



Unilateral maxillary distomolar with multiple abnormalities in a young patient: A rare case report with mini systemic review

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Abstract:

Supernumerary teeth are those teeth present in addition to the normal number of teeth and are most frequently seen in the maxillary incisors and molar regions. In the molar regions, supernumerary teeth are divided into two types depending on their location: distomolars and paramolars. Distomolars usually occur in the form of a fourth molar distal to the third molar. Distomolars are a developmental anomaly and have been argued to arise from a combination of genetic and environmental factors. Therefore, distomolar management should be part of a comprehensive treatment plan. This article presents a case report of an unusual occurrence of a rare unilateral distomolar in the right of the maxilla with multiple abnormalities in a 21-year old healthy subject. In addition, a mini literature review includes the definition, types, prevalence, classification, etiology, complications, diagnosis, and therapeutic strategies, which may be adopted in the occurrence of distomolars.

Key words: distomolar, hyperdontia, maxilla, paramolar, permanent dentition, prevalence, supernumerary molars

Introduction:

Supernumerary teeth (ST) are defined as those teeth present in addition to the normal permanent or deciduous set and are most frequently seen in the maxillary anterior and molar regions. ST in the molar region are divided into two types depending on their location: distomolars and paramolars. Distomolars usually occur in the form of a fourth molar distal to the third molar. Paramolars are rudimentary ST that might develop buccally or lingually to the molar series.¹⁻⁵ Distomolars are either eumorphic or dysmorphic in shape.^{6,7}

ST can be presented as horizontal, vertical, or inverted orientation and can be classified as fully or partially erupted and impacted.^{8,9} According to the shape, ST can be conical; tuberculate (SM) are generally rudimentary in shape, small in size, and display more than one cusp; ST resemble normal morphology

(supplemental teeth) or irregular morphology.^{8,10}

The prevalence of ST varies between 0.1% and 3.8% and is more common in the permanent dentition.^{11,12} Many theories have been suggested for the development of ST, such as phylogenetic theory, dichotomy theory, and hyperactive dental lamina¹, which also arise from a combination of genetic and environmental factors, thereby providing a unified etiologic explanation. Therefore, ST management should be part of a comprehensive treatment plan.^{1,13}

The review of literature revealed that distomolars are more prevalent in females than in males,^{3,4,8,10,13-18} while others indicated that distomolars are dominant in males.^{2,9,11,19,20} Most researchers mentioned that distomolars are present in the maxilla,^{4,6-10,14,16} whereas others stated that distomolars are frequently found in the mandibular arch.^{13,17,20} Distomolars are recorded in both arches as mentioned

by many authors^{2,3,5,11,12,15,18-22}. Regarding the location of distomolars, some researchers indicated that distomolars are recorded as bilateral^{2-4,6,15,19,21} whereas others suggest that they are unilateral^{8,11-13,20}; however, distomolars are also found to occur in both sides.^{5,7,9-10,21,22} **Table I** represents some clinical studies which were either case report, case series or survey studies within the country of the conducted researches, gender affected and unilateral or bilateral.

A few studies were conducted in Saudi Arabia. In Jeddah, among 121 panoramic X-rays (OPG), the ST was 1.2% but no distomolars were recorded.²³ In another study at the Hail region, no cases of distomolar teeth were detected among 170 OPG.²⁴ According to a previous survey conducted in Jazan, which included 2393 subjects between 4 and 12 years old, the ST only without distomolar teeth were 0.50%.²⁵ A study with 602 randomly selected pre-treatment OPG records found that ST was among the most commonly registered dental anomalies.²⁶ A study was conducted at Ras Al Khaimmah, UAE, with 2925 panoramic radiographs from non-syndromic patients; it was found that paramolars and distomolars were registered (two cases for each ST) for each among 6.25%.²⁷ Hence, the aim of the present article was to report a case with a unilateral maxillary distomolar in a patient with multiple abnormalities and the possible treatment options and present a mini review on supernumerary distomolar teeth.

Case report:

A 21-year-old male patient was referred to the orthodontic department for extraction of bilateral maxillary first premolars. The patient was considered medically fit. The patient also had a history of thumb sucking during childhood. He had undergone extractions for mandibular left first molar and right second molar five years ago. He

did not visit his dentist regularly and did not brush his teeth on a daily basis. Additional oral examination showed that the interpupillary and intercommissure lines were almost parallel at rest position and while smiling. The extra-oral examinations showed severe lip incompetence with proper face proportions (**Figure I**). The intra-oral examination indicated severe proclination of the maxillary teeth with 9 mm overjet, Class I angle molar relationship with group function occlusion, and fair oral hygiene. The palate, mouth floor, tongue, buccal mucosa, and oropharynx also showed no abnormalities. The panoramic X-ray displayed some abnormalities (**Figure II**), such as impacted small distomolar in the maxillary right distal to third molar. Pulp stone in relation to tooth # 23 and 44, mandibular incisors with widening of periodontal ligaments, idiopathic condensing osteitis in relation to the apex of mandibular left and right premolars, and idiopathic external root resorption in relation to the distal root of mandibular right first molar were observed.

