

Facial feminization - Surgical modification for Indian, European and African faces

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ABSTRACT

Introduction: Gender reassignment surgery for facial feminization is being increasingly sought out by males with gender nonconformity issues. Noninvasive camouflage measures such as changing hairstyle, makeup, and filler inserts often do not fetch desired long lasting effects and surgery is sought as a last resort. The facial feminization surgery (FFS) for Indian faces, has no definitive protocol till date and largely remains as an arbitrary undertaking based on individual patient's perception, expectation, and surgeon's ability. This manuscript aims to present a series of the Indian FFS and compare the same with European and African counterparts to highlight the Indian expectation of FFS and thus its modifications. **Materials and Methods:** Seven patients confirming to gender nonconformity status, seeking FFS, aged between 21 and 36 years (mean 26.3 ± 4.2 years; median 25 years) were surgically treated during 2007–2014. Of them, five were of Indian origin and the rest two from the Europe and Africa. After investigation and para-clinical workup, FFS were carried out in stages with due modifications. **Results:** Basic surgical guidelines were followed accommodating Indian parameters of facial profile as well as expectations. Various amounts of soft and hard tissue changes were required for individual patients, depending on their individual perception. **Conclusion:** All seven patients were satisfied with their feminine faces. The challenges and differences in planning and performing Indian FFS are described.

Keywords: Facial feminization, facial re-contouring, face sculpting, feminine faces

INTRODUCTION

The surgical ideation and procedure of facial feminization surgery (FFS) has been proposed by Douglas Ousterhout in 1987^[1] and since then has been repeated several hundreds of time worldwide.^[2] The procedure and its impact have been a subject of review since its publication in the past few years.^[3-6] The main goal of FFS is to surgically soften and bring a balance of several esthetic considerations to the male face thereby rendering it more feminine. This line of treatment is sought out by patients with identified gender dysphoria and or gender identity disorder, more commonly known as Gender nonconformity. The prevalence of such disorder is reported to be varying between one in 12,000 to 50,000 persons.^[6,7] The surgical part of the multidisciplinary approach for rehabilitation of such patients will necessarily result in improvement in the patient's self-esteem and successful

integration into the workplace, society, and family, thereby resulting in contributing to a significant improvement in quality of life. The FFS concentrates on shifting the identified principal differences in terms of masculine and feminine facial features.^[6,8,9] Most of these features are a reflection of the underlying bone, a minor portion related to skin, facial hair, hairline, and factors such as fat distribution and muscle mass reduction.^[6]

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The Indian facial features are different from the Western facial profile of either gender.^[10-14] The prevailing social-cultural ethos dictates the expectation of the patients who look forward for the FFS.^[15] Hence, modifying the related protocols to suit the Indian expectation would be the success of the FFS in Indian setting. Very few studies exist in literature in this regard, given the high degree of social stigma attached as well as economic concerns.^[15] There has been little literature focusing on the female to male reassignment facial surgeries,^[16] but to the best of our knowledge, on the same is also for male to female facial feminization. The goal of this manuscript is to describe our experience with FFS during the period between January of 2010 and December of 2012, reviewing the different procedures and the surgical techniques used in FFS using Western FFS requirements as a control for Indian FFS expectation.

MATERIALS AND METHODS

Seven patients confirming to gender nonconformity status, seeking FFS, aged between 21 and 36 years (mean 26.3 ± 4.2 years; median 25 years) were surgically treated during the period of 2007–2014. Of them, five were of Indian origin and the rest two from the Europe and Africa. Presurgical interviews and examination revealed varying degrees of masculine features including square faces, broad chin, frontal bossing, prominent gonial angle, broad masculine nose, high hairlines, and low set eyebrows. After a complete clinical workup, intense preoperative interview were conducted to assess the expectations as well as to project a potential outcome of the surgery. Paraclinical workup including cephalometry and anesthetic fitness, patients were admitted for surgery. Stage wise surgeries were performed, which included a series of procedures, outlined as below:

