# Prevalence of Hypodontia in the populace of NWFP

T FIRDOS G RASOOL Z NASRULLAH
*Department of Orthodontics, Khyber College of Dentistry, Peshawar*
*Correspondence to Dr. Tallat Firdos, Assistant Professor, E mail: tauseefmutwahir@gmail.com*

**The purpose of the study was to identify the pattern of congenital absence of teeth in a group of individuals seeking treatment of malocclusion in the Department of Orthodontics, Khyber College of Dentistry, Peshawar and to find out the gender difference and in addition the horizontal ,vertical and diagonal correlation among the missing teeth. The sample represents the population of North West Frontier Province.**
**Key words: Hypodontia, NWFP, population**

Hypodontia is a condition of naturally having fewer than the regular number of teeth[1]. It is the developmental absence of one or more teeth from the dentition and constitutes one of the most common developmental anomalies in humans with a reported prevalence of 1.6-9.6% in the permanent dentition[2]. Hypodontia may occur in association with other genetic diseases or as an isolated familial or sporadic form[3]. Congenitally missing teeth is one of the significant disturbances in dental development during the initial stages of tooth formation, initiation and proliferation[4].

The congenital absence of a tooth cannot be established accurately unless one knows the dental age of the individual and the approx. timing of the onset of calcification of the crowns under normal circumstances[5]. A Congenitally missing permanent tooth is an actual or potential problem of arch symmetry and must be considered a severe orthodontic problem. As a general rule if only one or a few teeth are missing the absent tooth will be the most distal tooth of any given type:

1. Third molar in molars.
2. Lateral incisor in incisors.
3. Second premolar in premolars.

The permanent teeth most likely to be missing are mandibular second premolars and maxillary lateral incisors[4]. The maxillary lateral incisors are frequently missing or malformed. The percentage varies depending on the study consulted, but in most practices it is approximately 5% of the treated patients[6].

## Materials and methods

This study was conducted in the department of orthodontics, KCD from September 2004 to August 2006. The subjects were selected from amongst the patients visiting the department of Orthodontics for treatment. In this period 2050 cases were examined consisting of 912 male and 1138 female patients. Clinical and radiographic examinations were performed and the cases were grouped according to congenital absence of different types of teeth according to the pattern and presentation.

The gender contribution to the abnormality was examined as well as the type of tooth/teeth missing and the relation of the maxillary and mandibular teeth to their corresponding and opposing arches. The vertical, horizontal and diagonal relations were also assessed.

## Results

The OPG's of all 2050 patients were evaluated for the absence of teeth of different types in different quadrants. 239 patients, 91 males and 148 females were found with missing teeth of different types in all four quadrants in diverse combinations. (Table I). Among all the teeth, most commonly missing tooth was the 3rd permanent molar. Other teeth showing congenital absence were the maxillary lateral incisor and then mandibular second pre molars. Congenital absence of the 3rd molars was confirmed in 157 cases, 61 males and 96 females. Table II shows the details of congenital absence of third permanent molar and the extent of involvement of missing third molars, ranging from absence in all the segments to one single tooth. Gender difference is quiet obvious and the most common pattern of absence seems to be maxillary third permanent molars horizontally in both left and right quadrants, absence in the vertically opposite quadrant was lesser than the horizontal and diagonal absence was even more less. Second pre molars showed absence in 37 cases 13 males and 24 females (Table 3) whereas lateral incisors were unilaterally or bilaterally absent in 57 cases 21 males and 36 females (Table 4). The present study declares the absence of maxillary lateral incisors as the next commonly missing tooth, unilateral absence is more often observed. The 2nd premolar is more commonly absent unilaterally in the mandibular arch. The frequency of absence was no doubt more in females but both the genders showed similar pattern of arrangement. According to the investigated data the differences in the proportion of missing teeth are uncommon in the right and left quadrants but obviously common in upper and lower arches.

In addition to this multiple absence of teeth was also observed in a few cases i.e. 2 males and 10 females. Six patients having multiple teeth missing, had a combination of missing 3rd molars and lateral incisors, two patients had missing 2nd premolars and lateral incisors the remaining patients had 3rd molars and 2nd premolars absent in combination.

