

Original Article**The Delima of Wisdom Tooth**

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ABSTRACT

Background: estimation of age from 17years to 23 is being in practice on the basis of eruption of 3rd molar tooth. However it is important to know whether this method is and will still be applicable in the present decade or in coming decades.

Study Design: Cross Sectional Study.

Place and Duration of Study: This study was conducted at Frontier Medical College, Abbottabad from May 2007 to April 2009.

Materials and Methods: A cross sectional study is carried out in 400 students of FMC Abbottabad between 18 to 23 yrs of age to evaluate the status of eruption of 3rd molar tooth of both males and females. All informations were gathered on a performa especially designed for this purpose.

Result: Record of 400 students was collected. 6 performs were bias and rejected. Out of 394, 196 were males and 198 were females. All 4 erupted 3rd molar were seen in 90(22.84%) students, 3 erupted 3rd molar in 67(17%), 2 erupted 3rd molar in 63(15.98), 83(21.06) showed eruption of only one 3rd molar and last but not the least 91(23%) didn't show eruption of 3rd molar at all.

Conclusion: Result regarding 3rd molar tooth eruption shows that human beings of these decades are passing through evolutionary process of contracted jaw and resultant impaction of most of 3rd molars at the sight of eruption is the usual outcome. So we can predict that a time will come in coming few decades when forensic experts have to resort to some other factors to determine the age onwards from 17yrs rather than 3rd molar tooth eruption and development.

Key Words: forensic science, third molar, dental development, juvenile, adult, contracted

INTRODUCTION

Teeth which provide the life history of an individual, contribute as a reliable mean of determination of age from approximately 10wks of intra uterine life up to old age. Determining age using stages of tooth development, eruption, structural changes on teeth and changes in chemical composition of teeth have been successfully advocated by many researchers.

Teeth being the hardest calcified tissue in the body tend to be intact even when other component of skeleton has disintegrated. The high resistance of teeth to severe insults such as cold, heat, fire and chemicals make them the favorite tissue in forensic investigation.

Accurate age of children can be assessed with the help of pattern of tooth eruption. However after the early teen most teeth are calcified and erupted except the 3rd molar. This makes the 3rd molar development most important choice for age assessment from the late teens to early twenties. Two very important ages of medicolegal significance i.e. 18 and 21 yrs fall in this age group. Furthermore the use of other biological indicators such as epiphyseal fusion, changes at pubic

symphysis, wrist bones, fusion of cranial sutures are not credible during these years. Therefore 3rd molar becomes most useful when there is a need to determine juvenile and adult status of an individual when no valid document of recorded age is available.

MATERIALS AND METHODS

A cross sectional study is carried out in 400 students of FMC Abbottabad between 18 to 23 yrs of age to evaluate the status of eruption of 3rd molar tooth of both males and females. All informations were gathered on a performa especially designed for this purpose.

RESULT

It is a cross sectional study which is carried out on 394 students of FMC Abbottabad who were between 18 to 23 yrs of age. 196 out of 394 were males & 198 were females. All four erupted 3rd molar were present in 90(22.84%) students, 3 erupted 3rd molar were seen in 67(17%), likewise 2 erupted 3rd molar in 63(15.98), 83(21.06%) were having only one erupted 3rd molar and 91(23%) were the students who revealed failure of

eruption of 3rd molar at all. Out of 91, 53 were females & 38 were males

Table No.1. Percentage of Erupted 3rd Molars in 394 Students

No. of erupted 3 rd molar	No of students	Percentage	Gender	
			Male	Female
4	90	22.84%	61	29
3	67	17.00%	35	32
2	63	15.98%	30	33
1	83	21.06%	32	51
0	91	23.00%	38	53
Total	394	99.88%	196	198

Table No.2: Association of Eruption of 3rd Molar With Age & a Difference in Age of Eruption of 3rd Molar in Male & Female.

Age	Total No of students		All erupted 3 rd molar in		All unerupted 3 rd molar in	
	male	female	Male	female	Male	female
18	48	69	-	-	17	21
19	53	40	04	-	13	15
20	32	25	23	-	04	03
21	33	18	28	03	02	01
22	21	14	05	07	-	05
23	09	32	01	19	02	08
Total	196	198	61	29	38	53

DISCUSSION

The dental eruption which exposes the dental element in the oral cavity occurs through the subsequent elongation of the root, pushing the crown against the subsequent tissues layers until the gingival surface. 'Eruption' incorporates the entire journey of the tooth from its formation in the alveolar crypts to full occlusion..

The 3rd molar tooth offers a unique advantage over other teeth because its development tends to continue over a long period and until a later stage. It is observed from our study that a significant percentage of adults i.e.91(23%) doesn't harbor erupted 3rd molar in their mouth. The study has also revealed that among them females predominate 53(58%) the males 38(42%). So it seems that forensic anatomists have to rely upon Demirjian stages and Moorrees method of tooth development rather than mere eruption of 3rd molar tooth. But it still has to be considered that contracted jaw is not only responsible for impaction of 3rd molar but it is becoming the root cause of congenital absence of the same.

It is also obvious from the rest of study that eruption time for 3rd molar is earlier in males as compare to females which is in contrast with the usual eruption time of the rest of the teeth. In all other teeth the eruption time in females is earlier than in males. It is also confirmed by the study of other researchers.

In forensic medicine 18 & 21 yrs are the ages which have to be relied upon eruption of 3rd molar teeth. But now it seems that in future mere eruption of 3rd molar cannot be relied upon. The stages of development & calcification are needed be to consider like Demirjian and Moorrees but because of evolutionary contracted space for 3rd molar there is an ultimate assorted congenital absence of 3rd molar. So in near future in coming few more decades forensic scientists will have to resort to some other conclusive anatomical marker for age estimation from 17 to 23 years.

CONCLUSION

The 3rd molar is the most variable tooth in the dentition with respect to size, time of formation and time of eruption and for this reason it should be categorized as a non- ideal- developmental marker. Its presence can date the person but its absence cannot specify that the person is below 21 yrs of age.

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