

Unpleasant Scar Post Brachioplasty in Female Libyan Patients

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Abstract

Background Brachioplasty (arm lift surgery) is an expanding aesthetic procedure to correct upper arm ptosis conjointly to increasing rates of post obesity massive weight loss, and the popular rise of fitness awareness.

Aim of Study The objective of this study is to report the demographic variables in patients seeking Brachioplasty in Benghazi, Libya, in addition to the indications for Brachioplasty, the presence of comorbidities, and to determine the frequency of overall complications in patients undergoing this procedure.

Methods This was a descriptive retrospective study. Patients who underwent brachioplasty between 2014 and 2021 were identified from the database of a private clinic based in Benghazi Libya.

Results Brachioplasty was performed in fourteen female patients (100%). Mean age of the patients was 23 years. Forty three percent of patients were in the age group of 40-50 years. Two thirds of patients had lateral chest wall involvement. Constriction band was found bilaterally in 21% of patients, and unilaterally in 7% of patients. Skin laxity was found in 64% of patients, and lipodystrophy in 36% of patients.

Seventy nine percent of the patients underwent classical brachioplasty, while the remaining cases had liposuction associated brachioplasty.

The early complications reported in the postoperative period were wound dehiscence (21%), wound infection (14%), and seroma (14%), while the late postoperative complications were scar widening (71%), nerve injury (28%) and exacerbation of constriction band (7%). Revision rate of operation was 28%. In 21% of cases, reoperation was done for scar revision. While in one patient reoperation was performed because of persistent skin laxity.

Conclusions While the highest rated complication was found to be widened scars, brachioplasty technique is a safe procedure, which showed positive outcomes in terms of clinical results and patients' satisfaction. The most important factor for successful surgical outcomes was preoperative planning of the surgery.

Keywords Brachioplasty, Constriction band, skin laxity, liposuction, abdominoplasty, thigh lift, lipodystrophy.

Introduction

Brachioplasty is a procedure performed to improve the contour of the upper arm and axilla (1). It has been viewed as one of the frequent performed operations in the plastic surgery field in recent decades (2). As the practice of brachioplasty continues to rise in the plastic surgery field, a good knowledge of the anatomy, with appropriate planning, marking, and operative execution, along with knowledge of postoperative care makes this procedure producible and effective (2). As a fit arm considered desirable in terms of both beauty and health (2), patients who seek arm-lift procedures are particularly distressed because of the large segment of lax tissue extending from the upper arm, which needs surgical intervention (3). Laxity of brachial tissue occurs due to aging, loss of soft tissue elasticity, fat accumulation, physiologic and hormonal changes, and heredity (4). Moreover, massive weight loss due to diet and exercise with the progress of bariatric surgical operations (3) play a role in the laxity of arms. Subjects with stability of weight loss for more than six months were selected for the operation (5). Another challenging problem in patients with massive weight loss is an arm band deformity. It is usually present pre-operatively and should be discussed during pre-operative counselling, as its appearance can be exacerbated by surgery. Patients with higher BMI and had a large resection weight are more prone to get the arm band deformity after brachioplasty (6).

Avoiding injuries to the medial brachial cutaneous nerve (MBCN), and the medial antebrachial cutaneous nerve (MABCN) has been the subject of anatomic studies and a point of attention for brachioplasty performance (7). Placing the incisions more posteriorly on the arm will help avoid morbidity associated with injury to these nerves, while still providing an acceptable aesthetic outcome (7). The objectives of the present study were to report on the indications, the presence of comorbidities, and the prevalence of overall complications in patients undergoing Brachioplasty.

Materials and Methods

A retrospective study of medical records of all cases with brachioplasty admitted to a private clinic in Benghazi City, from 2014 till the end of 2021 was conducted. Fourteen cases were included in the study. Collected data from the medical records including personal data (age, gender), the indications for surgery, the presence of comorbidities, and complications were recorded on a special proforma (Appendix-1).

