

An Alternative Treatment of Pseudogynecomastia in Male Patients After Massive Weight Loss

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Level of Evidence: 4 (Therapeutic)

Abstract

Background: There has been an increase in body contouring procedures following massive weight loss, including male breast reduction procedures. Treating male chest deformity after massive weight loss using standard mastopexy techniques often leads to suboptimal results.

Objectives: The authors describe a technique to treat pseudogynecomastia using a modified elliptical excision and nipple-areola complex (NAC) transposition on a thinned inferior dermal pedicle as an alternative to conventional techniques.

Methods: A retrospective chart review from January 2011 to January 2019, identified a total of 14 male patients who underwent excision of pseudogynecomastia using the described technique. Patients were characterized by age, method of weight loss, pre-weight loss body mass index (BMI), post-weight loss BMI, total weight loss, grade of pseudogynecomastia, and concurrent procedures performed.

Results: Patients were followed for a period ranging from 3 months to 1.5 years (average, 8.1 months). Pre-weight loss BMI and post-weight loss BMI averaged 52.0 kg/m² and 29.6 kg/m², respectively. Average weight lost was 79.72 kg and average total amount of tissue removed was 2,615 g. All patients had concurrent procedures with an average operative time of 274 minutes. Four out of fourteen patients (28.6%) experienced minor complications, which included asymmetry, delayed wound healing, seroma, and hyperpigmentation. There were no wound infections, hematomas, flap necrosis, or dyesthesias

Conclusions: Due to several cosmetic advantages and low complication profile, our technique using a modified elliptical excision and NAC transfer on an inferior dermal pedicle is an attractive option for treating male chest deformity after massive weight loss.

METHODS

The male breast lift technique is ideal for a patient with a NAC that is on the lower pole or below the normal inframammary fold (IMF). Transposition of the IMF onto the chest confirms that excision at or above the NAC can occur (lift and drop technique; Video). This excisional pattern is designed as an ellipse incorporating the NAC. The width of dermal pedicle is based on the entire IMF incision with extension approximately 1 cm above the NAC. In cases with a lateral chest deformity, the excision is extended up toward the axilla along the anterior axillary fold and often down the arm when brachioplasty is simultaneously performed. The anterior incision laterally is planned lateral to the anterior axillary fold helping to conceal it. The posterior incision is marked with a lift and drop in a superior and medial vector and will be confirmed during the procedure (Figure 1).

A wetting solution consisting of one liter of lactated ringers and one ampule of 1:1000 epinephrine is infiltrated for hemostatic control. Based on the initial markings, an elliptical incision is made at the superior aspect and at the new IMF. The dermal pedicle is deepithelialized preserving the new NAC. The NAC is measured to be approximately 20-25 mm in diameter.

Liposuction is then performed. The goal of liposuction in the male breast lift is to create a smooth transition from the superior chest to the inferior chest as well as soften the IMF crease. Access sites can be placed at the discretion of the surgeon, but should be small not to disrupt the vascular supply. Our preference is along the inferior border of the dermal pedicle, medially and laterally (Figure 2).

A dermal pedicle is elevated maintaining approximately 5-10 mm of fat subdermally for vascular preservation. Preserving a wide dermal pedicle keeps the base of the random flap wide helping to maintain appropriate blood supply, with main contributions from the internal mammary and lateral thoracic arteries. Once elevated, the remaining tissue is first dissected superiorly transitioning at a 45-degree angle towards the underlying pectoralis major. This area has been treated previously with liposuction allowing for ease of dissection and a smooth transition point. The excess breast tissue remaining over the pectoralis major fascia down to the IMF is excised (Figure 3).

Once hemostasis is confirmed, the pedicle is secured to the chest wall at its base, medially and laterally, using an absorbable braided suture. This fixation prevents the edges from overturning, reduces tension and allows mobility superior

RESULTS

This retrospective review was approved by the Institutional Review Board at UT Southwestern. From January 2011 to January 2019, a total of 14 consecutive male weight loss patients (patients A-N) who underwent excision of pseudogynecomastia using the described technique were identified. Patients were characterized by age, method of weight loss, pre-weight loss body mass index (BMI), post-weight loss BMI, total weight loss, grade of pseudogynecomastia, and concurrent procedures performed (Table 1). Patients were between the ages of 31-58 years with an average age of 40.5 years. The average for pre-weight loss BMI and post-weight loss BMI were 52.0 kg/m² (range, 34.5-91.2 kg/m²) and 29.6 kg/m² (range, 25.1-36.2 kg/m²), respectively. Average weight loss was 79.72 kg (range, 25.0-186.0 kg). Three patients were former smokers but quit several years prior to surgery. None of the patients had undergone prior breast surgery.

Preoperative photographs were used to classify the severity of pseudogynecomastia based on the system devised by Gusenoff et al. The authors define grade 1 pseudogynecomastia by minimal displacement of the NAC and IMF, further distinguished by the absence (1a) or presence (1b) of a lateral chest roll. Grade 2 includes those with significant descent of the NAC and IMF, presence of a lateral roll, and minimal upper abdominal laxity. Grade 3 deformities are similar to grade 2, except they are characterized by significant upper abdominal laxity.¹⁴ Postoperative photographs included follow-up between 3 months to 1.5 years postoperatively, with an average follow-up of 8.1 months (Figures 4 and 5).

All patients who underwent excision of pseudogynecomastia also underwent simultaneous procedures, with abdominoplasty being the most common. Average operative time was 274 minutes and average total amount of tissue removed was 2,615 g. Length of stay was usually one day.

Four out of fourteen patients (28.6%) experienced complications (Table 2). Asymmetry of the nipple-aerola complexes was seen in patient A, who was satisfied with the result and did not pursue revision (Figure 6). Patient D had delayed wound healing and left central nipple necrosis that resolved without requiring further intervention. In patient E, who was African American, there was mild hyperpigmentation of the NAC and asymmetry of the inframammary folds with the left placed higher than the right. No revision was performed. Patient L developed a

seroma to the right lateral back which resolved after drainage in the office. There were no wound infections, hematomas, flap necrosis, or dyesthesias in our patient population. Of note, patient H had poor nipple perfusion intraoperatively and was converted to free nipple graft (Figure 7).

