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Case Report

Multiple Supernumerary Teeth Management in a Non-Syndromic Tunisian Patient: A Case Report

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Abstract: Supernumerary teeth represent a numerical dental anomaly. When present in excess, it is called hyperdontia, which affects both primary and permanent dentition, though permanent dentition is more commonly affected. This clinical case presents hyperdontia involving three supernumerary teeth in the maxillary arch of a non-syndrome 10-year-old child. The diagnosis was made following a consultation prompted by the eruption of a supernumerary tooth with a molar-like shape in the site of the maxillary central incisor and the impaction of this permanent tooth. Subsequently, a radiological examination revealed two additional supernumerary teeth in the premolar region. The treatment plan involved surgical extraction followed by an interceptive phase to guide the eruption of the central incisor.

Keywords: Supernumerary tooth, supernumerary teeth, herperdontia, molar-like shape, impaction of central incisor, Hawley appliance.

INTRODUCTION

Hyperdontia, also known as supernumerary teeth, is a dental developmental anomaly characterized by the presence of additional teeth or odontological structures that are beyond the normal dentition [1]. They may develop in both primary and permanent dentition, often leading to complications such as malocclusion and aesthetic concerns.

The prevalence of supernumerary teeth ranges from 0.1% to 3.9% in permanent dentition and from 0.3% to 1.8% in primary dentition, with a greater incidence observed in permanent teeth [1–3]. Many studies reports a higher percentage in males than females [2,4,5].

Supernumerary teeth located in the central incisor area of the maxilla, holds the highest prevalence rate at approximately 51.2%. Following this, the mandibular premolar region emerges as the second most frequent site, with an occurrence rate of 22.6%. Lastly, the distomolar region in the maxilla stands as the third most common site, exhibiting a rate of 9.1% [2].

Encountering patients with multiple supernumerary teeth is a rare occurrence. Moreover, the majority of such instances are associated with syndromes like cleft lip and palate, Gardner's syndrome and cleidocranial dysostosis [6,7].

This case report describes a rare occurrence of three non-syndromic supernumerary teeth in the maxilla. Clinical and radiological examinations identified one obstructing an incisor's eruption and two others near the maxillary premolars. Treatment included a surgical phase followed by an interceptive approach. The case emphasizes the need for early, multidisciplinary management of supernumerary teeth.

CASE PRESENTATION

A 10-year-old patient consulted the pediatric dentistry department at the dental clinic of Monastir, University of Monastir, presenting with a concern about the unusual shape of his permanent central incisor that had emerged six months earlier. He had no history of systemic diseases or old facial trauma.

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Intraoral examination showed a permanent dentition with all teeth present, and notably, the 11th tooth exhibited a molar-like shape (Figure 1).

An orthopantomographic X-ray image revealed the retention of the 11th tooth due to a supernumerary tooth (Figure 2). Additionally, two other supernumerary teeth were discovered in the anterior region, positioned palatally in relation to the incisors (Figure 3).

To visualize the relationship and positions of these supernumerary teeth, a sectional CT view was requested. Panoramic and sagittal sections were taken to accurately locate these teeth for the surgical procedure (Figure 4 and Figure 5).

The management approach involved surgical extraction. A flap was created and lifted until all three teeth were visible. Subsequently, the teeth were extracted individually. Finally, the flap was repositioned and sutured back into place (Figure 6 and 7).

The patient was closely monitored for 18 months until the 11th tooth had fully erupted. During this period, a Hawley appliance with springs was used to maintain the space left by the extracted supernumerary teeth until the permanent tooth emerged (Figure 8 and 9).

