Combining Breast Reduction Techniques to Treat Gigantomastia in Ghana

Melody F. Scheefer, MD*  
Pius Agbenorku, MD†  
Paa Ekow Hoyte-Williams, MD‡  
Boutros Farhat, MD§  
Isak A. Goodwin, MD¶  
W. Bradford Rockwell, MD||

Summary: In this presentation of 2 consecutive cases of symptomatic juvenile breast hypertrophy in Ghana, we review the patient presentation, workup, and discuss outcomes following a combined technique of inferior pedicle stump and free nipple graft reduction mammoplasty. Surgical goals for treatment of gigantomastia were 2-fold: to resect adequate tissue to obtain symptomatic relief with improved quality of life, while avoiding a flat, boxy-appearing breast shape.

INTRODUCTION

Juvenile breast hypertrophy is characterized by breast enlargement without masses, with histologic findings of stromal and ductal hyperplasia. Although the exact mechanism of overgrowth is unknown, as there is no elevation in serum levels of hormones or increase in the number of hormone receptors, there may be an increased response at the receptor level. When severe, breasts can grow to be 13–23 kg, leading to a significant physical and mental health burden. Hypertrophy at this extreme, termed gigantomastia, reduces quality of life. Symptomatic hypertrophy is treated surgically because the symptoms of back and neck pain, shoulder grooving, and poor posture are known to improve following breast reduction. These goals were accomplished by augmenting a Wise pattern free nipple graft technique with an 8-cm long, 10-cm wide deepithelialized inferior pedicle breast reduction to add central projection.

METHODS

In 2015 and 2016, 2 consecutive similar cases performed at the Komfo Anokye Teaching Hospital in Kumasi, Ghana. Photo consent was part of the surgical consent obtained for this case series.

Case 1

A healthy 16-year-old female presented with gigantomastia of her bilateral breasts. Rapid breast enlargement started postmenarche, and her size had been stable for 2 years duration. She suffered from severe neck and back pain, poor posture, and recurrent intertrigo of the inframammary folds (Fig. 1). Her breast size had been associated with social embarrassment, and she had dropped out of school. Testing included normal hormonal assays, and ultrasound showed hypertrophic breast architecture and no masses of concern.

An 8-cm long by 10-cm wide inferior pedicle stump was deepithelialized to centrally augment the Wise pattern breast reduction flaps. The distal end bled well during the case. The lateral and medial pedicle walls were sutured to the lateral and medial breast pillars to augment central fullness. The thick Wise pattern flaps covered the pedicle stump and created a pleasing round contour with very good projection. The resection pathology of 3.65 kg from the left, and 3.8 kg from the right breast returned, “Fibro glandular tissue of breast origin. No malignancy...”
found.” On postoperative follow-up, social confidence was improved; she was very satisfied with the new breast appearance and size, and her back and chest pain were progressively improving. She did not have subsequent regrowth of breast tissue (Fig. 2).

Case 2
A 24-year-old G₁P₀ otherwise healthy female presented with a progressive increase from macromastia to gigantomastia of bilateral breasts following menarche at the age of 16 (Fig. 3). She was no longer able to cope with severe back and neck pain, nor the embarrassment of her appearance. She wore double brassieres for satisfactory support, was unable to exercise, could not find appropriate clothing, and experienced inframammary maceration with recurrent intertrigo. Preoperative testing was unremarkable. The same surgical technique described in case 1 was used. The well perfused inferior pedicle stump provided central bulk and projection. There was some epidermolysis of the free nipple-areola grafts early postoperatively with full reepithelialization (Fig. 4). Specimens of 4.2 kg from the left and 3.5 kg from the right were sent to pathology, confirming benign mammary hyperplasia. The patient had relief of physical and psychological symptoms. As with case 1, she did not have subsequent regrowth of mammary tissue.

DISCUSSION
Breast projection may be achieved by different techniques during breast reductions using free nipple grafts. Thick Wise pattern flaps may be sutured together in the breast meridian to achieve moderate projection. In our cases, an 8-cm length of well-perfused inferior pedicle was preserved to add central fullness deep to the flaps. We made the decision preoperatively to perform a free nipple graft based on the very large breast volumes. The inferior pedicle stump had an estimated volume of 200–300 cc and was added to improve projection.

One description, by Al-Shaham⁸, advocates intraoperative observation with select conversion to free nipple graft when gangrene is impending. This author analyzed
preoperative and postoperative measurements, finding that 3% (n = 66) required free nipple graft when Wise pattern reductions with inferior pedicles of 8–10 cm wide and 23–25 cm long were performed. Reductions ranged from 1,950 to 2,250 g. This added 1–1.5 hours to the cases and required intraoperative serial debridement of nonviable inferior pedicle back to perfused tissue.8

Other publications describe similar techniques. Sim et al.9 presented 63 patients with average resection masses of 823 g per breast and inferior pedicles measuring 5 × 5 cm. There were no major complications, and projection was improved by suturing the upper point of the inferior pedicle to the pectoralis fascia.9 Koger et al.7 described a similar technique on a female patient with bilateral gigantomastia, with breast specimens of 2,224 and 2,240 g. The pedicle width at the inframammary fold measured 9 cm. Once the free nipple-areolar grafts were harvested, the inferiorly based parenchymal pedicles were deepithelialized, and a glandular pyramid was developed by obliquely incising tissue to the level of the pectoralis fascia.7 These techniques can be helpful to achieve vascularized projection when free nipple-areolar grafts are employed for large reduction mammoplasties.

CONCLUSIONS

In Ghanaian culture, “the thicker and heavier, the richer and more attractive a woman is,” large breasts represent health and fertility.10 More volume and projection is considered aesthetically pleasing, and modifications to reduction mammoplasty become necessary to align patient aesthetics and goals of treatment. Our gigantomastia technique maintains projection and vascularity via the inferior pedicle stump. The Wise pattern flaps are sufficiently thick to add generalized fullness and are sufficiently vascularized to support the free nipple-areolar grafts. Physical and psychological symptom relief is achieved, and the reduced breasts are aesthetically and culturally acceptable.