The peri-apical X-rays were taken to determine the abnormal findings (**Figure IIIa-e**). Furthermore, cone-beam computed tomography (CBCT) images were taken for the abnormal findings (**Figure IVa-d**). Finally, cold test was conducted to teeth # 13,15,23,25,34,35,32,31,41,42,44,45, and 46. All teeth showed normal response.

The treatment was started with full mouth scaling and root planning. Then, polishing of all teeth was performed. Under local anesthesia, extraction of teeth # 41 and 42 was performed without any further complications. The patient was booked for a follow-up every six months to monitor the progress of the abnormal findings, including distomolars.

Figure I: Extra-oral view with lip incompetence



Figure II: Pre-operative OPG view

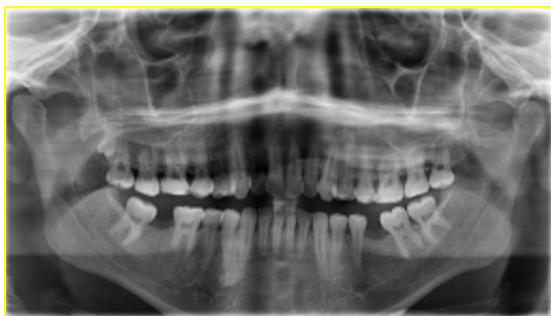


Figure III: Peri-apical view for abnormal findings

- a- MB root resorption
- b- Condensing osteitis at the apex of mandibular left premolars
- c- Widening of PDL of mandibular incisors
- d- Condensing osteitis at the apex of mandibular right premolars
- e- External root resorption of distal root of mandibular first molar

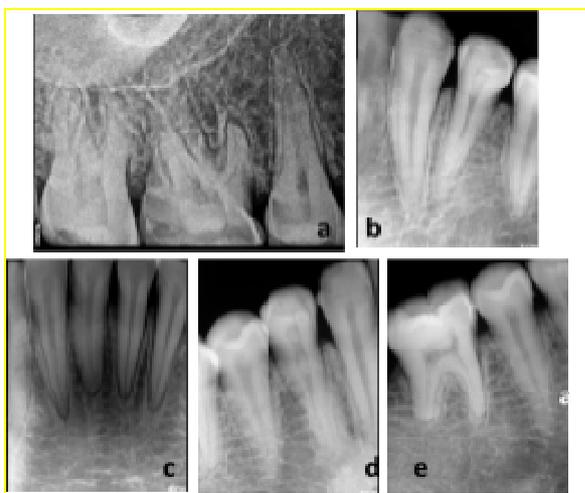
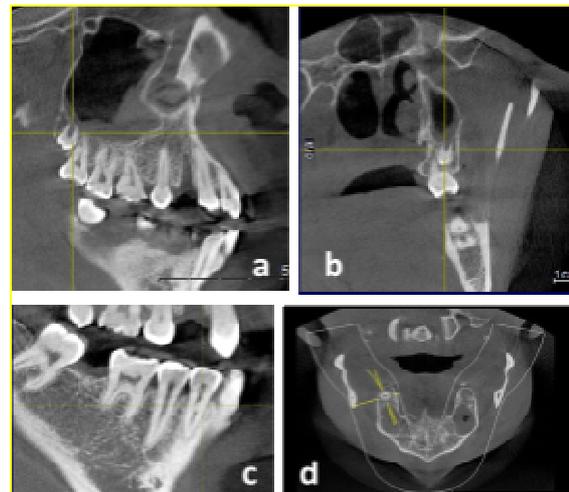


Figure IV: CBCT view for abnormal findings
 a- distomolar at maxillary right side
 b- pulp stone in teeth # 23
 c- widening of PDL of mandibular incisors and condensing osteitis at the apex of mandibular right premolars
 d- external root resorption of distal root of mandibular first molar



Discussion:

The etiology of distomolars and paramolars remains unclear. Numerous theories have been formulated to describe the etiology of ST, but dental lamina hyperactivity theory is the most accepted theory, which suggests that ST are formed as a result of independent, local, and conditioned hyperactivity of the dental lamina. However, the role of complex interactions among a variety of genetic and environmental factors has been postulated.^{1,13,28}

Clinical and radiographic identification of all the teeth is important for the early detection of distomolars. Formulating an ideal treatment plan for such a case is extremely difficult. A panoramic radiograph is the most available and useful screening radiograph for these cases because it shows all areas of both arches. Cone beam computed tomography (CBCT) is the most recent image that facilitates the accurate evaluation of the intra-osseous location, inclination, and

