UPPER BODY CONTOURING AFTER MASSIVE WEIGHT LOSS

Thesis

Submitted in Fulfillment of M.D Degree in General Surgery

By

Ahmed Adel Mohamed Nawar M.B.,B.Ch.,M.Sc. (General Surgery) Faculty of Medicine-Cairo University

Supervised By

Prof. Dr. Ahmed Gamil El-Sharkawy

Professor of General and Plastic Surgery Faculty of Medicine, Cairo University

Prof.Dr. Ahmed Tarek Atta

Professor of General and Plastic Surgery Faculty of Medicine, Cairo University

Dr. Hatem Mahmoud Helmy

Assistant Professor of General and Plastic Surgery Faculty of Medicine, Cairo University

Faculty of Medicine Cairo University 2009

To My Family

ABSTRACT and KEYWORDS

Abstract: After massive weight loss (MWL), skin redundancy remains an aesthetic and a functional problem that remains amenable only by surgical excision. Upper body deformities include the arms, breast/chest and back. *Aim of wok:* To classify the various upper body deformities with view to surgical approach. *Patients and methods:* 26 MWL patients were classified according to position of the lateral inframammary folds and underwent corrective procedures. *Conclusion:* the lateral inframammary fold position is a good tools for classifying patients into a group that requires isolated procedures to treat the upper body deformity (mastopexy/brachioplasty), and a group that needs a unit approach known as the upper body lift.

Keywords: Upper body contouring - massive weight loss – upper body lift – brachioplasty – mastopexy.

.

ACKNOWLEDGEMENTS

I am lucky to have trained under *Professor Dr. Ahmed Gamil El-Sharkawy, Professor of General and Plastic Surgery, Faculty of Medicine, Cairo University* who I consider to be my all time mentor. I am not only indebted to him for teaching me all that I know in plastic surgery, but also for teaching me wisdom. I cannot thank him enough for having confidence in me; and hope that I would always meet his high expectations. This work could not have been done without his guidance, precious time, and thorough supervision.

I would also like to thank *Professor Dr. Ahmed Tarek Atta Professor of General and Plastic Surgery, Faculty of Medicine, Cairo University* for his support and encouragement in this work, and for setting an example that one can always look up to.

Throughout this study, *Dr. Hatem Helmy Assistant Professor of General and Plastic Surgery, Faculty of Medicine, Cairo University* provided me with valuable advice. He had also taken the time to supervise all the operative part of this work. For this, I express my deepest gratitude.

This work could not have been complete without the help of Dr. Shehab Soliman Lecturer of General and Plastic Surgery, Faculty of Medicine, Cairo University who did not hesitate to share his extensive experience in the field of post massive weight loss body contouring. I would also like to thank him for his contribution by allowing us to include one of his patients in our study.

Finally, I would be remiss if I did not recognize the efforts of **all our residents** who participated actively in the preparation and follow up of all our patients.

Ahmed Nawar

LIST OF CONTENTS

		Pages
*	List of Tables	
*	List of Figures	
*	List of Abbreviations	
*	Introduction	1
*	Aim of Work	3
*	Review of Literature	
	1. The Massive Weight Loss (MWL) Patient	4
	a) Emergence of the Massive Weight Loss Population	4
	b) Definition of Massive Weight Loss	6
	c) Plastic Surgery for the MWL Patients	7
	d) General Approach to the Massive Weight Loss Patient	t 8
	2. Upper Body Deformities after MWL	17
	a) The Overall Deformity	17
	b) The Pittsburgh Rating Scale	21
	c) Deformity of the Arms	24
	c) Deformity of the Female Breast	28
	d) Deformity of the Male Chest	31
	e) Deformity of the Back and Lateral Chest	34
	3. Techniques of Upper Body Contouring after MWL	38
	a) General Considerations	38
	b) Correction of the Arm Deformity	48
	c) Correction of the Female Breast Deformity	65
	d) Correction of the Male Chest Deformity	89
	c) Correction of the Back and Lateral Thoracic Deformit	ty 94
	f) The Upper Body Lift	99

*	Patient and Methods	110
*	Results	137
*	Discussion	160
*	Summary and Conclusions	168
*	References	170
*	Arabic Summary	

LIST OF TABLES

Table (1).	Pages
Table (1): Surgical Procedures for Weight Loss	5
Table (2):	
The Pittsburgh Rating Scale for Upper Body Regions	23
Table (3): Classification and Treatment Algorithm for Pseudogynecomastia after Massive Weight Loss	89
Table (4): Distribution of patients in BMI range classes	138
Table (5): Distribution of Isolated Procedures Performed on 21 Patients	140
Table (6): Occurrence of Complications in the Different BMI Classes	143

