

## Oval Shape Peri-areolar Skin Excision in Gynecomastia: Case Report

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### Abstract

**Background:** Gynecomastia refers to benign enlargement of breast tissue in men. In most cases the cause of the condition is idiopathic. In grades IIb and III of gynecomastia there are different models and proportions of excess skin, and enlarged tissue of the breast which cause undesirable appearance. Circum-areolar method and eventually mastectomy is appropriate for these grades. Here, we present the modification that includes eccentric oval shape with different vector skin excision including inferior pedicle.

**Case presentation:** In this report, we describe two cases of young men presented with grade IIb gynecomastia. Oval excision with various axes based on amount and vector that is necessary for upward and medial shifting of nipple areola complex (NAC) was made. After liposuction, skin excision and mastectomy were done by preserving 2.5 cm of NAC diameter and 1.5 cm of its thickness. In this technique the pedicle for NAC was inferior or infero-lateral. The new location of NAC was on the junction of horizontal line of the 5th rib and lower border of pectoralis major muscle

**Conclusion:** This technique seems to be a good option for superior or supero-medial or even supero-lateral translocation of nipple areola complex. Also, it is helpful for horizontal or vertical asymmetry of NAC in grade IIb and some instances of grade III.

**Keywords:** gynecomastia, oval excision, nipple areola complex, liposuction

### Introduction

Gynecomastia is a common condition in men that refers to benign enlargement of breast tissue. It occurs in 30 to 65 percent of adult population and in most cases the cause of the condition is idiopathic [1, 2]. Every male patient with gynecomastia desires chest wall gender conformity, therefore choosing appropriate technique for each case is very important [3]. The number of surgical treatments for gynecomastia has been increasing during the last two decades [4] Gynecomastia is the enlargement of tissues in the breast area of men and it is the most common benign male breast problem that can cause many dysmorphic appearances and psychosocial problems, especially in moderate to severe cases [5, 6]. Enlargement of breasts in men have three types: true gynecomastia, pseudo-gynecomastia or a combination of both [7]. Different causes in a wide spectrum from benign physiologic conditions to malignant diseases are to be considered as the etiology of gynecomastia. Sometimes there is a young man who has a history of body building exercises with or without use of

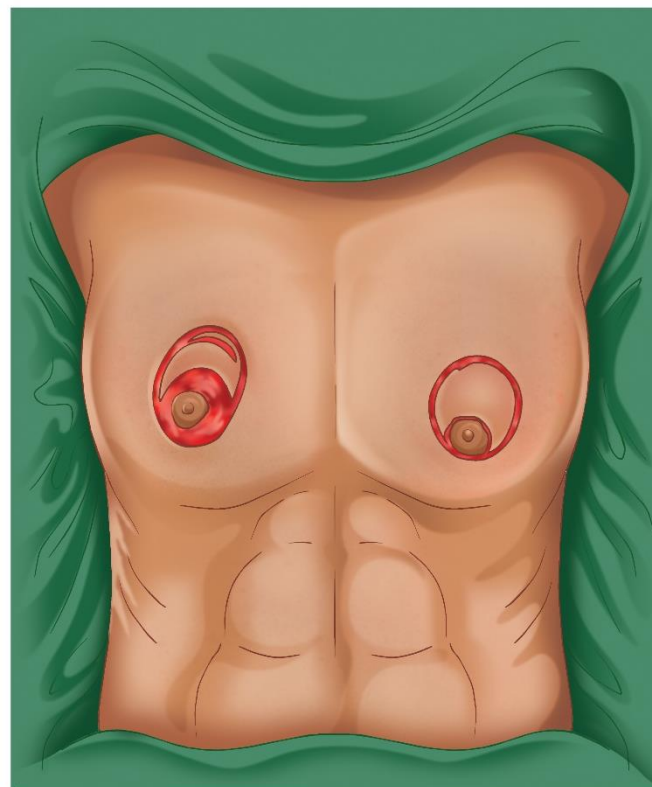
androgenic products and after partially or totally stopping the exercises and the products, he comes with considerable weight loss for correcting ptotic gynecomastia. Based on Simon's classification [8], excessive amount of skin, breast, and fatty tissues with different degrees of ptosis are present in grade IIb and III of gynecomastia. In these grades of gynecomastia there are different models, sizes and proportions of excess skin, fat accumulation and enlarged tissue of the breast which cause undesirable appearance. Hence, various techniques of surgery have been developed to solve many unpleasant appearance problems [7, 9] Fat is removed by various liposuction modalities, the enlarged breast tissue is mastectomized and skin is excised by different patterns and techniques. Depending on the extent of breast tissue in gynecomastia, excision of tissue besides liposuction varies in different patients. Some authors believe that methods of liposuction such as ultrasound assisted can retract the excess skin in majority of grade II [10]. There are some recommendations to "wait and see" for staged excision of the remaining excess skin in cases of grade IIb and some instances of grade III gynecomastia 6

