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Post Bariatric Body Contouring

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Abstract

This article discusses about the psychological and nutritional aspects following massive weight loss. The preoperative evaluationand technique of post bariatric body contouring also included. It analyses various studies involving management of massive weight loss patients. Different aspects of surgical correction are being discussed in the study. It shows that massive weight loss patients may be dealt in a different manner than other patients due to the various psychosocial and physiological changes.

Keywords: Post Bariatric; Body Contouring.

INTRODUCTION

This article discusses the nutritional and psychological changes that can occur in patients following massive weight loss. Once deformities develop, it has to be surgically corrected. Preoperative evaluation is very important for these patients. The various treatment options for body contracture this is analysed and discussed. Once the complications following the surgery is out.

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MATERIALS AND METHODS

This article discusses the nutritional and psychological considerations in the massive weight loss patient, anatomical considerations in this patient group, and the surgical techniques designed to address these anatomic concerns. Important studies are reviewed and discussed.

RESULTS

Based on the inclusion criteria 79 articles were studied to discuss the various modalities for post bariatric body contouring. The preoperative evaluation, procedures and complications identified.

DISCUSSION

Issues of the patient:

1. Post massive weight loss nutritional deficiencies.

- Iron, folic acid, vit B12 deficiencies.
- Thiamine deficiency and Wernicke's encephalopathy.

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- Fat soluble vitamin (ADEK) deficiency.
- Calcium, vitamin D deficiency.
- Protein deficiency.

2. Psychological aspects of massive weight loss.
3. Post bariatric body contouring.
4. Issues of the patient: difficulty maintaining hygiene and difficulty exercising due to the obtrusive skin. Patients can present with dermatitis, intertrigo, and skin infections.

Timing of surgery: contouring should be started after full weight loss and not be started within 6 months.

Six major areas of the body that are considered for surgical correction after weight loss: the mid-body; breasts and chest; arms and axillae; back; thighs; and the face and neck.

Abdomen, Back, Thigh, and Gluteal Region: The back can be subdivided into upper and lower regions. The upper region is continuous with the breasts and chest. The lower back is continuous with the abdomen anteriorly and the buttocks and thigh inferiorly. The back can be subdivided into upper and lower regions. The upper region is continuous with the breasts and chest. The lower back is continuous with the abdomen anteriorly and the buttocks and thigh inferiorly.

The patient can have significant functional concerns related to their thighs, including rashes, chafing, and skin break down as well as cosmetic concerns.

1. **Belt lipectomy:** The circumferential operation does address these areas, namely the ptotic lateral thighs, hips, and buttocks. These can be elevated at the time of belt lipectomy. The lower back roll is also released and excised during the posterior portion of the operation. The midline anterior rectuss heath can be plicated and the lateral abdomen can be assessed and plicated in an oblique fashion, if necessary.[47] Many approaches have been described for lower body contouring in these patients, including patient positioning and sequencing. Hurwitz[48] described a "total body lift" in which thighplasty, as well as extremity and breast contouring, may be incorporated in the same setting. De la Torre and Cerio[49] have described combining the lower body lift with liposuction and gluteal flap surgery. Surgery starts in the prone position with the gluteal surgery performed first before the patient is then rotated into a supine position to complete anterior truncal surgery.
2. **Lower body lift:** The lower body lift is essentially the same operation as the belt lipectomy, with one major difference. The lower body lift places the incisions, both anteriorly and posteriorly, in a significantly lower position than those of the belt lipectomy. The scar through the buttock and not in the natural plane between the buttock and lower back. It also has less improvement of the waist line.
3. **Abdominoplasty:** Skin laxity limited to the anterior trunk and abdomen without a back or buttock component, a traditional abdominoplasty.
4. **Fleur de lisabdominoplasty:** skin laxity limited to the anterior trunk and abdomen without a back or buttock component, a traditional abdominoplasty.

Buttock lift and Gluteal augmentation: Gluteal augmentation include autologous augmentation with local flaps, fat transfer, and implant placement.