LIST OF FIGURES

	Pages
Figure (1):	
Representative diagrams showing the Roux en Y Gastric Bypass (Left Box), and Biliopancreatic diversion with duodenal switch.	6
Figure (2) : The lamp shade analogy of Deflation	18
Figure (3):	
Potential deformities of the upper body after massive weight loss.	20
Figure (4): Epigastric rolls in a male MWL patient.	20
Figure (5): Anterior and posterior views of arm deformity.	26
Figure (6):	
Arm Pittsburgh Scale.	27
Figure (7): Deformity of the breast in the MWL patient.	28
Figure (8):	
Breast asymmetry and medial position of the nipples.	29
Figure (9):	
Loss of the "S"-like continuum from axilla to lateral breast.	30
Figure (10):	
Breast Pittsburgh Scale.	30
Figure (11):	
Grade 1 Pseudogynecomastia.	32
Figure (12): Grade 2 Pseudogynecomastia.	33
Figure (13):	
Grade 3 Pseudogynecomastia .	33
	Pages

Figure	(14):	
	The variety of back rolls after massive weight loss.	35
Figure	(15):	
	Upper back roll and lateral chest wall fullness, magnified and clearly visible wearing a bra.	36
Figure	(16):	
	Back Pittsburgh Scale.	36
Figure	<i>(17)</i> :	
	Flank Pittsburgh Scale.	37
Figure	(18):	
	Marking of the outer ellipse of brachioplasty.	51
Figure	<i>(19)</i> :	
	Marking the inner ellipse of brachioplasty.	52
Figure	(20):	
	Segmental resection and closure technique.	53
Figure	(21):	
	Final scar and Z plasty at axillary crease.	54
Figure	(22):	
	Preoperative (above) and postoperative views of the "Double Ellipse" Brachioplasty.	55
Figure	(23):	
	Marking the L Brachioplasty.	57
Figure	(24):	
	Pinching upwards of the inferior border of the medial arm to the deltopectoral groove.	57
Figure	(25):	
	Final Markings of the L brachioplasty.	58 Pages
Æ!	(0.0)	_
Figure	(26):	

	Excision and closure of the L brachioplasty .	60
Figure	(27):	
	Preoperative(above, right and left) and postoperative (below, right and and left) of L brachioplasty.	61
Figure	(28):	
	Markings of Bicipital groove brachioplasty.	62
Figure	(29):	
	Brachioplasty procedure with preliminary liposuction.	64
Figure	(30):	
	Flap excision in a segmental fashio.	64
Figure	(31):	
	Preoperative and postoperative view showing scar in the bicipital groove.	65
Figure	(32):	
	Algorithm for reshaping the MWL breast.	66
Figure	(33):	
	Limited upper body laxity and firmly positioned inframammary fold makes this patient a good candidate for augmentation mastopexy.	68
Figure	(34):	
	Markings of the Spiral flap.	70
Figure	(35):	
	Deepithelialized pattern and elevation of the spiral flap.	72
Figure	(36):	
	Positioning the spiral flap and the epigastic excess to sandwich the central breast mound.	73

	Pre and postoperative oblique views of breast and back contouring using the spiral flap techniques.	74
Figure	(38):	
	Anatomy of the LICAP flap.	75
Figure	(39):	
	Marking the ICAP flap as an extension of the Wise pattern.	76
Figure	(40):	
	Markings and Doppler markings of the LICAP flap with a vertical mastopexy pattern.	77
Figure	<i>(41)</i> :	
	Identification and dissection of the ICA Perforator.	77
Figure	<i>(42)</i> :	
	ICAP flap with Wise pattern inferior pedicle mastopexy.	78
Figure	<i>(43)</i> :	
	LICAP flap with superior pedicle vertical mastopexy.	79
Figure	(44):	
	Marking the Deepithializing the Dermal Flap.	80
Figure	<i>(45)</i> :	
	The breast parenchyma is degloved by raising a 1-cm-thick flap. Medial and lateral flaps of dermis/breast tissue are mobilized from the che	st wall. 82
Figure	(46):	
Ü	Securing the central dermal extension to the 2 nd rib.	83
Figure	(47):	
Ü	Plication of the dermal flaps to reshape the breast parenchyma.	84
		Pages
Figure	(48):	
Ü	The final shape of the plicated breast.	84