DISCUSSION

Pseudogynecomastia seen after massive weight loss is characterized by increased retroareolar fat without mammary hypertrophy, in contrast to gynecomastia, which is most often idiopathic and results in proliferation of glandular tissue.¹⁹ Treatment for pseudogynecomastia generally requires excision of excess tissue and skin for all but the mildest forms, which can have excellent results with liposuction alone due to minimal skin redundancy and displacement of the NAC. A multitude of excisional procedures for the treatment of gynecomastia have been applied to pseudogynecomastia.²⁰⁻²² Excisional techniques first developed for female breast lift have been used in males with limited success, often resulting in unfavorable scars, asymmetry, and a feminized chest.¹³ Concentric circle or circumareolar approaches with or without purse-string closure may result in corrugated scars or residual skin excess.²³ The most widely used method employs a horizontal ellipse pattern,¹⁴⁻¹⁷ which is better for recreating the ideal contour of the male chest and produces a scar that closely approximates the IMF.^{14,15,17} The NAC has been either transposed on a dermoglandular pedicle or transferred as a full-thickness graft. Horizontally based excisional patterns with FNG remain the gold standard in most cases of pseudogynecomastia.

Pseudogynecomastia has predominantly been classified with the most severe categories of gynecomastia,²⁴⁻²⁶ however there are a variety of defects present in MWL patients that traditional classifications and treatment algorithms do not address. Gusenoff et al have proposed a classification scheme and a treatment algorithm for pseudogynecomastia that accounts for these unique features.¹⁴ Based on the algorithm, grade 1 pseudogynecomastia is treated with liposuction of the anterior chest and direct excision of the lateral roll, if present. Patients with higher grades undergo horizontal elliptical excision and extension to the axilla to include the lateral roll, with grade 2 deformities receiving pedicled reconstruction and grade 3 receiving free nipple grafts. The authors believe that the significant upper abdominal laxity found in grade 3 pseudogynecomastia may result in an unreliable pedicle,

which is why they recommend grafting in these patients. Pedicled reconstruction is more time consuming and presents a greater risk of flap and nipple necrosis.¹⁸ However, experts in their study related the pedicled technique to better NAC aesthetics, as free grafts often have an unnatural, flat appearance, increased scarring, and pigmentation changes.

A widely based inferior pedicle, however, may lead to poor outcomes in patients with long nipple-to-IMF distances, creating a bulky chest, causing venous congestion, or resulting in flap necrosis due to the increased length of the pedicle. In these cases, the NAC can be transferred on a superior pedicle, although this places the scar above the nipple rather than at the inferior border of the pectoralis major.¹⁶ Alternatively, a technique introduced by Stoff et al employs a central mound, which can be used in patients with severely ptotic breasts while also allowing for ideal scar placement.¹⁵ Other variations include a superolateral pedicle designed to give lateral fullness, providing a broader chest and mimicking the lateral border of the pectoralis major.¹⁷ These described techniques leave the patients with undesirable tissue bulk, often feminizing or failing to address the concerns of the patient. In these cases, free nipple graft may be a reasonable alternative despite the dyspigmentation in some cases.

The method we propose provides many benefits to conventional mastopexy. The dermal pedicle described allows for preservation of the vascularity of the NAC and minimal bulk to the anterior chest. This is particularly relevant in darker skin types where free nipple grafts may result in dyspigmentation. Extension laterally allows for simultaneous correction of lateral chest deformity often seen after significant weight loss. The positioning of the scar in the IMF is preferred over a vertical scar because it follows the natural contours of the male chest, corresponding to the inferior border of the pectoralis major. The lateral scar, placed posteriorly to the anterior axillary line, is hidden beneath the adducted arm. One limitation of the transverse ellipse pattern is that it removes mostly vertical redundancy. Hurwitz et al address this issue with a boomerang incision created by asymmetrical elliptical incisions placed at right angles to one another just above the NAC.²⁷ This may be combined with a J torsoplasty to correct both vertical and horizontal laxity in the chest and upper abdomen. However, this method creates an interrupted sinusoidal scar pattern that is not as aesthetically pleasing as the horizontal ellipse. Thus, it should only be used in patients who can accept an undulating scar in return for

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Figure Legend

Figure 1. Surgical markings. A 57-year old male seen preoperatively for excision of pseudogynecomastia in (A) frontal view and (B) oblique view. Markings indicate planned elliptical incision with extension towards the axilla just lateral to the anterior axillary fold to remove lateral chest excess.

Figure 2. Illustration of preoperative markings and pertinent reference points.

Figure 3. Intraoperative illustration showing the dermal pedicle reflected caudally depicting the plane of dissection above and below the gland.

Figure 4. Patient with mild pseudogynecomastia. Patient G, a 37-year-old male with grade 1b pseudogynecomastia after lifestyle modifications resulting in a 70.3-kg weight loss. (A, C) Preoperative and (B, D) postoperative views are shown. The postoperative photos were taken 7 months after surgery.

Figure 5. Patient with severe pseudogynecomastia. Patient D, a 45-year-old male with grade III pseudogynecomastia after a laposcopic roux en y gastric bypass resulting in a 185.98-kg weight loss. (A, C) Preoperative and (B, D) postoperative views are shown. The postoperative photos were taken 5 months after surgery. Note history of burn scars and skin grafting on the patient.

Figure 6. Patient with postoperative nipple asymmetry. Patient A, a 31-year-old male with grade II pseudogynecomastia. (A, C) Preoperative and (B, D) postoperative views are shown. The postoperative photos were taken 3 months after surgery. He developed asymmetry of the nipple-areola complexes, with the left nipple placed higher than the right.

Figure 7. Patient with conversion to free nipple graft early in our experience. Patient H, a 38-year-old male with grade II pseudogynecomastia. (A, C) Preoperative and (B, D) postoperative views are shown. The postoperative photos were taken 6 months after surgery demonstrates the flat and large appearance of the nipple after conversion to free nipple graft.

