

**Computed Tomographic localization of  
Infraorbital foramen position and correlation  
with the age and gender of Iraqi subjects**

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# Abstract

## **Back ground:**

The Infraorbital foramen is an anatomical structure with an important location in the maxilla, position of foramen in maxillofacial area is necessary in clinical situation requiring regional nerve blocks that are performed in children undergoing facial surgeries to avoid injury to corresponding nerve.

## **Aim of study:**

Computed tomography study to determine the position of the Infraorbital foramen and to correlate Infraorbital foramen position with age and gender.

## **Subjects, Materials, and Methods:**

The sample consist of prospective study for 50 Iraqi subjects (21 male and 29 female) with age ranged from (5-17) years, attending the maxillofacial department at al-Gerahat Specialist Hospital and Al-karakh General Hospital in Baghdad from September 2011 to march 2012 , for various maxillofacial surgeries. The examination was performed on Multi - Spiral Tomography scanner in Al-Karakh General Hospital. Using sagittal and coronal sections including right and left sides and the following measurements were done:

1. The distance from crista galli to the midpoint of fusion of hard palate(Midline of the patient) in the coronal section.
2. The distance from mid line to the infraorbital foramen, in the coronal section for both sides right and left.
3. The distance from sella turcica to the infraorbital foramen, in sagittal section for both sides right and left.
4. The distance from nasion to the infraorbital foramen, in coronal section for both sides right and left.

**Result:**

The differences in mean of linear measurements between right and left sides were significant statistically (nasion-infraorbital foramen) (midline-infraorbital foramen) (vertical distance from nasion meeting the horizontal line from infraorbital foramen to midline) (sella-infraorbital foramen) except the angle (nasion-infraorbital foramen-Midline).

The mean of linear measurements in males (midline-infraorbital foramen) (sella-infraorbital foramen) and the angle (nasion-infraorbital foramen-midline) were obviously higher than that in females, but the differences failed to reach the level of statistical significances except the linear measurement (crista galli to midpalate), (nasion-infraorbital foramen) and (vertical distance from nasion meeting the horizontal line from infraorbital foramen to midline). The partial regression coefficient for each year increase in age the linear measurements (midline-infraorbital foramen) (nasion-infraorbital foramen) and (vertical distance from nasion meeting the horizontal line from infraorbital foramen to midline) are expected to significantly increase after adjusting for confounding effect of gender.

In females the mean linear measurement (nasion-infraorbital foramen) (Crista galli to midpalate) (vertical distance from nasion meeting the horizontal line from infraorbital foramen to midline) were smallest in under 10 years of age children and significantly increase with age to reach a maximum in older teenagers.

In males the mean linear measurement (nasion-infraorbital foramen) (midline-infraorbital foramen) and (sella-infraorbital foramen) were smallest in under 10 years of age children and significantly increase with age to reach a maximum in older teenagers.

From multiple linear regression model designed in this study two mathematical formulae were derived for correlation of infraorbital foramen position with the age and gender:-

**Y<sub>1</sub> [Linear measurement (Midline-Infraorbital foramen) mm] = 19.56 + (1.02 x gender) + (0.53x age in years).**

**Y<sub>2</sub> [Linear measurement (vertical distance from nasion meeting the horizontal line from Infraorbital foramen to midline)] = 28.42 + (2.5 x gender) + (0.30 x age in years).**

**Conclusion:**

Our study found computed tomography scan information facilitate the localization of infraorbital foramen position for successful access of the needle in infraorbital nerve block in children of different age and gender.