month after liposuction [3,11] For skin reduction there are many techniques such as circum-areolar or concentric skin excision and mastopexy, LeJour type skin excision, staged skin reduction, inverted T pattern, elliptical mastectomy and free nipple graft and Lalonde type breast reduction that have been used for grade IIb and III [7]. For surgical excision, trend usually is toward minimal scarring as much as possible [7, 12]. The Main challenge is in size of incision and type of skin excision especially in patients that are prone to hypertrophic scar and keloid formation. Since the potential of scar formation of chest wall skin is high and even is higher in our region (Middle East and dark skin type) [12], the surgeon and patients are inclined to reduce the length of incision and therefore amount of skin excision. One of the best methods that has been mentioned for grade IIb is liposuction for fat, skin excision by circum-areolar method and eventually mastectomy, which is mostly done subcutaneously. This method is appropriate for grade IIb and some instances of grade III (7, 13 -17). Also, this technique is a good one for those cases that nipples are in symmetric positions or their translocation in a particular direction to a new place is not intended. In some cases fixation of the nipple-areola to the pectoralis fascia by a suture is used for this shifting and translocation [15]. The modification that is going to be discussed in this case report, is using the eccentric oval excision with various axes based on the amount and the vector that is necessary for upward and medial shifting of nipple-areola. Therefore, eccentric oval shape with different vector skin excision including inferior pedicle is used instead of circular skin excision with superior pedicle.

## Case report

### *Surgical technique*

Modification that is going to be discussed about it, is using the oval excision with various axes based on amount and vector that is necessary for upward and medial shifting of nipple areola complex (NAC). In standing position, the distance between nipple and sternal notch is determined. In horizontal direction, the distance of nipples from the midline that is drawn vertically from mid-sternal notch is determined in left and right side. If location of NAC is appropriate horizontally the vector for designing of skin excision will be eccentric circle that modified to a vertical ellipse. If relocation of NAC should be supero-medial, then the ellipse would be designed supero-medially uni- or bilaterally in a manner that the top of the ellipse is more medial than the bottom. The bottom of the ellipse is close to the inferior border of present areola. Usually, the distance of nipple to inframammary fold is not high and for easier superior transposition of NAC, it is better not to remove skin from the lower part. On the other hand, any vertical or horizontal asymmetry could be corrected by appropriate designing based on this modification. Diameter of the new areola is considered to be about 2.67-2.80 cm [16, 18], and its thickness about 1-1.5 cm [12]. Excision of skin and mastectomy is done from superior, superomedial or superolateral crescent shaped segments and mastectomy continues underneath the NAC preserving a thickness of 1-1.5 cm. Then nipple-areola is separated from the inferior skin by an incision down to mid-dermis and de-epithelialization in this section may be minimal or a little more according to the preoperative areolar diameter (Figure 1).