Table 1. Patient Characteristics

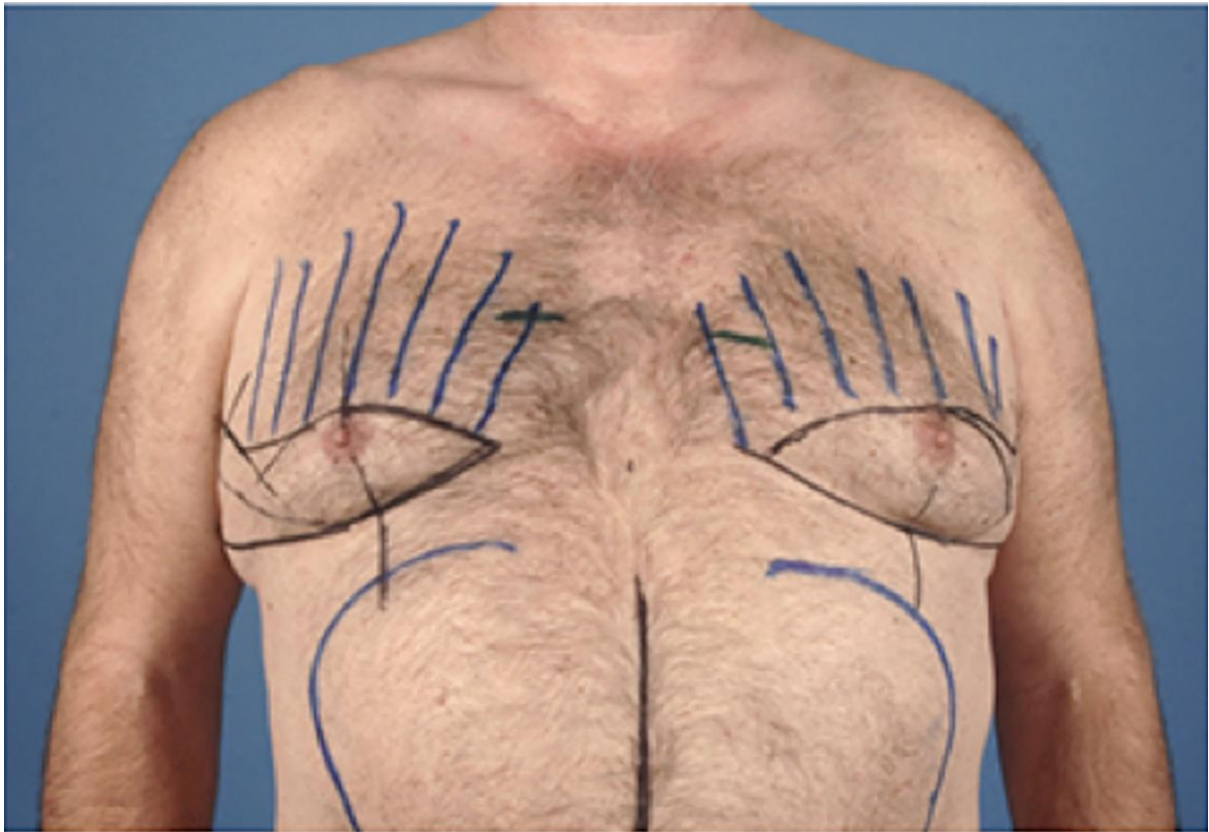
| Patient | Age, years | Pre-WL BMI, kg/m ² | Post-WL BMI, kg/m ² | Total-WL, kg | Method-WL | Grade* | Other procedures |
|---------|------------|-------------------------------|--------------------------------|--------------|------------------------|--------|--|
| A | 31 | 66.1 | 31.8 | 111.58 | Gastric sleeve | II | Brachioplasty, thighplasty |
| B | 39 | 49.3 | 30.1 | 58.97 | Lifestyle modification | II | Lower body lift, thighplasty |
| C | 57 | 44.2 | 32.7 | 36.28 | Gastric sleeve | IB | Abdominoplasty |
| D | 45 | 91.2 | 29.0 | 185.98 | RYGB | III | Abdominoplasty, brachioplasty, neck z-plasty |
| E | 34 | 53.3 | 30.8 | 79.40 | Band | III | Abdominoplasty |
| F | 34 | 39.9 | 25.1 | 50.36 | Lifestyle modification | II | Abdominoplasty |
| G | 37 | 47.4 | 29.5 | 70.30 | Lifestyle modification | IB | Lower body lift, thighplasty |
| H | 38 | 61.0 | 25.5 | 125.20 | Lifestyle modification | II | Abdominoplasty, brachioplasty |
| I | 58 | 41.1 | 30.2 | 38.50 | Lifestyle modification | - | Abdominoplasty |
| J | 30 | 58.1 | 31.2 | 90.00 | Gastric sleeve | - | Panniculectomy |
| K | 44 | 54.3 | 28.6 | 81.65 | Gastric sleeve | III | Upper body lift, abdominoplasty, brachioplasty |
| L | 32 | 34.5 | 27.5 | 25.00 | Lifestyle modification | - | Lower body lift |
| M | 52 | 42.4 | 26.7 | 131.2 | Gastric sleeve | I | Abdominoplasty |
| N | 36 | 44.7 | 36.2 | 31.8 | Lifestyle modification | - | Abdominoplasty |

*Grade of pseudogynecomastia based on classification by Gusenoff et al.¹⁴

Table 2. Complications

| Patient | Grade | Complication | Revision |
|---------|-------|----------------------------------|----------|
| A | II | NAC asymmetry | None |
| B | II | None | None |
| C | IB | None | None |
| D | III | Delayed healing, nipple necrosis | None |
| E | III | Hyperpigmentation, IMF asymmetry | None |
| F | II | None | None |
| G | IB | None | None |
| H | IB | None | None |
| I | - | None | None |
| J | - | None | None |
| K | III | None | None |
| L | - | Seroma | None |
| M | I | None | None |
| N | - | None | None |

