

Original article

Prevalence and Distribution of Morphological Variations in Maxillary Lateral Incisors in the Libyan Population

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Abstract

Dental anomalies may arise from developmental, congenital, or acquired factors. These irregularities can complicate the achievement of ideal occlusion and aesthetic outcomes, often necessitating a multidisciplinary approach to treatment. This study was conducted to assess the prevalence and distribution of morphological anomalies in permanent maxillary lateral incisors among Libyan patients. The study also investigates the correlation between gender and the occurrence of these dental anomalies. The study population consisted of 400 Libyan individuals with no history of dental treatment. Each participant was examined for anomalies associated with permanent maxillary lateral incisors, including malformations and agenesis. All observed abnormalities were carefully recorded. Clinical dental examinations were conducted on 163 males (40.8%) and 237 females (59.2%). The overall prevalence of dental anomalies was 3.75%. The most frequently observed anomaly was congenital absence of the upper lateral incisor (1.5%), followed by peg-shaped incisors (1.25%). The least common anomalies were talon cusps and micro-sized lateral incisors (0.5%). Females exhibited a higher rate of anomalies compared to males. Bilateral congenital absence of upper lateral incisors was observed. Peg-shaped incisors occurred both bilaterally and unilaterally in both genders. The findings highlight the variability in the prevalence of dental anomalies across different populations. Early diagnosis is essential for comprehensive treatment planning and improved prognosis.

Keywords. Permanent Maxillary Lateral Incisor, Agenesis, Microdontia, Peg-Shaped Upper Lateral Incisor, Talon Cusp.

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Introduction

The permanent maxillary lateral incisors (PMLI) are paired maxillary teeth that have an impact on aesthetics, as well as function [1]. The number, size, and shape of teeth are determined in the morphogenetic phases of odontogenesis [2]. The development of human dentition is regulated by tissue interaction and genetic networks [3]. Disturbance of the epithelium and mesenchyme can markedly alter the normal odontogenesis, leading to developmental anomalies of teeth [4]. Any environmental stress, like traumatic injury, pyogenic or specific infections of developing teeth, radiation, alcohol, or drugs, can be associated with tooth changes [5]. Congenitally missing lateral incisors may cause a variety of esthetic and functional problems [6]. Numerous studies have been conducted to determine the prevalence of congenitally missing maxillary lateral incisors in various populations [7-9]. A previous study reported that 0.7% of the participants exhibited congenital agenesis of PMLI [10]. According to a recent study, the incidence of congenital PMLI agenesis was 1.91%, and there was no significant difference in the incidence between males and females. Agenesis was unilaterally rather than bilaterally [6,10,11]. It was reported that a tooth agenesis was the most frequent anomaly [12]. Evidence suggests that the incidence of maxillary lateral incisor agenesis was 4.58%, with a higher prevalence observed among females [13,14].

The peg laterals (PLs) refer to a dental anomaly in which the upper lateral incisors are unusually small and pointed. 96.3% of the cases with peg-shaped teeth were recorded in the maxilla and 1.9% in the mandible. It appeared in the maxillary anterior region, with the majority of peg-shaped teeth in the lateral incisor [15-17]. It was suggested that peg-shaped teeth are more prevalent in females [18,19,20]. Both unilateral and bilateral peg laterals seem to have a similar prevalence, but the frequency of left-sided unilateral peg laterals is almost twice that of right-sided [20]. It has been noted that microdontia was the third most common of all dental anomalies. Its bilateral presence was higher than the unilateral occurrence. Female dominance was also observed [21]. Previous research found that no significant differences between genders in both microdontia and peg shape lateral incisors [22]. It was reported that a 2.3% prevalence rate of peg-shaped lateral incisors, with no significant gender differences. The anomalies manifested both bilaterally and unilaterally, occurring with equal frequency on the right and left sides [23]. In a cross-sectional study conducted in Iraq, the prevalence of PLs was found to be 4.7%, comprising 2% unilateral and 2.7% bilateral cases. The distribution showed no statistically significant differences between males and females [24].

