institute of Dental Sciences, Virajpet with the chief complaint of spacing in the upper front tooth and desired to get it corrected.

Diagnosis and Etiology
The patient had a convex profile with an average clinical FMA. (Fig.1) On Intra oral examination she had Angle's class II malocclusion with class II incisor relationship with retroclined upper incisors and proclined and crowded lower incisors with palatally placed 24, rotated 15,22,23,25,33. All the teeth from permanent second molars have erupted in both upper and lower dental arches. Patient exhibited over jet of 2mm and overbite of 2mm. (Fig.2) OPG reveals presence of 11 supernumerary teeth. (Fig.3)
The amount of incisor exposure at rest is 0 mm, during speech is 3 mm and during smile is 6 mm of lower incisor. TMJ evaluation revealed No Clicking, Pain or Mandibular deviation.

Treatment objectives

The treatment was started with following objectives

1. Uprighting of upper anteriors
2. Correct Proclination and Crowding
3. Extraction of supernumerary teeth
4. Achieving pleasing profile

Treatment Rationale

The treatment was started with extraction of supernumerary teeth in the upper arch present between 13, 14 and 22, 23, and a palatal supernumerary teeth irt 14 and 22. After 3 months of extraction the amount of bone formation was reviewed for the initiation of orthodontic treatment. It was decided to start the case with pre-adjusted edgewise MBT system 0.022x0.028 bracket slot. Initial levelling and aligning of upper arch was started with 0.014 niti (Fig. 4). After initial levelling of upper arch 0.018 AJ Wilcock with open coil spring irt 23 &25 was given to create space for the levelling of 24 (Fig.5). An e-chain was used from the buccal tube of 17&27 to the extended arms of modified TPA for the correction buccal tipping (Fig. 6). This was followed by the bonding of lower arch. Following bonding the extraction of lingual supernumerary teeth irt 34, 35 and 44, 45(two on either side) and distomolars irt 38 and 48 was done. After achieving space for aligning of 24, 0.014 piggy back was engaged. (Fig.7)
After debonding, Upper Begg's wrap around retainer and lower fixed lingual retainer were given (Fig.8).

Results: Correction of Proclination and Crowding was seen with drastic improvement in the patient profile following extraction of multiple supernumerary teeth.

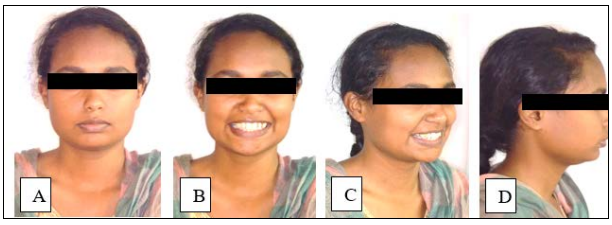

Fig 1: A, B, C, D: Pre-treatment extraoral

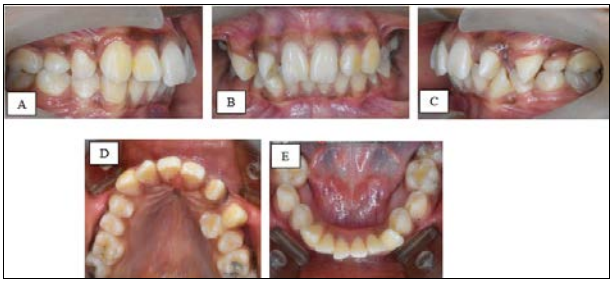

Fig 2: A, B, C, D, E: Pre-treatment intraoral

Fig 3: OPG

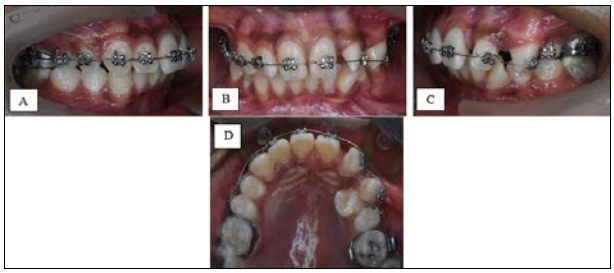

Fig 4: A, B, C, D upper bonding with 0.014 NiTi

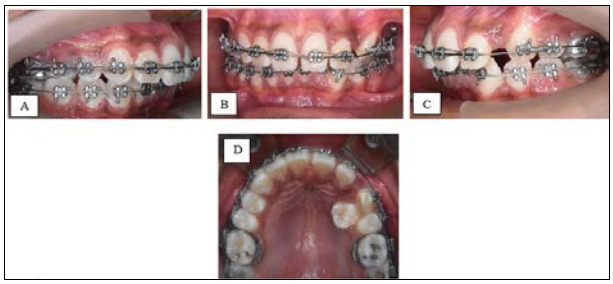

Fig 5: A, B, C, D 0.018 AJ Wilcock with open coil spring irt 23&25 was given to create space for the levelling of 24