Forehead, hairline and supraorbital prominence correction

The procedure included the sculpting of the frontonasalorbital region using a combination of osteotomy, recontouring, repositioning of hairline and finally, securing the anterior wall of the frontal sinus.^[2,3,5,10-14,17] This procedure required a reduction in the vertical dimension of the forehead – the distance between the nasal root and the hairline. In males, these are essentially long while, it is desired by the patient to be short. The approach is made through bicoronal incision placed in the hairline. The procedure also permits removal of a thin strip of the skin to suit the modified position to prevent sagging. An oblique cutaneous incision with a 45° scalpel inclination (to avoid injury to follicular units as well as to facilitate hair unaided growth near the later scar, if any, to naturally mask the scar) is placed in the hairline and also along the coronal part. This will lead to exposing of the fronto-orbital region including access to root of nose as well as the superior orbital ridge of the frontal bone. The next stage will be to recontour the frontal bossing. The underlying frontal sinus would be the major concern. If minor trimming is suffice, care is taken not to perforate the sinus. In case further reduction has been planned, osteotomy or osteoplasty of the anterior wall of the frontal sinus is performed. Careful sculpting frontonasal duct is preferred to avoid perforation, preservation of intact frontonasal, and sinus mucous lining. In cases of requirement of excessive trimming or a sinus exenteration needs to be planned where a thin titanium mesh may be secured with screw

over and along the bony window created, to provide sufficient strength as well as to facilitate complete ossification of the area at recuperation [Figures 1 and 2]. Once the bossing is corrected and accounted for the forehead region and frontomalar transition, surgery would focus on correction of the prominent super-ciliary, supraorbital ridge, and root of nose correction. They are sculpted out to suit predetermined and desired levels. Extra skin is trimmed to suit the new contour of face. While closing sutures, if required, to maintain the hairline in its new place, use of small anchoring implants-endotine® system were used. Appropriate drains were placed for a minimum period of 48 h.

Rhinoplasty

In another schedule later, standard nose corrections are performed.^[18-20] This includes the reduction of the height and width of columella, rounding of the tip of the nose, reducing the flare of the nares as well to accommodate any specific requirements of the patients [Figure 3]. Root of nose corrections would have been accommodated at the first stage correction.

Intra-oral approach corrections:

For patients who desired to have their (i) malar prominence (ii) gonial angle flare (iii) prominent gonial muscle correction and (iv) chin correction, the approach was through oral cavity.^[1,2,7,17] After general anesthesia via a nasoendotracheal intubation, an intraoral degloving vestibular incision was placed to perform genioplasty. After raising the mucoperiosteum flap and tunneling under nerves, standard genioplasty setback, and vertical reduction were performed [Figure 4]. Then, the flared gonial angles were shaved laterally and rounded inferiorly using rotary instruments. If required, alteration in the jaw line was performed to suit the newly obtained jaw line. In this stage, if required, additional set-back of jaws and zygoma corrections were performed.

RESULTS

The center's experience in treating seven patients fulfilling the criteria is consistently associated with a set of widely accepted, practical surgical soft and hard tissue procedures as well as recommended guidelines for facial feminization. Recovery in all our patients was uneventful and patients were satisfied with the outcome of the surgery. We did observe certain expectations and anatomical difference in terms of cultural ethos as well as anatomical difference between Indian and overseas patients. Over all changes in the profile were within the limits described in pertinent literature.^[10,11,13,14] All the procedures were tailored for every case and should be tailored for each individual case according to the expectations, preoperative workup and assessment and comparison with standard parameters.