Figure 1a



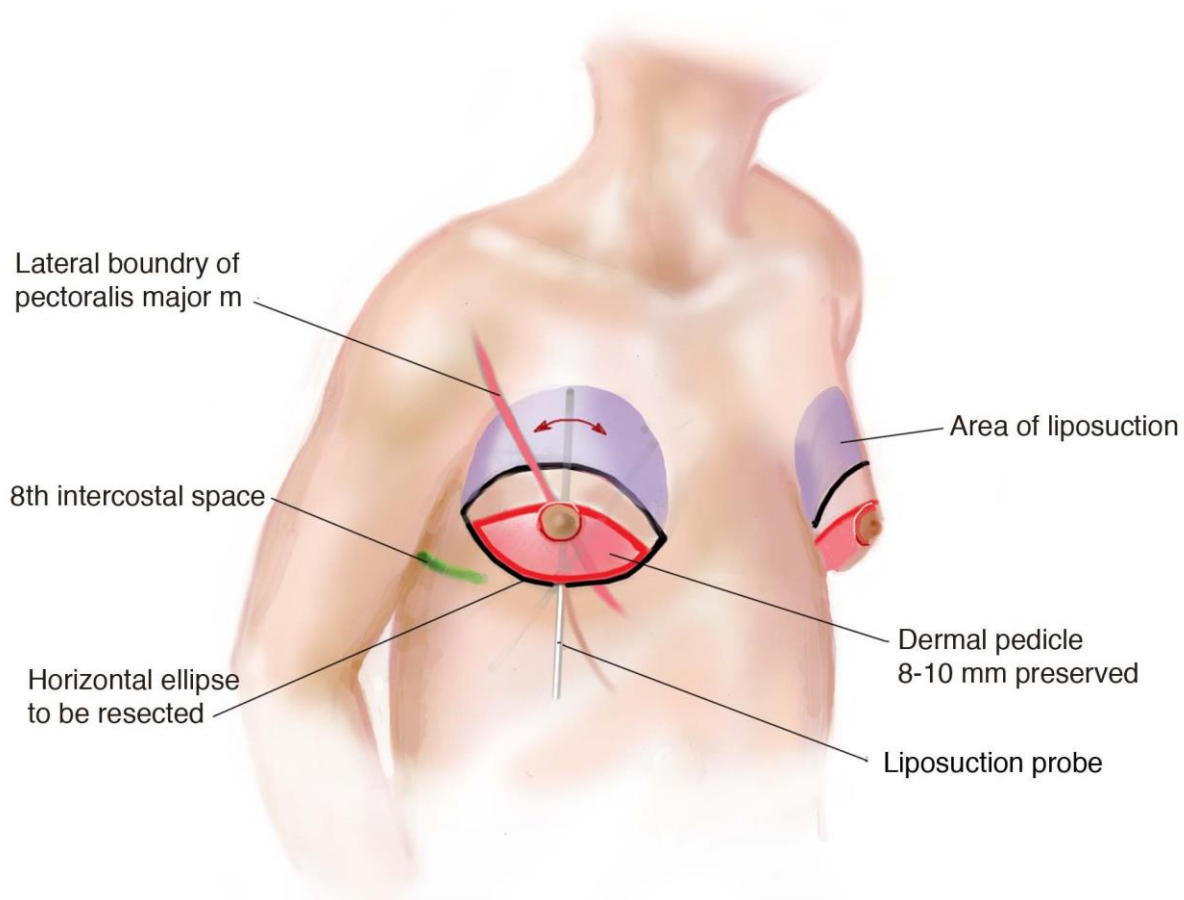
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Figure 1b



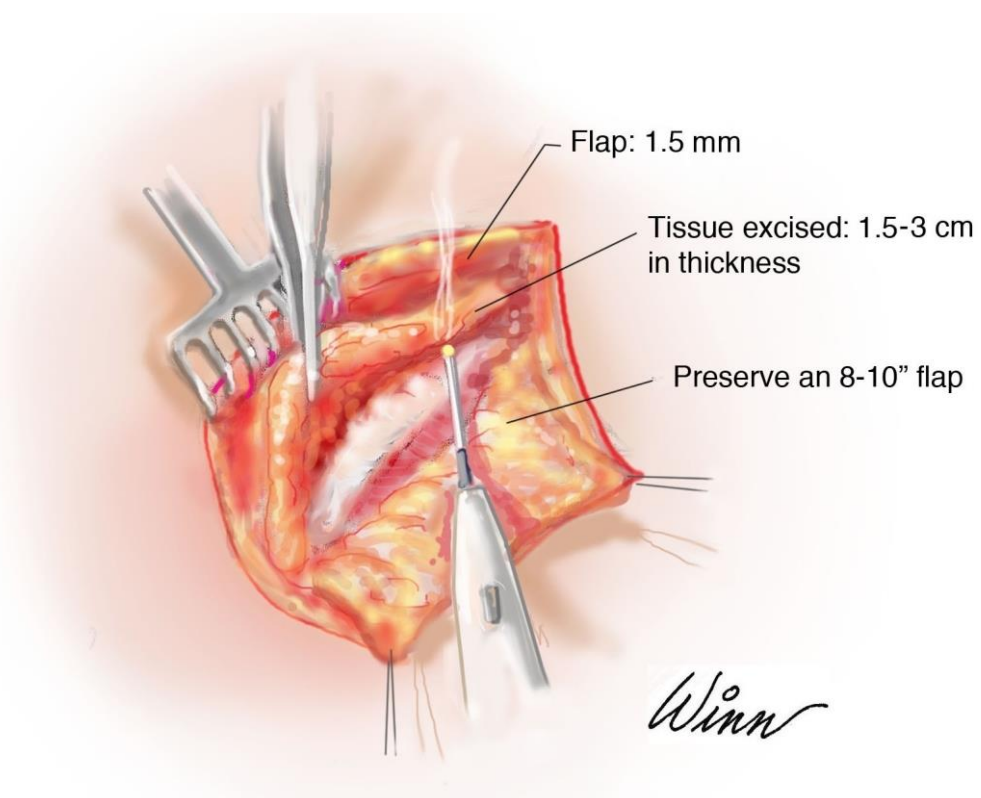
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Figure 2



