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Morphometric Study Of The Nasal Parameters In Nigerian Igbos

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ABSTRACT

Morphometric measurements of the nasal parameters were carried out in 222 male and 120 female Nigerians with ages ranging from 10 to 34 years. The overall mean length was found to be 6.21 ± 0.77cm with males having a higher mean length of 6.30 ± 0.77cm while females had 6.04 ± 0.74cm. Similarly the width (W) and length (H) were higher in males (H = 1.99 ± 0.65cm, W = 7.50 ± 0.83cm) than in females (H = 1.92 ± 0.34cm, W = 6.80 ± 0.88cm). The ages of subjects in the male and female categories showed non-significant ranges (P>0.05) between males and females. Knowledge of these parameters is helpful in reconstructive surgery, rhinoplasty after trauma, infection with nasal loss and absence of nasal part in congenital malformation.

Keywords: Nasal Parameters, Nigerian Igbos.

The external nasal region is made up of the nasal bone forming the nasal bridge in the inter-canthal area of the nose. Upon the nasal bone is attached the upper lateral ala cartilage followed by the attachment of the lower lateral ala cartilage which surround each of the nasal openings on each side (Bamant 2002). The development of the nose from nasal or olfactory placodes above stomatodaeum around the 2 – 4th intra uterine months is an embryological fact. The neurodermal cells around the olfactory pits form the nasal sac and the buconasal membane, hence the floor of the nasal cavity, as the primitive palate (Sadler 2000). The membranous viscerocranium gives rise to several bones of the face including the nasal bones upon which the height of the nose, the transverse diameter and the length of the nose from the inter ocular base depends (Hamilton et al, 1978). The other cartilaginous aspects including the nasal wings and the septum, which has an interior bony part of the vomer and the ethmoid origin, support the nasal bridge of bone to give the respective shape of the nose. The shape differs from race to race, tribe to tribe and from one environmental region of the world to the other (Last, 1981).

It is expected that wider nostrils with nasal diameters could influence positively respiratory diseases including sinusitis (Bermant, 2002). The gross anatomical structure of the nose could be related to functions of the organ. The importance, of the nose in the respiratory system and its relationship to the olfactory organs and taste are immense and well documented. For aesthetic reason, Negroes including artists prefer to narrow down the diameters of their noses by plastic surgery (Bermant 2002) for more acceptance by the Caucasian race. Values of the height, width and lengths of the nose are scarce in literature especially in Africa. It is therefore our intention to document and provide a baseline data on nasal parameters. Knowledge of which will be of importance in nasal surgery due to malformation, traumas, face-lift and aesthetic purposes.

MATERIALS AND METHOD

Morphometric measurements of height, width or transverse diameter and length of Nigerian Igbos were measured between June and August 2002 in Enugu and Abakaliki (Fig. 1). Three Hundred and Forty-two (342) healthy Nigerians of both sexes and different ages were randomly selected for the study. Those excluded in the research were those who had trauma of the nose, and congenital abnormalities like cleft lips in their life history.

The height of the nose was measured with a flexible tape calibrated in centimeters from the base of the cartilaginous septum on the fitrium upper lip/area to the anterior roof of the nose outwardly (Fig.2). The transverse diameter was measured from the outer border of one alar cartilage of one side to its homologue on the other side (right to left, or vise versa), while the length was measured from the anterior septal floor to its base between the caruncles of the eyeballs (Fig. 1) Data was grouped according to age and sex.

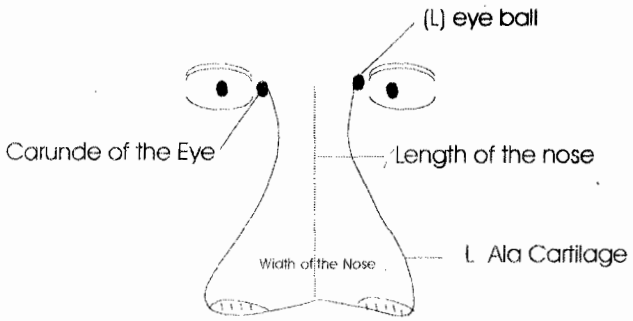

Fig. 1 · Anterior View Of the Nose

Table 1: Age and Sex Categories of Sample

Age (yrs)	Males	Females	Total
Below 20	57	42	99
Between 20 – 30	156	76	232
Between 31 – 35	9	2	11
	222	120	342

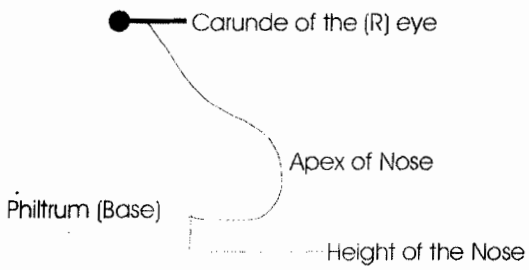

Fig. 2 Sagittal/Side view of the Nose

Table 2: Mean values of the Nasal Parameters of Nigerian Igbos

	Length	Height	Width	Age
Males	6.31.± 0.77	1.99±0.65	7.50±0.83	21.7±2.9
Females	6.04±0.74	1.92±0.35	6.80±0.87	20.57±3.82
Total (Mean)	6.22±0.77	1.97±0.57	7.26±0.90	21.33±3.28

RESULTS AND DISCUSSION

Males constituted 65.0% and Females 35.0% of the population sampled (Table 1). The mean values of the nasal parameters of Nigerian Igbos show that although males had higher values in length, height and width, the values were non-significant (P>0.05)(Table 2).

DISCUSSION

The nose is the first part of the air channel to the lungs (Hamilton, 1978). Its functions include filtering of inhaled air, humidification of dry air, warming of the inhaled air if it is cold and vise versa. These functions are related to the environmental conditions, so it is the function of the nasal cavity and its airy internal structures and conditions to modify the noxious status of the inhaled air to conform to the internal conditions of human organism. (Hamilton 1978, Last 1981).

The result of this study (Tables 1 and 2) shows that the nasal parameters of the Caucasian (Bermant, 2002) are longer than that of the Negro Igbo. This promotes warming of the air for longer time while being inhaled (Becker, 2002). The Igbos in this study had comparatively short noses lengthwise, but wider anterior diameter. It will then appear that the Igbos living in hot weather have less need warming the inhaled air. Bermant (2002) mentioned that in polluted atmosphere as in African Negroid environment, good quantity of air is needed as well as abundant hairy nostrils internally for filtering dust and other particles.

The morphometric gain derived from knowing the parameters of the nose gives the surgeon an advantage of knowing and appreciating his bounds during nasal reconstruction especially while raising flaps prior to the surgery as this is a common aesthetic surgery in the U.S.A (Becker, 2002, Bermant, 2002) among the Negroid race.

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