Comparison of the Aesthetic Facial Proportions of Southern Chinese and White Women

Roland Song Tech Sim, MBBS(Singapore), FRCS(Glasg), FAMS; James D. Smith, MD; Anita S. Y. Chan, MBBS(Singapore)

Objective: To compare the aesthetic facial proportions of southern Chinese women with published average and ideal values for white women.

Design: One hundred Chinese women between the ages of 18 and 40 years who had not undergone previous facial surgery were chosen at random, and their aesthetic facial proportions were measured from 5 × 7-in photographs. Comparisons were made with similar reported measurements for the white face, and the surgical relevance of the differences observed is discussed.

Results: The major facial differences observed in the Chinese face were the wider intercanthal distance, the wider nasal base, a different profile of the lower face, and differences in the eyelids. The Chinese nose was less prominent, the alae were more flared, the nostrils were more horizontally oriented, the alar-columellar relationships were different, and the nasal tip was less defined.

Conclusions: Although the general principles of facial plastic surgery apply to both white and Chinese faces, the aesthetic goals are different. The aim is to retain the ethnicity and natural appearance of the face.

Arch Facial Plast Surg. 2000;2:113-120

The aesthetic facial proportions of the white face have been well described and documented since the European Renaissance. The Asian face has not been studied in such great detail or extent. Our aim was to compare the aesthetic facial proportions of a group of randomly selected southern Chinese women with the published ideal and average measurements for white women.

RESULTS

HORIZONTAL THIRDS

Figure 2 is a comparison of our results with those of North American white adults as reported by Farkas et al. Their study involved direct anthropometric measurements, while our measurements were made from photographs. In another study, Farkas et al illustrated that it is not accurate to compare photogrammetric measurements with direct anthropometric measurements. We note their findings, and any comparisons we make between our findings and their findings are done with this understanding.

The middle third of the Chinese faces was taller than the forehead, on average, while in white faces the opposite is true. The lower third of white faces is usually more prominent than the middle third, whereas the Chinese faces were almost equally distributed between those with one or the other being more prominent. In the Chinese faces, the forehead was less prominent than the lower third, which was the same as white faces.

The relative proportions of horizontal thirds in the Chinese women were the upper third in 31.4%, the middle third in 34.3%, and the lower third in 34.3%. The forehead was slightly less prominent than the middle and lower thirds, which were about equal in height.

VERTICAL FIFTHS

The neoclassical canon of the face is that it should be divided into vertical fifths. This canon implies that the intercanthal distance, the width of the palpebral fissure, and the width of the nasal base should be the same. Farkas et al studied the presence of these canons in the average adult North American white face. Wang et al studied the presence in a Chinese population in China. Both investigators used direct anthropometry. The table in Figure 3 compares their results with those of the present study.

The Chinese women in our study had a mean (SD) intercanthal distance 1.24 (0.11) times wider than the width of the eye. From a frontal view, the Chinese face had a wider nasal base. The mean (SD) nasal base was 1.11 times (0.14) wider than the interocular distance.
SUBJECTS AND METHODS

One hundred Chinese women were photographed, and their facial proportions were studied from 5 × 7-in black-and-white photographs. Frontal, right and left lateral, and basal views were photographed at 1 m with a 105-mm lens (Figure 1). The study was restricted to Singaporean and Malaysian Chinese women with southern Chinese ancestry. To minimize changes due to aging, only women between 18 and 40 years were included. None in the group had previous corrective or cosmetic facial surgery.

The following measurements were made: (1) horizontal thirds (Figure 2); (2) vertical fifths (Figure 3); (3) width-length ratio of the nose (Figure 4); (4) nasolabial angle (Figure 5); (5) nasal tip projection (Figure 6 and Figure 7); (6) shape of the dorsum; (7) columella show; (8) columella proportions (Figure 8); (9) lobule-base ratio (Figure 7); (10) nostril orientation (Figure 9); (11) aesthetic triangle according to Powell and Humphreys; (Figure 10); (12) width of the mouth (Figure 11); (13) upper lip–lower face ratio (Figure 12); (14) relation of the lips to the Rickett line; (Figure 12); (15) shape of the eyebrow (Figure 13); and (16) configuration of the supratarsal crease.