Among Turkish orthodontic patients, PLs were observed at a prevalence rate of 2.15%, with unilateral and bilateral occurrences distributed equally [25]. Researchers have observed that the prevalence of PLS was 6%, with a greater frequency among females; however, unilateral PLs were more common [3,15]. A previous study reported a 2.17% prevalence of PLs, with a predominance of bilateral cases. Furthermore, PLs were identified as the most frequent morphological anomaly, with bilateral presentation being notably common [26]. Although a retrospective study indicated a relatively high prevalence of PLs, it found no statistically significant gender predilection [27]. The distribution of PLs was analyzed across dental quadrants, and it was reported that bilateral maxillary involvement was most prevalent, followed by unilateral cases [28]. Additionally, the shape of the PMLI is highly variable, with the prevalence of peg-shaped was (2.3%). No statistically significant differences between males and females were noted [29].

Talon cusp (TC) is a developmental anomaly consisting of a vertical ridge or cusp projecting labially or lingually from an anterior permanent or primary tooth [30,31]. Like other tooth shape defects, TC occurs during the morphodifferentiation phase of tooth development [32]. TC may present unilateral or bilateral, and has a greater predilection in the maxilla [33,34]. It was estimated that the frequency of talon cusp ranges from 0.06% up to 8% [30]. A study conducted on the Gharyan Libyan population, a TC was observed in both unilateral PMLI and bilateral PMLI [21]. A recent study showed that dental anomalies are present in 33.9% of the studied population, and the deformities of teeth were more prevalent in female subjects [35]. This study was conducted to assess the prevalence and distribution of morphological anomalies in permanent maxillary lateral incisors among Libyan patients.

Methods

Study design and setting

This study employed a descriptive cross-sectional survey design. Data were collected through clinical examination and panoramic radiographic evaluation to assess the prevalence of anomalies in maxillary permanent lateral incisors.

Prevalence Assessment

Clinical examination was conducted on a total of 400 patients, comprising 237 females and 163 males, aged between 12 and 60 years. The examination aimed to identify morphological anomalies affecting the maxillary lateral incisors in the permanent dentition.

Study sampling

A convenient sample was selected from patients who attended the Specialized Center, Primary Health Care facilities, and the Faculty of Dentistry at Benghazi University for dental treatment. Each patient was examined using a mouth mirror and probe under adequate illumination to detect any dental anomalies associated with the maxillary permanent lateral incisors. Demographic data, including age and gender, were carefully recorded, and any observed abnormalities were documented.

Eligibility criteria

The participants must meet the following conditions to be included in the study: be of Libyan nationality, exhibit good general and oral health, have no history of extraction of maxillary lateral incisors, and have no prior restorative modifications, including reshaping or crowning, of the maxillary lateral incisors. Participants will be excluded if they are of non-Libyan nationality, present with impacted teeth, or have had teeth extracted due to dental caries or traumatic injury.

Clinical dental examination

Malformation or deviation from normal tooth morphology of the maxillary lateral incisors was recorded at the clinical examination. The prevalence of dental anomalies according to gender and side, the number of dental anomalies per affected person, frequency of dental anomalies per tooth, and associations between dental anomalies were documented.

Data analysis

The data were collected and statistically analyzed using Statistical Package for the Social Sciences (SPSS) software computer program, and simple descriptive statistics such as frequencies and percentages were calculated. Categorical data were compared using Fisher's Exact Test. *P-value* <0.05 was considered significant.

Ethical consideration

Scientific culture, cooperation, and innovation department of the Libyan Authority for Research, Science and Technology approved this study, under approval number (2024/ 2353). The current study was also approved by the scientific research ethics committee of the Faculty of Dentistry, University of Benghazi, under approval number (0133).

Results

Distribution of patients according to age

Four hundred patients were observed clinically, and 15 (3.75%) had dental anomalies in maxillary lateral incisors (Table 1).