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Figure 3



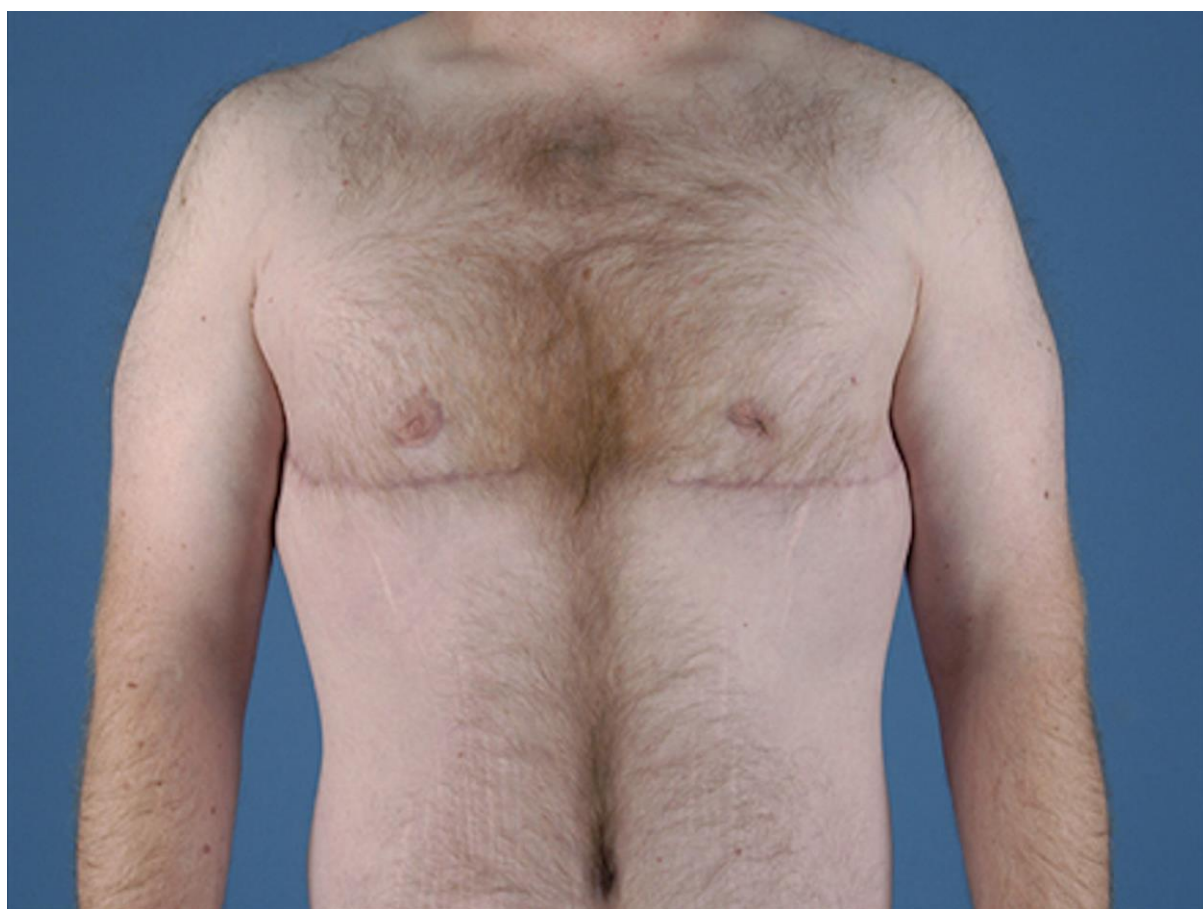
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Figure 4a.



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Figure 4b.



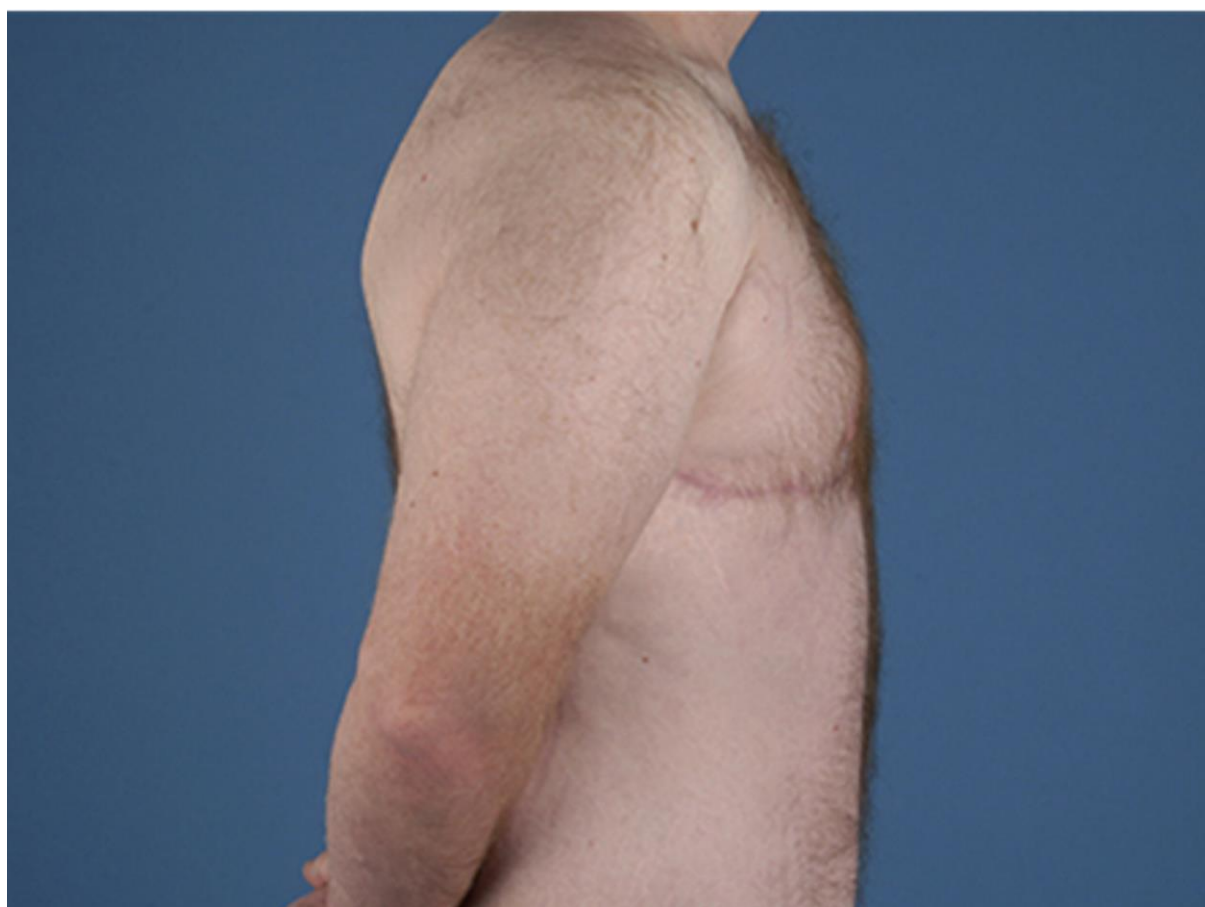
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Figure 4c.