WIDTH-LENGTH RATIO OF THE NOSE

Ideally, the width-length ratio of the white nose is 0.7. The mean ratio in our study was 1.1 (Figure 4).

NASOLABIAL ANGLE

The nasolabial angle in the Chinese face was more acute (Figure 5). Powell and Humphreys quoted several authors who reported 90° to 120° as the ideal angle for the white face.

NASAL TIP PROJECTION

Powell and Humphreys mentioned 2 methods of measuring tip projection: the Baum ratio, which is calculated by dividing the length of the nose, measured from the nasion to the subnasum, by the length of a perpendicular line from the pronasion to the vertical line joining the pronasion and the subnasum, and the Simons ratio, which is calculated by dividing the length from the subnasum to the pronasion by the length of the subnasum to the superior labium. Powell and Humphreys modified the Baum ratio to 2.8:1 as the ideal ratio (Figure 6). The ideal tip projection has a Simons ratio of 1.0. The Chinese nasal tip had a mean Baum ratio of 3.0 and Simons ratio of 1.5 (Figure 7).

SHAPE OF THE DORSUM

The majority of the Chinese women had straight nasal dorsa, and very few had humps. Of the Chinese women in our study, the dorsum was convex in 5, straight in 76, and concave in 19. Powell and Humphreys did not report the shape of the dorsum.

COLUMELLA SHOW

The normal columella show in the white nose should be oval. There was only 1 subject in our study who had an oval-shaped columella show. Of the Chinese women in our study, the columella show was triangular, in which a triangular part of the columella is visible, in 63 and hooded, in which the subnasum is hidden by the alae from a lateral view, in 36. Powell and Humphreys reported that the columella show is oval in white faces.

COLUMELLA PROPORTIONS

Powell and Humphreys described the basal view of the ideal white nose as divided into equal thirds. In the Chinese nose, the upper third comprised about 45% of the basal view of the tip; the middle third, 18%; and the lower third, 37%. The upper third was larger at the expense of the middle third, which was only about a fifth (Figure 8).

LOBULE-BASE RATIO

The lobule of the Chinese nose formed a smaller proportion of the basal view of the nose (Figure 8).

NOSTRIL ORIENTATION

The orientation of the nostrils is measured from the vertical perspective. A comparison of our results and the ideal orientation in white nostrils proposed by Powell and Humphreys is shown in Figure 9.

AESTHETIC TRIANGLE

Powell and Humphreys described the aesthetic triangle as a means of correlating the various angles of the face. We compared our results with the ideal ranges they obtained by studying the angles in attractive white faces. We found that the mean values of the nasomental, mentocervical, and nasofacial angles in the Chinese faces were within the ideal ranges for white faces. The nasofrontal angle was wider in the Chinese nose (Figure 10).

MOUTH

The ideal white face has lips that are as wide as the distance between the medial limbi. The majority of Chinese women had lips with these dimensions. A third had lips that, although narrower than this, were only slightly narrower. Few Chinese women had wide lips (Figure 11).

LOWER THIRD

The ratio of the upper lip to the overall height of the lower third of the Chinese face was similar to that of white faces.
The Chinese lips were closer to the Rickett line or the nasomental line of Powell and Humphreys than in white faces. In white faces, both the upper and lower lips fall behind the Rickett line, and the upper lip is twice as far behind the line as the lower lip. In the Chinese women, the upper lips were usually just posterior to and the lower lips just anterior to the line (Figure 12).

### EYEBROWS

Some surgeons described the ideal eyebrow as one that has the highest point of its arch over the midpupil, while some preferred it to overlie the lateral limbus. Some authors thought that an imaginary line joining the alae to the lateral limbus should intersect the eyebrow at its highest point (Figure 13, right eye). The majority of the Chinese women (73) had the arch of their eyebrows in this latter configuration. The majority of the Chinese women had eyebrows that ended on an imaginary line drawn from the alae to the lateral canthus. This length is considered the ideal length of the eyebrow for the white face (Figure 13, left eye).