Table 1. Distribution of patients according to age

Age group	No	%
10-19	54	13.5%
20-29	122	30.5%
30-39	128	32.0%
40-49	80	20.0%
50-59	13	3.3%
>60	3	0.8%
Total	400	100%

Gender distribution of the sample population

The gender distribution of the sample is shown in (Table 2). According to statistical analysis, there was no statistically significant gender variation (P value= 0.551).

Table 2. Gender distribution of the sample population

Gender		Dental anomalies		Total	P_ value
		No	yes		
Female	N	227	10	237	0.551
	%	59.0%	66.7%	59.2%	
Male	N	158	5	163	
	%	41.0%	33.3%	40.8%	
Total	N	385	15	400	
	%	100%	100%	100%	

Prevalence of permanent maxillary lateral incisor anomalies

The study demonstrated that a total of 384 patients (96.25%) had no anomalies, while 15 individuals (3.75%) had dental malformations (Figure 1).

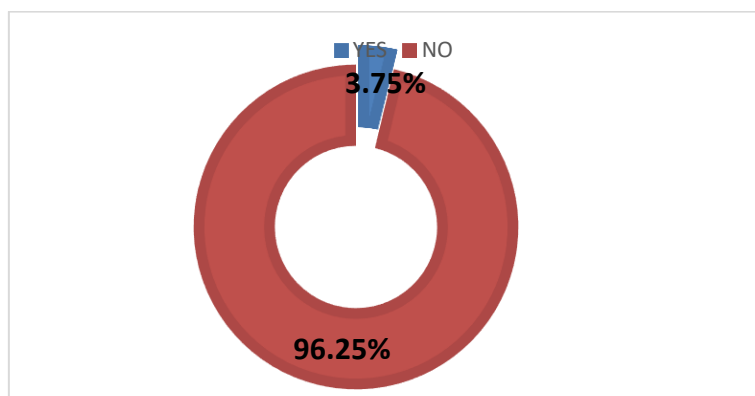


Figure 1. Prevalence of permanent maxillary lateral incisor anomalies

Prevalence and distribution of permanent maxillary lateral incisor anomaly

The results showed that permanent maxillary lateral incisor anomalies, including 1.5% agenesis, 0.5% micro-sized upper lateral incisors, 1.25% peg-shaped incisors, and a talon cusp on the upper lateral incisor in 0.5% as shown in (Table 3).

Table 3. Prevalence of permanent maxillary lateral incisor anomalies found in subjects

Dental anomalies	N	Total sample (400)	Of total anomalies (15)
Agenesis of the maxillary lateral incisor	6	1.5%	40%
Micro sized maxillary lateral incisor	2	0.5%	13.3%
Peg-shaped maxillary lateral incisor	5	1.25%	33.3%
Talon cusp	2	0.5%	13.3%

The distribution of dental anomalies in the permanent teeth among 15 subjects is shown in (Figure 2).

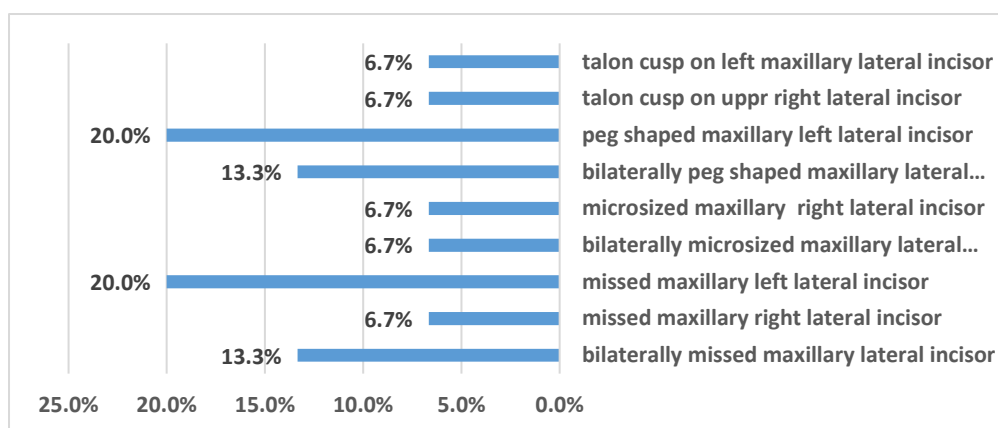


Figure 2. Distribution of permanent maxillary lateral incisor anomalies

Distributions of permanent maxillary lateral incisor anomalies found in males and females

The distribution of permanent maxillary lateral incisor anomalies in 15 subjects (females 10, males 5) has been illustrated in (Table 4). The females have a higher dental anomaly ratio than the males (2:1).

