

Impact of Dental Fluorosis on School Going Children in Rompicharla Mandal, Guntur District

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ABSTRACT

The study conducted by Rompicharla mandal, Guntur district. Dental fluorosis is a developmental disturbance of dental enamel, caused by successive exposures to high concentrations of fluoride during tooth development, leading to enamel with lower mineral content and increased porosity. The severity of dental fluorosis depends on when and for how long the overexposure to fluoride occurs, the individual response, weight, degree of physical activity, nutritional factors and bone growth. The risk period for esthetic changes in permanent teeth is between 20 and 30 months of age. The recommended level for daily fluoride intake is 0.05 - 0.07 mg F/Kg/day, which is considered of great help in preventing dental caries, acting in re-mineralization. A daily intake above this safe level leads to an increased risk of dental fluorosis. Currently recommended procedures for diagnosis of fluorosis should discriminate between symmetrical and asymmetrical and/or discrete patterns of opaque defects. Fluorosis can be prevented by having an adequate knowledge of the fluoride sources, knowing how to manage this issue and therefore avoid overexposure.

Key words: Dental Fluorosis, Fluoride sources, Prevention, Enamel

Date Of Submission: 22-06-2019

Date Of Acceptance: 08-07-2019

I. INTRODUCTION:

Dental fluorosis is a developmental condition of tooth enamel caused by excessive fluoride exposure during periods of enamel formation (the first 3 years of life). Fluorite enamel is histological characterized by subsurface porosity. In clinical terms, fluorosis ranges from barely visible white striations to staining and pitting of the enamel **Fejerskov, (1988) (1)**. Systemic fluoride exposure in childhood is the necessary etiological factor in the development of dental fluorosis. **Riordan (2), Pendrys (3), Mascarenhas (1993) (4)**.

Dental fluorosis, an aesthetic condition; arises as a result problems occurring during tooth development. It involves the incorporation of excessive amounts of fluoride in the enamel of the tooth as it develops. This inadvertently leads to the destruction of ameloblasts and the formation of abnormal looking pitted enamel surface **Ajayi and Siddiq K [5,6]**. This appearance is however dependent on the severity as well the timing of exposure to excessive fluoride levels **Koleoso DCU [7]**. Dental fluorosis with its attendant complication of aesthetic distortion of the teeth has now become another focus of public health intervention worldwide. Continuous monitoring of global occurrences of fluorosis as well as health education on the appropriate use of fluoride should however be constantly advocated to ensure that this

disease is tackled squarely **Zhang B(8), Abiodun-Solankelyabo MF (9), Soto-Rojas AE(10)**.

II. MATERIAL AND METHODS

All 5 to 15-year-old children who were enrolled in participating school in Rompicharla Mandal Guntur dist and communities at the time of the study (2017-18) were invited to participate. All contacted school systems agreed to participate, and enrollment was through and with the enthusiastic cooperation of the participating school districts.

This age group of children was selected because they represent a population at risk of developing dental fluorosis as a result of the vulnerability of tooth calcification being overtaken by deposition of excessive fluoride **Gopalakrishnan P, [11]**. The presence of dental fluorosis and its severity were recorded and the Dean's index **Dean HT [12]** was used to determine the grade of dental fluorosis as thus:

1. Questionable: The enamel shows slight changes ranging from a few white flecks to occasional white spots. These classifications utilized in those instances in which a definitive determination of the mildest form of fluorosis is not warranted and a classification of unaffected is not justified. **2. Very mild:** Small opaque paper-white areas are scattered over the tooth surface, but do not involve as much as 25% of the surface.

3. Mild: White opaque areas on the surface are more extensive, but do not involve as much as 50% of the surface.

4. Moderate: White opaque areas affecting more than 50% of the enamel surface.

5 Severe: All enamel surfaces are affected. The major aspect of this classification is the presence of discrete or confluent pitting of the enamel surface

Questionnaire

Keeping in view of the scope and objectives of the study, interview schedule was prepared. A structurally well prepared and pre tested questionnaire was developed after perusal of the available literature. thus, the final interview schedule consists of all the relevant items such as profile characteristics, etc., for measuring the variables included in the study. After pre-testing the questionnaire at the proposed study area, necessary modifications were incorporated. the finalised questionnaire which was used in the interview schedule for obtaining the primary data is appended herewith. Name, Age, Sex, Habitat, Education, No.of family members, Occupation, Sources of drinking water, amount of water consumed, Type of toothpaste, Residence, how many times brushing per day, have you ever considered teeth whitening, how often do you make dental visit, consumption of tea and sea fish per day etc..