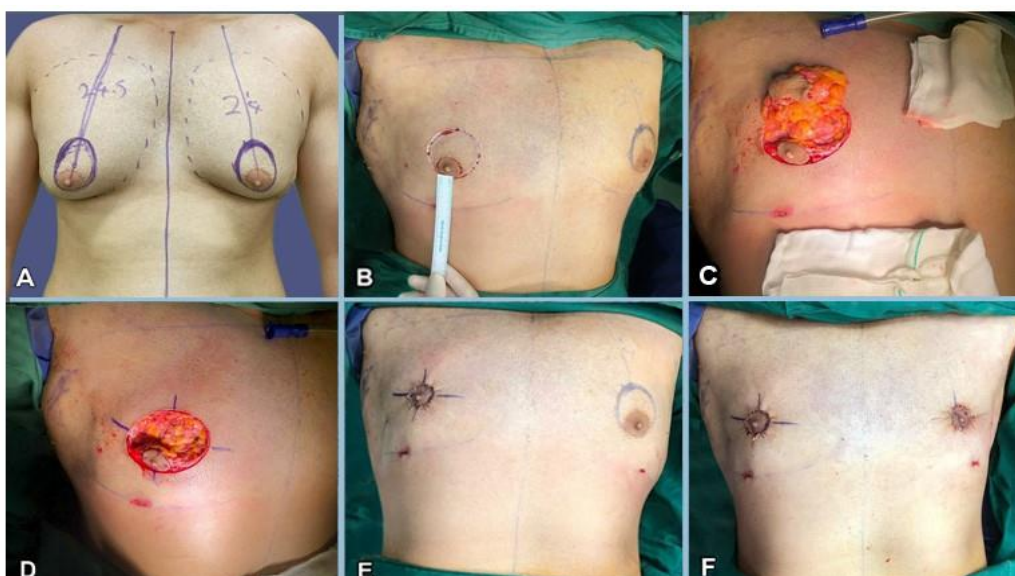


**Figure 1.** Schematic representation of two types of just peri-areolar incision or areolar excision in lower pole. Left side; incision without areolar excision in lower pole (inferior pedicle). Right side; incision with areolar de-epithelialization in lower pole (inferior pedicle).

In this modified technique the pedicle for NAC is inferior or infero-lateral. Based on the vector of peri-areolar oval excision and its diameter, sliding and shifting of NAC to mid humerus level close to inner part of mid-clavicular line is done and placed in the new position. On the other hand, the new location of nipple areola is on the junction of horizontal line of the 5th rib and lower border of pectoralis major muscle.

**Case 1.** A 27-year-old man with height of 180 cm and weight of 86 kg (BMI of 26.6) came for treatment of moderate breast enlargement along with ptosis and excess skin, SN-N: R, 24.5 cm and L, 24 cm (grade IIb Simon). The horizontal distance of nipple from midline (a vertical line was drawn from SN) for the right and the left side was 11.5 cm and 11 cm, respectively. For incision designing, skin excision, and mastectomy, vertical eccentric ellipse for the left side, and mild inclination to the midline for the right

side was preferred due to the difference in SN-N distances and nipple to midline horizontal distance. After injecting 450cc of tumescent solution (1 mg epinephrine in 500cc saline plus 10cc lidocaine 2%), 430cc and 400cc of fat was aspirated by lipomatic suction (Lipomatic Eva SP, Euromi SA, Verviers, Belgium) from right and left side, respectively. Then skin excision and mastectomy were done by preserving 2.5 cm diameter and 1.5 cm thickness from NAC. Mastectomy for the right and left side were done. Total amount of tissues that removed from right and left side were 50 g and 45 g, respectively. For prevention of Saucer deformity, fat and areolar tissue flap around the excision area was prepared, moved and sutured to pectoralis fascia at proper location. Skin gathering provided by purse string suture by (2/0 PDS). Then, subcuticular skin closure were obtained by using 4/0 Monocryl sutures (Figure 2).



**Figure 2.** A, Elliptical designing with a little difference in size and vector in right and left side, standing position, B, Short distance from lower pole of incision to inframammary fold and spontaneous change in the shape of design from elliptical in standing position to circular in lying position, C, Mastectomy and supra areolar skin excision after liposuction without areolar excision, D, Marking of four cardinal directions in areolar edges and remaining skin edges for proper purse string sutures, E, Supero-medial translocation after right side purse string suture, F, Bilateral translocation after completion of mastectomy and purse string suture.

Post-operatively, SN-N distances in the right and left side were 20.5 and 20.3 cm, respectively. The distances of nipple

from midline in the right and left side were 10.2 and 10 cm, respectively (Figure 3).