Thigh lift: Thigh fat can be assessed and categorized into either conical or cylindrical deformities. Based on this assessment, the proper surgical procedure can be chosen. The cylindrical variant of thigh deformities usually requires a vertical resection in addition to a horizontal skin resection. T

Upper body lift: The upper back will frequently have pendulous rolls after MWL that require surgical resection.

Liposuction: liposuction an area with good skin quality that has the potential to retract over time. Failure to adhere to this principle will cause additional excess ptotic skin.

Arm contouring: El Khatib 55 proposed a classification of brachial ptosis with suggested treatment of each stage.

stage 1 as minimal adipose tissue deposits and minimal ptosis, which could be treated with circumferential liposuction alone.

stage 4 is defined as minimal adipose tissue with severe skin ptosis: these patients would benefit from a brachioplasty procedure.

Patients classified as stage 2 or 3 would benefit from combination brachioplasty and liposuction procedure.

A traditional brachioplasty involves a longitudinal incision along the entire arm from the axilla to the elbow, with the scar placed anteriorly, medially, or posteriorly.[58] skin is excised, it is

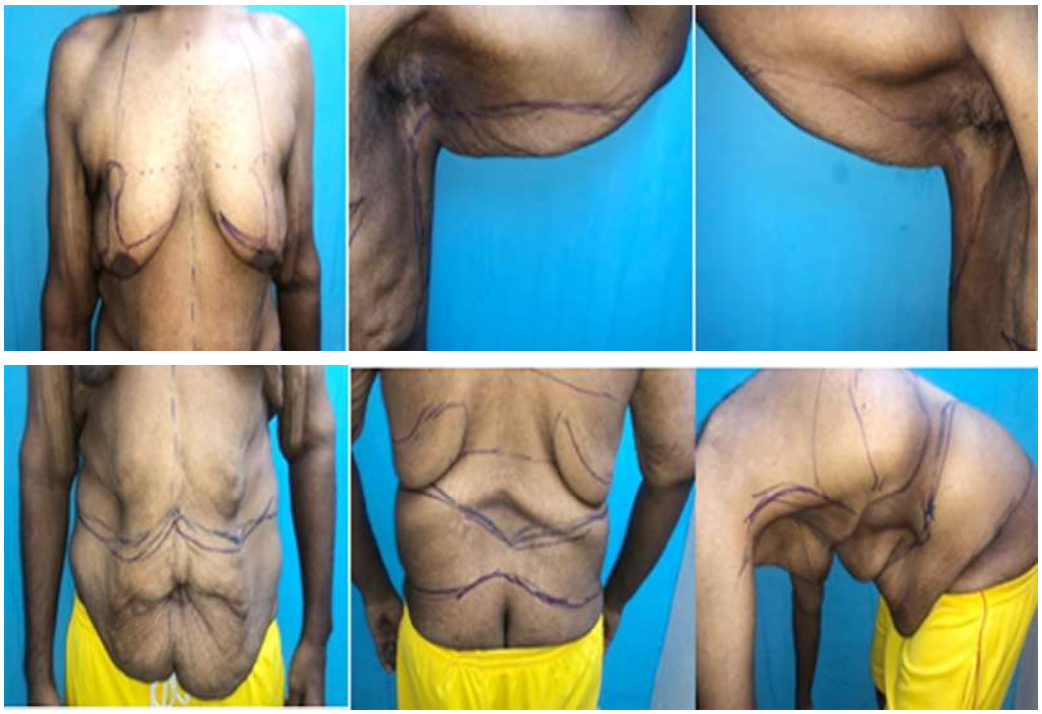

Fig. 1: A case of post bariatric surgery multiple body deformities

advanced from a distal to proximal direction, there by working the skin into the axilla. A tailor tacking technique is used to avoid over resection.

Facial contouring: a skin resection, superficial musculoaponeurotic system elevation via plication or dissection, malar fat pad elevation, and/or fat grafting. The neck can also be included in the face lifting procedure.

Breast and chest augmentation: Changes after MWL include medialization of the nipple-areola complex (NAC), lateralization of the breast mound, extension of the breast into the axillary fold, inferior displacement of the infra-mammary fold (IMF), skin laxity, and deflation of the upper pole. Patients with sufficient breast volume and ptosis will benefit from mastopexy. In patients with ptosis and insufficient breast volume redistribute the patient's own tissue to "autoaugment" the upper pole of the breast by mastopexy with implant augmentation.