Table I: Distomolar case reports and survey studies

Cavalcanti et al, 2011 ²	Brazil	Case report	Male	Maxilla Mandible	Bilateral Bilateral	----- -----
Shultsman et al, 2003 ³	Tel-Hashomer	Case report	Female	Maxilla Mandible	Bilateral bilateral	----- -----
Asrani et al, 2016 ⁴	India	Case report	Female	Maxilla	Bilateral	
Ohata et al, 2013 ⁵	Japan	Case report (3)	Female (3)	Maxilla Maxilla Mandible	Bilateral ----- -----	----- Unilateral Unilateral
Kurt et al, 2015 ⁶	Turkey	Survey, 14250	----	Maxilla	Bilateral	-----
Arslan et al, 2009 ⁷	Turkey	Survey 4023	-----	Maxilla	Bilateral	Unilateral left
SVSG & Tirupathi, 2016 ⁸	India	Case report	Female	Maxilla	-----	Unilateral left
Cassetta et al, 2014 ⁹	Italia, Caucasians	Survey, 25186	Male	Maxilla	Bilateral	Unilateral
Kara et al, 2012 ¹⁰	Turkey	Survey 104902	Female	Maxilla	Bilateral	Unilateral
Rajab & Hamdan, 2002 ¹¹	Jordan	Survey 152	Male	Maxilla Mandible	----- -----	Unilateral
Thomas et al, 2013 ¹²	India	Survey 1000	12 Males 9 Females	14 Maxilla 9 Maxilla	-----	Unilateral right Unilateral left
Prakash et al, 2012 ¹³	India	Case report	Female	Mandible	-----	Unilateral
Kumar & Gopal, 2013 ¹⁴	India	Survey 5000	Female	Maxilla	-----	Unilateral left
Buloto et al, 2017 ¹⁵	Greece	Case report	Male 67.9% Female 32.1%	Maxilla 69.6% Mandible 30.4%	----- -----	Unilateral Unilateral
Saraswati & Toran, 2010 ¹⁶	India	Case report	Female	Maxilla	Bilateral	-----
Wang & Pan, 2013 ¹⁷	China	Case report	Female	Mandible	Bilateral	-----
Rahnama et al, 2014 ¹⁸	Poland	Case report	Female	Maxilla Mandible	-----	Unilateral Unilateral
Clementini et al, 2012 ¹⁹	Italy	Case report	Male	Maxilla Mandible	Bilateral Bilateral	----- -----
Banavar & Chippagir, 2014 ²⁰	India	Case report	Male	Mandible	----	Unilateral
Ghabanchi et al, 2010 ²¹	Iran	Survey 414 patients	Female (2) Male (2)	Maxillary Mandible	Bilateral Bilateral	----- -----
Arandi NZ, 2017 ²²	Palestine	Case report (3)	Female Female Male	Maxilla Mandible Maxilla	Bilateral Bilateral -----	----- ----- Unilateral right

morphology of impacted ST.²⁹ In our case, panoramic and CBCT images are presented in the patient file for periodic evaluation of the case every three to six months.

The early diagnosis and proper treatment in every distomolar case are essential factors for the prevention and reduction of the following potential complications: surrounding soft tissue inflammation, localized periodontitis, caries, and horizontal bone loss; retention or ectopic eruption and displacement or rotation of adjacent teeth, crowding due to insufficient space for the eruption of other teeth, interdental spacing between molars, traumatic bite when buccal positioning causes laceration of the buccal mucosa, interference during orthodontic treatment, dilaceration or delayed or abnormal root development of associated permanent teeth, follicular cyst formation from the degeneration of the follicular sac of the ST, trigeminal neuralgia when the distomolar compresses the nerve, pulp necrosis and root resorption of adjacent tooth due to the pressure exerted by the distomolar tooth, and dental caries due to plaque retention in inaccessible areas in the region of supernumerary molars.^{1,13,30}

The treatment of distomolar teeth remains to be controversial. It depends on the location of the supernumerary tooth and its potential adverse effect on adjacent hard and soft tissue structures. The treatment is either periodic observation or extraction.²² In most cases, undiscovered distomolars do not cause any complications within the dental arch or oral cavity.^{11,29} In our case, with the consultation of oral medicine and oral pathologist, follow-up every three to six months was advised for the distomolar, tooth # 23 and #44 with pulp stone, mandibular incisors and mesio-buccal root of maxillary left molar, and distal root of the mandibular right first molar.

Conclusion:

ST is a group of dental anomalies that may lead to many clinical and pathological

complications. They are also associated with various syndromes and might demonstrate genetic occurrences. We presented a case with a rare and unilateral distomolar in the right of the maxilla with multiple abnormalities in a 21-year-old healthy subject. In addition, a mini literature review, which included definition, types, prevalence, classification, etiology, complications, diagnosis, and therapeutic strategies adopted for distomolar detection, was indicated. Our case agreed with the previous findings, which indicate that distomolars are prevalent in male and are unilaterally positioned on the maxilla. The case needed periodic follow-up scenes to avoid complications.

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