

Uniqueness of the palatine rugae (ridges) - morphological analysis

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The transverse palatine rugae (PR) are asymmetrical and irregular folds of the anterior one third of the palatine mucosa. The PR were considered relevant for the human identification, due to their stability, similar to the fingerprints; their study is identified as palatoscopy.

The aim of this study is to describe the shape and the biometrical characteristics of the palatine ridges.

We evaluated 72 adult subjects, of which 64 were dentate and 8 edentate. Each patient was imprinted at the level of the upper jaw. Each cast was analyzed in terms of total number of ridges, number of primary, secondary and fragmented ridges, shape, unification and direction.

In terms of total number of ridges, the smallest number of ridges was 6, and the largest 18. A feature of the dentate group was the asymmetry of the ridges, only 12 showed paired ridges. Among the non-dentate group we noticed that the total number of ridges is higher in females than in males. The length of the palatine ridges is mainly of a primary type, followed by the secondary type and the fragmentary one. What differentiates the sexes in this case is the number of fragmentate ridges, predominant within female patients. Concerning the shape of the palatine rugae, we noticed, among all the age groups that the linear ridges are predominant, followed by the wavy, curved, angular, punctiform and circular type. Regarding the orientation and the unification of the ridges, we noticed similarities between males and females. The only aspect that may differentiate them is the variety of shapes and their number, which gives them individuality.

The palatine rugae are paired only in a small proportion in our study, 19% versus 81%. The length is mainly primary type, regardless of sex, age or degree of edentation. The large number of fragmented ridges is typical to females. The individuality of each ridge drawing is certain as long as we did not encounter identical models.

Keywords: palatine ridges (rugae), palatoscopy