Operative Technique

Preoperative evaluation, including skin analysis and assessment of tissue flaccidity and subcutaneous fat, is the cornerstone of successful brachioplasty (4). The two initial reference points are the medial epicondyle and the apex of the axillary fossa. The expected position of the scar, in the posterior-medial position (2).

Subjects with stability of weight loss for more than six months were selected for the operation (5). All patients operated under general

anaesthesia. Patients are placed in a supine position. The arms are abducted at 90 degrees and circumferentially prepped. Each arm is addressed, and during the resection each side is rotated up to approximately 135 degrees. This manoeuvre is useful in establishing some tension for the eventual excision (2). For arms that have excess fat, suction assisted liposuction used in conjunction to brachioplasty (2). It should be ensured that the incision does not pass the elbow in order to avoid injuring the medial antebrachial cutaneous nerve innervating the forearm (5).

The closure of the arm performed to reduce tension on the scar and also to alleviate the need for drains. The approximation of the superficial fascia system (SFS) of the arm has long been considered as important (8). While scar widening and thickening is a significant sequelae of brachioplasty, meticulous low-tension closure is paramount to and a prerequisite of a good outcome. The strength of SFS closure and the use of long-absorbing sutures are important variables in the quest for adequate results (2). Furthermore improvement of scar occurred after surgeons recognized the importance of secure tightening of the superficial fascia system, as emphasized by Lockwood (8). Suturing of the superficial fascia system results in a smoother contour, tighter closure, and a finer scar (7). From classical descriptions (9, 10) to some of the modern evolving methods, the goal has been to emphasize an appropriate contour, well positioned scars, and management of the excess associated not only to the arm but also the chest wall (2).

Postoperative Care

The immediate postoperative care includes placing SteriStrips on the skin and compressing with a bolero garment. Patients are instructed not to bend at the elbow for the first 24 hours and are highly encouraged not to be engaged in any strenuous activity for the first 2 weeks after the operation (2). For the first 2 weeks, the scar is covered with Steri-Strips, which is then replaced by Micropore brown tape for another week. At this point, a rest period from any coverage will determine the integrity of the scar and lack of any wound separation or eschar formation. Once this is determined, silicon strips are placed on the incision and compressed. It is recommended that the patient continues with the silicone regimen for at least 4 months after the procedure (2, 4). Stretching the arm upwards into a full range and manual massage are also important instructions that are given to patients postoperatively (2). The scar of the brachioplasty is one that is prone to widening and hypertrophic transformation. The exposed area of the inner arm cannot be easily hidden and can be a source of significant dissatisfaction for the patient and the surgeon. It is imperative to warn the patient of the reality of an unsightly scar (2). The brachioplasty scar does not follow some of the usual patterns of scars in the face and body that start to mature and fade at 3 to 4 months. Patients are advised that this scar has a timeline that in the authors' experience can run a year or so before evolving and maturing into a stable scar (2). Significant restraint against the use of steroid injections is advised as the scars can further widen and a subcutaneous thinning can occur under the scar. Only in severe cases are the scars revised with no guarantee that similar deformity will not recur (2).

Statistical Analysis

Collected data were analyzed statistically using the Social Package of Scientific Statistics (SPSS version 11.5). Analysis of data was applied as descriptive analysis; percentages of different variables, mean and standard deviation of quantitative variables were presented in the form of tabular and graphical presentation.