Figure	(49):	
	Preoperative (left, above and below) and postoperative (right, above and below) views of dermal suspension mastopexy.	85
Figure	(50):	
	The superomedial pedicle is deepithelialized and dissected down to the inframammary fold and chest wall. Wise pattern markings have been used to excise excess skin laterally. Pedicle has been rotated superiorly.	. 87
Figure	<i>(51)</i> :	
	Passage of the inferior chest flap under a loop of pectoralis muscle.	88
Figure	<i>(52)</i> :	
	Treatment of Grade 1b pseudogynecomastia.	90
Figure	<i>(53)</i> :	
	Markings for pedicled reconstuction.	91
Figure	<i>(54)</i> :	
	The dermoglandular pedicle.	92
Figure	<i>(55)</i> :	
_	Pedicled nipple reconstruction: Post operative result.	92
Figure	(56):	
Ü	Pre and post operative views of free nipple grafting.	93
Figure	(57):	
J	Boomerang shaped pattern excision.	94
Figure	(58):	
J	Markings for excision of back rolls.	96
Figure	(59):	
<i>o</i>	Preoperative marking and postoperative scar of isolated lateral thoracic lift after previous limited brachioplasty.	98
		Pages
Figure	(60):	. ugoo
_		

Lateral descent of inframammary fold and correction by lateral thorac excision only .	ic 98
Figure (61):	
Intersection of markings of the brachioplasty and the lateral thoracic a excisions in males.	and back 101
Figure (62):	
Markings for the brachioplasty and lateral thoracic/back excisions are usually separate in females.	102
Figure (63):	
Markings for the Female Pattern type II upper body lift.	104
Figure (64):	
Preoperative markings (top row) and 4 months postoperative outcome (bottom row) of an female pattern type I upper body lift as part of a sir stage total body lift procedure.	
Figure (65):	
Preoperative markings (top row) and postoperative outcome of a fematype II upper body lift.	ale 107
Figure (66):	
Preoperative markings (left column) and postoperative outcome of map pattern upper body lift using the free nipple-areola technique for management of the breast.	ale 108
Figure (67):	
Preoperative markings (left box) and postoperative outcome of male upper body lift as part of a single stage total body lift procedure.	109
Figure (68):	
Descent of the lateral inframammary fold in a male (left) and female (right) patient, both belonging to Group 2.	119
	Pages
Figure (69):	
Preoperative markings for a double ellipse brachioplasty and circumvertical pattern mastopexy.	121
Figure (70):	

	Preoperative markings for a central pedicle reduction mammaplasty.	121
Figure	<i>(71)</i> :	
	Segmental resection and closure technique of the double ellipse brachioplasty procedure.	123
Figure	<i>(72)</i> :	
	The dissected flap (left) being pushed into the submammary pocket to fill the upper pole (right).	125
Figure	<i>(73)</i> :	
	Marking of the new NAC positions in preparation of the bed for the graft.	128
Figure	<i>(74)</i> :	
	Markings for male pattern upper body lift (anterior view).	130
Figure	<i>(75)</i> :	
	Markings for Male pattern upper body lift (posterior view).	130
Figure	<i>(76)</i> :	
	Lateral view of markings for female upper body lift type II, also showing lateral thoracic excess.	133
Figure	<i>(77)</i> :	
	The reverse abdominoplasty part of the upper body lift in a female patient after temporary closure of the mastopexy .	134
Figure	(78):	
	Laterally based upper abdominal flap used to augment the breast.	134
Figure	<i>(79)</i> :	
	Securing the abdominal edge to the periosteum and fascia of the chest at the level of the $6^{\rm th}$ rib.	135
		Pages
Figure	<i>(80)</i> :	
	Sex distribution of patients included in the study .	137
Figure	<i>(81)</i> :	
	Mechanism of weight loss in 26 patients .	137

Figure	<i>(91)</i> :	
-	Preoperative (left column) and postoperative (right column) views of upper body lift. A and B: anterior; C:posterior; D: lateral views.	149
Figure	<i>(90)</i> :	
		Pages
	Overall level of satisfaction after upper body contouring for 20 patients at 6 months .	147
Figure	(89):	
	Early postoperative (left) and 6 months postoperative (right) views of a female type II upper body lift showing inferior migration of the thoracic scar that resulted in the recurrence of the upper back fold.	146
Figure	(88):	
Tyure	Residual excess at the elbow (arrow) was more evident in the extended position.	145
Figure		
	Widened immature brachioplasty scars were still a problem at more than 6 months postoperative.	145
Figure	(86):	
-	Elimination of axillary/upper back fold (arrow on left box) through the thoracic excision of the brachioplasty procedure (right box).	144
Figure	<i>(85)</i> :	
- ·J.··· ·	Residual lateral thoracic excess (arrow) accentuated by bra suspension.	144
Figure	(84):	
Ü	Distribution of wound complications as a percent of a total of 26 patients who underwent upper body contouring.	142
Figure	(83):	
Ü	Classification of patients into two groups at presentation, as a percent of total number of patients.	139
Figure	<i>(82)</i> :	