

## Anatomical variation of infraorbital foramen position according to sex, side and cranium size

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Anaesthetic procedures focusing on the infraorbital nerve play an important role in dentistry and plastic surgery, as well as for treatment of pharmacologically resistant forms of trigeminal neuralgia; therefore, the anatomical localization of the infraorbital foramen (IOF) has been widely analysed by literature in relation with sex and side [1,2]. However, no study has so far considered the possible effect of general cranium size on the sexual dimorphism of measurements used for pinpointing the position of infraorbital foramen. This study aims at providing additional data concerning the position of infraorbital foramen assessing the possible influence of cranium size on sexual dimorphism. Three measurements (distances from anterior nasal spine and inferior orbital rim, and angle at the intersection between the line from anterior nasal spine and the transversal plane parallel to the Frankfurt plane) were assessed on 100 skulls belonging to a contemporary skeletal collection with known sex and age (50 males and 50 females, mean age  $68.4 \pm 19.1$  years). Maximum cranial length, maximum cranial breadth, cranial height and bizygomatic breadth were measured as well, together with horizontal cephalic index and Giardina Y-index. Possible differences according to sex and side were assessed through two-way ANOVA test ( $p < 0.05$ ). Measurements showing statistically significant differences according to sex were further assessed through one-way ANCOVA test including cranial measurements and indices as covariates ( $p < 0.05$ ). Statistically significant differences according to sex and side were found respectively for the distance from the anterior nasal spine and the angle at infraorbital foramen ( $p < 0.05$ ). One-way ANCOVA test verified that the sexual dimorphism of the distance from the anterior nasal spine distance was independent from the all the assessed measurements and indices of cranium. The present study proved that sexually dimorphic parameters useful for the localization of IOF do not depend upon the cranium size.

### References

- [1] Lee et al. (2006) Morphological characteristics of the infraorbital foramen and infraorbital canal using three-dimensional models. *Surg Radiol Anat* 28: 115.
- [2] Chrcanovic et al. (2011) A morphometric analysis of supraorbital and infraorbital foramina relative to surgical landmarks. *Surg Radiol Anat* 33: 329.

### Key words

Infraorbital foramen, skeletal collection, maxillofacial surgery, maxillary nerve block.