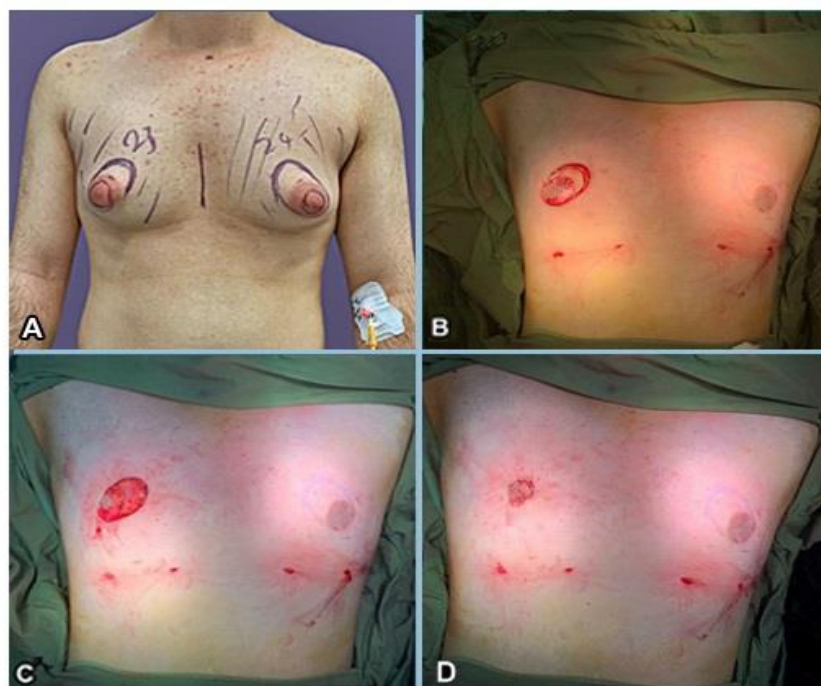




**Figure 3.** Result of operation after 18 month, lipomatic suction, mastectomy and redundant skin excision by elliptical designing. Upper raw pre-operation, Lower raw post operation.

**Case 2.** A 20-year-old young man with height of 183 cm and weight of 100 kg (BMI of 29.9) presented with moderate enlargement of breast, tuberous deformity, and wide NAC. The distance of SN-N for the right side was 23 cm and the left side was 24 cm. The diameter of NAC was 5 cm with protruding tissue and excess skin. The horizontal distance of nipple from midline in the right and left side were 13.1 cm and 13.8 cm, respectively. The design for skin excision and mastectomy was an eccentric oval, the vector for NAC relocation was supero-medial with a little difference in right and left side due to different SN-N distances and

horizontal nipple to midline distances. After injection of 400cc of the previously mentioned solution for each side, 360cc and 380cc of fat tissue was aspirated by lipomatic suction (Lipomatic Eva SP, Euromi SA, Verviers, Belgium) from right and left sides, respectively. Then skin excision and mastectomy were done by preserving 2.5 cm of NAC diameter and 1.5 cm of its thickness. Amount of mastectomized tissue from right and left was 65 g and 80 g, respectively. Then 2/0 PDS purse string suture for skin gathering and finally 4/0 Monocryl stitches for subcuticular skin closure were performed (Figure 4).



**Figure 4.** A, Elliptical designing with a little difference in size and vector in right and left side, standing position, B, Right side skin incision and peri-areolar de-epithelialization, C, Right side mastectomy after lipomatic suction, D, Right side supero-medial translocation after liposuction, mastectomy, skin excision and purse string suture.

Post-operatively, SN-N distances in the right and left side were 20.1 cm and 19.8 cm, respectively. The distances of nipple from midline in the right and left side were 10.8 cm

and 10.5 cm, respectively. The diameters of NAC in the right and left side were decreased to 2.2 cm and 2.4 cm, respectively (Figure 5).



**Figure 5.** Post-operative result at one month after surgery, upper row pre-operation photos, lower row post-operation photos.