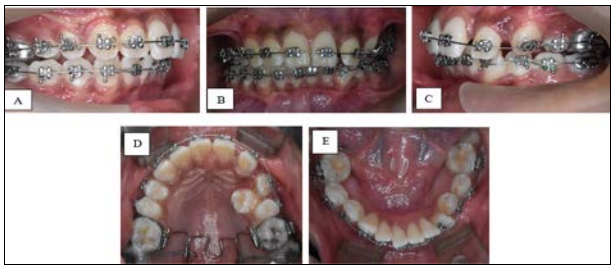

Fig 6: A, B, C, D, E An e-chain was used from the buccal tube of 17&27 to the extended arms of modified TPA for the correction buccal tipping

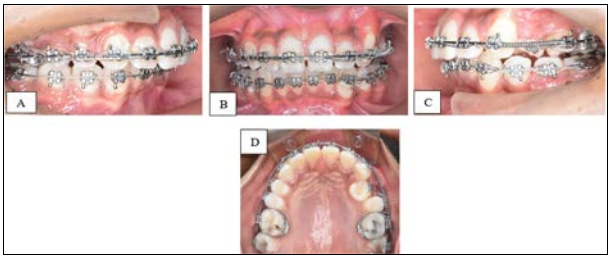

Fig 7: A, B, C, D After achieving space irt 23,25 0.014 piggy back was engaged irt 24

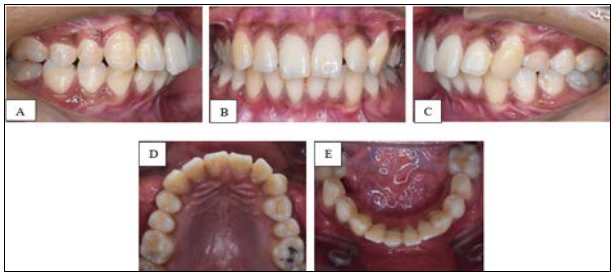

Fig 8: A, B, C, D, E Debonding and lower fixed lingual retainer

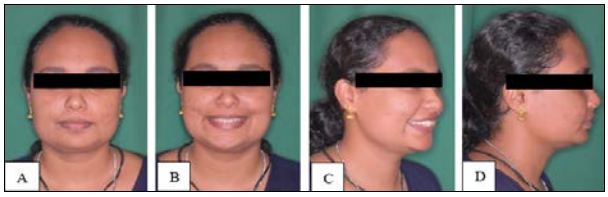

Fig 9: A, B, C, D: Post-treatment extraoral

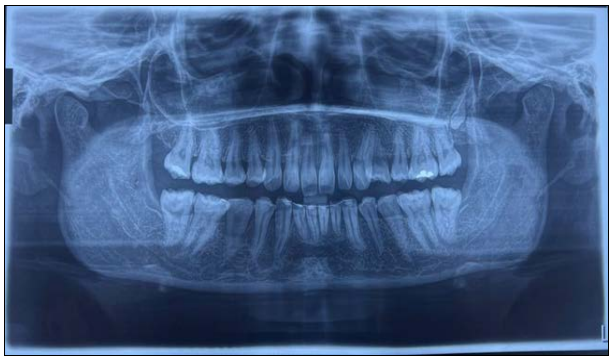

Fig 10: Post treatment OPG

Discussion

Although the exact reason of supernumerary teeth is unknown, theories have pointed to the dental lamina's autonomous, localized hyperactivity as the most likely the cause [1].

The presence of multiple supernumerary teeth can cause various effect on the dentition which includes crowding, delayed eruption of the permanent teeth, midline diastemas etc. [7].

The management of supernumerary teeth needs a comprehensive approach, it is critical to ascertain the tooth's spatial position using both clinical and radiological means before reaching a final diagnosis, radiographs are helpful for accurately locating supernumerary teeth with significant anatomical landmarks. Considering both the clinical and radiographic findings clinician should formulate the effective management for the treatment of multiple supernumerary teeth [8-11].

After the supernumerary teeth has been removed the orthodontist should align the teeth for better functional needs of the patient.

Conclusion

While treating patients with numerous supernumerary teeth, the practitioner should carefully consider the clinical and radiological aspects before implementing the best treatment techniques to address malocclusion and improve both function and esthetics.

Conflict of Interest

Not available

Financial Support

Not available

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