Results

Brachioplasty was performed in fourteen (100%) female patients at a private clinic in Benghazi city, during the period from 2014 to the end of 2021. The youngest age was 23 years and the oldest was 65 years. Forty-three percent of patients were in the age group of 40-50 years (Table 1). The mean of age was 41years. Average length of follow-up was 1 year post-operative. According to Body Mass Index (BMI), 14% of patients were overweight, 43% were obese and 43% were extremely obese (Table 2). Two thirds of patients had lateral chest wall involvement (Figure 1). Constriction band was found bilaterally in 21% of patients, while in 7% of patients was unilaterally (Table 3). Skin laxity was found in 64% of patients, while lipodystrophy in 36% of patients (Figure 2). In 78% of patients with skin laxity, the main cause of weight loss was due to diet and exercise while in 22% of patients was due to gastric bypass surgery (Figure 3). Seventy-Nine percent of patients underwent classical brachioplasty, while the remaining cases had liposuction associated brachioplasty (Figure 4). Figure 5 showed the early complications that reported in the postoperative period. They were wound dehiscence (21%), wound infection (14%), and seroma (fluid accumulation) (14%), while the late postoperative complications were scar widening (71%), nerve injury (28%) and exacerbation of constriction band (7%). Revision rate of operation (Figure 7) was 28%. In 21% of cases, reoperation was done for scar revision. While in 7% of patients reoperated due to persistent skin laxity. Pictures from case 1 to 5 showed the pre and postoperative brachioplasty photos.

Table 1. Distribution of the ages of brachioplasty cases

AGE GROUP	FREQUENCY
20-30	3 (21%)
30-40	3 (21%)
40-50	6 (43%)
50-60	1 (7%)
60-70	1 (7%)
Total	14 (100%)

Table 2. Body Mass Index (BMI) of brachioplasty cases.

BMI	FREQUENCY
Overweight (25-29.9)	2 (14%)
Obese (30-34.9)	6 (43%)
Extreme obese (35<)	6 (43%)

Table 3. Presence of constriction band of arm.

CONSTRICION BAND	UNILATERAL	BILATERAL
PRESENT	1 (7%)	3 (21%)
ABSENT	10 (71%)	

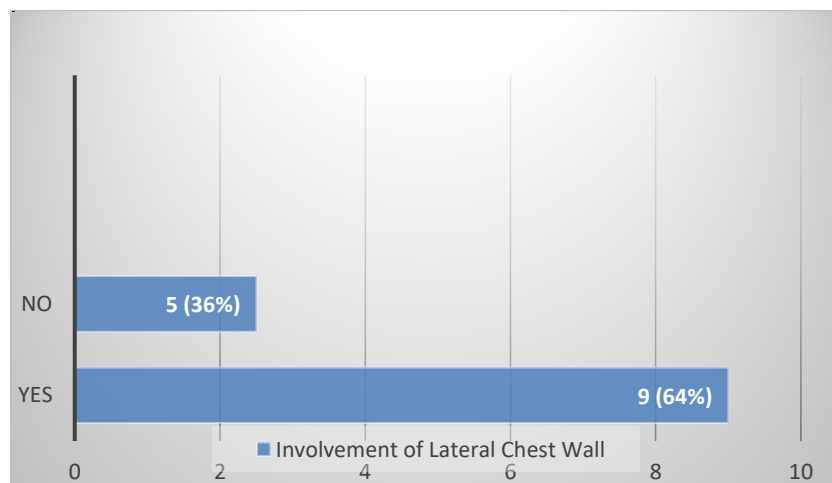


Figure 1. Involvement of lateral chest wall.