### EYELIDS

About a third of the Chinese women did not have a supratarsal crease or double eyelid (see tabulation). Where present, the creases were evenly divided between those that were parallel to the lid margin and those that were medially convergent. In some women, the crease either was not prominent or was invisible medially, and we chose to describe these women as having medially inadequate supratarsal creases. The supratarsal creases in the Chinese eye were usually about 6 mm from the eyelash margin, which was much lower than those in whites.
Farkas et al expressed reservations about making measurements from photographs (photogrammetry). They believed that direct anthropometry is more precise. Although we agree that direct anthropometry is more precise than photogrammetry, we think that using photogrammetric techniques to study aesthetic facial proportions is useful as photography is a widely used, quick, and economical means of clinical record. When the Renaissance master artists proposed the neoclassical canons, they were proposing artistic guidelines. If the photography is done with adequate standardization, it is useful for clinical analyses and comparison.

**COMMENT**

One disadvantage to comparing whether one horizontal third is larger, smaller, or equal to another, as described
by Farkas et al.\textsuperscript{2} is that it does not give an idea of the magnitude of the difference. It may be easier to compare the mean proportions of each horizontal third. Although the forehead tended to be smaller in the Chinese women, the difference was not great, and the average Chinese face was approximately divided into horizontal thirds.

VERTICAL FIFTHS

The difference between our results and those of Wang et al.\textsuperscript{3} is probably due to the difference in methods and composition of the study population. Their study involved both males and females, and ethnic differences could also play a part. The ethnic Chinese in Singapore and Malaysia are of southern Chinese descent, and their ancestors were mainly from the Guangzhou province in China. Like the study by Farkas et al.\textsuperscript{2}, the study by Wang et al.\textsuperscript{3} involved comparing the percentage of people having one vertical fifth larger than, smaller than, or equal to another. Similarly, the disadvantage of this comparison is that it does not give an idea of the magnitude of the difference. Although their figures were different from ours, they found that the relationship between wide intercanthal space and narrow eye fissure was more common. The naturally wider intercanthal distance in Chinese faces should not be mistaken for hypertelorism.

WIDTH-LENGTH RATIO

The larger width-length ratio in a Chinese nose suggests that the nose is wider and more flared. Mathematically, the white nose is long and narrow, and the...
Chinese nose is broad and short. This difference is not obvious because the broad Chinese nose is compatible with the wider intercanthal distance. Having a wider nasal base preserves the harmony of the vertical proportions of the face. The implication of this observation is that if the alar base is reduced significantly, the nose will appear too narrow for the face. It is probably not aesthetically pleasing to reduce the alae narrower than the intercanthal distance; in other words, the nasal width–intercanthal distance ratio should not be less than 1.

NASOLABIAL ANGLE

The Chinese nose had a nasolabial angle that was about 12° smaller than the white nose. It is important to preserve the anterior nasal spine in septal surgery to prevent columella retraction, which would further narrow the angle. Surgeons should be judicious when performing dorsal rotation of the tip because it could create a nose that does not look natural because it is too upturned.

NASAL TIP PROJECTION

The higher the Baum ratio, the less the tip projects. The mean ratio for the Chinese nose was 3.02:1, indicating that the Chinese nose was less projecting. If tip projection is compared using the Simons ratio, the ratio in a Chinese nose should be smaller than that in a white nose. However, the opposite is the case. Although the tip projected less in the Chinese nose, the distance from the subnasal to the tip of the nose was relatively longer because the Chinese tip was more rounded. The Simons ratio is not as useful as the Baum ratio for comparing the nasal tip projection between Chinese and white noses.

SHAPE OF THE DORSUM

Few women in our study had nasal humps, and the few who did had very small humps. None had the large humps that are frequently seen in the white nose. Most of these
small humps either do not require removal or, if they do, only require some rasping.

**COLUMELLA SHOW**

Both the hooded and triangular type of columella show would be considered hooded in a white nose. In correcting tip deformities in a Chinese nose, it is not necessary to create as much columella show as in a white nose.

**COLUMELLA PROPORTIONS**

The middle third of the Chinese nose was the smallest of the thirds. This dimension makes the Chinese nostril more horizontal.