Complications

1. Hematoma
2. Skin necrosis
3. Seroma
4. Infection
5. Venous thromboembolism

CONCLUSION

Post-bariatric medical, psychological, and surgical issues are needed to be corrected for over all benefit of the patient.

REFERENCES

1. Gu JK, Charles LE, Bang KM, et al. Prevalence of obesityamong US workers: the National Health Interview Survey2004-2011. J Occup Environ Med. 2014;56(5):516-528.
2. Herron DM, Roohipour R. Bariatric surgical anatomy andmechanisms of action. Gastrointest Endosc Clin N Am.2011;21(2):213-228.
3. Hng KN, Ang YS. Overview of bariatric surgery for the physician. Clin Med. 2012;12(5):435-440.
4. Kruger RS, Pricolo VE, Streeter TT, Colacchio DA,Andrade UA. A bariatric surgery center of excellence: operative trends and long-term outcomes. J Am Coll Surg.2014;218(6):1163-1174.
5. Lazzati A, Guy-Lachuer R, Delaunay V, Szwarcenszte in KAzoulay D. Bariatric surgery trends in France: 2005-2011. Surg Obes Relat Dis. 2014;10(2):328-334.
6. Reiffel AJ, Jimenez N, Burrell WA, et al. Body contouringafter bariatric surgery: how much is really being done?Ann Plast Surg. 2013;70(3):350-353.
7. Kitzinger HB, Abayev S, Pittermann A, et al. The prevalence of body contouring surgery after gastric by pass surgery. Obes Surg. 2012;22(1):8-12.
8. Song AY, Jean RD, Hurwitz DJ, Fernstrom MH, Scott JA,Rubin JP. A classification of contour

deformities afterbariatric weight loss: the Pittsburgh Rating Scale. Plast Reconstr Surg. 2005;116(5):1535-1546.

