

## Differences in Rugae Pattern and Morphology of Central Incisors between North Indians and South Indians by the Method of Descriptive Study

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### Abstract

This study aims at drawing differences in the rugae pattern and the morphology of central incisors among the two selective groups containing North Indians and south Indians by a method of descriptive epidemiology study subjects of 30 in a selective population of 15 each from north Indians and south Indians in the group of 19-25 years are selected according to the inclusion criteria. Further the investigation was proceeded prior to which an informed consent has been obtained from the concerned samples. Later by alginate impression were made and cast poured with type 2 gypsum product <dental stone >. The rugae pattern was recorded based on Thomas et al classification and the incisors morphology of every sample was determined based on the crown length ratio in guidance to gobbato et al Indian periodontics restoration dent 2012.

**Keywords:** Morphology; Incisors; Periodontics.

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### Introduction

Establishing persons identity can be a very complex process, one of the main objectives of the forensic sciences. The analysis of the teeth, fingerprints and DNA comparison, are probably the most used techniques, allowing fast and secure identification processes. However these techniques can not always be applied, in some cases, it is necessary to apply different and less known techniques. In this work, a systematic analysis of the shape and dimensions of the palatal rugae and incisor morphology was performed.

Palatoscopy is the study of palatal rugae for the establishment of individual identity of a person. Palatal rugae remain consistent during the life period like the finger prints. Rugae is protected from external trauma. Application of palatal rugae pattern for

identification, four major types of rugae pattern were categorized. The rugae patterns was recorded according to Thomas et al classification. The categories were classified into 4 types: curved, linear, angular, interrupted Incisor morphology differs in every individual and the shapes are classified as triangle, quadrangle, square. They are used as aid in forensic science and research for identification purpose.

### Materials & Methods

#### *Study Design*

The study design is to find the dominance in the Rugae pattern and morphology of incisors among north Indians and south Indians.

#### *Sample*

Based on cross sectional study subjects of 30. In a population of 15 each from the North Indians and South Indians in age group of 19-25 years are selected according to the inclusion and exclusion criteria.

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Sample size is determined by simple random sampling method.

## Materials

### *The Armamentarium Used Were*

Dental maxillary impression trays, rubber bowl, curved and straight spatula, distilled water, mouth mirror, straight probe, alginate <tropicalgin>, dental stone metal scale, graphite pencil.

Hydrocolloid impression material – alginate was used to take impression of the maxillary arch and casts were poured with type IV dental stone. To record the rugae pattern, a sharp graphite pencil was used.

The rugae patterns was recorded according to Thomas et al classification. The categories were classified into 4 types.

1. Curved-crest shaped that was curved gently
2. Linear-runs directly from origin to termination
3. Angular-curvature of linear rugae pattern
4. Interrupted-discontinuation of rugae pattern

*Shape of Maxillary Central Incisors* was investigated from 30 healthy Individuals with the help of cast.

1. Quadrangular
2. Oval
3. Triangular

*The Shapes are Determined if Crown-Length Ratio is:*

1. <43% -Triangular in shape
2. >57% -Quadrangular in shape
3. Between 43% to 57% oval in shape

### *Inclusion Criteria*

It should satisfy atleast four out of six key's from andrew's key's of malocclusion, Age group included from 19 to 25 years from north Indian and south Indian population. Presents of all permanent tooth in the dental arch (except 3 molar tooth).

### *Exclusion Criteria*

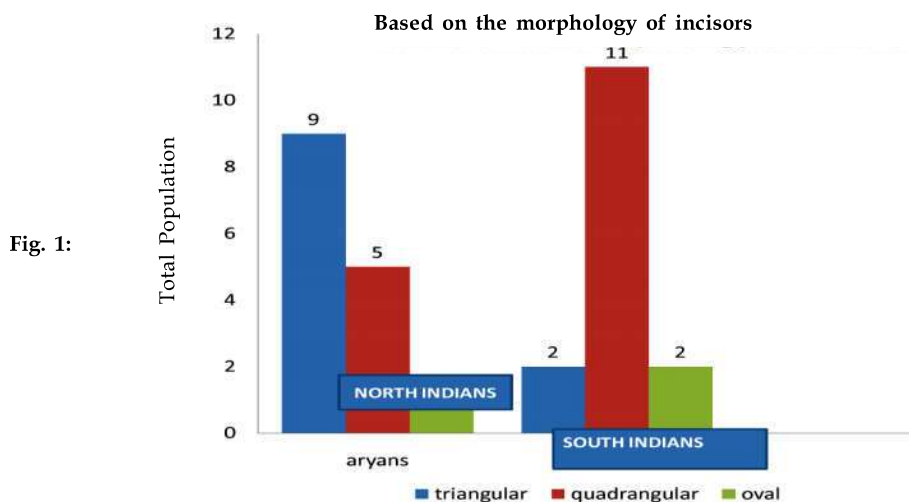
No dental caries, should not undergone orthodontic treatment, free of wear facets (like-attribution, abrasion, erosion-etc).