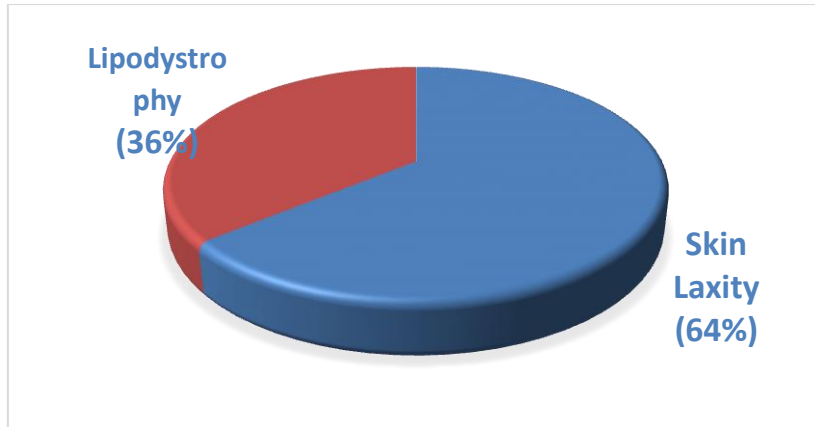


Figure 2. Indications of brachioplasty

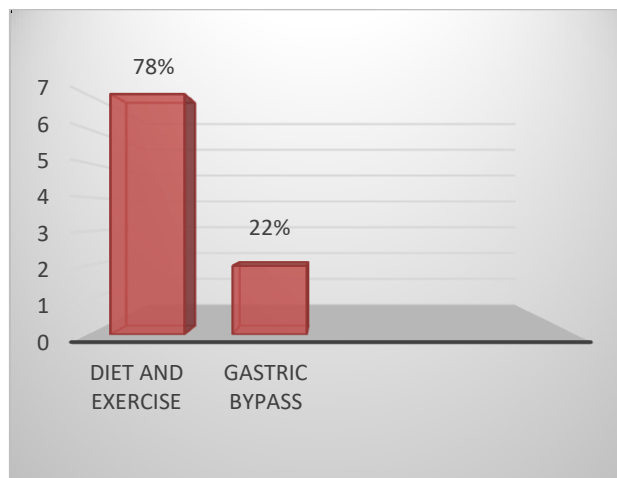


Figure 3. Causes of weight loss.

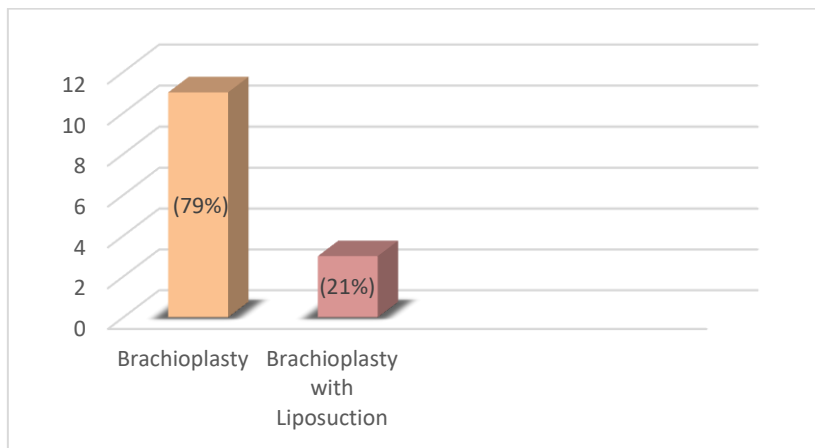


Figure 4. Type of the operation: isolated brachioplasty or combined with liposuction.

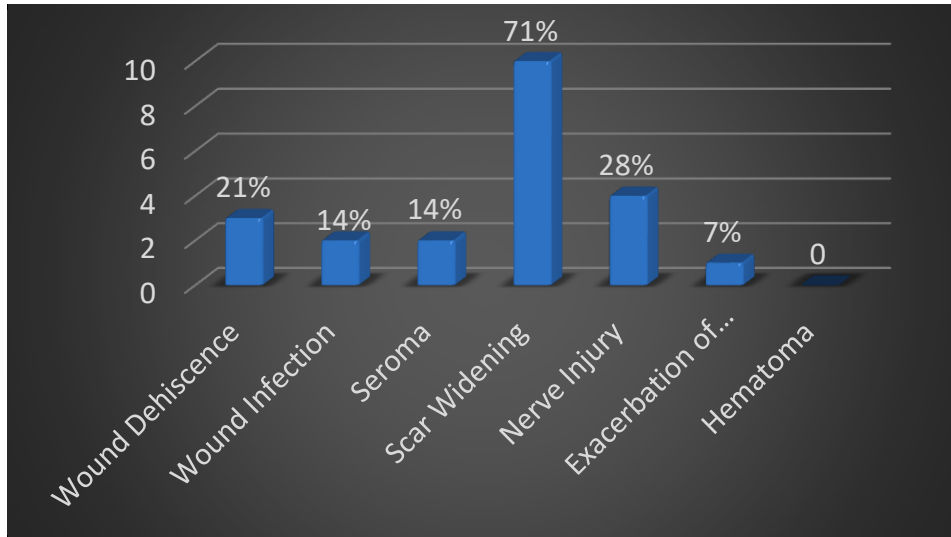


Figure 5. Complications of brachioplasty.