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Figure 4d.



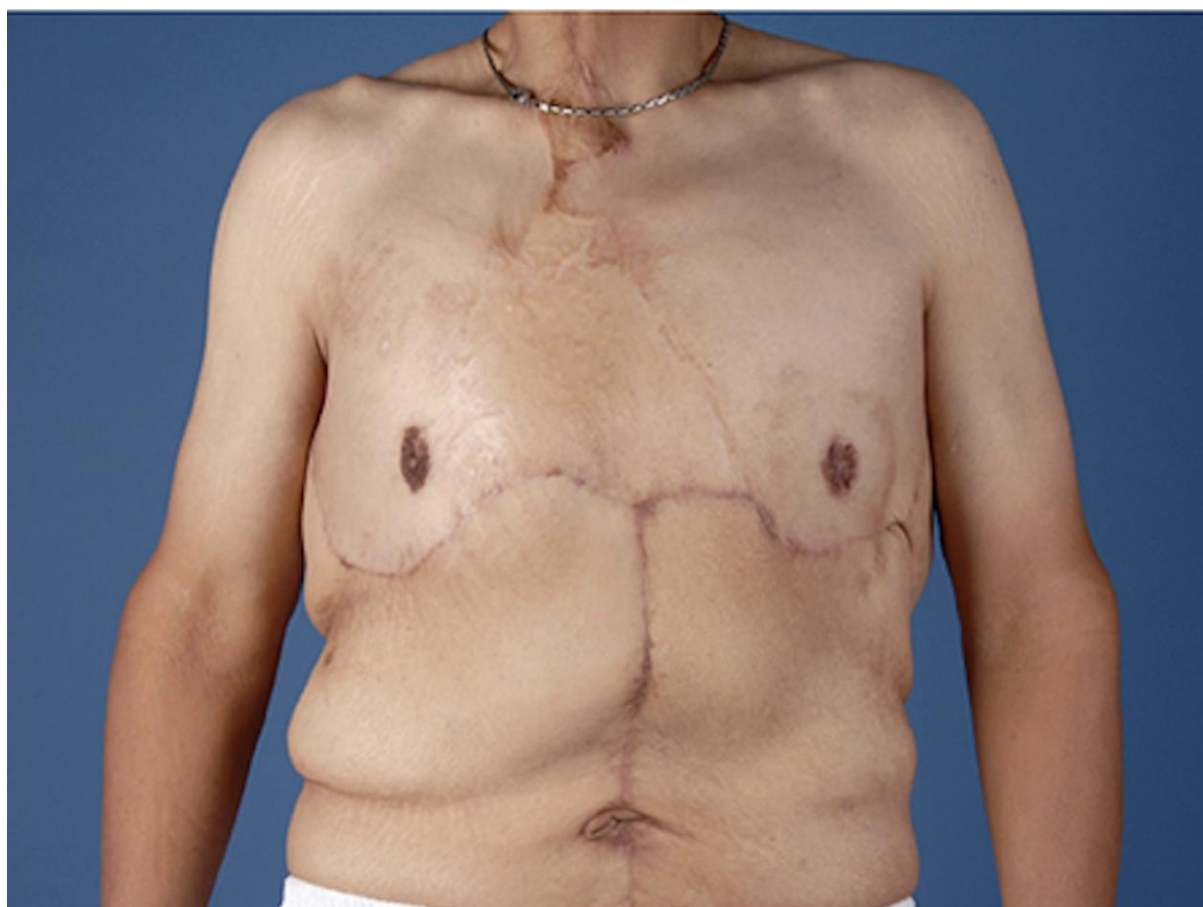
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Figure 5a.



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Figure 5b.



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Figure 5c.



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Figure 5d.



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Figure 6a



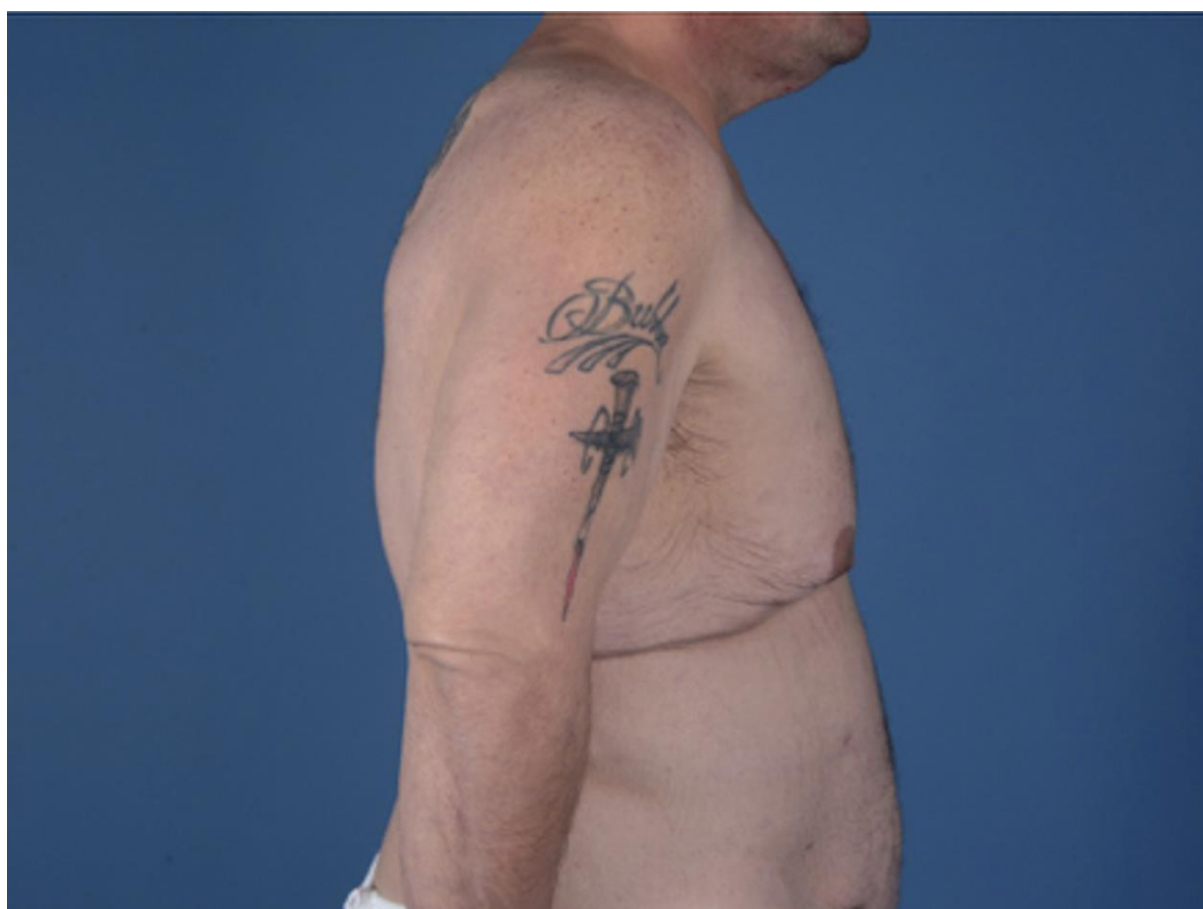
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Figure 6b