Table 4. Distributions of permanent maxillary lateral incisor anomalies found in males and females

Dental anomalies	Gender	
	Female	Male
Bilaterally missed maxillary lateral incisor	1	1
Missed maxillary right lateral incisor	0	1
Missed maxillary left lateral incisor	2	1
Bilaterally micro sized maxillary lateral incisor	1	0
Micro sized maxillary right lateral incisor	1	0
Bilaterally peg-shaped maxillary lateral incisors	1	1
Peg-shaped maxillary left lateral incisor	3	0
Talon cusp on maxillary right lateral incisor	1	0
Talon cusp on the left maxillary lateral incisor	0	1

The most common anomalies were missing maxillary lateral incisors (0.75%) for both males and females (Figure 3); micro-sized incisors (0.50%) with female predominance (Figure 4). Peg-shaped maxillary lateral incisors have female predominance (1%) (Figure 5). Talon cusp has an equal percentage (0.5%) with equal distribution for both right and left sides, also for both males and females.



Figure 3. A photograph shows female patient With bilateral missing permanent teeth maxillary lateral incisors



Figure 4. photograph shows female patient with bilateral microdontia of permanent teeth maxillary lateral incisors



Figure 4. A photograph shows a female patient patient with a peg-shaped maxillary lateral incisor Maxillary lateral incisors



Figure 5. A photograph shows a male with a talon cusp on a permanent maxillary lateral incisors

Discussion

During a routine dental examination, dental anomalies are frequently discovered. Despite the available knowledge presented about the lateral incisor's anomaly, there is limited data on the Libyan population presented in the literature. In this study, the prevalence of developmental dental anomalies was 3.75%. The people in this study had at least one dental abnormality on the permanent maxillary lateral incisors. The most common dental anomalies were congenitally missing maxillary lateral incisors, followed by peg-shaped lateral incisors. This distribution is consistent with previous research [36]. In the present study, the prevalence of PMLI agenesis was 1.5%, which closely aligns with findings from a previous study reporting a prevalence of 1.3% [37]. Similarly, another investigation documented a slightly higher prevalence of 1.91% for missing maxillary lateral incisors [6]. Furthermore, a separate study reported a marginally greater prevalence compared to our findings [38]. Our results reveal that the prevalence of bilateral missing laterals is less than unilateral missing laterals. This finding was in contrast to other studies showing a higher bilateral absence of lateral incisors than unilateral [39,40]. The literature findings suggest that bilateral missing lateral is more common than unilateral expression. In the current investigation, the prevalence of missing lateral incisors was evenly distributed between males and females, each accounting for 0.75%. This finding contrasts with another study, which reported a significantly higher prevalence among males [6, 38]. The discrepancy in gender-based prevalence rates between our study and previous reports may be attributed to differences in the study populations.

Microdontia was observed in the present study with a prevalence of 0.5%, which is notably lower than the rates reported in previous investigations [41,42]. In contrast, other studies have documented a considerably higher prevalence of microdontia specifically affecting the maxillary lateral incisors [40,43]. The variation in findings may be attributed to differences in sample size, diagnostic criteria, and ethnic composition of the studied populations. The PLs in the present sample were 1.25%, closely comparable to the 1.3% reported in a previous study [40]. Other investigations have documented lower prevalence rates [44,45], while some have reported significantly higher occurrences of PLs [41,43]. The gender distribution observed in this study aligns with earlier findings, indicating a higher prevalence among females than males [38]. Additionally, unilateral peg-shaped incisors were more common than bilateral cases, with the left permanent maxillary lateral incisor being most frequently affected. In contrast, other studies have reported a predominance of bilateral PLs, followed by unilateral involvement of the right and left sides [46].

