Rugoscopy Categorisation in An Outpatient Population -An Institutional Study

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Abstract
Introduction: 'Palatal rugoscopy,' which is the investigation of palatal rugae.Palatal rugae have been likened with fingerprints and are novel to an individual.It can be of importance in edentulous cases and furthermore in specific conditions where there are no fingers to be considered, for example, consumed bodies or bodies that went through serious decomposition.Legal odontology includes dental specialist's role in helping legitimate and criminal issues. Palatal rugae are very much shielded from injury by their unique site and they are insulated from heat by the lips,tongue and the buccal fat pads. MATERIALS AND METHODS:The sample size was equally distributed among both the sexes in the age range of 17–30 years. Then an alginate impression of the maxillary arch is made and in the dental stone and the study model was prepared.The rugae was delineated by using a graphite pencil, marked and recorded, and classified into curved, wavy, straight and circular.RESULTS AND DISCUSSION : The result shows that circular pattern is predominant in both the males and the females. In which the wavy shaped rugae are more predominant in females than the males. Following the wavy shape, it was found that curved rugae is more than the straight and circular rugae in the males, and in females following the wavy rugae it was found that straight and curved shaped rugae occurred with the same frequency followed by circular rugae. CONCLUSION: Palatal rugae in dentistry can be used for human identification such as traffic accidents, terrorism and mass disaster where as through fingerprints or dental arches, which is difficult to find.
Keywords: Innovative, eco-friendly, categorisation, rugoscopy, population, novel analysis.

1. Introduction

Building up an individual's personality can be an extremely troublesome step in scientifically recognizable proof. Dental, fingerprints, and DNA correlations are the most widely recognized methods utilized in this unique circumstance permitting quick and secure ID. In any case, since they can't be constantly utilized, at times basic procedures can be utilized effectively in human ID, for example, 'Palatal rugoscopy,' which is the investigation of palatal rugae.Palatal rugae have been likened with fingerprints and are novel to an individual.It can be of extraordinary premium in edentulous cases and furthermore in specific conditions where there are no fingers to be considered, for example, consumed bodies or bodies that went through serious decomposition(1).Rugae example might be explicit to racial gatherings encouraging populace distinguishing proof. In this manner the uniqueness, after death and furthermore low cost makes palatal rugae an ideal scientific ID parameter(2) . The current examination means to decide the number and example of palatal rugae in 2 distinct populaces in India and furthermore to evaluate the prevalent example if any in the chosen gatherings(3).
Legal ID by its temperament is a multidisciplinary approach depending on a sure distinguishing proof system just as hypothetical or exclusionary philosophies which manages appropriate dealing with an assessment of dental finding(4). Individual recognizable proof structures are an essential piece of legal science particularly, when they are managing any wrongdoing or with ravaged bodies that have gone through harm to the point of being unrecognizable. Nature has made every single individual diverse in their own particular manner and individual ID is the proof. Palatoscopy or palatal rugoscopy, is the name given to the investigation of palatal rugae to build up an individual's identity(5). The utilization of palatal rugae was proposed as one of the strategies for distinguishing proof in 1889 by Harrison Allen(6). Legal odontology includes dental specialist's investment in helping legitimate and criminal issues. Palatal rugae are very much shielded from injury by their inner situation in the head and they are insulated from heat by the lips,tongue and the buccal fat pads. Individual Identification depends on the rugae design since the sense of taste would

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stay unblemished when most other anatomical constructions are annihilated, consumed or dehydrated and furthermore in circumstances where there are no fingers accessible. Anatomical situation of rugae that holds its shape all through life and opposes deterioration(7). Studies have exhibited that no two palates are indistinguishable in their arrangement and that the trademark example of the sense of taste doesn't change because of growth.This special component drove us to attempt an investigation to build up singular character utilizing palatal rugae design(8).

2. Materials and Methods

In the present study, upper alginate impressions were made from 50 adult subjects attending the O.P.D of Saveetha Dental College and Hospitals. The casts were poured with dental stone. The rugae of the casts were highlighted with markings and photographs of the casts were taken. In another set of photographs only the black colour highlighted outlines of the rugae were kept and the remaining part of the casts in the photograph were removed and separated for comparison. Now the outline of the rugae photographs are compared with complete photographs of the cast. No other photographs of the complete casts are equivalent with the outline of the specific rugae.

3. Results

Rugae categorisation was done in which the males in which it showed highest 52% which is wavy, 16% straight, 12% circular and 20% curved. Rugae categorisation was done in which the females in which it showed highest 68% which is wavy, 12% straight,8% circular and 12% curved.

Figure 1: Dental casts used in the study.