## Discussion

There are ranges of surgical treatment for gynecomastia from liposuction to direct excision or both of them with or without skin excision [19]. The study of Innocenti *et al.* demonstrated the importance of the different treatment strategy of the gynecomastia according to the different patients' expectations, related to the different body type [20]. The size and shape of the scar is one of the important factors for choosing the strategy of surgical management and therefore least noticeable and visible scar has priority [21, 22], especially in population with darker skin and areola that risk of visible and hypertrophic scar is more than Caucasians [23]. Even though some authors recommended limited approach such as liposuction by different methods and/or mastectomy via minimal incision or delivery technique, the shortening result in SN-N distance is about 1 cm and decreasing the percentage of reduction in diameter of NAC is about 17.3% [10, 24]. Some authors believe that reducing the size of the areola in great degree is not necessary as elasticity of thin skin flaps helps sufficient contractility in some cases [17, 25]. Circumareolar skin excision and purse string suture has recommended in patients with oversized NAC diameter and also for patients with massive weight loss, poor skin quality and low tissue consistency. This strategy leads to good result in contrast to liposuction alone that has long term anxiety for waiting unpredictable skin contracture [26]. According to the experience of Sarkar *et al.* they have found that most of the patients with grade IIb and grade III gynecomastia, besides excess skin, had enlarged and infero-medially displaced nipple-areola complex. Therefore, they performed both skin and NAC reduction and fixation in a normal anatomical place to pectoral fascia to achieve a good aesthetic result [15].

In some cases of our patients inferior or infero-lateral displacement of NAC are seen. Therefore, besides liposuction and mastectomy, proper designing for skin excision and NAC relocation to superior or supero-medial direction seems logical. For decreasing tension and good relocation, changing the design from concentric to eccentric, from circular to oval shaped with an appropriate vector, and superior pedicle to inferior or infero-medial is beneficial. Why we choose eccentric instead of concentric? Usually in the lower part of breasts in gynecomastia, especially in ptotic NAC, there is not excess skin, therefore the position of the incision line in the lower pole near the present areola leaves enough skin for superior or supero-medial relocation without unwanted tension. For proper relocation it is not necessary to suture the NAC to pectoral fascia that may cause ischemia and/or deformity. According to our modification just oval shaped design with superior or supero-medial vector can appropriately relocate the NAC. Oval shaped design in standing position changes to nearly circular at lying position. Finally to decrease the probability of ischemia, inferior or infero-lateral pedicle is selected in our modification. Therefore the length of pedicle would be very short and the risk of circulation impairment and NAC necrosis seems to be very low.

## Conclusion

This technique seems to be a good option for superior or supero-medial or even supero-lateral translocation of nipple areola complex. Also, it is helpful for horizontal or vertical asymmetry of NAC in grade IIb and some instances of grade III.

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**Conflict of interests:** The authors declare that they have no conflicts of interests.