The incidence of talon cusps ranges from 0.2 to 5.2% and can be an isolated condition, which is more common [47]. In the present study, the prevalence of talon cusps was 0.5% and this prevalence is lower than many previous studies [48,49,50]. This study reported two talon cusps, one of them left and the other right, one for a male and the other for a female. The variance in the prevalence of dental anomalies was identified between the different epidemiological research studies. The main reasons for the discrepancies may be racial variations and sample procedures. The availability of such data will allow anticipation of the percentage of teeth that might have technical difficulties associated with the endodontic treatment. It will also facilitate the understanding of changes in occlusion and periodontal conditions associated with the anomaly.

Conclusion

The present study highlights notable morphological variations of PMLI within the Benghazi Libyan population. Agenesis emerged as the most prevalent anomaly among both genders, followed by the occurrence of peg-shaped upper left lateral incisors. In contrast, talon cusp and microdontia were the least frequently observed anomalies. These findings underscore the importance of early detection and appropriate management of such dental variations to preserve optimal oral function and aesthetics. Accurate diagnosis and individualized treatment planning by dental professionals remain essential for addressing these anomalies effectively.

Interest of conflict. Nil

References

1. Nelson SJ, Ash MM. Wheeler's dental anatomy, physiology and occlusion. 9th ed. St. Louis: Saunders Elsevier; 2010.
2. Thesleff I. The genetic basis of tooth development and dental defects. Am J Med Genet A. 2006 Dec 1;140(23):2530-5.
3. Kifayatullah J, Ali S, Shahid F, Farooq I, Nowrin SA, Ansari MA, et al. The prevalence of peg shaped and missing permanent maxillary lateral incisors in non-syndromic orthodontic patients. J Int Dent Med Res. 2019;12(4):1416-20.
4. Jahanimoghadam F. Dental anomalies: an update. Adv Hum Biol. 2016;6(3):112-8.
5. Wright JT, Meyer BD. Anomalies of the developing dentition. In: Pediatric dentistry. Sixth Edit. Elsevier Inc.; 2019. p. 50-65.
6. Arandi NZ, Mustafa S. Maxillary lateral incisor agenesis; a retrospective cross-sectional study. Saudi Dent J. 2018 Apr;30(2):155-60.
7. Johannsdottir B, Wisth PJ, Magnusson TE. Prevalence of malocclusion in 6-year-old Icelandic children: a study using plaster models and orthopantomograms. Acta Odontol Scand. 1997 Dec;55(6):398-402.
8. Baccetti T. A controlled study of associated dental anomalies. Angle Orthod. 1998 Jun;68(3):267-74.
9. Pinho T, Tavares P, Maciel P, Pollmann C. Developmental absence of maxillary lateral incisors in the Portuguese population. Eur J Orthod. 2005 Oct;27(5):443-9.
10. Al-Humayani F. Agenesis and malformation of maxillary lateral incisors in Saudi Arabian female students. Egypt Dent J. 2005;51(25):1-5.
11. Afify AR, Zawawi KH. The prevalence of dental anomalies in the Western region of Saudi Arabia. ISRN Dent. 2012;2012:837270.
12. Afzal F, Rasool G, Bashir S, Afzal S, Gul H. Prevalence of congenitally missing maxillary lateral incisor and peg laterals in a local orthodontic population. J Khyber Coll Dent. 2015;5(02):29-33.
13. Aren G, Güven Y, Tolgay CG, Özcan İ, Bayar ÖF, Kose TE, et al. The prevalence of dental anomalies in a Turkish population. J Istanbul Univ Fac Dent. 2015;49(3):23-8.
14. Ci tak M, Cakici EB, Benkli YA, Cakici F, Bektas B, Buyuk SK. Dental anomalies in an orthodontic patient population with maxillary lateral incisor agenesis. Dent Press J Orthod. 2016 Dec;21(6):98-102.
15. Hussain S, Azeem M, Awan R, Ahmed A, Afif S, Shakoor U. The frequency of peg-shaped maxillary permanent lateral incisors among orthodontic patients of two health districts of Punjab, Pakistan. J Khyber Coll Dent. 2018;8(1):59-62.
16. Ramdurg P, Mendegeri V, Vanishree BK, Achanur M, Srinivas N. Prevalence and distribution of dental anomalies of orthodontic patients among North Karnataka, India. Int J Community Med Public Health. 2016 Jun;3(6):146-9.
17. Tunis TS, Sarne O, HersHKovitz I, Finklestein T, Pavlidi AM, Shapira Y, et al. Dental anomalies' characteristics. Diagnostics (Basel). 2021 Jul;11(7):1161.
18. Abd-Aziz HM, Foda MY. Prevalence of peg shaped maxillary lateral incisor in relation to tooth agenesis and malposition of the maxillary cuspids; in group of egyption population. Egypt Dent J. 2004;50(2):545-9.
19. Polder BJ, Van't Hof MA, Van der Linden FP, Kuijpers-Jagtman AM. A meta-analysis of the prevalence of dental agenesis of permanent teeth. Community Dent Oral Epidemiol. 2004 Jun;32(3):217-26.
20. Devasya A, Sarpangala M. Dracula tooth: A very rare case report of peg-shaped mandibular incisors. J Forensic Dent Sci. 2016 Sep-Dec;8(3):164-6.

