

## Modified Radial Incision Technique in Reduction Nipple Hypertrophy

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**Background:** Nipple hypertrophy causes psychosocial embarrassment and discomfort to the affected individuals. The only mean to correct it is by performing surgical procedure aiming to reduce the diameter as well as the vertical height of the nipple while preserving the lactiferous ducts.

**Patients and Methods:** Two cases of nipple hypertrophy were described in this case series : the first one was a male patient presented with an overly prominent nipple of the left breast. Second case was a female patient with bilateral nipple hypertrophy. Circular design was performed at the tip of the nipple to match the size of the normal nipple. Three wedged excisions was made, and also three radial pillars with its pedicle divided into two parts: the lower part was de-epithelialized. This technique was able to reduce the diameter and also the vertical height of nipples without compromising their vascular supply.

**Result:** No complications such as nipple necrosis or sensory loss were found in both patients during follow-up period. The normal symmetry of the nipple contour was restored.

**Conclusion:** We described a simple technique for both male and female patients with nipple hypertrophy, which provided good aesthetic result and patient satisfaction.

**Keywords:** nipple, hypertrophy, reduction, techniques

**Latar belakang:** Hipertrofi puting mengakibatkan gangguan psikososial berupa rasa rendah diri dan ketidaknyamanan pada individu yang mengalaminya. Satu-satunya cara untuk mengoreksinya adalah melakukan suatu prosedur pembedahan yang bertujuan mengurangi diameter sekaligus tinggi vertikal puting dengan tetap mempertahankan duktus laktiferus.

**Pasien dan Metode:** Pada laporan kasus ini dipresentasikan dua kasus : yang pertama seorang laki-laki dengan puting payudara kiri yang terlalu menonjol. Kasus kedua adalah seorang wanita dengan hipertrofi puting bilateral. Dibuat desain sirkuler pada ujung puting dengan acuan ukuran puting yang normal. Dibuat tiga eksisi baji dan tiga pilar radial dengan pedikelnya dibagi menjadi dua bagian: bagian bawahnya dideepitelisasi. Teknik ini dapat mengurangi diameter dan tinggi vertikal puting tanpa mengganggu suplai vaskular.

**Hasil:** Tidak didapatkan komplikasi seperti nekrosis puting atau sensibilitas yang berkurang pada kedua pasien saat pemeriksaan follow-up. Simetri dari kontur puting dapat dikembalikan ke normal.

**Kesimpulan:** Kami mendeskripsikan sebuah teknik sederhana yang dapat dikerjakan untuk pasien laki-laki maupun wanita dengan hipertrofi puting yang mampu mencapai hasil estetik dan kepuasan pasien yang baik.

**Kata kunci :** nipple, hypertrophy, reduction, techniques

The normal nipple in young nulliparous women is expected to be less than 1 cm in diameter or have less than 1/3 ratio between nipple height and diameter of the areola. Normal height is expected to be less than 0.8 cm.<sup>1</sup> Nipple hypertrophy is defined when the nipple measurement exceeds 2 cm in diameter and greater than 0.8 cm in height.

Nipple hypertrophy are not commonly found among Caucasian women but are quite frequently observed among Asian women.<sup>2,3</sup> This condition usually causes affected individual to feel uncomfortable of being in his or her own skin. It is thought to be caused by hormonal changes during breast-feeding, especially prolactin, which causes the nipple to

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**Figure 1.** (Left-First). Pre-operative design for new nipple to match the size of the other nipple (Left-Second). Triangular based excision from the tip of the nipple to the core in order to reduce the width of the nipple. (Right) Immediate post-operative results and one week follow-up : scars were acceptable, the nipple was viable and no sign of necrosis.

become larger and to sag.<sup>3,4</sup> However, the definite cause of this deformity is still unknown. In male, nipple hypertrophy is a rare occurrence. Nevertheless, nipple hypertrophy creates negative psychological impact to male patients as well.<sup>2</sup> Patient complains of reluctance in wearing T-shirt due to the visibility of protruding nipples; or to go sunbathing. The only way to solve the patient's problems is to seek help of a plastic surgeon and to have the nipples surgically reduced.

Numerous methods for women who desire nipple reduction have been reported previously, although usually in conjoint with another breast procedure such as breast augmentation and reduction; even following nipple-sparing mastectomy using crown technique of tissue from the nipple tip. However, methods for male with hypertrophy of the nipple are hard to find in a clinical setting. De Bono proposed sinusoidal reduction technique for male with a very large nipple hypertrophy, which is inapplicable for women since it doesn't preserve the lactation function.<sup>3</sup>

We would like to introduce a simple technique for reducing the height and width of the nipple. After determining the correct size of the nipple, a triangular based wedge excision was performed and the lower segment of the remaining pillar was de-epithelialized. However, during this procedure, preservation of the blood supply must be considered and disruption of the lactiferous duct must be avoided, to ensure of constructing a new viable nipple. This technique was inspired by the

McKissock technique in breast reduction to preserve the blood supply to the nipple area complex.