**Consent:** Written informed consent was obtained from the patients.

### References

1. Waltho D, Hatchell A, Thoma A. Gynecomastia Classification for Surgical Management: A Systematic Review and Novel Classification System. *Plastic and reconstructive surgery.* 2017; 139(3):638e-48e.
2. Narula HS, Carlson HE. Gynecomastia. *Endocrinology and metabolism clinics of North America.* 2007; 36(2):497-519.
3. Tobias R. Mett, Peter P. Pfeiler, Rosalia Luketina, Alperen S. Bingöl, Nicco Krezdorn, Peter M. Vogt. *Eur J Plast Surg* (2020) 43:389–3983.
4. Surgeons ASoP (2017) *Plastic Surgery Statistics Report 2017.*  
<https://www.plasticsurgery.org/documents/News/Statistics/2017/plastic-surgery-statistics-full-report-2017pdf> ASPS National Clearinghouse of Plastic Surgery Procedural Statistics.
5. Daniels IR, Layer GT. Gynecomastia. *Eur J Surg.* 2001; 167:885–92.
6. Kasielska A, Antoszewski B. Effect of operative treatment on psychosocial problems of men with gynecomastia. *Polski przegląd chirurgiczny.* 2011; 83(11):614-21.
7. Malata CM, Wong KY. Gynecomastia surgery (2018). In: Nahabedian M, Neligan P, *Plastic Surgery*, 4th ed. Elsevier, Philadelphia, Vol 5, p. 177-183.
8. Simon BE, Hoffman S, Kahn S. Classification and surgical correction of gynecomastia. *Plastic and reconstructive surgery.* 1973; 51(1):48-52.
9. Rohrich RJ, Ha RY, Kenkel JM, Adams WP, Jr. Classification and management of gynecomastia: defining the role of ultrasound-assisted liposuction. *Plastic and reconstructive surgery.* 2003; 111(2):909-23; discussion 24-5.
10. Özalp B, Berköz Ö, Aydınol M. Is the transposition of the nipple-areolar complex necessary in Simon grade 2b gynecomastia operations using suction-assisted liposuction? *J Plast Surg Hand Surg.* 2018; 52(1):7-13.
11. Guenther D, Ha RY, Rohrich RJ, Kenkel JM, Treatment of gynecomastia (2010). In: Nahai F, *The art of aesthetic surgery: principles & techniques*, 2nd ed. Taylor & Francis Group, New York, Vol 3, p. 2663.
12. Atiyeh BS, Chahine F, El-Khatib A, Janom H, Papazian N. Gynecomastia: Simultaneous Subcutaneous Mastectomy and Areolar Reduction with Minimal Inconspicuous Scarring. *Aesthetic plastic surgery.* 2015; 39(6):916-21.
13. Persichetti P, Berloco M, Casadei RM, Marangi GF, Di Lella F, Nobili AM. Gynecomastia and the complete circumareolar approach in the surgical management of skin redundancy. *Plastic and reconstructive surgery.* 2001; 107(4):948-54.
14. Tashkandi M, Al-Qattan MM, Hassanain JM, Hawary MB, Sultan M. The surgical management of high-grade gynecomastia. *Ann Plast Surg.* 2004; 53(1):17-20.
15. Sarkar A, Bain J, Bhattacharya D, Sawarappa R, Munian K, Dutta G, et al. Role of Combined Circumareolar Skin Excision and Liposuction in Management of High grade Gynaecomastia. *J Cutan Aesthet Surg.* 2014; 7(2):112-6.
16. Aksam E, Aksam B, Demirseren ME. A Practical Way for Nipple-Areola Complex Reshaping in Circumareolar Reduction of Gynecomastia. *Aesthetic surgery journal.* 2015; 35(6):Np186-7.
17. Peled IJ. Re: Pursestring and skin excision in gynecomastia. *Ann Plast Surg.* 1999; 42(3):343.
18. Beckenstein MS, Windle BH, Stroup RT, Jr. Anatomical parameters for nipple position and areolar diameter in males. *Ann Plast Surg.* 1996; 36(1):33-6.
19. Hammond DC. Surgical correction of gynecomastia. *Plastic and reconstructive surgery.* 2009; 124(1 Suppl):61e-8e.
20. Innocenti A, Melita D, Mori F, Ciancio F, Innocenti M. Management of Gynecomastia in Patients With Different Body Types: Considerations on 312 Consecutive Treated Cases. *Ann Plast Surg.* 2017; 78(5):492-6.
21. Webster JP. Mastectomy for gynecomastia through a semicircular intra-areolar incision. *Annals of surgery.* 1946; 124:557-75.
22. Bricout N. Surgical treatment of gynecomastia. In: Bricout N, editor. *Breast surgery.* Paris: Springer Paris; 1996. p. 67-9.
23. Han HH, Kim KK, Lee KH, Park D, Rhie JW, Ahn ST, et al. Transareolar-perinipple (areolar omega) zigzag incision for augmentation mammoplasty. *Plastic and reconstructive surgery.* 2015; 135(3):517e-25e.
24. Keskin M, Sutcu M, Hanci M, Cigsar B. Reduction of the Areolar Diameter After Ultrasound-Assisted Liposuction for Gynecomastia. *Ann Plast Surg.* 2017; 79(2):135-8.
25. Blau M, Hazani R. Correction of gynecomastia in body builders and patients with good physique. *Plastic and reconstructive surgery.* 2015; 135(2):425-32.
26. Smoot EC, 3rd. Eccentric skin resection and purse-string closure for skin reduction with mastectomy for gynecomastia. *Ann Plast Surg.* 1998; 41(4):378-83.