9. Winkler S, Bogert MC, Herman CK. Nutrition. In: Strauch B Herman CK, eds. Encyclopedia of Body Sculpting After Massive Weight Loss. New York, NY: Thieme Medical Publishers; 2011, Pp. 18–28.
10. Song A, Fernstrom MH. Nutritional and psychological considerations after bariatric surgery. Aesthet Surg J.2008;28(2):195-199.
11. Malinkowski SS. Nutritional and metabolic complications of bariatric surgery. Am J Med Sci. 2006;331(4):219-225.
12. Bloomberg RD, Fleishman A, Nalle JE, Herron DM, KiniS. Nutritional deficiencies following bariatric surgery: what have we learned? Obes Surg. 2005;15(2):145-154.
13. Madan AK, Orth WS, Tichansky DS, Ternovits CA.Vitamin and trace mineral levels after laparo scopic gastric by pass. Obes Surg. 2006;16:603-606.
14. Faintuch J, Matsuda M, Cruz ME, et al. Severe proteincalorie mal nutrition after bariatric procedures. Obes Surg.2004;14(2):175-181.
15. Blume CA, Boni CC, Casagrande DS, Rizzolli J, Padoin AV Mottin CC. Nutritional profile of patients before and after Roux-en-Y gastric by pass: 3-year follow-up. Obes Surg. 2012;22(11):1675-1685.
16. Love AL, Billet HH. Obesity, bariatric surgery, and iron deficiency: true, true, true, and related. Am J Hematol.2008;83:403-409.
17. Obinwanne KM, Fredrickson KA, Mathiason MA, KalliesKJ, Farnen JP, Kothari SN. Incidence, Treatment, and Outcomes of Iron Deficiency after Laparoscopic Roux-en-Y Gastric By pass: A 10-Year Analysis. J Am Coll Surg. 2014;218(2):246-252.
18. Brolin RE, Gorman JH, Gorman RC, et al. Are vitamin B12and folate deficiency clinically important after Roux-en-Ygastric by pass? J Gastrointest Surg. 1998;2:436-442.
19. Vargas-Ruiz AG, Hernandez-Rivera G, Herrera MF. Prevalence of iron, folate, and vitamin B12 deficiency anemia after laparoscopic Roux-en-Y gastric by pass. Obes Surg. 2008;18:288-293.
20. Marinella MA. Anemia following Roux-en-Y surgery for morbid obesity: a review. South Med J. 2008;101:1024-1031.
21. Moize V, Geliebter A, Gluck ME, et al. Obese patientshave in adequate protein in take related to protein intolerance up to 1 year following Roux-en-Y gastric by pass. Obes Surg. 2003;13(1):23-28.
22. Mechanick JI, Kushner RF, Sugerman HJ, et al. American Association of Clinical Endocrinologists, The Obesity Society, and American Society for Metabolic & Bariatric Surgery medical guidelines for clinical practice for the perioperative nutritional, metabolic, and non surgical support of the bariatric surgery patient. Obesity (Silver Spring). 2009;17(Supp 1):S1-70.
23. Heber D, Greenway FL, Kaplan LM, Living ston E,Salvador J, Still C. Endocrine and nutritional management of the post-bariatric surgery patient: an Endocrine Society Clinical Guideline. J Clin Endocrinol Metab.2010;95(11):4823-4843.
24. Tanphaichtr V. Thiamine. In: Shill ME, Olson JA, ShikeM, eds. Modern nutrition in health and disease. Philadelphia, PA: Lea &Febiger; 1994:359-364.
25. Worden RW, Allen HM. Wernicke's encephalopathy after gastric by pass that masqueraded as acute psychosis: acase report. Curr Surg. 2006;63(2):114-116.
26. Iannelli A, Addeo P, Novellas S. Wernicke's encephalopathy after laparoscopic Roux-en-Y gastric bypass: A misdiagnosed complication. Obes Surg. 2010;20:1594-1596.
27. De Prisco C, Levine SN. Metabolic bone disease after gastricbypass surgery for obesity. Am J Med Sci. 2005;329:57-61.
28. Marceau P, Biron S, Lebel S, et al. Does bone change after biliopancreatic diversion? J Gastrointest Surg. 2002;6:690-698.
29. Carlin AM, Rao DS, Yager KM, Genaw JA, Parikh NJ, Zzymanski W. Effect of gastric by pass surgery on vitamin b D nutritional status. Surg Obes Relat Dis. 2006;2:638-642.
30. Newbury L, Dolan K, Hatzifotis M, Low N, Fielding G.Calcium and vitamin D depletion and elevated parathyroid hormone following biliopancreatic diversion. ObesSurg. 2003;13:893-895.
31. Slater GH, Ren CJ, Siegel N, et al. Serum fat-solubleb vitamin deficiency and abnormal calcium metabolism after malabsorptive bariatric surgery. J Gastrointest Surg.2004;8:48-55.
32. Clements RH, Katasani VG, Palepu R, et al. Incidence ofvitamin deficiency after laparoscopic Roux-en-Y gastricbypass in a university hospital setting. Am Surgeon.2006;72(12):1196-1202.
33. Eckert MJ, Perry JT, Sohn VY, et al. Incidence of low vitamin A levels and ocular symptoms after Roux-en-Ygastric by pass. Surg Obes Relat Dis. 2010;6(6):653-657.
34. Allied Health Sciences Section Ad Hoc Nutrition Committee Aills L, Blanken ship J, Buffington C, Furtado BM Parrott J. ASMBS Allied Health nutritional guide lines for the surgical weight loss patient. Surg Obes Relat Dis.2008;4(Supp 5):S73-108.
35. Pereira S, Saboya C, Chaves G, Ramalho A. Class IIIobesity and its relationship with the nutritional status of b vitamin A in pre - and posto perative gastric b ypass. ObesSurg. 2009;19(6):738-744.