Severity of the dental fluorosis was assessed by deans index with the help of dentist and total samples are tested and classified according to the severity of dental fluorosis⁵.the classification was divided questionable, very mild, mild, moderate and sever. the study involves

collection of both primary and secondary data. The primary data was collected from the selected victims of dental

fluorosis with the help of duly pre-tested questionnaire. the secondary data was regard to reports of the rural water supply and sanitation department Guntur in the study area.

III. RESULT:

Rompicharla Mandals of Guntur district, Andhra Pradesh India seems to be threaten area of fluoride in dental fluorosis total 12 fluoride effected villages has been find out with the help of rural water supply and sanitation department Guntur and water samples had been taken for the analysis of water fluoride content. Water samples from different bore wells of 12 villages which showed a maximum range of 0.8 to 1.0 ppm by DEAN's method. Among 12 villages are showing high levels of fluoride. Almost all the selected villages are higher than the permissible level of 1 ppm according to WHO (World Health Organization, 1984).

The Moderate type is higher (30.06%), and Very Mild type is lower(10.21%), Questionable type is (20%), Mild is (15.01%), Sever is (25.21%). Particularly Vadlamudivaripalem (5.29) in Rompicharla mandal has excess levels of fluoride in Drinking water.

We find mean standard deviation of the total children of the sample and the mean value is and the standard deviation is the data was presented in percentage to understand the nature of the level Of knowledge about the diseases of dental fluorosis

Table:1 Systamatic representation of the sample

S.NO	NAME OF THE VILLAGE	BOYS	GIRLS
1.	Subbayapalem	8	12
2.	Alawala	25	35
3.	Thurumella	25	25
4.	Chirupothulavaripalem	30	40
5.	Veeravatnam	22	38
6.	Vepparlapalli	24	20
7.	Nagarlapadu	15	15
8.	Paragaticharla	10	15
9.	Santhagudipadu	23	33
10.	Thupadu	10	10
11.	Vadlamudivaripalem	20	14

12.	Annaram	17	10
TOTAL		229	287

Detailed information and classification of the samples according to boys and girls are represented in the table:
 1. The total number of the villages are 12, number of the boys are 229 (45%) and girls are 287(55%).

Table: 2. Classification of effected children in the region

NAME	QUESTIONABLE		VERY MILD		MILD		MODERATE		SEVER	
	Boys	GIRLS	BOY	GIRLS	BOY	GIRLS	BOY	GIRLS	BOY	GIRLS
Subbayapalem	0	2	1	3	2	3	4	4	1	0
Alawala	3	6	2	9	5	15	12	3	3	2
Thurumalla	0	4	3	5	2	9	16	5	4	2
Chirupothulavari PaleM	4	9	3	10	6	15	13	4	4	2
Veeravatnam	0	6	2	0	4	8	12	18	4	6
Nagarlapadu	1	4	3	5	6	6	9	4	5	1
Paragatcharla	0	2	1	5	4	4	8	4	2	0
Santhagudipadu	0	0	0	5	3	6	6	3	1	1
Thupadu	2	6	4	5	0	12	12	10	5	0
Vadlamudivari palem	0	0	2	5	0	0	6	7	2	0
Annaram	0	3	2	5	1	4	15	2	2	0
Allurivaripalem	0	1	0	0	5	5	10	3	2	1

The responds of every village of the region are classified according to deans index and gender represented in the table: 2. In this classification the questionable type of the

represents is The above table represents to effected children in the region. Total 12 villages Children were observed according to Dean's index.

Table: 3. Classification of effected children in the age

TYPE	7-9 Years		10-12 years		13-15 YEARS		TOTAL	PERCENTAGE
	Boys	Girls	Boys	Girls	Boys	Girls		
QUESTIONABLE	14	32	10	25	10	23	114	20%
VERYMILD	10	10	10	20	9	15	74	10.21%
MILD	10	20	9	14	6	20	106	15.01%
MODERATE	29	19	40	10	30	10	138	30.06%
SEVER	12	36	20	40	10	16	134	25.12%
TOTAL	75	117	89	109	65	84		

The information represented based on the age view and it is tabulated as above table: 3. Based on the age it was divided into Three types. Those are 7-9 Years, 10-12 years and 13-15 yrs. Boys and Girls data are represented separately. The

percentage was calculated and recorded in the table. Questionable (20%), Very Mild (10.21%), Mild (15.01%), Moderate (30.06%), Sever (25.12%).