**LOBULE-BASE RATIO**

Since the lobule-base ratio was smaller in Chinese faces, the lobule was a smaller part of the base and the tip was less well defined and more amorphous. The less defined Chinese nasal tip was also due to the thicker overlying skin. To increase tip definition in a Chinese nose, besides reshaping the lower lateral cartilages, the overlying thick sebaceous subcutaneous tissue needs to be reduced. However, the skin overlying the lobule is usually thicker than in white noses, and this thickness reduces the effect of reshaping the alar cartilages. The beneficial effect of this thickness is that the thicker skin can also be used to camouflage minor irregularities and imperfections.

**NOSTRIL ORIENTATION**

The average orientation of the Chinese nostril was more horizontal than white nares. Together with the wider nasal base, this difference gives the Chinese tip a more flared appearance. Aggressive alar base reductions may change the orientation of the Chinese tip too much. This procedure usually results in a rounded appearance of the nostril rather than the classic teardrop appearance. One method of increasing tip projection and definition is by using cephalic resections and suturing the alar cartilages. Using this method in the Chinese nose would change the columella relationships, and, if overdone, it would also create nostrils that are rounded, rather than kidney shaped, and not aesthetically pleasing.

**AESTHETIC TRIANGLE**

Although the Chinese nose was less prominent, the nasofacial and nasomental angles were similar to those of white noses. The Chinese nose, therefore, can be described as more deeply recessed into the face. The nasofacial and nasofrontal angles are sometimes altered by injudicious use of L-shaped Silastic implants, resulting in a nose with unusually wide angles.

The mentocervical angle was slightly wider in Chinese faces. This angle is widened by increasing nasal projection, decreasing chin projection, or both. The Chinese nose was less projecting than the white nose, and therefore the wider mentocervical angle is due to a less projecting chin. When augmenting the chin in Chinese patients, it is not necessary to achieve as much projection as one would in white patients.

Nasal tip augmentation in the average Chinese face might widen the nasomental angle. To preserve the ideal angle, it may be necessary to augment the chin. However, if both the chin and tip are augmented, the lips will fall more posterior to the nasomental line. The mentocervical angle and the relationship of the lips to the Ricklett line are useful guides to appropriate chin and nasal projection.

**MOUTH**

Of the Chinese women we studied, 31% and 8% had mouths that were narrower and wider than the intercanthal distance, respectively. The width of the lips should not be compared with the distance between the medial limbi. When one looks at a person, one does not look at both the eyes and lips at the same time.

Looking at the photographs of the women who had lips that were supposedly too small or wide, we found that some of them had mouths that looked appropriate for the face. It is more accurate to describe the lips in re-
The width of the lips should be about 40% of the width of the lower face (i.e., $a/b = 0.4$; Figure 14). The surgeon should be mindful of this ratio when reducing the width of the mandible or reconstructing the lips.

**EYEBROWS**

The majority of the unsculptured Chinese eyebrows had their highest points more lateral than the lateral limbus. Many Chinese women are fond of tattooing their eyebrows. Since most eyebrows have a natural arch, it is probably better to pluck rather than tattoo the eyebrows to give them a thinner, more sculptured look while preserving the natural arch of the eyebrow. The ideal shape of the eyebrow is controversial and probably changes with fashion trends. Since the shape of the eyebrows may be altered by a brow lift, it is important not to create an unnatural curvature during such surgery.

**EYELIDS**

Many Chinese women consider it desirable to have supratarsal creases. We think that a high crease makes a Chinese eye look sleepy rather than attractive. The curvature of the crease is as important as its height. The parallel or medially convergent crease is most appropriate for the Chinese eyelid.

**CONCLUSIONS**

The Chinese face is different from the white face not only because the Chinese nose is less prominent, but also because of other important subtle differences that the facial plastic surgeon needs to consider. Although the general principles of facial plastic surgery apply to both white and Chinese faces, the aesthetic goals are different. The aim is to retain the ethnicity and natural appearance of the face.

Accepted for publication November 12, 1999.

Reprints: Roland Song Teck Sim, MBBS(Singapore), FRCS(Glasg), FAMS, Mount Alvernia Medical Centre, 820 Thomson Rd, 02-03, Singapore 574623 (e-mail: jeanrol@singnet.com.sg).

**REFERENCES**