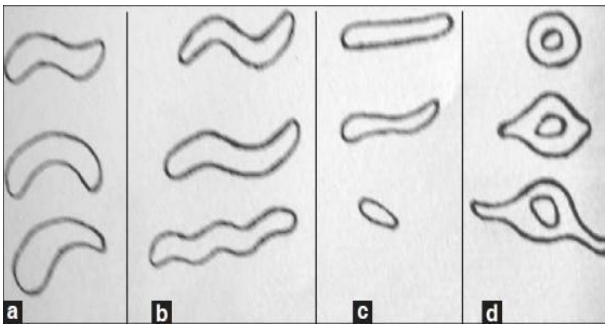

FIGURE 2: Classification of rugae based on shape (a) curved (b) wavy (c) straight (d) circular

FIGURE 3: Wavy rugae of females

Figure 4: Wavy rugae of males

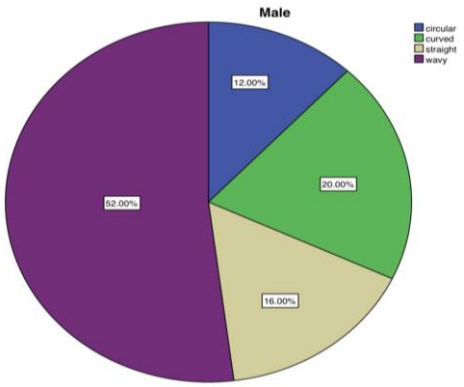

FIGURE 5: The pie chart shows circular (blue), curved(green), straight(yellow) and wavy shaped rugae (purple) found in males.

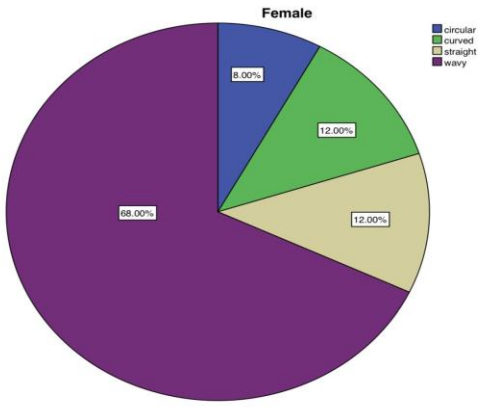

Figure 6: The pie chart shows the circular (blue), curved(green), straight(yellow) and wavy shaped rugae (purple) found in females.

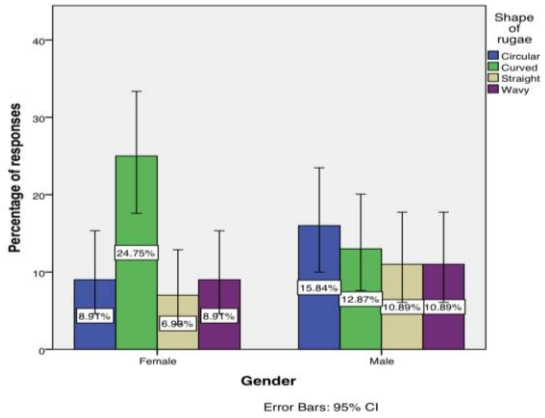

Figure 7: Rugae categorisation was done in which the males in which the highest was 15.84% which is circular, 12.87% curved, 10.89% straight and 10.89% wavy. Rugae categorisation was done in which the females the highest was 24.75% which is curved, 8.9% circular, 6.98% straight and 8.91% wavy.

4. Discussion

Rugae categorisation was done in which the males in which it showed highest 52% which is wavy, 16% straight, 12% circular and 20% curved (figure5). Rugae categorisation was done in which the females in which it showed highest 68% which is wavy, 12% straight,8% circular and 12% curved(figure6). Palatal rugoscopy was first proposed in 1932, by a Spanish examiner Troban Hermoso. From that point forward different groupings had been given. Most investigations depend on frameworks contrived by Lysell and Thomas and Kotze, despite the fact that they may contrast in detail(9). In the writing, the agreement is that the rugae remain genuinely stable in number and morphology aside from when there is injury, like loss of tooth, industrious pressing factor, extraordinary finger sucking, orthodontic tooth development, which may adjust the alignment(10).Thomas and Kotze examined the rugae examples of 6 South African populaces to break down the interracial distinction(11). They found that rugae were one of a kind to every ethnic gathering and that it very well may be utilized effectively as a mechanism for hereditary research analyzed the rugae example of Swazi and Greek populaces and discovered unmistakable contrasts in the rugae design between the 2 populaces(12). It was seen that the level of advancement of rugae was subject to the development of the palate.

In the study the result shows that circular pattern is predominant in both the males and the females. In which the females are more predominant than the males in wavy shaped rugae. Following the wavy shape, it was found that curved rugae is more than the straight and circular rugae in the males, and in females following the wavy rugae it was found that straight and curved shaped rugae had the same distribution, followed by the circular rugae. This was similar to the study done by Aparna waliwal(13), in which he classified males and females in the population of Madhya Pradesh and Kerala and found that in Madhya Pradesh population wavy rugae was predominant followed by straight and then followed by curved rugae(14). Among the Kerala population it was found that wavy rugae was predominant followed by curve and then the straight rugae. Based on the male population it was found that wavy and straight rugae was predominant in Madhya Pradesh population and among the females it was found that wavy rugae was predominant in Madhya Pradesh and Kerala.

Our team has extensive knowledge and research experience that has translate into high quality publications
(15),(16),(17),(18),(19),(20),(21),(22),(23),(24),(25),(26),(27),(28),(29),(30),(31),(32),(33),(34)

5. Conclusion

Palatal rugae in dentistry can be used for human identification such as traffic accidents, terrorism and mass disaster whereas through fingerprints or dental arches, which is difficult to find. Each rugae has its own uniqueness in both male and female.In our study it was found that wavy rugae is predominant in both male and females, followed by curved and straight rugae.

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7. Author Contributions

Kirthick kumaran A S , carried out the study, collected data and drafted the manuscript. Dr Gheena.S designed the study and supervised the preparation of the manuscript and coordinated in developing and final approval of the manuscript.

8. Conflict of Interest

Not interested.

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