36. Levinson R, Silverman JB, Catella JG, Rybak I, Jolin H, Isom K. Pharmaco therapy prevention and management of nutritional deficiencies post Roux-en-Y gastric bypass. Obes Surg. 2013;23(7):992-1000.
37. Mitchell JE, Selzer F, Kalarchian MA, et al. Psychopathology before surgery in the longitudinal assessment of bariatric surgery-3 (LABS-3) psychosocial study. Surg Obes Relat Dis.2012;8(5):533-541.
38. O'Dowd MA, Gomez MF. Origins and psychiatric management of compulsive eating disorders. In: Strauch B, HermanCK, eds. Encyclopedia of body sculpting after massive weight loss. New York, NY: Thieme Medical Publishers; 2011, Pp.11–17.
39. Sarwer DB, Thompson JK, Mitchell JE, Rubin JP.Psychological considerations of the bariatric surgery patient under going body contouring surgery. Plast Reconstr Surg. 2008;121(6):423e-434e.
40. Sarwer DB, Fabricatore AN. Psychiatric considerations of the massive weight loss patient. Clin Plast Surg. 2008;35(1):1-10.
41. Consensus Development Conference Panel. Gastrointestinal surgery for severe obesity: Consensus Development Conference Statement. Ann Intern Med. 1991;115:956-961.
42. Adams TD, Gress RE, Smith SC, et al. Long-term mortality after gastric bypass surgery. N Engl J Med. 2007;357:753-761.
43. Faulconbridge LF, Wadden TA, Thomas JG, JonesCorneille LR, Sarwer DB, Fabricatore AN. Changes in depression and quality of life in obese individuals with binge eating disorder: bariatric surgery versus lifestyle modification. Surg Obes Relat Dis. 2013;9(5):790-796.
44. Michaels J 5th, Coon D, Rubin JP. Complications in postbariatric body contouring: strategies for assessment andprevention. Plast Reconstr Surg. 2011;127(3):1352-1357.
45. Kenkel JM, ed. Marking and operative techniques: body contouring surgery after massive weight loss. Plast Reconstr Surg. 2006;117:45SB73S.
46. Strauch BS, Herman CK. Medial thigh contouring: conesand cylinders. In: Strauch B, Herman CK, eds. Encyclopedia of body sculpting after massive weight loss. New York, NY: Thieme Medical Publishers; 2011, Pp.265–271.
47. Strauch B, Herman C, Rohde C, Baum T. Mid-body contouring in the post-bariatric surgery patient. Plast Reconstr Surg. 2006;117(7):2200-2211.
48. Hurwitz DJ. Single-staged total body lift after massive weight loss. Ann Plast Surg. 2004;52:435-441.
49. De la Torre JI, Cerio DR. Lower body lift combined with liposuction and gluteal flap surgery. In: Strauch B, Herman CK, eds. Encyclopedia of body sculpting after massive weight loss. New York, NY: Thieme Medical Publishers; 2011, Pp. 90–102.
50. Shestak KC. Halfway to a body lift. In: Strauch B, HermanCK, eds. Encyclopedia of body sculpting after massive weight loss. New York, NY: Thieme Medical Publishers; 2011, Pp. 121–127.
51. Gonzalez-Ulloa M. Belt lipectomy. Br J Plast Surg.1960;13:179-186.
52. Friedman T, O'Brien Coon D, Michaels J, et al.Fleur-de-lis abdominoplasty: a safe alternative to traditional abdomino plasty for the massive weight loss patient. Plast Reconstr Surg. 2010;125(5):1525-1535.
53. Centeno RF, Mendieta CG, Young VL. Gluteal contouringsurgery in the massive weight loss patient. ClinPlast Surg. 2008;35(1):73-91.
54. Green spun DT, Herman CK, Strauch B. Brachioplasty with inter digitation of the posteromedial scar. In: Strauch B, Herman CK, eds. Encyclopedia of body sculpting after massive weight loss. New York, NY: Thieme Medical Publisher; 2011, Pp. 149–154.
55. El Khatib HA. Classification of brachial ptosis: strategy for treatment. Plast Reconstr Surg. 2007;119:1337-1342.
56. Appelt EA, Janis JE, Rohrich RJ. An algorithmic approachto upper arm contouring. Plast Reconstr Surg. 2006;118:237-246.
57. Strauch B, Greenspun D, Levine J, Baum T. A technique of brachioplasty. Plast Reconstr Surg. 2004;113:1044-1048.
58. Shermak MA. Body contouring. Plast Reconstr Surg.2012;129(6):963e-978e.
59. Trussler AP, Rohrich RJ. Limited incision medial brachioplasty: technical refinements in upper arm contouring. Plast Reconstr Surg. 2008;121(1):305-307.
60. Cannistra C, Valero R, Benelli C, Marmuse JP. Brachioplasty after massive weight loss: a simple algorithm for surgical plan. Aesthet Plast Surg. 2007;31:6-9.
61. Rubin JP, Michaels J. Correction of arm ptosis with amedial bicipital scar. In: Strauch B, Herman CK, eds. Encyclopedia of body sculpting after massive weightloss. New York, NY: Thieme Medical Publishers; 2011, Pp. 163–171.
62. Shermak MA. Surgical wound care and complication management. In: Shermak MA, ed. Body contouring: McGraw-Hill plastic surgery atlas. New York: McGraw Hill Medical; 2011, Pp. 22–28.
63. Regnault P. Breast ptosis. Definition and treatment. Clin Plast Surg. 1976;3(2):193-203.
64. Spear SL, Low M, Ducic I. Revision augmentation mastopexy: indications, operations, and outcomes. Ann PlastSurg. 2003;51:540-546.
65. Hoffman S. Some thoughts on augmentation/

