

## AGE ESTIMATION WITH SPECIAL REFERENCE TO SECOND MOLAR TOOTH AND CORRELATION WITH SKELETAL AGE

Dr.V.Raja Sekhar <sup>1</sup>, Dr. M. Srinivasa Naik <sup>2</sup>

### ABSTRACT

Most of the people live in rural areas, and most of them being illiterates don't remember their dates of birth. They do not feel that it is the due to intimate the birth of a child in their house to the authorities connected in maintaining birth and death registers. Due to this, the officials concerned find it difficult to maintain the records. Hence Indian courts have to depend often upon medical opinion for assessment of the age.

The cases are referred to doctors for estimation of age. Usually as soon as a child is born, the date and hour of birth is recorded. Birth records from the registrars office, school records, horoscope and gurukuls record are the main sources of obtaining the particulars about the age of a child. But these records are often not reliable in India, as most of the people live in villages and are illiterate, and they do not realize the importance of maintaining the proof of date of birth.

**Key words:** *Second molar tooth, X-Ray findings, dental examination, boys, girls*

### Introduction

Usually as soon as a child is born, the date and hour of birth is recorded. Birth records from the registrar's office, school records, and horoscope and gurukuls record are the main sources of obtaining the particulars about the age of a child. But these records are often not reliable in India, as most of the people live in villages and are illiterate, and they do not realize the importance of maintaining the proof of date of birth.

In conditions where such authenticated records are not available scientific methods of determination of age become necessary. Apart from the general physical development, attainment of puberty, eruption of deciduous or permanent teeth, study of eruption of different types of teeth, study of union of epiphyses with diaphyses are the important source for the estimation of the age. In medico-legal Cases like Child labour, Sexual

offences, and Juvenile offenders Estimation of age by the Forensic experts is key role in deciding the age of the individuals by above said parameters.

Similarly, in the dead-the age determination problems may arise in different ways. Some times a complete human skeleton or a few bones or some fragments of the bones may be sent to the doctor.

Under such circumstances depending on the available material-different methods have to be adopted for the determination of the age of the deceased.

The determination of the age of an individual has many medico-legal bearings. It has separate implications in civil matters and criminal problems. Depending on the age of the accused or victim the entire legal procedure may be influenced at the time of filing the charge sheet or at the time of pronouncing the judgment and while awarding

the quantum of punishment, if the accused is found guilty.

The aim of this work is to find out the age estimation by the second molar tooth with reference to the skeletal age.

### Materials and Methods

The material for this study are school children numbering 50 (25 Boys and 25 Girls) from a local government and private High school of Kurnool town. The student falling within the age group of 12-14 years have been selected. The school children were picked up from 6th –9th standards, who have been falling in the age group of 12 – 14 years.

Their exact date of births of the students were recorded from their parents and after verification in the school registers were found to be corrected.

The boys and girls were selected from the lower income, middle income group and higher income groups. Their diet, height, weight, general build, whether vegetarian or non-vegetarian, activities like sports, present and past illnesses and their eruption of teeth have all been considered.

Antero posterior and lateral Radiographs of wide open mouth, the elbow joint, and the pelvis were taken for all cases. Altogether 50 X-ray photographs have been taken for this 50 students.

### Results:

Table-1: Gender and Molar tooth status

S.No	Appearance of 2 <sup>nd</sup> molar	Boys	Girls	Total
1	Present	25	25	50
2	Absent	0	0	0

Table-2: Gender and Root calcification

S.No	Root Calcification	Boys	Girls	Total
1	Completed	07	05	12
2	Not completed	18	20	38

Table-3: Gender and Traumatic Teeth

S.No	Appearance of 2 <sup>nd</sup> molar	Boys	Girls	Total
1	Traumatic	01	0	01
2	Non Traumatic	24	25	49

Table-4: Gender and Crown of third molar in X-ray

S.No	Crown of third molar	Boys	Girls	Total
1	Appeared	13	10	23
2	Not Appeared	12	15	27

Table-5: Gender and ossification centers around the elbow joint

S.No	Elbow joint	Boys		Girls	
		Appeared	Not fused	appeared	Not fused
1	Medial epicondyle	25	20	25	18
2	Lateral Epicondyle	25	25	25	25
3	Head of Radius	25	25	25	25
4	Olecranon process	25	25	25	25

Table-6: Gender and ossification centers around the wrist joint

Wrist joint	Boys		Girls	
	appeared	Not fused	appeared	Not fused
Lower end of Radius	25	25	25	25
Lower end of Ulna	25	25	25	25
Base of 1 meta carpal	25	25	25	25
Heads of other meta carpals	25	25	25	25

Table-6: Gender and ossification centers around the hip joint

Hip joint	Boys		Girls	
	Appeared & fused	Appeared & Not fused	Appeared & fused	Appeared & Not fused
Tri radiate cartilage	06	19	10	15
Lesser trochanter	00	25	00	25
Iliac crest	00	25	00	25

### Discussion:

Age estimation plays a great role in forensic investigations, orthodontic and surgical treatment planning, and tooth transplantation [1]. Due to rapid increase in the population, there is ever increasing trend in number of medico-legal age determination cases, year after year. The age group students were selected from classes belonging to 6th, 7th and 8th standard.

Hand-wrist radiography is recognized as a reliable parameter to evaluate the skeletal age of a patient [2-6].

4% of students were suffering with caries teeth and rest of the others were having healthy teeth. Among the caries teeth, boys and girls were in equal proportions. [Caries: healthy teeth= 01:24].

One boy had injury to tooth and no injury pathology of teeth noted in the girls. All students belonging to both sexes, second molars were erupted. Root calcification is not completed in both sexes. Completion of root calcification noted more in boys than girls. [B:G=7:5]. Root calcification is under process in the rest of students in both sexes.

Orderly arrangement of teeth predominant in female sex when compared with male. Ratio of crowded teeth in boys and girls is 4:3. Ratio of orderly arranged teeth and crowded teeth in the study is 43:07.

Crown of third molar appeared in both boys and girls but majority is in boys. The ratio is B: G= 13:10.

Ossification centers around the elbow joint were appeared in all case studies but fusion of medial epicondyles observed in 20% in boys and 28% in girls. Ossification centers with reference to lateral epicondyle, head of the radius and olecranon process of ulna were appeared but not fused. Comparatively fusion of medial epicondyles observed more in female sex when compared with male sex.

Ossification centers of lower end of the radius, lower end of the ulna, base of the first metacarpal and heads of the other metacarpals were appeared but not fused. In all case studies there is no disparity between male and female sex in this age group of my study in the appearance and fusion of centers around wrist joint.

In the hip joint, appearance and obliteration of tri radiate cartilage were observed in both sexes, but centers of lesser trochanter and iliac crest are appreciated but no fusion occurs in all case studies of both sexes. Obliteration of tri radiate cartilage is observed in female sex than the male sex and the ratio of Boys: Girls = 2:5.

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**AUTHOR(S):**

- 1- Dr.V.Raja Sekhar, Assistant Professor, Dept. of Forensic Medicine, Kurnool Medical College, Kurnool.
- 2- Dr. M. Srinivasa Naik, Assistant Professor, Dept. of Forensic Medicine, Kurnool Medical College, Kurnool.

**CORRESPONDING AUTHOR:**

Dr.V.Raja Sekhar, Assistant Professor, Dept. of Forensic Medicine, Kurnool Medical College, Kurnool.  
Email: [dumbukavi@gmail.com](mailto:dumbukavi@gmail.com)

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