Table 1: Congenital absence of permanent teeth

| Types of teeth | Male | Female |
|---|---|---|
| 3rd permanent molars | 61 | 96 |
| 2nd premolars | 13 | 24 |
| Max. lateral incisors | 21 | 36 |
| Mand. central incisors | 2 | 2 |
| Multiple absence | 2 | 7 |
| Total 264 | 99 | 165 |
| Percentage 12.8% | 37.5% | 62.5% |

Table 2: Congenital absence of 3rd Permanent molars

| Absence of Teeth | Male | Female |
|---|---|---|
| All 3rd molars | 13 | 28 |
| Maxillary molars | 19 | 26 |
| Mandibular molars | 6 | 12 |
| Vertical absence | 2 | 5 |
| Diagonal absence | 0 | 1 |
| 3 Molars absent | 5 | 7 |
| Upper right 3rd molar | 7 | 5 |
| Upper left 3rd molar | 4 | 3 |
| Lower right 3rd molar | 0 | 0 |
| Lower left 3rd molar | 3 | 2 |
| Multiple absence | 2 | 7 |
| Total 157 | 61 | 96 |
| Percentage 59.3% | 23.1% | 36.3% |

Table 3.Congenital Absence of Second premolars

| Type of Teeth | Male | Female |
|---|---|---|
| All 2nd premolars | 0 | 3 |
| Max. 2nd premolars | 0 | 0 |
| Man.2nd premolars | 3 | 5 |
| Vertical Absence | 0 | 0 |
| Upper right 2nd premolar | 0 | 1 |
| Upper left 2nd premolar | 0 | 1 |
| Lower right 2nd premolar | 6 | 6 |
| Lower left 2nd premolar | 2 | 5 |
| Three 2nd premolars | 1 | 0 |
| Multiple absence | 1 | 3 |
| Total 37 | 13 | 24 |
| Percentage 14 % | 4.9 % | 9.1% |

Table 4.Congenital absence of lateral incisors

| Types of teeth | Male | Female |
|---|---|---|
| Max. lateral incisors | 7 | 9 |
| Mand.lateral incisors | 0 | 2 |
| Upper right lateral incisor | 5 | 5 |
| Upper left lateral incisor | 6 | 9 |
| Peg lateral | 1 | 4 |
| Multiple absence | 2 | 7 |
| Total 57 | 21 | 36 |
| Percentage 21.5 % | 8 % | 13.6 % |

## Discussion

A group of 2050 young unrelated individuals visiting the department of orthodontics, Khyber College of Dentistry, Peshawar, Pakistan were investigated for presence of hypodontia. The presentation and the gender difference were also evaluated. In the present study the result revealed that 12.8% of the subjects showed congenital absence of 3rd permanent molars, 2nd premolars and lateral incisors. The missing teeth were found to be more prevalent in female population i.e. out of the total 264 patients (12.8%) of hypodontia patients 99(37.5%)were males and 165(62.5%) were females .different studies show hypodontia in the range of 2.2%-12.8%[7,8,9,10,11,13,15] and the result of the present study is comparable to the occurrence of hypodontia in British Caucasians[7]. The x-rays of 158(59.4%) patients 61 males (23.1%) and 96 females (36.3%) verified the absence of third permanent molar. The most common pattern was found to be absence of maxillary 3rd molars bilaterally.

The vertical and diagonal absence was less as compared to the horizontal absence. The congenital absence of maxillary lateral incisors which was noted in 57 cases (21.5%) is more frequent than the premolars 37 cases (14%).

This study also concludes that Max. Lateral incisors were encountering hypodontia more often then the 2nd premolars. In previous studies the hypodontia of lateral incisors and 2nd premolars are reported to be 20% and 47% respectively[11,14,15]. The result of the present study confirms the absence of lateral incisors as 21% which is in accordance with other studies but the hypodontia of premolars i.e. 14% is much less than that reported in other studies. The reasons can be that the sample of study pertains to a group of individuals seeking treatment for esthetic purposes. The absence of lateral incisors presents itself as spaced incisors and canines whereas the absence of 2nd premolar remains un-noticed because the clinical presentation does not appear as an obvious malocclusion and as a result does not create an esthetic problem which of course is the motivating factor in seeking orthodontic treatment. 3rd permanent molars are said to be missing in 10-15% of the population[12,16,17] where as in this study 7.5% patients had permanent molars missing. It is desirable that a broad based study should be carried out in all the populations of the community to find the exact status of hypodontia in the population of NWFP.

## Conclusion

The purpose of the study was to find out the pattern of congenital absence of permanent teeth, which present itself in the form a malocclusion .The absence of the third permanent molar goes unnoticed as it presents no malocclusion ,but the absence of 2nd premolar and the lateral incisors are definitely creating problems in occlusion, the missing maxillary lateral incisors unilaterally or bilaterally create a midline deviation or a diastema between the centrals or and the cupids Whereas the absence of premolars have their affect on the adjacent teeth causing them to tilt or rotate, taking molars to a class II occlusion, and submerging the 2nd primary molars. The patients having missing teeth require extensive orthodontic

treatment followed by permanent maintenance of the corrected occlusion with fixed prosthesis

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