## Results

- Based on the morphology of incisor the triangular shape were more common in the north Indians and the quadrangular shape more common in the south Indians.
- Based on the rugae pattern the linear pattern of rugae were more common in the north Indians and the curved pattern were more common in the south Indians.

## Hypothesis

A working/empirical hypothesis is a hypothesis that is provisionally accepted as it is constructed as a statement of expectations, which can be linked to the exploratory research and is often used as a conceptual framework in qualitative research. Which in future can be a model hypothesis when proved. This is correlated in this study as that north Indians and south Indians is assumed to have a constructive difference in there rugae pattern and incisor morphology.



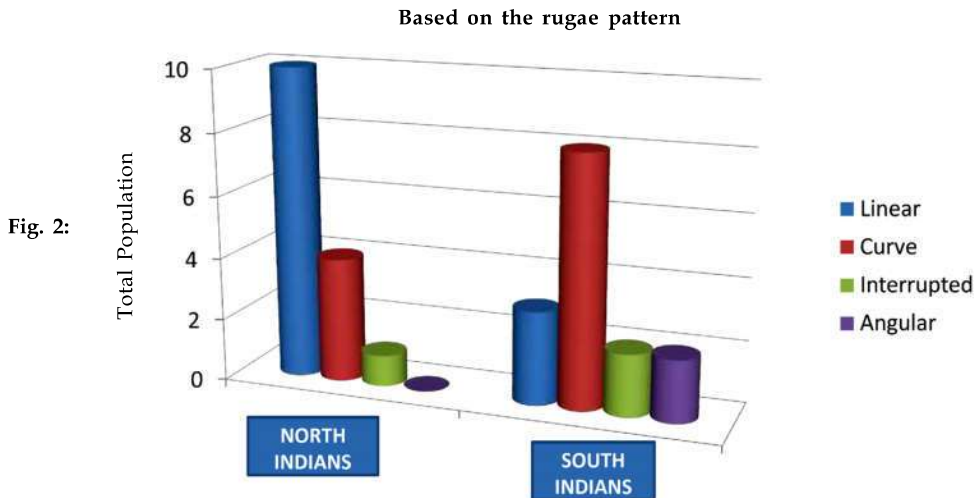


Fig. 2:

### Discussion

The palatal rugae or transverse palatine folds are irregular mucosal elevations present in the anterior region of the palate. It is asymmetrical and made from the lateral membrane of incisive papillae, arranged in transverse direction from raphae located in the midpalatine palatalscopy is the study of palatal rugae for the establishment of individual identity of a person.

Palatal rugae is consistent during the life period like finger prints, rugae is protected from external trauma. application of palatal rugae pattern for the identification, four major types of rugae patterns were categorized.

Incisor morphology differs in every individual and the shapes are classified as triangle, quadrangle, square. They are used as aid in forensic science and research for identification purpose. The shapes are determined if Crown-length ratio is:

1. <43% -Triangular in shape
2. >57% -Quadrangular in shape
3. Between 43% to 57% oval in shape

- Giesla Crippa Furtado et al. [1] study based on Relationship between the morphology of the maxillary central incisor and horizontal and vertical measurement. Within the limitations of this study, it was observed that in people with normal natural occlusion there were no statistically significant.
- Associations between horizontal and vertical measurements and the maxillary central incisor morphology. This study leaves a scope for further research to analyze and compare other morphological structures, in order to improve the

oral health-related quality of life for the conventional denture wearer.

- Korlakunte et al. [3] study based on relationship between horizontal and vertical measurement of face with maxillary central incisors .He concluded with that the people with normal occlusion there was no significant association between horizontal and vertical measurement of face with maxillary central incisors.
- Dr. Zakiah Mohd Isa, et al. [2] performed a study based on the relationship between facial measurements and widths of the maxillary anterior teeth thereby they concluded that there was a relevancy in the widths of the anterior teeth within the population Tested may be predicted by a combination of the facial dimensions studied.
- Hasanreisoglu U. et al. [6] a clinical study to analyse clinical crown dimension of maxillary anterior teeth and to determine whether consistent relationship exist between tooth width and facial measurement in Turkish population. He concluded with maxillary central incisors and canine dimension of men were greater than women.
- Surekakeruanila et al. performed a study based on the palatal rugae pattern comparison in Manipuri and Kerala population thereby they concluded that the wavy pattern was found to be predominantly followed by curved in overall population and curved pattern was more in Manipuri population.

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