21. Fadel RM, Abozaid WA. Dental Abnormalities in Gharyana Population in Libya. *J Med Dent Sci Res.* 2021;8(11):29-33.
22. Ghaznawi HI, Daas H, Salako NO. A clinical and radiographic survey of selected dental anomalies and conditions in a Saudi Arabian population. *Saudi Dent J.* 1999;11(1):8-13.
23. Albashaireh ZS, Khader YS. The prevalence and pattern of hypodontia of the permanent teeth and crown size and shape deformity affecting upper lateral incisors in a sample of Jordanian dental patients. *Community Dent Health.* 2006 Dec;23(4):239-43.
24. Ibrahim RO, Ahmed SM, Dawood SN. Prevalence of maxillary lateral incisor agenesis and malformation in Sulaimani city (Iraqi kurdistan population). *Iraqi Dent J.* 2017;39(1):33-8.
25. Kazanci F, Celikoglu M, Miloglu O, Ceylan I, Kamak H. Frequency and distribution of developmental anomalies in the permanent teeth of a Turkish orthodontic patient population. *J Dent Sci.* 2011 Jun;6(2):82-9.
26. Ghabanchi J, Haghnegahdar AA, Khodadazadeh SH, Haghnegahdar S. A radiographic and clinical survey of dental anomalies in patients referring to Shiraz dental school. *J Dent (Shiraz).* 2009;10(1):26-31.
27. Gupta SK, Saxena P, Jain S, Jain D. Prevalence and distribution of selected developmental dental anomalies in an Indian population. *J Oral Sci.* 2011 Jun;53(2):231-8.
28. Venugopal S. Prevalence of peg lateral among dental outpatients. *J Pharm Negat Results.* 2022;13:1182-8.
29. Fekonja A. Morphological diversity of permanent maxillary lateral incisors and their impact on aesthetics and function in orthodontically treated patients. *Diagnostics (Basel).* 2022 Nov;12(11):2759.
30. Decaup PH, Garot E, Rouas P. Prevalence of talon cusp: Systematic literature review, meta-analysis and new scoring system. *Arch Oral Biol.* 2021 May;125:105112.
31. Van der Vyver P, Potgieter N, Vorster M. Management of a permanent lateral incisor with a talon cusp and immature apex: A case report. *Clin Case Rep.* 2024 Jan;12(1):e8404.
32. Mohan R, Verma S, Singh U, Agarwal N, Ghanra S, Tyagi K. Talon cusp in primary dentition: A case report. *Int J Case Rep Images.* 2013;4(12):662-5.
33. Kalpana R, Thubashini M. Talon Cusp: A case report and literature review. *Oral Maxillofac Pathol J.* 2015;6(1):594-6.
34. Arfat B, Çolak H, Çelebi AA, Uzgur R, Turkal M, Hamidi MM. The frequency and characteristics of talon cusps in a Turkish population. *Eur J Gen Dent.* 2012 Jan;1(1):39-43.
35. Guven Y, Kasimoglu Y, Tuna EB, Gencay K, Aktoren O. Prevalence and characteristics of talon cusps in Turkish population. *Dent Res J (Isfahan).* 2016 Mar-Apr;13(2):145-50.