mastopexy and medical malpractice. Plast Reconstr Surg. 2004;113: 1892-1893.

66. Stevens WG, Macias LH, Spring M, Stoker DA, Chacón COE berlin S. One stage augmentation mastopexy: areview of 1192 simultaneous breast augmentation and mastopexy procedures in 615 consecutive patients. Aesthet Surg J. 2014;34(5):723-732.
67. Rubin JP. Mastopexy after massive weight loss: dermalsuspension and total parenchymal reshaping. AesthetSurg J. 2006;26(2):214-222.
68. Gusen off JA, Coon D, Rubin JP. Pseudogynecomastia after massive weight loss: detectability of technique, patient satisfaction, and classification. PlastReconstrSurg. 2008;122(5):1301-1311.
69. Stuzin JM. MOCS-PS CME article: face lifting. Plast Reconstr Surg. 2008;121(Supp 1):S1-S19.
70. Michaels J 5th, Coon D, Rubin JP. Complications in postbariatric body contouring: postoperative management andtreatment. PlastReconstr Surg. 2011;127(4):1693-1700.
71. Coon D, Gusen off JA, Kannan N, El KhoudarySR, Naghshineh N, Rubin JP. Body mass and surgical complications in the postbariatric reconstructive patient: analysis of 511 cases. Ann Surg.2009;249(3):397-401.
72. Capella JF. Body lift. ClinPlast Surg. 2008;35:27-51.
73. Lockwood T. High-lateral-tension abdominoplasty with superficial fascial system suspension. PlastReconstr Surg.1995;96:603-615.
74. Shermak MA, Rotellini-Coltvet LA, Chang D. Seroma development following body contouring surgery for massive weight loss: patient risk factors and treatment strategies. PlastReconstr Surg. 2008;122(1):280-288.
75. Nemer of sky RB, Oliak DA, Capella JF. Body lift: anaccount of 200 consecutive cases in the massive weight loss patient. PlastReconstr Surg. 2006;117(2):414-430.
76. Waycaster C, Milne CT. Clinical and economic benefit of enzymatic debridement of pressure ulcers compared toautolytic debridement with a hydrogel dressing. J MedEcon. 2013;16(7):976-986.
77. Shermak MA. Pearls and pitfalls of caring for the postbariatric contouring patient. PlastReconstr Surg.2012;130(4):585e-596e.
78. Reish RG, Damjanovic B, Colwell AS. Deep venous thrombosis prophylaxis in body contouring: 105 consecutive patients. Ann Plast Surg. 2012;69(4):412-414.
79. Kearon C, Akl EA, Comerota AJ, et al. ;American College of Chest Physicians. Antithrombotic therapy for VTE disease: antithrombotic therapy and prevention of throm bosis, 9th ed: american college of chest physician sevidence-based clinical practice guidelines. Chest.2012;141(Supp 2):e419S-e494S.