DISCUSSION

Females trapped in a male body and those having gender identity crisis seek FFS to a larger extent. This is viewed as an attempt to rediscover, attain and achieve their expectation.^[21] Some of the patients are reported to investing their entire life saving in to this procedure.^[2] The success of an FFS is dependent on the patient's expectation and the surgeon's capability, and to the



Figure 1: (a) Frontal and (b) lateral preoperative view of broad forehead, considered a masculine trait. (c) Frontal and (d) lateral view showing decreased vertical dimension of forehead after surgical lowering of hairline and trimming the frontal bossing, giving a feminine appearance

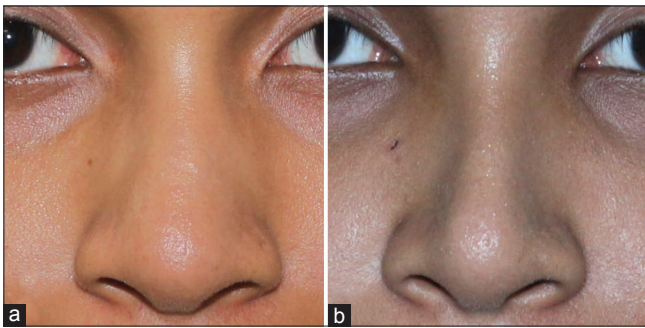


Figure 3: (a) Pre- and (b) post-rhinoplasty giving the nose a more delicate, feminine appearance

best of our knowledge, no universal scale exists for measuring the outcomes.

In cranial anthropology, the female cranial dimensions are lesser than the male.^[2] Thus, the concept of beauty and feminization require “stepping down” of certain areas of cranium such as the frontal bossing, supra-orbital ridges, chin, and angle of mandible. Furthermore, “stepping up” with the use of fat fillers are required in soft tissues to match and achieve the “ideal” feminine proportion as per patient’s expectation.^[3-6]

The typical Indian feminine face differs from standard, reported European and African anthropological measurements.^[10,11] A balanced forehead height is desired and much emphasis is often placed on the hairline. Indian women’s forehead hairline significantly differs from males, a change which is first desired by nearly all FFS patient. The next is the degree of convexity. Several studies have been undertaken to study the facial features and anthropological measures of Indians as compared to overseas population.^[10,11] The following discussion is to be considered pertinent to these findings.

An Indian female forehead convexity significantly differs from male. The application of traditional or religious symbols such as Bindi or Sindhoor accentuates this difference further. The

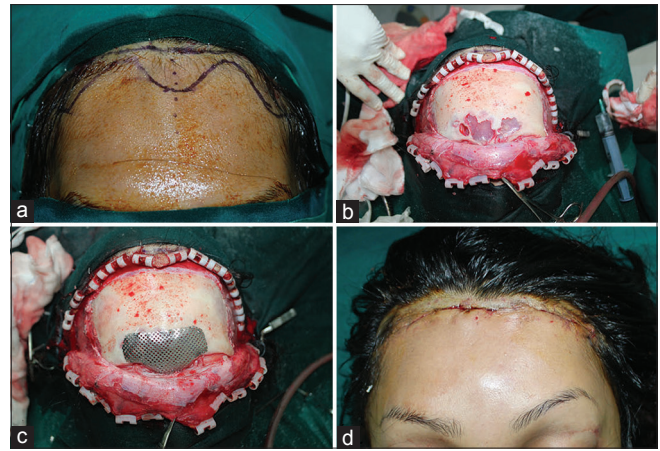


Figure 2: (a) Skin incision and new hairline marked. (b) Flap raised and frontal bossing re-contoured. (c) Titanium mesh placed to protect the sinus. (d) Thin strip of skin removed and new hairline created

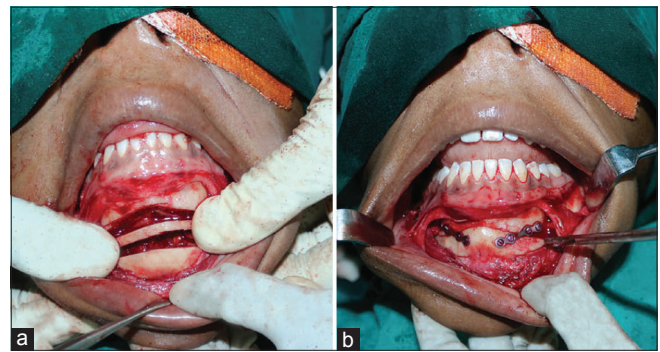


Figure 4: (a and b) Genioplasty to re-contour and decrease vertical dimension of the chin giving it a more delicate, tapering form