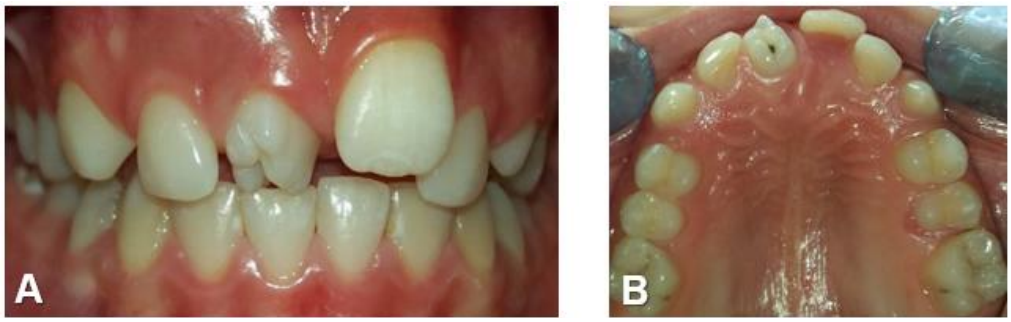

Figure 1: Intraoral photographs revealing the 11th tooth with a molar-like shape.
A: Frontal view, B: occlusal view

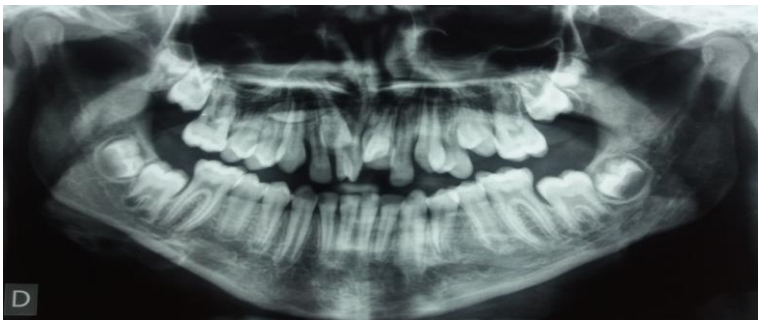

Figure 2: Panoramic radiograph revealed the presence of a supernumerary tooth blocking the eruption of the right maxillary central incisor and shows others supernumerary teeth in the maxillary arch

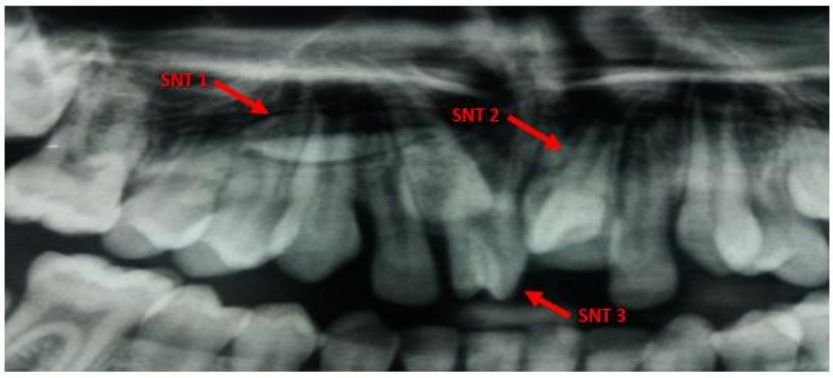

Figure 3: Close-up view of the panoramic radiograph displaying the positions of the supernumerary teeth. (Marked with arrows)
***SNT= supernumerary tooth**
SNT1: Positioned horizontally palatally to the right maxillary canine.
SNT2: Located palatally to the left central incisor.
SNT3: Occupying the space of the 11th tooth, impeding its emergence.