The technique for both height and diameter reduction consists of the creation of new circular design on the tip of the nipple. Three to four wedge-shaped incisions was performed from the tip to the base of the nipple, to reduce the diameter. Three pillars with its pedicle was divided into two. The bottom part was de-epithelialized. The upper skin flap was pulled down and stitched to the base of the nipple to trim the nipple height. Centripetal closure with absorbable 5-0 sutures would bring the flaps closer together and reduce nipple diameter to the desired size. The tip of the wedge should not reach the center of the nipple in order to preserve the lactiferous ducts as much as possible and to keep the circulation and sensory nerve intact. Areolar area may also be reduced by performing a cone shape incision reaching the subcutaneous layer. This technique successfully reduced the diameter and also the vertical height without compromising neurovascular supply.

## PATIENT AND METHODS

Two cases were reported that were referred to us intra operatively by the oncology surgery division in the army hospital Gatot Subroto. The first case was a young male, 26 years old, with a history of left breast reduction conducted 1 year ago due to gynecomastia. He felt uncomfortable with his appearance due to the large size of his left nipple (Figure 1).



**Figure 2.** (Left) pre-operative nipple hypertrophy after insertion of breast implants, the nipple appeared oval and irregularly shaped (Center) Using the same technique, the result was aesthetically and functionally good with added pinkish appearance of the nipple. frontal view. (Right) lateral view

The second case was a female, 32 years old, who came to have bilateral nipple reduction along with breasts augmentation. She also desired a more reddish/pinkish color of the nipple. Same technique was applied and the patient was satisfied with the result of surgery. Wedge-shaped excision of the irregular/oval shaped and unappealing color of the skin was performed at 6, 12, 4 and 8 o'clock directions. The results were very satisfying and during the follow up the patient did not complain of any loss of sensation of the new nipples (Figures 2).

## DISCUSSION

In women, the nipple plays an important role as sexual organ and during lactation. The central portion of the nipple contains 16 to 24 lactiferous ducts ranging from 2 to 4 mm in size and is associated with a complex smooth muscle fibers within the nipple and breast parenchyma.<sup>3</sup> The nipple sensory nerves arise from the lateral cutaneous branches of the fourth and fifth intercostal nerves and the anterior cutaneous branches of the third and fourth intercostal nerves.<sup>3</sup> Blood supply is provided through the subareolar plexus, which receives most of its arterial flow from branches of the internal mammary artery and lateral thoracic artery. This means that circumcission has no effect on circulation of the nipple.<sup>3</sup>

Nipple reduction method can be divided into two categories.<sup>4-6</sup> One method causes destruction of the lactiferous duct, whereas the other method preserves it. The first method was introduced by Vecchione, Marshall et al, Basile

and Chang, and Debono and Rao. The latter method was described by Regnault, Sperli, Ferreira et al, Lai and Wu, and Cheng et al. However, both methods have some drawbacks. Vecchione's nipple reduction involves transverse amputation of a portion of nipple, replacing the tip with a split-thickness skin graft. Method by Ung and Hong method decrease both the diameter and height using modified circumcission and wedge technique. However, these techniques involve circular removal of nipple dermal layers, and therefore may compromise vascular flow and lymphatic drainage. This can further result in prolonged edema or skin necrosis. Cheng et al's modified top hat flap method can decrease the height and diameter and preserve the circulation and lactiferous ducts. However, it is difficult to design and is also difficult to modify nipple reduction size intraoperatively.

Wedge excision decreases the diameter of the nipple, although wedge excision could cut some lactiferous ducts. However, because nipple has 16 to 24 lactiferous ducts, the majority of lactiferous ducts still remain intact thus the affected female patient will still be able to breast-feed. The location of wedge excision at the 6-o'clock or the 12-o'clock position is to maximally preserve the nipple sensation. The lateral cutaneous branch of the fourth intercostal nerve, the main sensory nerve branch of the nipple, enters the breast parenchyma at the inferolateral part of the breast and passes through the thickness of the breast tissue. Because this nerve branch goes into the nipple along the lactiferous ducts



laterally and inferiorly (8-o'clock position on the right side, 4-o'clock position on the left side), the wedge excision of the nipple at 6-o'clock or 12-o'clock position can retain the nipple sensation.

Following surgery both patient went home without complication. During follow-up on day seven both patient showed their reduced nipples were completely viable without any signs of ischaemia or necrosis. No complaint of loss of sensations were reported. In addition to a more acceptable and appealing nipple shape and size, this technique did not alter the nipple sensations nor erectile function. However, the function of lactation cannot be assessed yet. We hope that in the near future this technique could be employed to breast-feeding women, in order to confirm that this technique has indeed no impact to the lactation function.

### SUMMARY

Overall, this case reports presented a simple, safe yet reliable technique of nipple reduction which preserves aesthetic and functional integrity of the neonipple. This technique is applicable to both male or female with nipple hypertrophy.

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