correction of forehead in terms of angle and height poses a significance challenge. Age appears a crucial factor. Hairline changes with age,^[12] angulations, and pneumatization are important parameters that determine the degree of osteotomy or shaving or exenteration of frontal sinus. The reduction of this is often with reduction of the supra-orbital ridge. Indian Males have a prominent supra-orbital ridge, the reduction of which will be challenging.^[10,11,13,14] Rarely, extension of the frontal sinus in to the medial part of the supra-orbital ridge would pose significant challenge. In cases of Africans, the prominent frontal bossing is accepted as cultural and racial inheritance rather than a gender oriented phenomenon.^[2] In Caucasians, the trend to have a relatively lesser convexity and relatively lesser importance to hairline (as compared to Indians) pose lesser challenge.^[12] In our patients too, we did observe a characteristic pattern in relation to the expectation of forehead. Indian patients wanted a nearly flat forehead, often narrow and a high demand for the hairline to be advanced toward to the nose, that is, decreased vertical dimension. They also sought the reduction in prominence of eyebrows while requesting for the eyelid also to be reduced. However, indicating the possibility of compromise of eye musculature function, this was avoided. A similar trend based upon ethnicity has been found in literature.^[22]

The Indian’s expectation of the outcome of rhinoplasty by itself is challenging.^[20] With the expectation to the standards of overseas

population and definition of facial esthetics, the challenge of golden proportion for a FFS – rhinoplasty is all time high. In general, irrespective of gender, noses of Indians are substantially broader, and lack projection as compared to other populations, thus would require volume correction.^[20] Superimposed on this fact is the gender differentiation. Most of the parts of the nose, in Indian FFS would require a downsizing, including the tip. Again, personal preference and individual variation counts in such instances. In addition, usage of nose-rings and other jewellery would add pose additional challenge.

Lower face correction, in terms of gonial angle, chin and lower border of mandible are not different from other population. Like other population, the Indian males tend to have a prominent gonial angle, chin, and lower border of mandible as a part of secondary sexual characteristics. Again this is related to age and other related phenomenon including hormone levels.^[3-5] Individual perception of patient's feminine facial characteristics is another crucial factor that needs to be understood before embarking such an attempt. Although this procedure for Indian FFS does not greatly vary with overseas population, in our opinion, individual expectations dictate the extent of this procedure.

Other soft tissue procedures to get a fuller cheek or creation of cheek "dimple" are ancillary procedure that are often performed as a finishing procedure for FFS.^[1,2] These procedures include fat injection or free fat transfers, Botox injections and or dermal filler injections. Dental procedures such as feminine smile designing, altering the shape of lips, and central incisors which aid to sculpt feminine faces were performed. However, these additional minor procedures are elaborate and discussion of which is beyond the scope of the manuscript. These designs are highly customized taking in to account of the individual perception.

Previously, literature has discussion of FFS being customized to certain populations suiting ethical and religious considerations.^[17] To the best of my knowledge, this is the first of FFS series that describes Indian perspective.

CONCLUSION

The number of cases in this series is limited to draw a valid scale of reference; it is significant in pointing out the existence of difference in various cranial anthropological measurements between genders in terms of the Indian, European and African population. This is vital because surgical repositioning of basal bones would affect the soft tissue positioning and thus the entire profile of the patients. Enough stress is also placed on understanding the patient's perception of feminine face as well as the requirements.

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Conflicts of interest
There are no conflicts of interest.