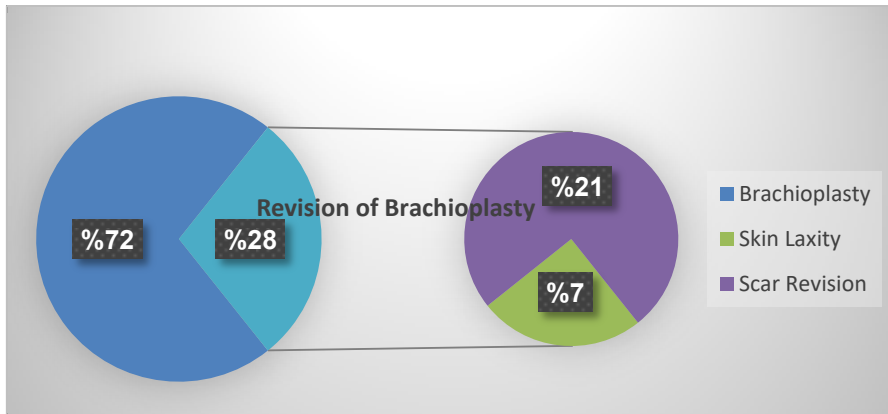


Figure 6. Revision Rate of brachioplasty.



Photo 1.a. This is a 30 year old lady with skin laxity.

Photo 1.b. Six months post-operation with an accepted scar.

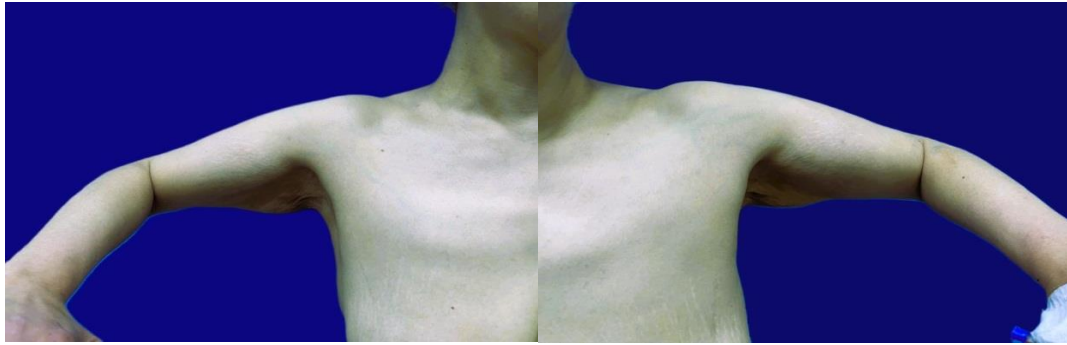


Photo 2.a. A 35-year-old lady with skin laxity.

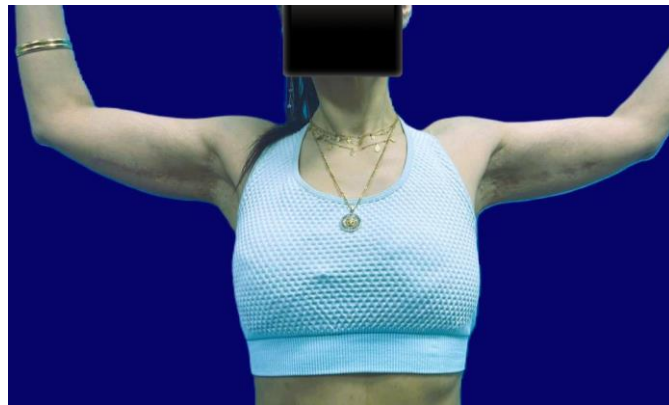


Photo 2.b. A wide scar after 6 months post-operation.