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Figure 6c



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Figure 6d



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Figure 7a



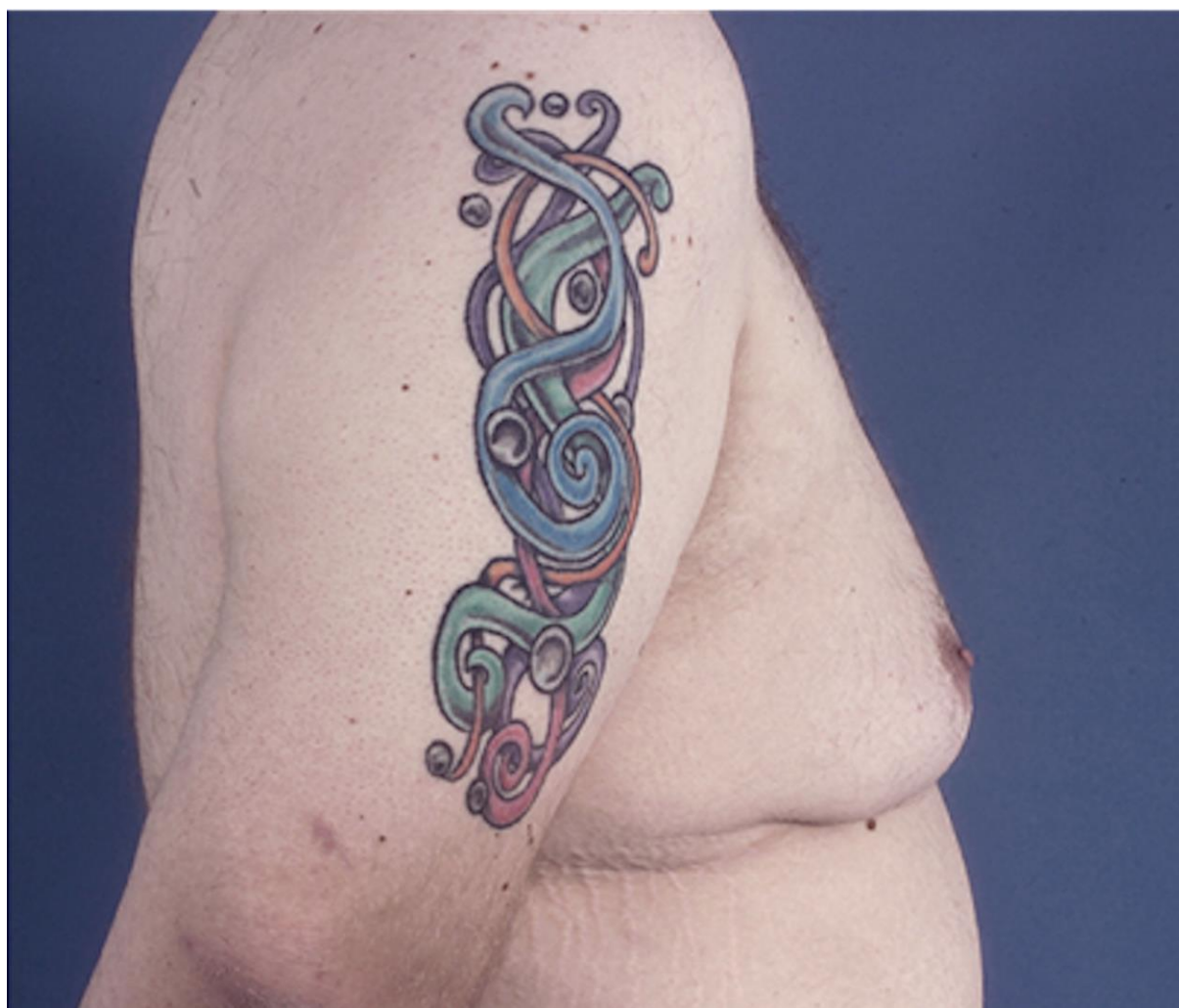
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Figure 7b