REFERENCES

- Ousterhout DK. Feminization of the forehead: Contour changing to improve female aesthetics. *Plast Reconstr Surg* 1987;79:701-13.
- Plemons ED. Making the Gendered Face: The Art and Science of Facial Feminization Surgery. A Dissertation Submitted to University of California, Beckley towards the Award of Doctor of Philosophy in Anthropology; 2012.
- Becking AG, Tuinzing DB, Hage JJ, Gooren LJ. Facial corrections in male to female transsexuals: A preliminary report on 16 patients. *J Oral Maxillofac Surg* 1996;54:413-8.
- Hage JJ, Becking AG, de Graaf FH, Tuinzing DB. Gender-confirming facial surgery: Considerations on the masculinity and femininity of faces. *Plast Reconstr Surg* 1997;99:1799-807.
- Spiegel JH. Facial determinants of female gender and feminizing forehead cranioplasty. *Laryngoscope* 2011;121:250-61.
- Capitán L, Simon D, Kaye K, Tenorio T. Facial feminization surgery: The forehead. Surgical techniques and analysis of results. *Plast Reconstr Surg* 2014;134:609-19.
- Tugnet N, Goddard JC, Vickery RM, Khoosal D, Terry TR. Current management of male-to-female gender identity disorder in the UK. *Postgrad Med J* 2007;83:638-42.
- Ainsworth TA, Spiegel JH. Quality of life of individuals with and without facial feminization surgery or gender reassignment surgery. *Qual Life Res* 2010;19:1019-24.
- Coleman E, Bockting W, Botzer M, Cohen-Kettenis PT, DeCuypere G, Feldman JL, *et al.* Standards of care for the health of transsexual, transgender, and gender-nonconforming people, version 7. *Int J Transgend* 2012;13:165-232.
- Anand S, Tripathi S, Chopra A, Khaneja K, Agarwal S. Vertical and horizontal proportions of the face and their correlation to phi among Indians in Moradabad population: A survey. *J Indian Prosthodont Soc* 2015;15:125-30.
- Joshi MU, Kasat V, Ghugare BW. Evaluation and comparison of forehead angulations using cephalometrics between male and female human subjects. *Natl J Integr Res Med* 2013;4:20-3.
- Rassman WR, Pak JP, Kim J. Phenotype of normal hairline maturation. *Facial Plast Surg Clin North Am* 2013;21:317-24.
- Khan NA, Nagar A, Tandon P, Singh GK, Singh A. Evaluation of facial divine proportion in North Indian Population. *Contemp Clin Dent* 2016;7:366-70.
- Chhabra N, Mishra B. Sexual Dimorphism and ethnic variations in facial index: A study done on North Indian adults. *Int J Health Sci Res* 2015;5:109-15.
- Joseph AA, Kulshreshtha B, Shabir I, Marumudi E, George TS, Sagar R, *et al.* Gender issues and related social stigma affecting patients with a disorder of sex development in India. *Arch Sex Behav* 2017;46:361. [Doi: 10.1007/s10508-016-0841-0].
- Majumder A, Sanyal D. Outcome and preferences in female-to-male subjects with gender dysphoria: Experience from Eastern India. *Indian J Endocrinol Metab* 2016;20:308-11.
- Shams MG, Motamedi MH. Case report: Feminizing the male face. *Eplasty* 2009;9:e2.
- Agrawal KS, Bachhav M, Shrotriya R. Namaste (counterbalancing) technique: Overcoming warping in costal cartilage. *Indian J Plast Surg* 2015;48:123-8.
- Baser BV. Aesthetic rhinoplasty: Changing trends. *Indian J Otolaryngol Head Neck Surg* 2003;55:1-3.
- Patil SB, Kale SM, Jaiswal S, Khare N, Math M. The average Indian female nose. *Aesthetic Plast Surg* 2011;35:1036-42.
- Kalra S. The eunuchs of India: An endocrine eye opener. *Indian J Endocrinol Metab* 2012;16:377-80.
- Gao Y, Niddam J, Noel W, Hersant B, Meningaud JP. Comparison of aesthetic facial criteria between Caucasian and East Asian female populations: An esthetic surgeon's perspective. *Asian J Surg* 2016. pii: S1015-958430179-8.