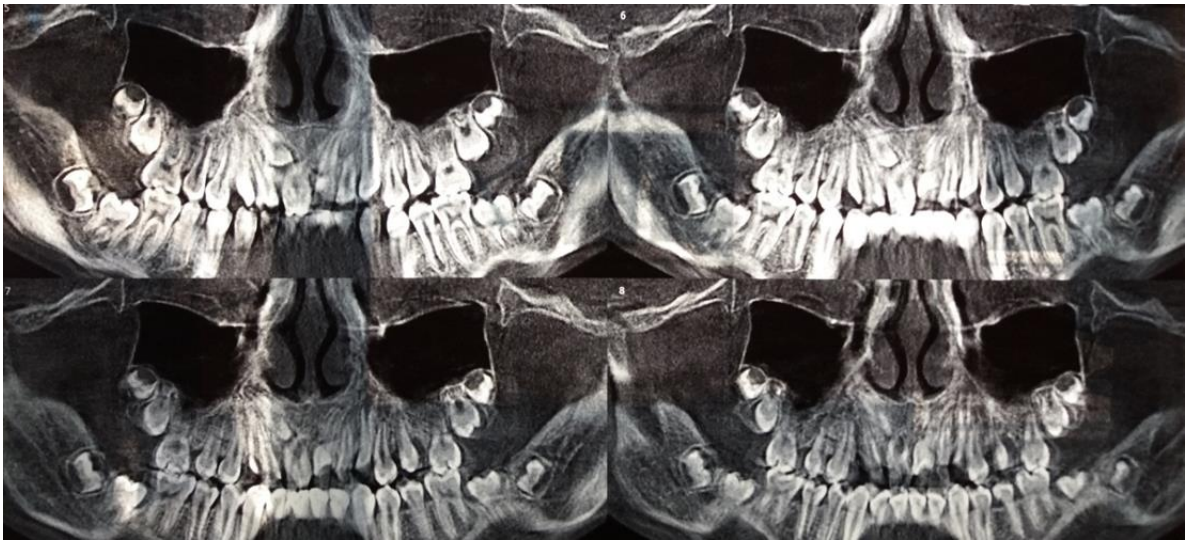

Figure 4: CBCT panoramic images displaying the placement of the supernumerary teeth, their root development, and their relationship with adjacent structures

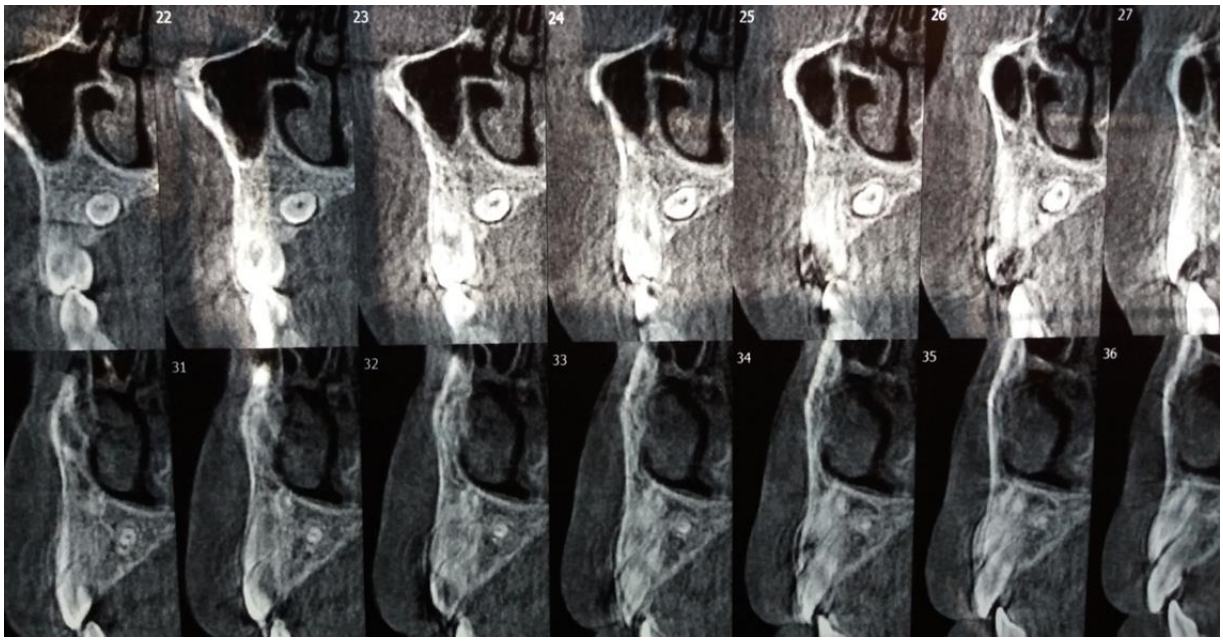

Figure 5: CBCT sagittal sections illustrating the surrounding structures near the supernumerary tooth and the thickness of the palatal bone, aimed at identifying optimal access points for extraction

Figure 6: Surgical Extraction of Supernumerary Teeth
Step 1: Flap opening, incision, and flap elevation.
Step 2: Surgical extraction of the three supernumerary teeth.
Step 3: Flap closure and placement of interrupted sutures. (Occlusal view)

Figure 7: A photo showing the 3 extracted supernumerary teeth

Figure 8: Hawley appliance was realized to maintain the necessary space for the eruption of the 11

Figure 9: Photograph showing the intraoral situation 18 months later: the central incisor is erupting

DISCUSSION

The supernumerary teeth can lead to a range of esthetic and functional complications, including crowding, midline diastema, root resorption, ectopic eruption, cystic lesions, displacement of neighboring teeth crowns, intraoral infections, and delayed or failed eruptions. However, in some cases, supernumerary teeth may not affect occlusion or other clinical parameters and are only discovered incidentally [1, 8].