Accurate of enamel fluorosis

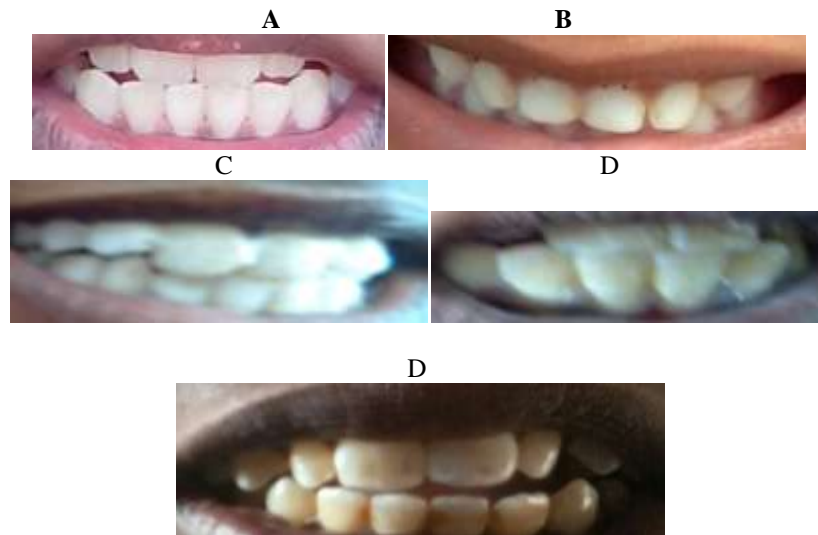
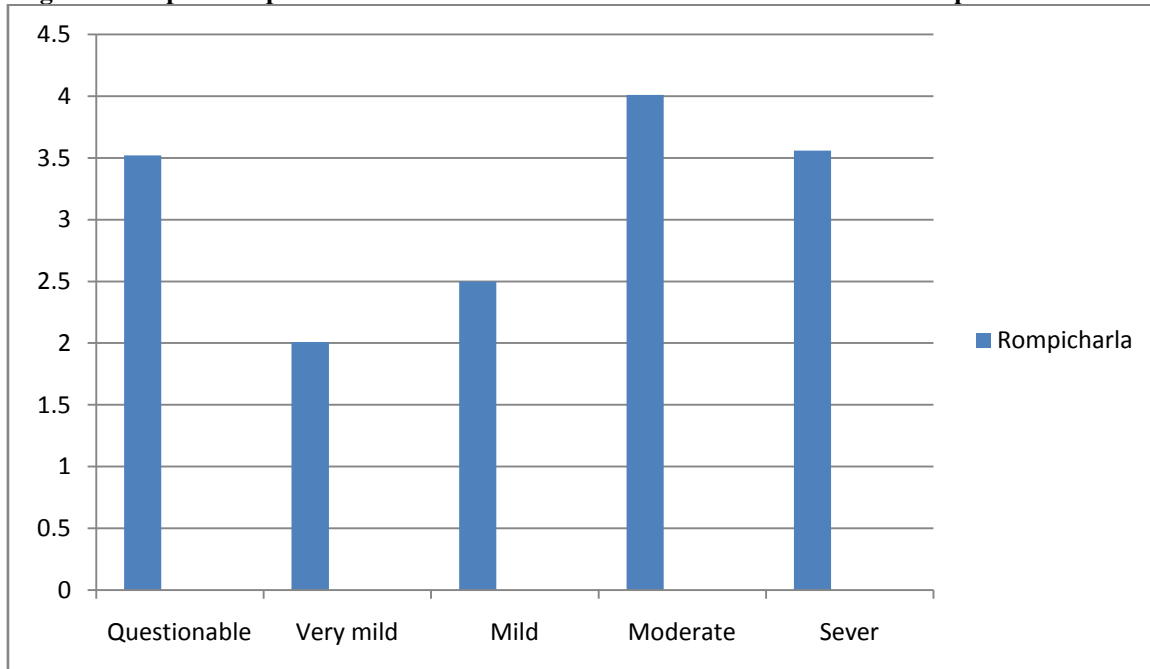


Fig.1: dental fluorosis (Deans grading) (A)Questionable (Grade1), (B)Very mild(grade2), (C)Mild(Grade3), (D) Moderate (Grade 4), (E)Sever(Grade 5).

Figure2: Graphical representation of effected Children of Dental Fluorosis in Rompicharla Mandal



IV. CONCLUSION:

To identify the different ways of intake fluoride by children is important to evaluate which sources represent some risk for the development of dental fluorosis. The dentist has to consider the recommendations for professional topical fluoride application, as well as instruct the parents or

caregivers in what refers to the age for toothpaste introduction, and the amount and concentration to be used in each age, in order to diminish the prevalence of dental fluorosis.

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Dr. Suneetha Chatla " Impact of Dental Fluorosis on School Going Children in Rompicharla Mandal, Guntur District" International Journal of Engineering Research and Applications (IJERA), Vol. 09, No.07, 2019, pp. 01-05