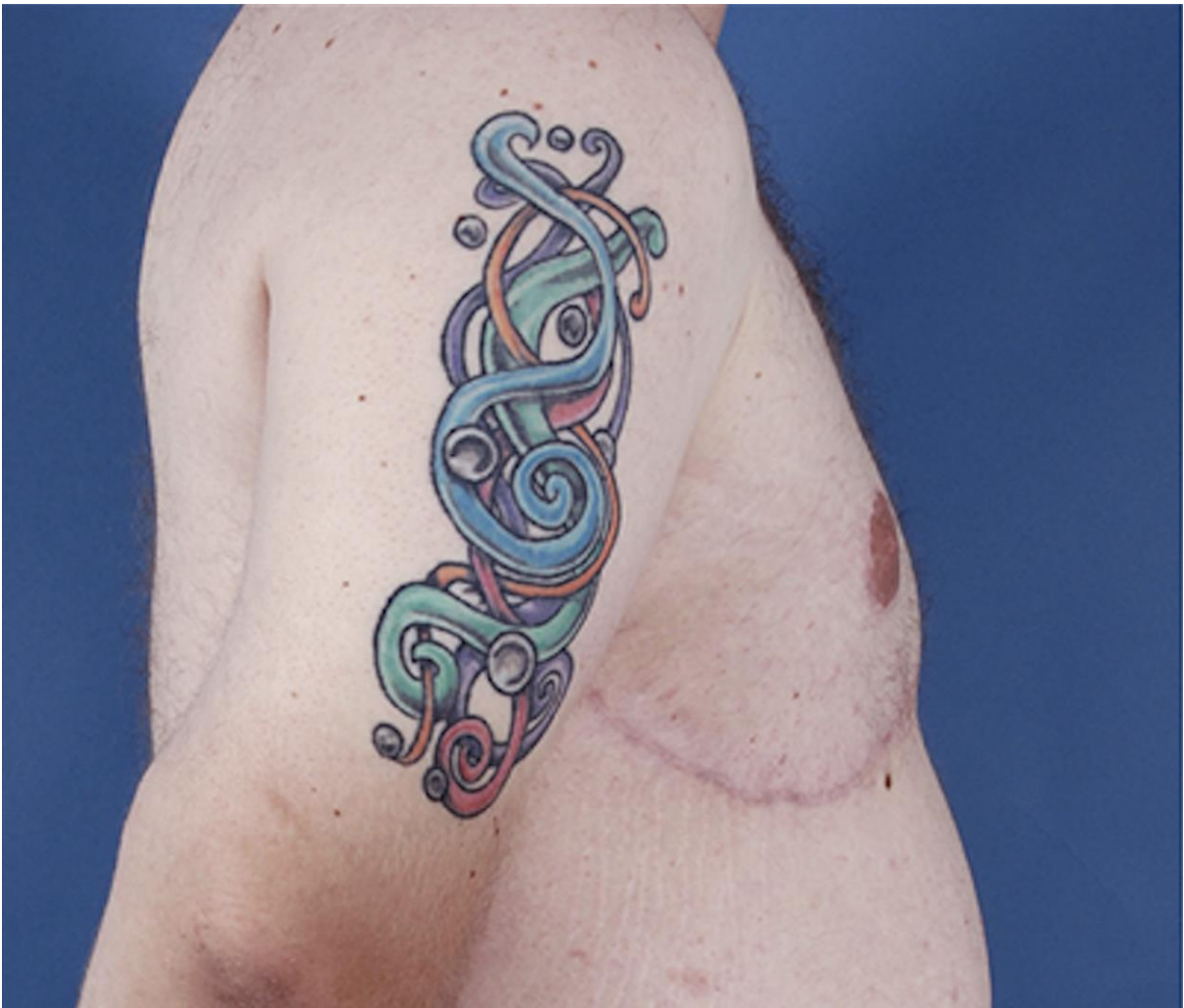
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Figure 7c



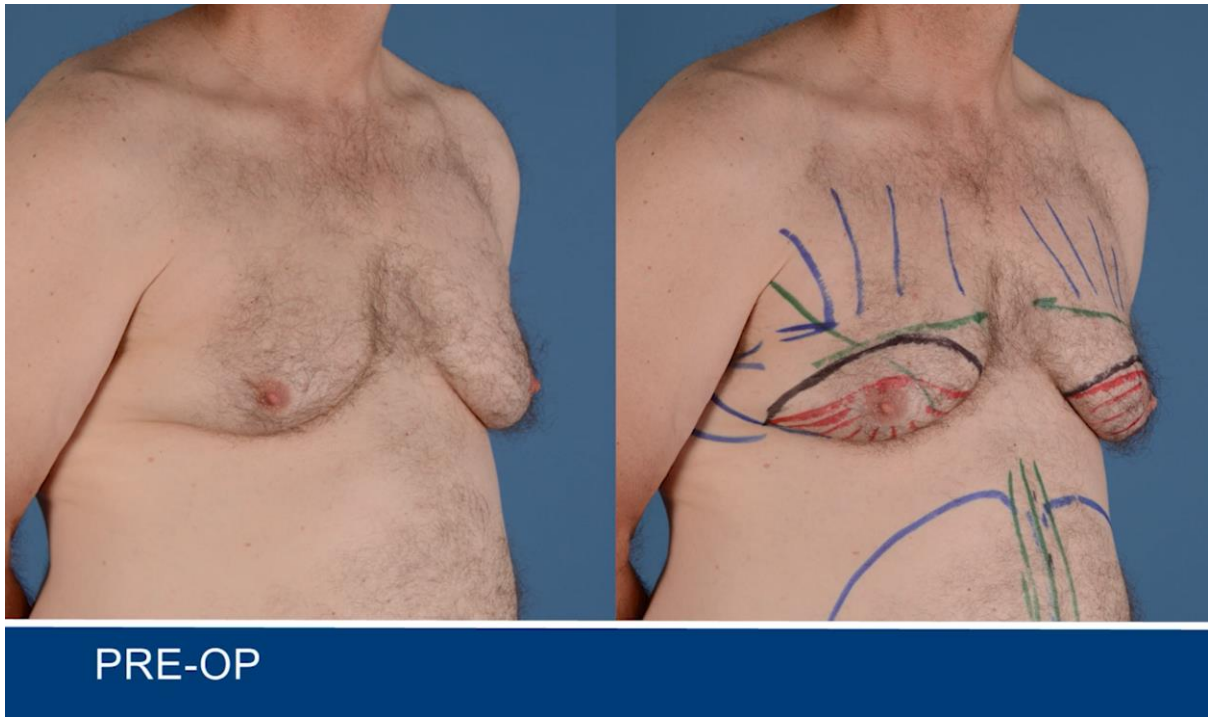
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Figure 7d



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Video Still Image



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