Photo 3. a. A 40-year-old lady with skin laxity and lipodystrophy. Photo 3.b. Widening of scar noticed after 6 months post-operation.

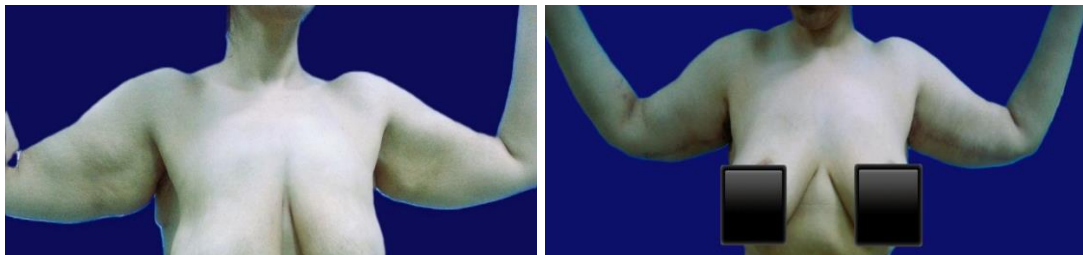


Photo 4.a. A 44-year-old lady with skin laxity.

Photo 4.b. Accepted scar and contouring after 6 months of operation.



Photo 5. A 46-year old-lady with accepted scar after 2 months of operation.

Discussion

Brachioplasty was first introduced in 1954 by Correa-Iturraspe and Fernandez (11). Over years, the procedure has undergone a series of modifications to improve the appearance of the scar and the resulting contour of the arm (12). In the United States (13), 15,457 brachioplasty surgeries were performed during 2012, a rapid increase compared with the 338 surgeries in 2000. In Benghazi as a small population this procedure is still in progress. Through aging process of upper arm, the loss of support structures in addition to increased inferior curve of arms those resulted in the obvious ptosis or “bat wing” appearance of the upper arms (14). In our study two thirds of patients had lateral chest wall involvement in addition to upper arm ptosis. There is no definitive best method of brachioplasty (3). The multiplicity of the performed techniques reveal lack of consensus (3). Therefore, the surgical approach will depend on the extent and the degree of arm lipodystrophy, the extent of skin laxity, and the amount of excess fat deposits such that there is no universal technique (3). In our study a classical brachioplasty applied in 70% of patients, while the remaining cases had liposuction associated brachioplasty. With the awareness of a healthy life style and weight control, many patients got skin laxity as a result of weight loss. In this study isolated brachioplasty performed in 64% of patients, while 29% of patients had abdominoplasty in association to brachioplasty. In 7% of cases, thigh lift performed in association to brachioplasty. Scar location is a strongly debated point. Some surgeons prefer to place the suture line posterior to the medial bicipital groove to

hide the scar on the frontal view (3). Other surgeons prefer to place it in the bicipital groove (3). Recently, it has been shown that the medially based straight scar is the most aesthetically acceptable option when performing a brachioplasty (15). After brachioplasty, complications include small wound separations, dehiscence, seroma, lymphocele/lymphedema, and inability to close the arm, bad scarring, infection, bleeding, nerve compression/compartment syndrome, neuromas, and sensory loss (3). A recent review showed that brachioplasty is associated with significant complication from 25% to 40% and revision rates from 3% to 25% (16, 17, 18). The most frequent complication in the present study was scar widening which found in 71% of cases. The high frequency of this complication in the present study and other studies, it was neither due to poor pre-surgical planning by the physician nor the surgical technique used, but depends on the extent of deformity and personal skin regenerative capacity of each patient (3). Although brachioplasty scar was the main issue for revision in 21% of the patients in the present study. While in one patient, re-operation was performed due to persistent skin laxity.

Conclusions

Although a widened scar was the highest rated complication, Brachioplasty was a safe procedure and showed positive outcomes in terms of patient's satisfaction and clinical results. Close follow up of patients over a one year period post-operatively with anti-scar treatment to minimize the unpleasant widening scar formation is recommended.

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