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CASE REPORT

Immediate Nipple Reconstruction Following Breast Reduction

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Key words: nipple reconstruction; breast reduction; gigantomastia

Abstract Necrosis of nipple-areola complex is one of the major complications of breast reduction in gigatomastia. We present a case study of a 32-year-old patient with severe gigantomastia, who required an immediate nipple reconstruction during breast reduction. The final reconstruction was satisfactory. No complications were observed within three months postoperatively.

REDUCTION mammaplasty is a widely preformed procedure.[1, 2] Preservation of the nipple-areola complex (NAC) perfusion needs to be considered,[1, 3] especially for severe gigantomastia. The inferior pedicle method helps to ensure blood supply to nipples, while it may also result in poor morphology.[1, 4] Breast reduction with NAC grafting may be another choice for gigantomastia. However, this technique is frequently criticized for hypopigmentation and graft loss.[4-6] Immediate nipple reconstruction with a local flap is commonly used in breast cancer surgery,[7-9] which can reduce the number of operations and is conducive to the postoperative psychological recovery of patients.[9] We present a case of immediate nipple reconstruction during breast reduction for a patient with severe gigantomastia. Combining reduction mammaplasty with immediate nipple reconstruction can achieve reliable nipple survival and breast shape in one time.

Ethical approval was obtained from the Ethical Committee of Plastic Surgery Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College.

CASE DESCRIPTION

A 32-year-old woman was admitted to our hospital. And she complained of breast enlargement and obvious ptosis after breastfeeding for one year, which resulted in back pain, a lack of confidence, and various other inconveniences. Physical examination showed ptosis and marked hypertrophy in both breasts. The distance of the sternal notch to nipple (SN-N) of the left breast was 56.4 cm, and the right distance of SN-N was 54.2 cm. The nipple to inframammary fold (N-IMF) distances of the left and right breast were 29 cm and 31 cm, respectively. The lowest point of the breast was lower than the level of the anterior superior iliac spine (**Figure 1A**). The body mass index of this patient was 23.8 kg/m^2. Moreover, 6.49 mmol/L of total cholesterol, 2.81 mmol/L of triglycerides and 5.25 mmol/L of low-density lipoprotein were found in blood biochemical tests. No significant abnormalities were noted in other tests, and no obvious abnormalities were identified by breast ultrasound.

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Considering the severe ptosis of the breasts, no breast reduction based on pedicle techniques could ensure adequate blood supply to the NAC. Therefore we decided to remove most of glands and skin including the NAC. After reshaping the breast, a local skin flap was used for nipple reconstruction. The patient was given information about the operation and provided written informed consent.

Wise pattern skin reduction markings were used for preoperative markings.[10] After resecting of the inferior, medial, and lateral areas of redundant breast tissue and skin, the remaining glands and subcutaneous tissues were shaped. A total of 3150 g tissue was removed from the left breast and 2950 g tissue from the right breast. The final incision was inverted T-shaped.

For nipple reconstruction, an arrow-shaped skin flap was designed at the top of the inverted T-shaped incision. The flap was 1.5 cm wide and approximately 5 cm long. And the thickness of the flap was about 0.5 cm. The pedicle of the flap was about 2 cm. Then the local flap was folded as a cylinder, whose height was about 1.5 cm and the diameter was about 1 cm. (**Figure 2**)

The final reconstruction was satisfactory and no complications were observed whin three months postoperatively (**Figure 1B**).

Figure 1. A. Preoperative view of the patient. Left: Physical examination showed severe ptosis and marked hypertrophy in both breasts. Right: The lowest point of the breast was lower than the level of the anterior superior iliac spine. B. Postoperative view (3 months). Left: Good bilateral symmetry can be seen postoperatively. Right: Nipple contour and projection maintained well.

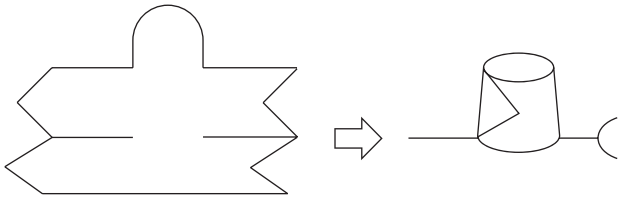

Figure 2. For nipple reconstruction, an arrow-shaped skin flap that is 1.5 cm wide and approximately 5 cm long, was designed. The height and diameter of the new nipple is around 1.5 cm and 1 cm respectively.

DISCUSSION

Patients with gigantomastia or ptotic breasts pose many challenges for the surgeons, especially in terms of vascularity.[1, 3] Inferior pedicle reduction is a common reduction technique to treat gigantomastia, as the distance of N-IMF remains relatively constant compared with the increased SN-N distance in the enlarged breast.[4, 11] Limitations of this procedure include scar burden and bottoming-out problems.[2, 4] The superomedial pedicle reduction is also gradually applied to the treatment of gigantomastia and has shown its superiority in preserving medial fullness.[1] However, when the pedicle is too long, the blood supply of NAC may be insufficient due to tortuous blood vessels.[4] Free NAC graft is another way to address this issue.[10] However, there are complications associated with this method, including loss of nipple sensation and projection as well as hypopigmentation.[4-6] In cases of severe gigantomastia, the distances of SN-N and N-IMF of the patient were too long to select the proper pedicle to ensure adequate blood supply to the nipple areola. Additionally, a hypertrophic areola is commonly seen in the patients with severe gigantomastia, and there is a high risk of NAC necrosis when using free NAC transplantation.

Immediate nipple reconstruction with a local flap is commonly used in breast cancer surgery, while it has not yet been applied in reduction mammaplasty.[7-9, 12-15] Combining nipple reconstruction and breast reduction represents a valuable treatment option for patients with

severe gigantomastia. Because this method can avoid necrosis of NAC, and breast shape can be more freely established without limitation of pedicles. In addition, breast symmetry can be obtained due to the simultaneous breast reduction and nipple reconstruction. If desired, tattoo can be performed postoperatively around nipple as areola.

In a word, simple excision of the glands combined with an immediate local skin flap nipple reconstruction may be an effective option in severe gigantomastia.

Conflict of Interests Statement

The authors declare no conflict of interests.

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