McBeain *et al.*, reported that supernumerary teeth are most commonly found in the maxilla, especially in the central incisor region, followed by the mandibular premolars and maxillary distomolars, with none in the mandibular central incisors [2]. Similarly, Park *et al.*, found that 90.4% of supernumerary teeth were in the anterior maxilla, followed by 6.7% in the posterior mandible [9].

The etiology of hyperdontia remains unclear, but it is thought to be multifactorial, involving both genetic and environmental influences. The most widely accepted hypothesis is that localized hyperactivity of the dental lamina contributes to this condition [1,8,10–12]. In addition, heredity seems to play a role, as supernumerary teeth are more commonly observed in relatives of affected individuals than in the general population. Other possible contributing factors include

abnormal responses to local trauma and environmental influences [12]. The co-occurrence of supernumerary teeth with various syndromes suggests this genetic role in its development. It can be observed in syndromes such as cleft lip and palate, cleidocranial dysplasia, Marfan, Ehlers-Danlos, Gardner [1,13,14].

The literature indicates that a single supernumerary tooth in a normal dentition is common and frequent, while multiple supernumerary teeth without an associated syndrome are rare [15–17].

A study by Rajab and Hamdan [16] on 152 Jordanian children found that 90% of supernumerary teeth occurred in the premaxilla, with 77% of cases having one extra tooth, 18.4% having two, and 4.6% having three or more. Notable cases include Krishnan *et al.,* [18], who reported 11 extra teeth, and Srivatsan and Aravindha Babu [19], who documented 10. Hariri [20] reports one of the rarest cases, involving 41 supernumerary and impacted permanent teeth. In our case no development disorder or systematic disease were noticed, yet the patient had multiple supernumerary teeth.

The management of supernumerary teeth is crucial to prevent impaction and complications, primarily handled by pediatric dentists. Treatment depends on factors such as the number, type, position, and associated risks, assessed clinically and radiographically. Patient age and cooperation also influence the approach. While early intervention is often recommended, there is no consensus on the optimal timing for extraction. Each case must be evaluated considering existing malocclusions and overall dental development [10,14,21,22].

Most studies recommend early extraction of supernumerary teeth to minimize damage to adjacent teeth. Surgery around age 6 helps with tooth alignment and reduces the need for orthodontics. However, delaying until ages 8-10 can prevent root damage and benefits from the patient's increased maturity [14,22–24].

A thorough clinical and radiographic assessment is crucial for identifying supernumerary teeth, with radiographs playing a key role in detecting impactions and anomalies [5,17,25]. In our case, panoramic radiographs and CBCT imaging confirmed that a supernumerary tooth caused impaction of the maxillary right central incisor. Due to aesthetic concerns and the failed eruption of the incisor, surgical intervention was performed upon diagnosis.

Radiographic examination, especially CBCT, provides precise 3D imaging for diagnosing supernumerary teeth and planning surgery. It enhances treatment accuracy by assessing tooth position and spatial relationships while minimizing radiation exposure. Additionally, AI algorithms improve CBCT analysis, assisting clinicians in diagnosis and treatment planning [22,26].

The treatment involved surgically extracting three supernumerary teeth and monitoring the spontaneous eruption of the central incisor, as sufficient space was available. A Hawley appliance was used to maintain space, avoiding the need for orthodontic traction. While some cases require traction, spontaneous eruption is expected when root formation is incomplete and adequate space is maintained [4,10,14].

CONCLUSION

When diagnosing supernumerary teeth, treatment options should be carefully evaluated. Extraction is the most common approach, but in some cases, a supernumerary tooth may be retained as a replacement for a lost permanent tooth if it has sufficient functional and aesthetic value.

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