36. AlHumaid J, Buholayka M, Thapasum A, Alhareky M, Abdelsalam M, Bughsan A. Investigating prevalence of dental anomalies in Eastern Province of Saudi Arabia through digital orthopantomogram. *Saudi J Biol Sci.* 2021 May;28(5):2900-6.
37. Fujita Y, Hidaka A, Nishida I, Morikawa K, Hashiguchi D, Maki K. Developmental anomalies of permanent lateral incisors in young patients. *J Clin Pediatr Dent.* 2009 Spring;33(3):211-6.
38. Baral R, Bajracharya D, Ojha B, Silwal G. Prevalence of congenitally missing lateral incisors and peg laterals in patients receiving orthodontic treatment. *Orthod J Nepal.* 2020 Jun;10(1):17-20.
39. Pinho T, Maciel P, Pollmann C. Developmental disturbances associated with agenesis of the permanent maxillary lateral incisor. *Br Dent J.* 2009 Dec;207(12):E25.
40. Amin F, Asif J, Akber S. Prevalence of peg laterals and small size lateral incisors in orthodontic patients--a study. *Pak Oral Dent J.* 2011;31(1):127-30.
41. Najm AA, Mahdi AS, Al-Sudani RJ, Musa HH. Prevalence of dental anomalies among Iraqi dental students. *J Baghdad Coll Dent.* 2016;28(3):1-5.
42. Sarkis S. Anomalies in Al-Radwaniya Iraqi Village. *Iraqi Dent J.* 1999;33(1):83-9.
43. Abdalrahim R. Evaluation of developmental dental anomalies in an adult dentate Iraqi sub-population of Sulaimani city by using panoramic radiographs. *Sulaimani Dent J.* 2024;11(1):9-16.
44. Bäckman B, Wahlin YB. Variations in number and morphology of permanent teeth in 7-year-old Swedish children. *Int J Paediatr Dent.* 2001 Jan;11(1):11-7.
45. Ling JY, Wong RW. Incisal morphology of southern Chinese. *Open Anthropol J.* 2008;1:19-25.
46. Ijaz F, Khattak MA, Ahmad N, Arbab S, Shah SA, Abbas I. Frequency of developmentally malformed permanent maxillary lateral incisors in patients visiting the three teaching dental hospitals of Peshawar. *J Ayub Med Coll Abbottabad.* 2021 Apr-Jun;33(2):299-302.
47. Mupparapu M, Singer SR, Goodchild JH. Dens evaginatus and dens invaginatus in a maxillary lateral incisor: report of a rare occurrence and review of literature. *Aust Dent J.* 2004 Dec;49(4):201-3.
48. Rusmah M. Talon cusp in Malaysia. *Aust Dent J.* 1991 Feb;36(1):11-4.
49. Mavrodisz K, Rozsa N, Budai M, Soos A, Pap I, Tarjan I. Prevalence of accessory tooth cusps in a contemporary and ancestral Hungarian population. *Eur J Orthod.* 2007 Apr;29(2):166-9.
50. Hamasha AA, Safadi RA. Prevalence of talon cusps in Jordanian permanent teeth: a radiographic study. *BMC Oral Health.* 2010 Jun 28;10:6.

